

Perceptions of value: the case of the Stellenbosch University Institutional Repository

Mini-dissertation by

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DECLARATION

I, Maria Cornelia Seyffert-Wirth, declare that this mini-dissertation, which I hereby submit for the degree Master of Information Technology (B) in the Faculty of Engineering, the Built Environment and Information Technology at the University of Pretoria is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution. I further declare that all sources used in this study have been acknowledged and appropriately referenced.



MC SEYFFERT-WIRTH

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ABSTRACT

Stellenbosch University in South Africa has an established institutional repository, managed by the Library and Information Service, as well as an institutional policy on the self-archiving of research output, curated by the Library and Information Service. The main objectives of this study were to examine to what extent Stellenbosch University researchers are aware of the institutional repository and the university's self-archiving policy, what their attitude towards the institutional repository and self-archiving is and how they use the institutional repository and perceive the benefits of self-archiving. The purpose was to determine whether these initiatives are meaningful to researchers.

The research was conducted using a qualitative approach and a case study design. The main data collection tool was an online questionnaire with both closed and open-ended questions. The target population was Stellenbosch University researchers. Purposive sampling was used when only identified National Research Foundation C-rated and Y-rated researchers were given access to the online questionnaire. The sample represented established researchers or promising young researchers.

Results demonstrated that the selected group of Stellenbosch University researchers have a high level of awareness of the institutional repository and recognise the value and benefits thereof. Results have also shown that these researchers have a positive attitude towards self-archiving and realise the benefits thereof. The researchers do, however, still experience barriers with regards to complying with the policy. Recommendations from the analysis of results include ways to further raise awareness of the self-archiving policy and remove barriers to self-archiving experienced by Stellenbosch University researchers.

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Chapter 1: Introduction

1.1 Introduction

Developments in information technology and the internet have changed the face of scholarly communication and paved the way for the evolution of the Open Access movement. Open access (OA) literature can be defined as “digital, online, free of charge and free of most copyright and licensing restrictions” (Suber, 2004). There are two main avenues providing open access to research output, namely publishing in open access journals or making research output available in open access repositories (Suber, 2004). According to Bosc and Harnad (2005:95) academic libraries are well suited to provide both these open access strategies and especially institutional repositories (IRs) in academic libraries have grown significantly over the last decade, becoming one of the most rapidly growing elements in the field of digital libraries (Jantz and Wilson, 2008:187), and “have come to represent an important part of the way in which scholarly research can be made more visible and accessible for many” (Marsh, 2015:164).

Stellenbosch University Library and Information Service (SULIS), the main library service of Stellenbosch University in South Africa, has also over the years embraced developments in information technology and open access in order to make institutional research output globally visible and accessible.

At Stellenbosch University Library and Information Service several open access initiatives, as part of the bigger open science landscape, have been introduced over the last decade. These include an institutional repository (SUNScholar) established in 2008, an open access electronic journal hosting platform (SUNJournals) established in 2011 and an open access digital heritage repository established in 2013. Stellenbosch University Library and Information Service is currently also investigating supporting research data management and the establishment of an open data repository. SUNScholar, the institutional repository, is employed as a scholarly initiative to increase global visibility of research output at the institution and preserve this output. This initiative corresponds to one of the main avenues of providing open access to research output as described by Suber (2004).

Stellenbosch University Library and Information Service, as many other research universities (Jantz and Wilson, 2008:187), has invested significant human and technical resources in running and building an institutional repository, and is being increasingly implored by senior institutional management and the Stellenbosch University academic community to demonstrate the perceived value and actual use of

the institutional repository. Confirmation of the perceived value is also required in order to encourage Stellenbosch University researchers to deposit copies of their research output in the institutional repository as required by a formal institutional policy on the self-archiving of research output, accepted in 2014.

Finding out to what extent Stellenbosch University researchers are aware of the value and benefits of the institutional repository and the university's self-archiving policy is an important step in being able to indicate whether the library's investment in these initiatives are meaningful.

According to Jantz and Wilson (2008:187) "studies have shown that actual faculty participation in, and awareness of, the development of IR is extremely low" and Cullen and Chawner (2011:462) also suggest that despite the proven benefits of institutional repositories for researchers and institutions, "academic communities have been slow to respond" to drives encouraging the deposit of research output in institutional repositories.

Determining how Stellenbosch University researchers perceive and use the institutional repository will be valuable in indicating the value and return on investment of the repository and will be able to inform future decisions on managing and promoting the repository. It may also be useful to inform the development of tools to encourage Stellenbosch University researchers to comply with the institutional policy on the self-archiving of research output in future.

1.2 Objective

The main objective of the study is to determine Stellenbosch University researchers' attitude towards, awareness and usage of the institutional repository.

The use of articles and conference papers uploaded to the institutional repository are currently only being measured by looking at usage statistics provided by the DSpace repository software and the Piwik open source analytics platform. There is currently no means to determine Stellenbosch University researchers' attitude towards the institutional repository or how they use it. Self-archiving statistics are generally low, suggesting that researchers may not be aware of the institutional policy on self-archiving of research output or the benefits thereof.

The objectives of this study are thus to examine to what extent Stellenbosch University researchers are aware of the institutional repository and the university's self-archiving policy, what their attitude towards the institutional repository and self-archiving is and is and how they use the institutional repository and perceive the benefits of self-archiving.

1.3 Central research question and sub-questions

1.3.1 Research question

The main research question of the study is: to what extent are researchers at Stellenbosch University aware of the value and benefits of the Institutional Repository and the university's self- archiving policy?

1.3.2 Formulation of sub-questions

- What is the documented value of a self-archiving policy or mandate for building an institutional repository?
- What are the documented benefits of preserving and making research output available in institutional repositories?
- What is the level of awareness that Stellenbosch University researchers have of the university's self-archiving policy and its institutional repository?
- What is the general attitude towards the university's self-archiving policy and depositing research output in an institutional repository?
- What value do Stellenbosch University researchers see in self-archiving?
- What correlation is there between Stellenbosch University researchers' perceived and the documented benefits of using the repository?

1.4 Scope and limitations

The study will focus on one scholarly open access initiative at Stellenbosch University Library and Information Service, namely the SUNScholar institutional repository and not include any other open access initiatives at the library.

The study will further focus on a Stellenbosch University researchers representing all ten faculties at the university. NRF C-rated and Y-rated researchers will be selected to represent the population as these researchers are either established in their field or promising young researchers.

1.5 Rationale for the study

Institutional repositories in academic libraries have grown significantly over the last decade. The rationale for the study is to determine how the institutional repository at Stellenbosch University Library and Information Service is perceived and used by Stellenbosch University researchers.

The study could highlight the importance of open access in general to the wider academic community and specifically to Stellenbosch University and Stellenbosch University researchers who are encouraged to make use of and support the library's open access initiatives.

The study could help develop ways of improving the usage and impact of the institutional repository which could be used as a reporting tool to senior university management and individual faculties or departments, which could help further the library's efforts of open access advocacy and the promotion of self-archiving. For the library itself, the study could show a possible return on investment with regards to the institutional repository, justifying the resources needed to manage these initiatives. The study could also help identify barriers researchers experience with regards to complying with the self-archiving policy.

1.6 Overview of the literature

There is a significant body of literature covering the benefits of open access in general and also highlighting the heightened visibility of open access research output, including the work of Suber (2004, 2007), Laakso et al (2011) and Harnad (2015a). According to Sitek and Bertelmann (2014:140) "Open Access today is an accepted and applauded scientific publication strategy". Lewis (2012:501-502) stresses the advantage of open access to authors, who can distribute their work widely, and readers, who have access to a "wealth of human discovery and learning".

The value of institutional repositories have also been demonstrated by a number of case studies and other research (Chan, 2004, Ezema, I.J. 2011, Ferreras-Fernández, Merlo-Vega and García-Peñalvo, 2013:363, Marsh, 2015 and Lee et al, 2015:1). According to Marsh (2015:164) "[i]nstitutional repositories have come to represent an important part of the way in which scholarly research can be made more visible and accessible for many".

There are, however, studies showing that researchers are not always "likely to perceive that benefits of an institutional repository" (Cullen and Chawner, 2011:462). Many studies have been conducted regarding researchers' perceptions and awareness of institutional repositories (Cullen and Chawner,

2011, Fortier and Laws, 2014:12 and Yang and Li, 2015), as well as their attitudes towards institutional repositories (Manjunatha and Thandavamoorthy, 2011 and Yang and Li, 2015).

Self-archiving behaviour of researchers in various disciplines and institutions have also been studied in the literature (Swan and Brown, 2005, Kim, 2010:1909, Björk, Laakso, Welling and Paetau, 2014 and Chilimo, 2016) and many studies also cover possible barriers to and motivation for self-archiving among researchers (Kim, 2010 and Cullen and Chawner, 2011).

Regarding self-archiving policies or mandates, ROARMAP (Registry of Open Access Repository Mandates and Policies) currently reports a total of 585 self-archiving policies in existence in universities and research institutions worldwide (ROARMAP, [2016]) and Xia et al (2012) recently presented a review of open access self-archiving mandate policies.

1.7 Research methodology

Two broad research paradigms can be defined in research methodology namely qualitative and quantitative (Alsuutari, Bickman and Brannen, 2009:14 and Kumar, 2011:103), although mixed method research is also prevalent (Alsuutari, Bickman and Brannen, 2009:15). According to Walliman (2009:270) a “strong distinction is generally made between quantitative and qualitative research” with quantitative “hard” analysis traditionally being associated with natural science while qualitative research takes “more account of the ‘soft’, personal data” (Walliman, 2009:271). Generally, quantitative methods are “based on numerical data”, while qualitative methods “involve data that are not numerical” and a mixed methods approach where multiple methods are used is widely accepted (Jensen and Laurie, 2016:11-12).

The study used a qualitative research methodology. Qualitative research often “aims to establish a new understanding of a previously under-researched topic, develop a preliminary theory or model and/or discover processes in human interactions” (Jensen and Laurie, 2016:11). Strengths of a qualitative methods include that they are useful for understanding “ideas, perspectives and phenomena” and “can enable deeper understanding of individuals’ contexts, perspectives and experiences” (Jensen and Laurie, 2016:12).

The research was designed as a case study, which is “dominantly a qualitative study design” (Kumar, 2011:126). A case could be “an individual, a group, a community, an instance, an episode, an event, a subgroup of a population, a town or a city” (Kumar, 2011:126) and can also be defined as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real life context” (Yin, 2009:18). The case study was limited to Stellenbosch University researchers.

Data collection methods for the study focused on primary sources of data and the main data collection tools was a questionnaire (Kumar, 2011:139), and the use of existing knowledge from the literature was employed (Jensen and Laurie, 2016:90). Data regarding Stellenbosch University researchers were collected. Known researchers from the total researcher population were purposefully selected to ensure that researchers “understand the problem and the research question” (Creswell, 2014:189). Purposive sampling is a type of sampling where participants are selected according to the researcher’s judgement” (Babbie, 2016:187).

1.8 Value of the study

As indicated in the literature overview, various studies on researchers’ perceptions of institutional repositories and open access are still actively undertaken. In terms of the broader scholarly communication landscape and the continuous drive for open access advocacy, the study has significant value in understanding how researchers view and use institutional repositories.

The study also has value for the specific institution, Stellenbosch University, in providing insight into researchers’ perceptions of the institutional repository and their attitude towards self-archiving and could lead to the development of new ways to encourage self-archiving of research output and to advocate the benefits of the repository.

1.9 Clarification of key terms

Scholarly communication refers to the way in which researchers communicate their research and results and includes a range of activities from production to dissemination and diffusion of research. The Association of Research Libraries defines scholarly communication as “the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for further use”. (ARL, no date).

Research output can be defined as the products of research, usually from a specific institution and can include books, chapters in books, articles and conference proceedings.

Open Access “in the context of scholarly publishing, is a term widely used to refer to unrestricted online access to articles published in scholarly journals” (Laakso et al, 2011:1) and “implies free access to scientific knowledge for everybody” (Sitek and Bertelmann, 2014:140). There are two so-called routes of open access namely gold and green. Gold open access refers to when a journal makes all articles immediately free to all readers, whereas green open access journals give authors the opportunity to self-archive a copy of their research in an accredited institutional or subject repository.

Self-archiving is the process by which authors archive “copies of their articles in open access archives or repositories” (Swan and Brown, 2005:1). These copies are peer-reviewed versions of their research output and are usually in the form of post-prints or pre-prints.

An institutional repository can be described as a digital archive for access to and preservation of an institution’s research output. Marsh (2015:164) defines an institutional repository as “a mechanism for capturing, archiving and managing the collective digital research outputs of the institution”.

1.10 Division of chapters

Chapter 1 introduces the research question and sub-questions of the study and gives an introductory background to the study. Chapter 2 presents an in-depth literature review. Chapter 3 describes the methodology employed in the study. Chapter 4 presents and analyses the data collected and results derived. Chapter 5 provides recommendations based on the interpretation of results in chapter 4, as well as a conclusion.

1.11 Conclusion

The study attempts to gain an understanding of Stellenbosch University researchers’ use of and attitude towards the institutional repository and self-archiving. This chapter provides the research questions that guided the research, an indication of the limitations of the research, as well as how the research was approached and which methodologies were utilised. A brief literature overview was provided as well as an indication of the value of the study. Working definitions of key terms, timelines and a division of chapters were also provided.

Chapter 2: Literature review

2.1. Introduction

This chapter provides an in-depth literature review, providing background to the development of institutional repositories and self-archiving policies within the context scholarly communication in general and open access specifically. The documented value and benefits of preserving and making research output available in institutional repositories is also discussed as well as the documented value and benefits of self-archiving policies for developing institutional repositories. Findings of other studies regarding attitudes towards and awareness of institutional repositories and self-archiving policies and mandates are also reported on.

2.2 Scholarly communication

Scholarly communication is defined by the Association of College & Research Libraries as “the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use” (ACRL, 2016). Scholarly communication has changed significantly over the last 20 years, largely due to advances in technology and the inception of the internet, which made it possible to distribute academic journals digitally (Cullen and Chawner, 2011:460 and Solomon, 2013:23). According to Cullen and Chawner (2011:460) academic libraries have always played an important role in scholarly communication and over the last ten years libraries and universities have been reacting to profound changes in scholarly communication and trying to influence the development thereof (Malenfant, 2015:392). Brantley, Bruns and Duffin (2015:428) state that academic libraries are “more integrated in the scholarly life of their faculties than ever before”, but despite the central role academic libraries play in scholarly communication at institutions regarding the “creation, production, description, dissemination, and discovery of knowledge”, the visibility of the library’s role in scholarly communication is severely diminished.

In the Southern African context of emerging economies, scholarly communication is affected by governments expecting “their universities to play a key role in national development through the production and dissemination of knowledge” (Trotter et al, 2014:68). In South Africa universities have “relative autonomy, engaging in research activities of their choosing” and the country produces “a solid level of research [...] that has developmental applicability” (Trotter et al, 2014:70). Van Wyk and Du Toit (2016:114), however, argue that there remains inadequate understanding and support of digital scholarship at governance level in Southern Africa, which is necessary to enhance access to and improve preservation of the research produced. Czerniewicz and Goodier (2014:8) argue that scholars

in South Africa need to “understand the shape of the shifting [scholarly communication] landscape and engage with the debates to ensure that their own interests are being addressed”.

Open access has become an important and integral factor in scholarly communication today and is described as the “modern update” for scholarly communication which uses the internet to accelerate research (SPARC, 2017). Open access in relation to scholarly communication is discussed in the next section.

2.2.1 Open access in scholarly communication

The advent of open access publishing has had a significant impact on scholarly communication as it means that scholarly journal content could now be made freely available and that publication costs could be covered by alternative means and not just through subscription fees (Solomon, 2013:23). Open access is defined as “the free, immediate, online availability of research articles coupled with the rights to use these articles fully in the digital environment” (SPARC, 2017) and open access **literature** is defined by Suber (2012:4) as “digital, online, free of charge, and free of most copyright and licensing restrictions”. Open access has been defined and highlighted by three significant public statements early in this century, namely the Budapest Open Access Initiative in 2002, the Bethesda Statement on Open Access Publishing in 2003 and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities in 2003 (Bailey, 2006 and Suber, 2012:7). Other statements of support, such as the IFLA Statement on Open Access (2003) and the Wellcome Trust and Public Library of Science support for open access, have also increased open access consciousness (Harnad et al, 2008:38).

There are two modes for delivery of open access, namely ‘gold’ open access and ‘green’ open access. Essentially, gold refers to open access delivered by journals, while green refers to open access delivered by repositories (Suber, 2012:53 and Björk, Laakso, Welling, and Paetau, 2014:237). There are a few important differences between these two modes of delivery, for example that gold open access literature is immediately available, while green could be delayed or embargoed, gold provides access to published versions of literature, while green may be restricted to a particular version of an author’s manuscript (Suber, 2012:61-62), with gold open access the complete journal is available at one location on the web, while with green, a selection of articles may found spread across different locations on the web (Björk, Laakso, Welling, and Paetau, 2014:238). It is also important to note the difference between “libre” and “gratis” open access, where the former removes price barriers as well as some permission or licensing barriers to the literature, while the latter only removes price barriers (Suber, 2012:65 and Pinfield et al, 2014:2405). Gold open access is mostly “libre”, while green open access is often “gratis”, thus free to read (Björk, Laakso, Welling, and Paetau, 2014:238).

For the purposes of this study, green open access will be the focus as this mode of delivery is facilitated by repositories. Green open access may be facilitated by institutional repositories as well as subject repositories of publishers and self-archiving plays a significant role in green open access, but is not necessarily a synonym for green open access (Björk, Laakso, Welling, and Paetau, 2014:238).

The benefits of open access are well documented and argued in the literature. These benefits range from the “greater good” benefits such as the “investment in research to advance human knowledge and ultimately improve lives”, research breakthroughs “from unexpected places” and benefits to the “research enterprise itself” to benefits to researchers themselves “having the widest possible audience” (SPARC, 2017). According to Czerniewicz and Goodier (2014:8) “engaging with open access is an important way of taking control of the fruits of academic labour” and is important for both individual scholars and universities serving mandates of “knowledge creation and dissemination”, and for the wider community which “needs access to the latest research to grow, benefit from and participate in a global body of knowledge”.

Open access also addresses the “access-denial” problem where researchers at institutions are denied access to articles published in journals, recovering increasing publication costs by institutional subscriptions, because their institutions cannot afford these subscriptions (Harnad, 2015b:134). As a consequence “researchers who can use, apply and build on it to the benefit of the public that funded it” are denied access to research output (Harnad, 2015b:134).

Several studies claim that open access publishing leads to greater research impact through visibility and citation of research publications (Antelman, 2004:379, Harnad et al, 2008:37, Swan, 2010:2, Cullen, and Chawner, 2011:469 and Björk and Solomon, 2012:1). According to Davis et al (2008:1) open access articles are cited more because they are read more, while Ale Ebrahim et al (2014:120) believe that increased visibility “can ultimately be translated to increased opportunity for attracting citations”. Recent results by SPARC Europe’s OpCit project show that out of a total number of 70 studies done on the subject of the citation advantage of open access until 2015, 46 found citation advantage for open access articles, while 17 studies found no citation advantage (SPARC Europe, 2016). Swan (2010:17) found that 27 out of 31 studies found a positive open access citation advantage, but that the percentage of advantage differed significantly between disciplines. Czerniewicz and Goodier (2014:2) report that the “influence of free access on citations has been shown to be twice as large for the poorer countries in the developing world compared to richer countries” explaining that the open access citation advantage has a profound effect on developing countries.

There are, however, also arguments against the inevitable open access citation advantage as Niyazov et al (2016:2) report that studies have presented “evidence against open access citation advantage, arguing that although there is a correlation between open access and more citations, open access does not cause more citations”.

The benefits of open access delivered through institutional repositories are summarised by Cullen and Chawner (2011:461) as “a more effective means of disseminating research and that it brings benefits to the researcher, to their institution, and to their individual discipline”, providing enhanced exposure leading to greater use and citations. Other benefits for researchers include “stewardship and the preservation of their publications in digital form, which frees them from the need to maintain this content on a personal computer or website” (Cullen and Chawner, 2011:461). The development of institutional repositories for delivering open access in the context of scholarly communication is discussed in the following section.

2.2.2 Institutional repositories in the context of scholarly communication

The development of institutional repositories by universities and academic libraries, as part of the open access movement, has been an important response to changes in scholarly communication (Cullen and Chawner, 2011:460) and “have come to represent an important part of the way in which scholarly research can be made more visible and accessible for many” (Marsh, 2015:164). Pinfield et al (2014:2405) define a repository “as a set of systems and services which facilitates the ingest, storage, management, retrieval, display, and reuse of digital objects”, while an institutional or university-based repository is defined by Marsh (2015:164) as a “mechanism for capturing, archiving and managing the collective digital research outputs of the institution”. Content of institutional repositories vary, but generally theses and dissertations, research articles, conference papers and book chapters are included, although technical reports, datasets and teaching material may also be included (Björk, Laakso, Welling and Paetau, 2014:239 and Marsh, 2015:165), showcasing the research and intellectual output of the institution.

The numbers of institutional repositories worldwide have shown rapid growth over the last decade (Pinfield et al, 2014:2405, Marsh, 2015:164 and Stevenson and Zhang, 2015:1492). Reasons for this growth are described by Stevenson and Zhang (2015:1492) as mainly due to “an increase in digital information, a growing awareness of open source publishing, and improvements to software”. Cullen and Chawner (2011:462) report that the concept of the institutional repository has always been attractive to librarians and university administrators and that the swift uptake of repositories “was

reinforced by a literature which highlighted the benefits to institutions and individual researchers, focusing primarily on exposure, and stewardship”.

According to the Registry of Open Access Repositories (ROAR) there are currently 4364 open access repositories registered globally with 2970 of these registered as institutional repositories (ROAR, [2017]). The Directory of Open Access Repositories (OpenDOAR) reports a current total of 3289 repositories worldwide with 2805 being institutional repositories, in contrast to only 1009 repositories listed in 2007, showing impressive growth during the past decade (OpenDOAR, 2017a). According to OpenDOAR (2017a) 4.5 % of the world’s repositories are hosted in Africa, with South Africa hosting 29 institutional repositories (OpenDOAR, 2017b), representing approximately 20% of repositories in Africa.

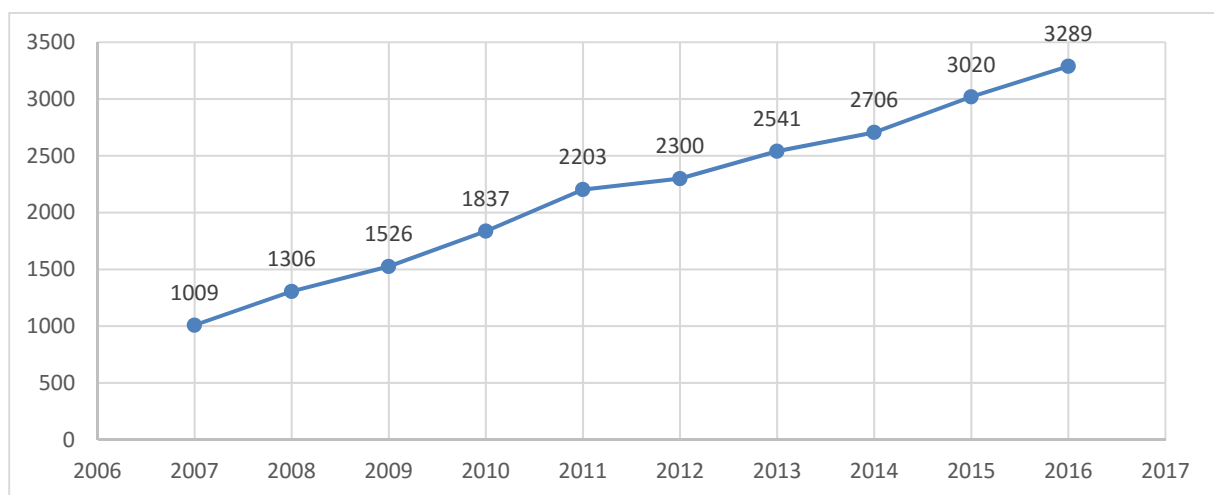


Figure 1: Global institutional repository growth in the last ten years

Source: OpenDOAR, (2017a)

Several means of populating institutional repositories exist and self-archiving policies and mandates as a means of populating and developing institutional repositories are discussed in the next section.

2.2.3 Self-archiving policies and mandates

Self-archiving, as a means of achieving green open access, occurs when institutions require that all research funded by the institution and research conducted at the institution be deposited in an institutional repository, usually in the form of a peer-reviewed final draft (Harnad, 2015b:136). Many institutions implement self-archiving policies or mandates and the importance of these policies for promoting open access scholarly communication has been highlighted in the literature since the early 2000s (Xia et al, 2012:86), although Betz and Hall (2015:43) point out that for many institutional repository managers there are still “no enforceable mandates in place”. It is important to note that

self-archiving policies take on different forms and are not always put in place by institutions, but also by funders or programmes (Xia et al, 2012:86). For the purposes of this study the focus, however, is on institutional self-archiving policies.

The majority of subscription journals and publishers do allow authors to deposit the final version of their accepted manuscripts to an institutional repository, either immediately upon publication or after an embargo period of six to twelve months or longer (Solomon, 2013: 27 and Harnad, 2015b:134). According to Jantz and Wilson (2008:193) and Xia et al (2012:85) mandatory self-archiving is progressively being adopted, although diverse opinions regarding the effects of policies and mandates exist (Xia et al, 2012:85). The Registry of Open Access Repository Mandates and Policies (ROARMAP) currently reports a total of 618 registered institutional mandates globally, showing steady growth in the last decade with only 115 policies registered in 2007 (ROARMAP, [2017]). ROARMAP reports that only seven institutions in South Africa have mandates or policies in place (ROARMAP, [2017]).

Xia et al (2012:100) describe the implementation of a self-archiving policy as “a vital step toward enhancing scholars’ awareness of and participation in open access, building a sizeable repository and adjusting academic systems to this type of innovative scholarly communications” and report that although many policies have had a positive impact on growing repository content and developing repositories, some policies have resulted only in slight or no visible impact on repository growth. The next section discusses the value and benefits of institutional repositories.

2.3 Value and benefits of institutional repositories

One of the first benefits of institutional repositories referred to in the literature is that their existence can potentially change scholarly communication practices for the better. As early as 2003 Lynch (2003:1) commented that “the development of institutional repositories emerged as a new strategy that allows universities to apply serious, systematic leverage to accelerate changes taking place in scholarship and scholarly communication”. Cullen and Chawner (2011:469) argue that institutional repositories continually compel publishers to allow more free online access to their products. Marsh (2015:164) reports that the potential of institutional repositories to change scholarly communication practices has been realised early on and various authors point to the institutional repository as having the ability to respond to crises in scholarly communication, largely referring to the financial burden of accessing research output (Prosser, 2003:167, Harnad et al, 2008:37 and Gibbons, 2009:13), but also referring to the importance of authors retaining control over their copyright (Westell, 2006:218).

A second benefit of institutional repositories, according to Cullen and Chawner (2011:469) is making the “valuable research content of PhD and Masters theses far more widely available”. According to Ezema and Ugwu (2013:493) “theses and dissertations occupy a critical space in the research literature” and are thus important to access and preserve. Theses and dissertations are generally included as content in institutional repositories (Björk, Laakso, Welling and Paetau, 2014:239, Marsh, 2015:165 and Thompson, Akeriwe and Aikins, 2016:328). Several case studies have been done regarding the impact of having theses and dissertations available in institutional repositories and findings show that open access theses deposited in repositories “have more citations and impact” than their non-open access counterparts (Ferrerias-Fernández, Merlo-Vega, and García-Peñalvo, 2013:357) and that the availability of theses and dissertations on institutional repositories can enhance scholarly communication and promote the visibility of universities (Ezema and Ugwu, 2013:493).

Thirdly, institutional repositories have value in providing access to other institutional research output, such as research articles and essentially “giving back research findings to the community that funded it” (Cullen and Chawner, 2011:469). Institutional repositories can share and provide access to scholarly information to a wide audience (Ale-Ebrahim et al, 2014:121 and Stevenson and Zhang, 2015:1521) including those who do not have access to the original journals (Kennan, 2011:303) and can “increase the availability of some published journal works” (Trotter et al, 2014:66). Search engines such as Google and Google Scholar play an important role in exposing research output on institutional repositories and providing additional visibility to it (Organ, 2006, Jain, Bentley and Oladiran, 2009:4, Kennan, 2011:303 and Lee et al, 2015:1).

The benefits of institutional repositories for individual researchers are also widely documented and Harnad (2008:37) believes that self-archiving in a researcher’s own institutional repository shows the greatest potential for open access to the individual’s research output, which could lead to higher citation levels. Ale-Ebrahim et al (2014:121) also believe that the visibility of articles in an institutional repository increases the chance for a researcher’s output to be used by other scholars and also results in increased citations, articles being cited sooner and citations continuing at a high rate for a longer time period. According to Jain, Bentley and Oladiran (2009:4) an institutional repository enhances dissemination and impact of an individual researchers’ output, ensures the preservation and long term accessibility to their output, provides a “central archive” for their work and creates a profile for them. Institutional repositories also “allow authors to keep track of who is downloading their data” (Trotter et al, 2014:66) and can provide value added services such as “hit counts on papers, personalised publication lists and citation analyses” (Jain, Bentley and Oladiran, 2009:4). Cullen and Chawner

(2011:462) do, however, claim that librarians often may be more aware of these benefits and possibilities than researchers themselves.

Institutional repositories also offer value and benefits to institutions in terms of increased prestige and visibility, centralised storage of institutional research output and analysis of research performance (Jain, Bentley and Oladiran, 2009:3). According to Cullen and Chawner (2011:469) institutional repositories can “focus on gaining the leverage for their institutions’ research output by maximizing the “quality advantage” that open access enhances by maximizing the accessibility and the citability of the very best output of their institutions, thereby also inserting themselves into the institutional rewards system”. A summary of the value and benefits of institutional repositories is presented in table 1 below.

Summary of value and benefits of institutional repositories		
For scholarly communication	For institutions	For individual researchers
Change scholarly communication practices for the better	Making institutional research output available	Enhances dissemination of research output
More free online access to publishers’ products	Increasing visibility of institutional research output	Enhances visibility and impact of research output
Giving back research findings to the communities who funded it	Centralised storage of institutional research output	Central archive for research output
Advancing scholarship	Analysis of research performance	Analysis of research performance
Retention and control of copyright by authors	Increase prestige	Retention and control of copyright

Table 1: Value and benefits of Institutional Repositories

The value of institutional repositories in Africa is also widely recognised and seen as a means to advance African scholarship (Ezema, 2011:473, Ezema and Onyanha, 2016:20 and Thompson, Akeriwe, and Aikins, 2016:325).

2.4 Value and benefits of self-archiving policies or mandates

Self-archiving policies and mandates have a history of approximately 15 years (Xia et al, 2012:85) and are viewed as a means of increasing participation in the institutional repository (Betz and Hall, 2015:43) and increasing usage thereof (Pinfield et al, 2014:2406). Harnad (2015b:133) believes that self-archiving mandates “will accelerate the provision of universal ‘Green OA’” and urges that universities require institutional deposit, deposit of final drafts of manuscripts immediately on acceptance, author rights retention and shortening of embargo periods among other requirements in their mandates.

Several studies have looked at the value and benefits of self-archiving policies (Kennan, 2011, Xia et al, 2012, Koulouris et al, 2013 and Betz and Hall, 2015).

Findings in general show that mandates have a positive influence on growth of repository content (Xia et al, 2012:97) and adoption of repositories by researchers (Pinfield et al, 2014:2419) and that institutions with mandates generally have a larger proportion of its research output available in an institutional repository than institutions without mandates (Kennan, 2011:302). It is, however, also important to consider that compliance with policies or mandates is not necessarily always high at institutions (Cullen and Chawner, 2011:469 and Xia et al, 2012:97). According to Jain, Bentley and Oladiran (2009:5) an institutional repository “will only function to its capacity when a mandate is in place to populate it but clearly researchers can react negatively to any suggestion of compulsion”.

Self-archiving is generally not practiced widely in Africa, although the importance of self-archiving policies on the continent is recognised as it has “the potential to improve access to scientific and technological data, information and knowledge being generated in Africa and other developing countries” (Chilimo, 2016:1).

2.5 Attitudes towards and awareness of institutional repositories and self-archiving

According to Betz and Hall (2015:43) one of the biggest challenges in implementing an institutional repository is “acquiring faculty buy-in” and the literature shows that low faculty participation in institutional repositories and a general lack of awareness of institutional repositories and their value are common issues (Jantz and Wilson, 2008:187, Kim, 2011:246 and Fortier and Laws, 2014:1). It is thus crucial to try and understand “more about the perceptions of the academic community and their attitudes toward institutional repositories” (Cullen and Chawner, 2011:462).

Several studies have been undertaken in recent years regarding researchers’ awareness of open access in general and institutional repositories more specifically (Jantz and Wilson, 2008, Cullen and Chawner, 2011, Ezema, 2011, Fortier and Laws, 2014, Trotter et al, 2014, Brantley, Bruns, and Duffin, 2015, Ezema and Onyanacha, 2016 and Thompson, Akeriwe and Aikins, 2016).

Jantz and Wilson (2008:193), while studying faculty deposits in the Association of Research Libraries universities’ institutional repositories, found that faculty awareness of institutional repositories were very low and differed between disciplines and suggested that marketing could positively impact awareness, as Fortier and Laws (2014:8) also suggest. Cullen and Chawner (2011:468-469) based their study on universities in New Zealand and Yule and Beukes-Amiss (2017:61) theirs on the University of Namibia. Both found similar low awareness and differences between disciplines, as did Thompson,

Akeriwe and Aikins (2016:330-331) in a case study based in Ghana, but also variance in attitude according to age and rank of researchers (Cullen and Chawner, 2011:468). Cullen and Chawner (2011:469) further allude to the fact that researchers' concerns regarding peer review and copyright issues in institutional repositories may be a more serious issue to consider than awareness, echoed by Brantley, Bruns, and Duffin (2015:434) who also raise concern about faculty uncertainty regarding copyright and licensing issues. Fortier and Laws (2014:8) report that there is a disconnect "between the realities of the repository and accompanying faculty attitudes" and that "faculty ignorance of the concept of IRs, an incomplete grasp of the benefits, as well as concerns over deposit negatively impacting their workflow" (2014:1) remain barriers to developing institutional repositories and are reported consistently in the literature.

Regarding attitudes toward self-archiving in institutional repositories, there is also evidence of several fairly recent studies (Cullen and Chawner, 2011, Kim, 2011, Manjunatha and Thandavamoorthy, 2011, Xia et al, 2012, Koulouris et al, 2013, Betz and Hall, 2015, Marsh, 2015 and Yang and Li, 2015).

Manjunatha and Thandavamoorthy (2011:107) in a study based in India found that the majority of researchers in scientific, technological and medical fields had positive attitudes toward self-archiving, while researchers in social sciences and humanities were not necessarily against the concept, but showed lower awareness of institutional repositories. Koulouris et al (2013:776), in a study based in Greece, also found that researchers were not against the idea of self-archiving and welcomed the guidance of policies. Yang and Li (2015) found that researchers were not as much against the concept self-archiving, but rather unaware of the deposit process and generally show resistance to mandates. Xia et al (2012:100) relate that the effects of self-archiving mandates are unpredictable and that mandates should reflect the needs of faculty in order for them to support it. Marsh (2015:169) demonstrates differences in attitudes to self-archiving and mandates between various parts of the world.

Many authors (Manjunatha and Thandavamoorthy, 2011:109, Koulouris et al, 2013:776 and Thompson, Akeriwe and Aikins, 2016:332), including Betz and Hall (2015:55), conclude that in order to encourage deposit in institutional repositories and possibly improve researchers' attitudes the user experience regarding deposit of articles in institutional repositories should be taken into account. Yule and Beukes-Amiss (2017:62) agree as they found that technological challenges remain a barrier to self-archiving and that "user-friendly" platforms should be considered to assist researchers in "retrieving, disseminating and depositing materials".

2.6 Stellenbosch University's institutional repository

Stellenbosch University Library and Information Service established an institutional repository named SUNScholar in 2008 after collaboration with the Registrar and the Division for Information Technology at Stellenbosch University, which led to the creation of a database into which electronic theses and dissertations could be uploaded for graduation purposes (SULIS, 2009:14). By 2009, the institutional repository, built on DSpace open source software, started capturing other Stellenbosch University research output, such as research articles and conference proceedings as well (SULIS, 2010:4). Numbers of items in the repository rapidly grew in the following four years to almost 55 000 items (see figure 2), of which 8 508 had full-text attached, in 2013 (SULIS, 2014:3). In 2014 a deduplication effort commenced as many records without full-text attached were duplicated. The repository currently holds a total of 54 735 records of which 21 797 have full-text attached (SUNScholar, 2017b). Types of Stellenbosch University research output hosted in the repository include theses, dissertations, peer-reviewed research articles, peer-reviewed conference papers and some chapters in books.

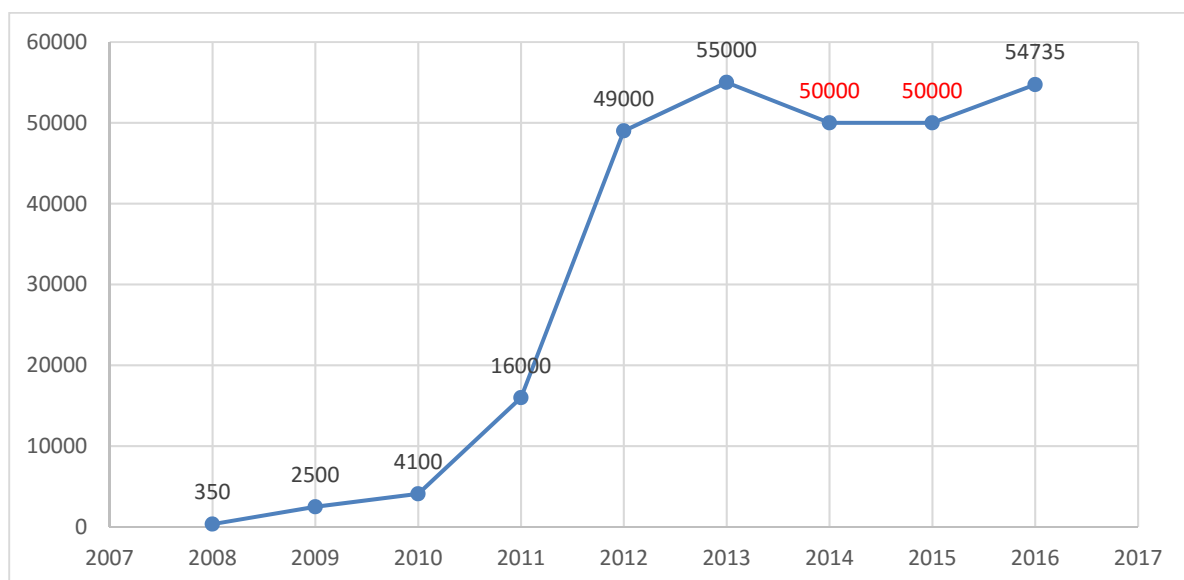


Figure 2: SUNScholar growth

Today, theses and dissertations are ingested in a separate ETD database, built on DSpace, twice a year during graduation. These items are then migrated to SUNScholar. SUNScholar itself is populated with other research output by staff members from the Digital Scholarship division at Stellenbosch University Library and Information Service, faculty librarians at the library service, as well as researchers themselves who have registered as submitters on the repository. In 2014 Stellenbosch University Council adopted an institutional self-archiving policy to be implemented by Stellenbosch University Library and Information Service in 2015 (SULIS, 2015:2). The policy “asserts that all refereed research manuscripts authored by personnel affiliated to Stellenbosch University or writing under the auspices of the University should be deposited into the Institution’s research repository, SUNScholar”

(Stellenbosch University, 2014:4). Despite the mandatory policy, most deposits to the repository are made by library staff members and not researchers themselves.

The institutional repository employs Open Archives Initiative Protocol for Metadata Harvesting (OAI) (SUNScholar, 2017a) and is harvested by large search engines such as Google and GoogleScholar. The repository is well-used and usage statistics have steadily increased over the last five years (see figure 3 below).

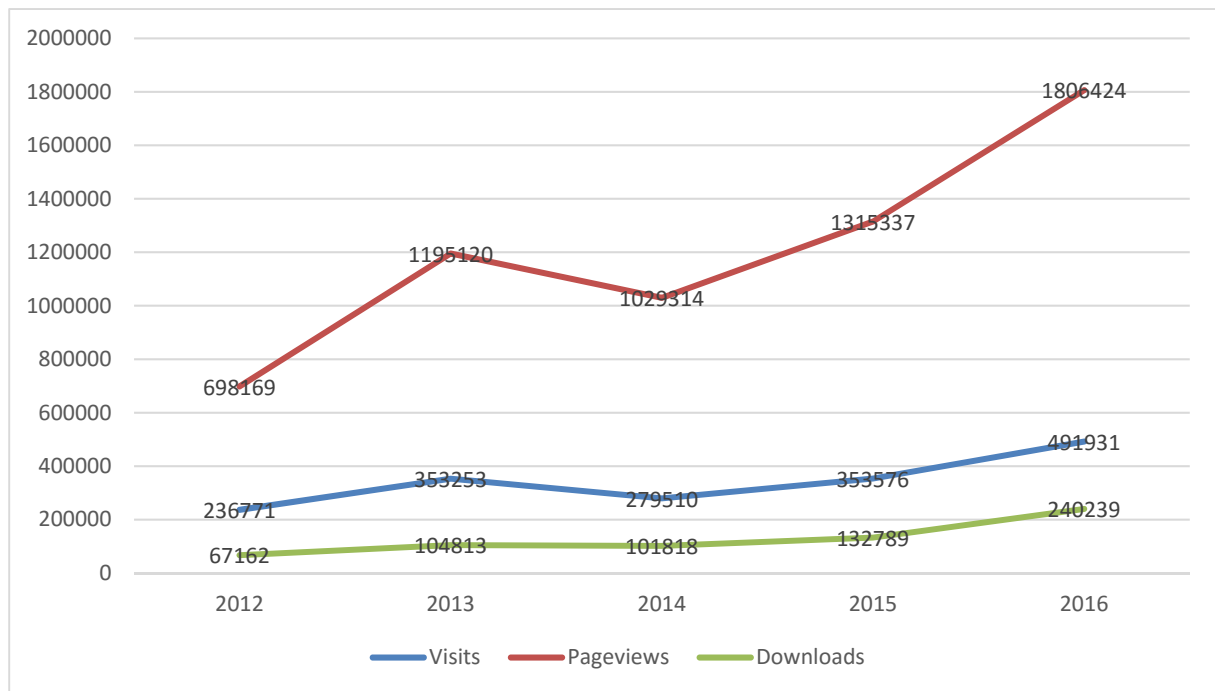


Figure 3: SUNScholar usage in terms of visits, pageviews and downloads

Source: Statistics from Piwik (2017)

2.7 Conclusion

Institutional repositories are shown to play an important role in open access scholarly communication and the value and benefits of institutional repositories are well documented. Institutional repositories, however, do rely greatly on faculty buy-in at institutions and self-archiving policies and other means of getting researchers to participate in repositories are becoming important. The literature has also shown that studying faculty awareness of and attitudes toward institutional repositories and self-archiving policies are important and can lead to a better understanding to ultimately improve the development and increase the value of institutional repositories.

Chapter 3: Research methodology

3.1 Introduction

Creswell (2014:3) and Babbie (2016:6) describe research methodology as plans and procedures for research or scientific investigation. According to Alasuutari, Bickman and Branen (2009:1) research methodology constitutes a range of strategies and procedures which include “developing a picture of an empirical world; asking questions about that world and turning these into researchable problems [and] finding the best means of doing so”. This chapter explores different research methodologies in general and explains the specific research methodology chosen for this study.

3.2 Research approach

According to the literature there are three approaches to research, namely qualitative, quantitative or mixed methods, which is a combination of both qualitative and quantitative (Walliman, 2009:270-271, Creswell, 2014: 3 and Jensen and Laurie, 2016:11).

Qualitative research involves the collection and interpretation of non-numerical data (Jensen and Laurie, 2016:11) and is most often an approach used to establish a new understanding of a topic or to describe situations, phenomena, problems or events in detail (Kumar, 2011:13 and Jensen and Laurie, 2016:11). Creswell (2014:4) describes qualitative research as “an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem”. According to both Kumar (2011:11) and Creswell (2014:4) the qualitative approach is less structured and allows for flexibility in processes and the final report. With qualitative research the process normally involves “emerging questions and procedures, data typically collected in the participant’s setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data” (Creswell, 2014:4).

Qualitative research has both strengths and weaknesses. Strengths include that this type of research “honors an inductive style, a focus on individual meaning, and the importance of rendering the complexity of a situation” (Creswell, 2014:4). Qualitative research can also enable in-depth understanding of “contexts, perspectives and experiences” and is a good “first step in understanding ideas, perspectives and phenomena” from which theories can be developed (Jensen and Laurie, 2016:12). Lastly, qualitative research allows for flexibility in the sense that what is learnt or discovered during data collection can influence research design and allows flexibility to make modifications as the research unfolds (Jensen and Laurie, 2016:12).

Weaknesses of qualitative research include “lack of breadth” as there may not be time or opportunity to gather data from all who could contribute, so key perspectives may be missed, which can also lead to “limited ability to generalize about population characteristics” (Jensen and Laurie, 2016:12). Furthermore, qualitative research can be time consuming (Jensen and Laurie, 2016:12) and qualitative research study designs are sometimes perceived to be vague (Kumar, 2011:103). Kumar (2011:20) lists a number of attributes of qualitative research which may not be decisively negative, but can be interpreted as such when compared to other approaches to research and include the fact that qualitative research is unstructured and uses an open methodology, that it does not claim to be value-free as it explores “experiences, meanings, perceptions and feelings” and that its organisation is narrative and descriptive in nature.

Quantitative research can be described as an approach for “testing objective theories by examining the relationships among variables” which can be measured and numbered data which can be analysed (Creswell, 2014:4). Jensen and Laurie (2016:12) concur that quantitative methods are founded on numerical data and typically employed to answer numerical questions. Quantitative research is structured and uses predetermined methodology, seeks to quantify the extent of a difference in specific situations and is analytical in nature (Kumar, 2011:20).

Quantitative research has several strengths which include that qualitative studies can be undertaken on a large scale, can be used to easily generalise results as statistical analysis can be used to identify patterns applicable to complete populations, and quantitative data easily translates into visualisations such as graphs and charts for illustrating an argument (Jensen and Laurie, 2016:13). Quantitative research is also generally viewed as reliable and objective or value-free (Kumar, 2011:20). Another strength is that quantitative study designs are usually well structured and specific and are shown to be reliable (Kumar, 2011:103).

Some of the weaknesses of quantitative research include the fact that loss of depth or context can occur because of the fact that “individual-level patterns can be obscured” and the researcher is not “immersed in the field” (Jensen and Laurie, 2016:13). Quantitative research is also viewed as monolithic by some (Alasuutari, Bickman and Brannen, 2009:17). Furthermore, Jensen and Laurie (2016:13) suggest that quantitative research may be “disconnected from the real world” because of the operationalisation of concepts. According to Alasuutari, Bickman and Brannen (2009:14) “quantitative researchers tend to be less reflective than qualitative researchers concerning the fundamental nature of their approach”.

Mixed methods research refers to research that is designed to collect both qualitative and quantitative data. Qualitative and quantitative research are effectively combined (Alasuutari, Bickman and Brannen, 2009:15, Creswell, 2014:4 and Jensen and Laurie, 2016:12) to address the weaknesses and to capitalise on the strengths of each. According to Creswell (2014:4) mixed methods research can provide “a more complete understanding of a research problem than either approach alone”.

According to Jensen and Laurie (2016:13) applying mixed methods could have a number of advantages such as when using different methods to address the same question produces similar results and the researcher has greater confidence in his or her findings. Mixed methods can further lead to “additional coverage of topic” and one method can enhance the effectiveness of another method without overlapping coverage (Jensen and Laurie, 2016:14). According to Kumar (2011:15) many recommend a mixed or combined methods as an “approach to social enquiries”. One of the disadvantages of mixed methods research is that it means “doubling the work”, leading to additional time needed for the research to be completed (Jensen and Laurie, 2016:14).

For this study, a qualitative approach to research has been undertaken. The reasons for the chosen approach are discussed in the next section.

3.2.1 Qualitative research

The research approach chosen for this study was qualitative research. The answers to the research questions sought in this study cannot be derived from “subjecting [...] data to statistical procedures” and need to be derived from subjects’ responses in a descriptive and narrative nature (Kumar, 2011:20). A qualitative approach was thus more suited to answer the research questions and sub-questions of this study.

Qualitative methods have several characteristics that made it suitable for this study. Firstly, qualitative research is suited to describe a phenomenon, issue or situation (Kumar, 2011:20) and give a holistic and comprehensive account of the issue studied (Creswell, 2014:186 and Corbin and Strauss, 2015:5). Considering the main research question relating to the institutional repository of Stellenbosch University and researchers’ awareness of its value and benefits, it is clear that a holistic view or description of the institutional repository and how researchers relate to it was necessary in this study.

Secondly, as this study focuses on the attitudes of researchers, their meanings and responses are key. According to Kumar (2011:20) qualitative research is suited to explore “experiences, meanings, perceptions and feelings” while Corbin and Strauss (2015:5) are of the opinion that the researcher can explore the “inner experiences of participants” and how “meanings are formed and transformed”.

Creswell (2014:186) also states that, with qualitative research, the researcher focuses on learning the meaning that participants hold regarding the researched issue or problem.

Thirdly, qualitative research is suited for research in a “natural setting”, in other words collecting data “at the site where participants experience the problem or issue under study” (Creswell, 2014:185). In this study the data was collected at Stellenbosch University, where the participants access and make use of the institutional repository.

Fourthly, qualitative research can cover more than one issue, but needs fewer respondents to gather information from (Kumar, 2011:20). The qualitative researcher may also gather multiple forms of data if necessary and is a key instrument in the study as he or she will collect data themselves and not rely on instruments developed by other researchers (Creswell, 2014:185).

Lastly, qualitative research communicates findings in a descriptive and narrative way (Kumar, 2011:20), which was also well suited to this study.

Qualitative research is associated with specific research methodologies. These are, according to Creswell (2014:14), narrative research where the lives of individuals are studied, phenomenological research where experiences of individuals regarding a phenomenon are studied, grounded theory where the researcher derives a theory of an action or process, ethnography where a specific group is studied and case studies where researchers derive an in-depth analysis of a case.

For this study a case study method, which is described in the next section, was employed. The reasons for selecting a case study are also covered in the next section.

3.2.2 The case study as research methodology

According to Thomas and Myers (2015:7) a case study can be defined as an analysis of “persons, events, decisions, periods, projects, policies, institutions or other systems which are studied holistically by one or more methods”. Wildemuth (2016:51) defines a case study as “a research study focused on a single case or sets of cases” and states that the case study is a method frequently applied by scholars in the field of Library and Information Science. For this study the attitudes of persons to a system (the institutional repository) and policy (the institutional self-archiving policy) at a single institution (Stellenbosch University) was being analysed. The case study method was therefore suitable method to employ for this study.

Wildemuth (2016:52) further suggests that a case study is an appropriate method if the phenomenon studied occurs in a natural setting, focuses on contemporary events, attempts to answer “why” and

“how” questions. In this study the phenomenon was studied in a natural setting, i.e. Stellenbosch University as an institution, did focus on contemporary events and seeks to answer, among other questions, “how” and “why” questions, for example how researchers became aware of the institutional repository. Wildemuth (2016:53) also suggests that case studies in Library and Information Science are well suited for trying to understand interactions between “information technology-related innovations and organizational contexts”. In this case the institutional repository may be viewed as an information technology-related innovation. Case studies may be descriptive, evaluative, and exploratory or used to confirm a theory (Thomas and Myers, 2015:59 and Wildemuth, 2016:53). In this study the case study is both descriptive and evaluative.

3.3 Research sites

The research was conducted at Stellenbosch University, which includes the main campus in Stellenbosch, as well as two satellite campuses in Bellville in the Western Cape.

3.4 Target population and sampling

The target population of the research was Stellenbosch University researchers. Stellenbosch University maintains a list of 431 National Research Foundation (NRF) -rated researchers (Stellenbosch University, 2017). Two hundred and thirty five of these researchers are C-rated and 71 Y-rated, representing 306 researchers (Stellenbosch University, 2017). The latest update of the list was done in July 2017. This list is available from <http://www.sun.ac.za/english/research-innovation/Research-Development/research-facts/nrf-rated-scientists>.

Based upon the NRF rating categories, the sample population was C-rated and Y-rated researchers at Stellenbosch University. C-rated researchers are considered established researchers “with a sustained recent record of productivity” in their discipline and recognised as having produced a “body of quality work” (NRF, 2014). Y-rated researchers are young researchers, under 40 years of age, who show potential in “establishing themselves as researchers within a five-year period after evaluation” (NRF, 2014). The author believes that this sampling will result in respondents with sufficient knowledge of scholarly communication to be able to contribute significantly to the study.

In qualitative research, many considerations can influence the selection of the sample population, such as ease of access to respondents and whether the researcher considers the respondents to have knowledge on the subject studied (Kumar, 2011:192). In this case, the author holds the assumption that C-rated Stellenbosch University researchers have had some exposure to the institutional

repository and the institutional self-archiving policy, considering the fact that they are established researchers with published bodies of work. They should therefore have sufficient knowledge to respond to the questionnaire. Regarding the Y-rated researchers, Cullen and Chawner (2011:467) believe that age and rank may affect researchers' attitudes towards institutional repositories and self-archiving, with younger researchers generally being more "enthusiastic about the benefits". For this reason, the author included Y-rated researchers as part of the sample population as there is a reasonable possibility that these respondents will be able to answer the questions presented to them with enthusiasm and some knowledgeability. This method of sampling could be regarded as purposive sampling. Purposive or judgemental sampling is a type of sampling where the "units to be observed are selected on the basis of the researcher's judgement" (Babbie, 2016:187) and "relies on the expert judgement of the person selecting the sample" (Wildemuth, 2016:128). The researcher thus decides which samples will be the most representative or valuable (Babbie, 2016:187).

The data was collected from the sample population by means of a questionnaire (discussed below). Permission was obtained from the Stellenbosch University Institutional Research and Planning Division to send out the questionnaire (see Appendix A). The questionnaire was sent electronically (by e-mail) to 303 out of the 306 identified C-rated and Y-rated researchers at Stellenbosch University as the contact details for three researchers could not be obtained. The cover letter e-mail (see Appendix B) as well as the questionnaire (see Appendix C) are provided as attachments to this report.

3.5 Data collection instruments/tools

The method of data collection of this study was data collection from primary resources. According to Kumar (2011:139) examples of primary resources include "finding out first-hand the attitudes of a community" to a certain service or issue. As this is what is explored in this study, it is clear that this method of data collection was suited to the study.

Several data collection tools and techniques are typically used in qualitative research. According to Kumar (2011:139) the three most suited data collection methods for collecting primary data in qualitative research are observation, interviewing and questionnaires. Babbie (2016:223) suggests survey research, which includes questionnaires and interviews, and qualitative field research, which includes observation, as appropriate methods for primary data collection in qualitative research. Regarding the collection of secondary data in qualitative research, the method concerns the collection and processing of documents, such as public documents, including government publications and newspapers, or private documents, such as journals or personal records (Kumar, 2011:139 and Creswell, 2014:191). Babbie (2016:323) refers to this method as "unobtrusive research".

All three methods of data collection have certain advantages and disadvantages. Observation is described by Kumar (2011:140) as a “purposeful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place”. This could include the researcher taking “field notes on the behaviour and activities of individuals at the research site” (Creswell, 2014:190). There are two types of observation, namely participant and non-participant. With participant observation, the researcher participates in the activities of the observed group, while with non-participant observation the researcher is a passive observer (Kumar, 2011:141). Advantages of observation include the fact that the researcher is able to have a first-hand experience with participants and is able to record information as it transpires (Creswell, 2014:191). Furthermore, the researcher is able to notice unusual aspects during observation and observe themes which participants may be uncomfortable discussing (Creswell, 2014:191). Disadvantages of observation include the fact that participants may change their behaviour if they are aware that they are being observed (Kumar, 2011:141). The researcher may also be seen as intrusive and may struggle to build a relationship with some participants (Creswell, 2014:191). Lastly, the researcher needs to be impartial as the “possibility of observer bias” is always present with observations (Kumar, 2011:141).

Interviewing is a method used commonly for collecting information from people in qualitative research (Kumar, 2011:144). A researcher may have face-to-face or telephone interviews with participants or may conduct focus group interviews with specific small groups (Creswell, 2014:190). Interviews may be structured or unstructured. With a structured interview, a prearranged interview schedule with questions is used, while with an unstructured interview the researcher has the freedom to adapt the schedule or questions and “raise issues on the spur of the moment” (Kumar, 2011:145). Advantages of interviews include the fact that the researcher can control questioning and with structured interviews, specifically, the interviewer does not require advanced interviewing skills and uniform information can be collected (Kumar, 2011:145). Disadvantages include the fact that the researcher’s presence “may bias responses” and not all participants will be similarly “articulate and perceptive” (Creswell, 2014:191).

Questionnaires are lists of questions to be answered by respondents and thus provide information for analysis (Kumar, 2011:145 and Babbie, 2016:248). Questionnaires are suited for collectively studying a population (Kumar, 2011:148). Questionnaires also have certain advantages including providing anonymity, since there is no face-to-face interaction with respondents, which may increase “the likelihood of obtaining accurate information” (Kumar, 2011:148). Questionnaires may present both closed questions and open-ended questions. Open-ended questions offer respondents an opportunity to provide their own answers (Babbie, 2016:249) and can deliver in-depth information and provide

respondents the opportunity to “express themselves freely” (Kumar, 2011:153). Closed questions ask respondents to choose an answer from a list provided by the researcher (Babbie, 2016:249) and although having some disadvantages, are easy to answer for respondents and easier to analyse for researchers (Kumar, 2011:154). Questionnaires also present some disadvantages including that response rates to questionnaires are usually low (Kumar, 2011:149). Questionnaires also present the opportunity for self-selecting bias, as not all who receive questionnaires will return them and those who return theirs “may have attitudes, attributes or motivations that are different from those who do not”, resulting in the fact that “findings may not be representative of the total study population” (Kumar, 2011:149). Other disadvantages include that participants may not understand questions and spontaneous responses are not always possible as respondents have time for reflection before answering (Kumar, 2011:149).

In this study, the data collection method used was a survey and the collection tool a questionnaire. It is a suitable method since the researcher intended to target the entire population of Stellenbosch University NRF C and Y-rated researchers. According to Babbie (2016:247) using questionnaires is the most suitable tool available to researchers who wish to collect data to “describe a population too large to observe directly”. Questionnaires are also “excellent vehicles for measuring attitudes and orientations in a large population” (Babbie, 2016:247) and thus very appropriate to use in this study.

Both closed questions and open-ended questions were utilised in the questionnaire. Using a combination of these was therefore suitable for this study, as it supplied both in-depth answers and comments, as well as themes that can easily be analysed and interpreted. The questionnaire included a cover letter with explanatory notes to give respondents enough information and background to be able to interpret the questions correctly.

The questionnaire is attached as appendix C to this document. The first part of the questionnaire covers demographic questions regarding the Faculty participants are associated with and their age groupings. The reasons these questions are included relate to the literature which suggests that attitude towards and awareness of institutional repositories and self-archiving may differ according to discipline (Jantz and Wilson, 2008:193) and age and rank (Cullen and Chawner, 2011:468). The following section covers institutional repository awareness and seeks also to establish how researchers became aware of the institutional repository. The value of the institutional repository is explored in the next section, giving researchers the opportunity to identify what they believe to be the main benefits of an institutional repository. The next sections address self-archiving and once again aims to address the awareness of researchers regarding self-archiving and their views on the benefits of self-archiving. Barriers to self-archiving are also explored as several studies suggest that there may be a

number of barriers preventing researchers to comply with self-archiving (Cullen and Chawner, 2011:469 and Brantley, Bruns, and Duffin, 2015:434). The last section of the questionnaire gives respondents the opportunity to answer open ended questions regarding the institutional repository and the self-archiving policy.

3.5.1 Pilot study

The questionnaire was sent out to five respondents as a pilot study before the questionnaire was launched to the entire sample population. The five respondents included two researchers from Stellenbosch University, two librarians from Stellenbosch University Library and Information Service and one student peer. None of the respondents reported any difficulty in understanding questions or completing the questionnaire and were able to complete the questionnaire within the suggestion time period of ten minutes.

3.6 Data analysis/interpretation

Data collected from the questionnaires was anonymised. The interpretation of the data entailed content analysis as well as thematic analysis. Content analysis is described by Babbie (2016:323) as the “study of recorded human communications”, while qualitative content analysis is described by Flick (2014:170) as a “method for systematically describing the meaning of qualitative data”. The method is systematic, flexible and can help reduce data (Flick, 2014:170). Thematic analysis focuses on identifying and describing themes within the data (Guest, MacQueen and Namey, 2012:10). These themes can be implicit and explicit and “require more involvement and interpretation from the researcher” (Guest, MacQueen and Namey, 2012:10).

Main themes should emerge from the responses (Kumar, 2011:277), especially the responses to closed questions. Main themes were quantified or coded in order to perceive their prevalence and significance (Kumar, 2011:277 and Creswell, 2014:197). Open-ended questions needed content analysis. In the end, a narrative was developed to describe the findings and themes and responses integrated into the text of the report (Kumar, 2011:278).

3.7 Validity and reliability

According to Kumar (2011:402) the concept of validity “can be applied to every aspect of the research process”, including measurement procedures. Reliability refers to the “ability of a research instrument to provide similar results when used repeatedly under similar conditions” (Kumar, 2011:396).

Qualitative validity can be achieved by checking the accuracy of findings with the help of certain procedures (Creswell, 2014:201). Procedures to ensure validity in this study included using “rich, thick description to convey the findings” as this can add to the validity, and presenting any “negative or discrepant information that runs counter to the themes” as this led to a valid and realistic account (Creswell, 2014:202). According to Creswell (2014:202) the better understanding a researcher has of the issue being studied, the more credibility he or she can give to findings. As the researcher in this study is familiar with the institutional repository and the self-archiving policy, this increased the accuracy and validity of findings.

Regarding reliability, qualitative reliability “indicates that the researcher’s approach is consistent” (Creswell, 2014:201). In this research, one approach to ensure reliability was to collate the information from respondents correctly and to relay any responses correctly and accurately when referring to it in the narrative.

3.8 Limitations of the methodology

The limitations of the methodology include that fact that the researcher was not able to get all possible perspectives from respondents as some respondents were unwilling to participate and the response rate to questionnaires is usually low (Kumar, 2011:149 and Babbie, 2016:251). Some perspectives from the respondents were also difficult to interpret if “for any reason, respondents do not understand some questions” (Kumar, 2011:149). According to Babbie (2016:250) respondents “must be competent to answer”.

3.9 Ethical considerations

Ethics in research refers to “the moral deliberation, choice and accountability on the part of researchers throughout the research process” (Miller et al, 2012:14) and can be distinguished as issues arising in the practice of research and issues arising in the application of research findings (Bird and Briggie, 2005:1599).

Bird and Briggie (2005:1601) identify a number of areas of research conduct that could pose ethical issues. Some of these will be discussed in relation to this study. Firstly, “data acquisition, management, sharing and ownership” is an area to consider (Bird and Briggie, 2005:1601). This area did not cause any ethical issues in this study, as the data collected was securely stored electronically and anonymised with only the researcher having access to the raw data. According to Babbie (2016:283) “maintaining the norm of confidentiality” is extremely important and was adhered to in this study.

Another area is “conflicts of interest and commitments” (Bird and Briggie, 2005:1601), which was not a concern in this study. It is possible that there may exist a professional relationship between the researcher and some of the participants, but this was not a problem as the questionnaires were sent out in bulk and not as private communications between researcher and participants and the data collected was completely anonymised.

With this study, one of the most important ethical considerations was the role of the researcher and ensuring that researcher bias does not occur. Bias can be defined as “a deliberate attempt to hide what you have found in your study, or to highlight something disproportionately to its true existence” (Kumar, 2011:246). In utilising questionnaires, the researcher should be particularly careful not to construct questions which “encourages respondents to answer in a particular way” (Babbie, 2016:253). With qualitative research, the researcher is “typically involved in a sustained and intensive experience with participants”, so should be able to identify his or her “biases, values, and personal background” which could possibly shape his or her interpretations formed during the research (Creswell, 2014:187). In this study, the researcher is involved in managing the institutional repository and curating the university’s self-archiving policy. It was therefore paramount that the researcher took the following steps, as described in Creswell (2014:94), to avoid bias and other ethical problems:

- Avoid leading questions in the questionnaire
- Report multiple perspectives as well as contrary findings
- Respect the privacy and anonymity of participants and do not disclose information that could harm participants
- Report honestly

Ethical clearance for this study was granted by the University of Pretoria. The clearance certificate is attached as Appendix D.

3.10 Conclusion

The research undertaken in this study followed a qualitative approach, as this was regarded as the most suited approach to answer questions regarding a certain group’s perspectives or attitudes towards an issue. The data collection instrument selected was the questionnaire and several measures were undertaken by the researcher to ensure the validity and reliability of the research conducted.

Chapter 4: Data analysis

4.1 Introduction

This chapter analyses and discusses the data collected from the completed questionnaires which were received after being sent out to the target population of 306 researchers at Stellenbosch University (refer to section 3.4 for details). The questionnaire was eventually sent out to only 303 identified C-rated and Y-rated researchers at Stellenbosch University as the contact details for three researchers could not be obtained. A total of 56 complete responses were received, while 15 respondents did not agree to take part in the survey. This represents a response rate of approximately 18.5 %.

4.2 Representation of the response

Two questions were asked to establish demographic information about the respondents. In the results, representation from the ten faculties at Stellenbosch University was fairly even, as depicted in figure 4, corresponding to the sizes of the faculties, with no results coming from the two smallest faculties, namely Law and Military Science, and the largest number of responses from the biggest faculty, namely Medicine & Health Sciences. From the pilot study, the results of which are included in this discussion, three responses were received from librarians. Regarding age groups, the representation was also even, with the exception of the age group 20-30 from which no responses were received (see figure 5).

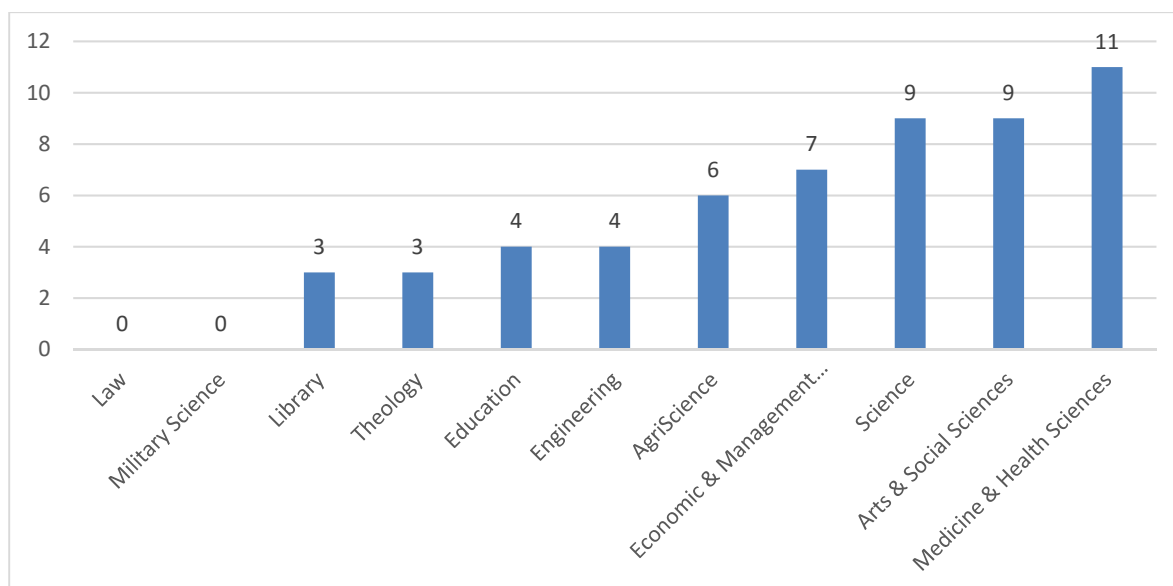


Figure 4: Faculty representation

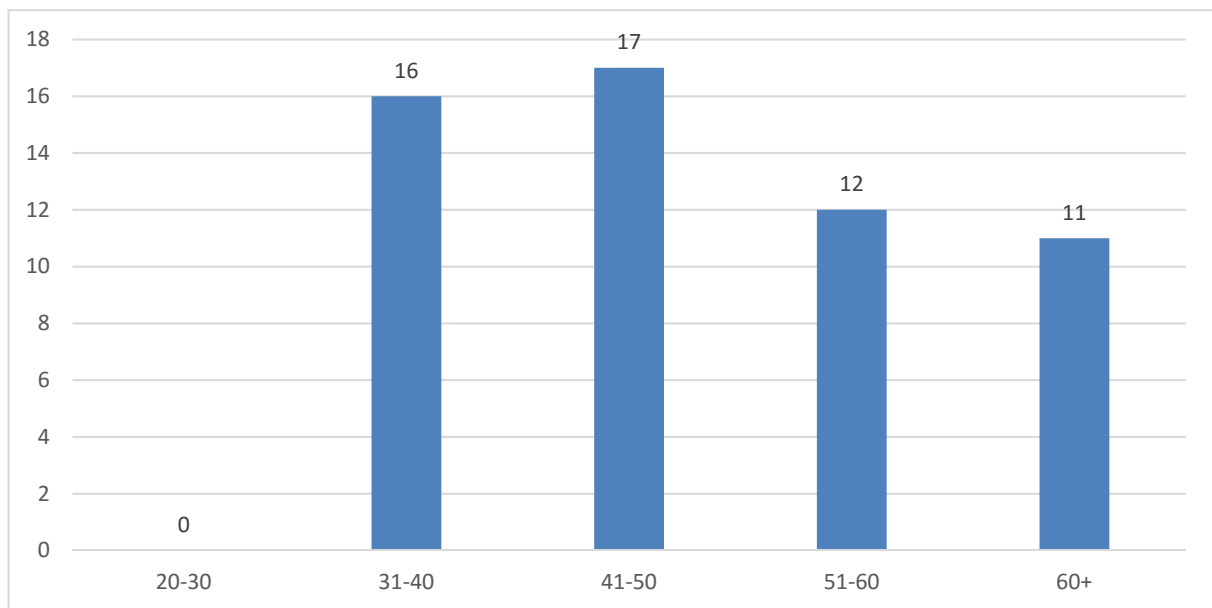


Figure 5: Age groups

4.3 Awareness of institutional repository

The analysis of the results in this section seeks to explore the sub-question of what the level of awareness is that Stellenbosch University researchers have of the university's institutional repository and also to find out how they became aware of the repository.

Contrary to findings in the literature which report an overall lack of awareness of institutional repositories (Jantz and Wilson, 2008:187, Kim, 2011:246 and Fortier and Laws, 2014:1) and in some cases very low awareness (Jantz and Wilson, 2008:193, Cullen and Chawner, 2011:468-469 and Thompson, Akeriwe and Aikins, 2016:330-331) and as was reported in section 2.5 of this report, the level of awareness of Stellenbosch University researchers regarding the institutional repository is relatively high. The data shows that only six out of fifty-six respondents are not aware of the institutional repository.

In terms of how respondents became aware of the institutional repository (see figure 6), the majority of respondents (33) mentioned communication / information provided by the Library and Information Service as a way of becoming aware of the repository. Sixteen respondents mentioned communication from their faculties or departments as responsible for raising awareness of the repository, while fourteen mentioned their knowledge of the bi-annual graduation process as contributing to their awareness of the repository. Only eleven respondents mentioned that they became aware of the institutional repository from colleagues. These results were expected as the institutional repository of Stellenbosch University has been in existence for almost nine years and is clearly associated with the

Library and Information Service which established the repository in 2008 and has been managing it ever since.

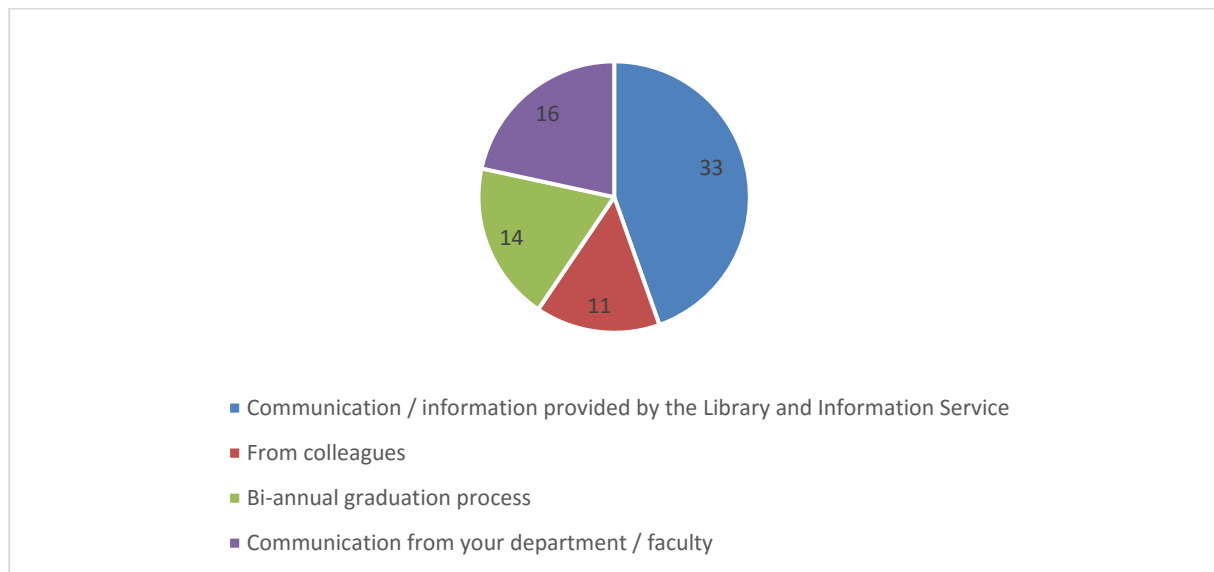


Figure 6: How researchers became aware of the institutional repository

The literature indicates that awareness of institutional repositories tends to vary between disciplines (Jantz and Wilson, 2008:193, Cullen and Chawner, 2011:468-469 and Fortier and Laws, 2014:8) and between the rank and age of researchers (Thompson, Akeriwe and Aikins, 2016:330-331). No significant evidence of this variation could be found in the results of this study as respondents from four out of eight faculties reported not being aware of the repository and one or two respondents in every age category reported not being aware of the institutional repository. The evidence is thus not sufficient to draw conclusions regarding any noteworthy variation in awareness between researchers in different disciplines or age groups in this case.

4.4. Awareness of the self-archiving policy

The analysis of the data in this section attempts to gauge the level of awareness of the institutional self-archiving policy among Stellenbosch University researchers and to find out how they became aware of the policy. The data also provides information on compliance with the policy and sheds light on methods utilised by researchers in order to comply.

The literature consulted does not yield many studies specifically reporting on awareness of self-archiving policies as such, but rather focuses more on attitudes toward self-archiving (Cullen and Chawner, 2011, Kim, 2011, Manjunatha and Thandavamoorthy, 2011, Xia et al, 2012, Koulouris et al, 2013, Betz and Hall, 2015, Marsh, 2015 and Yang and Li, 2015). Both Cullen and Chawner (2011:469)

and Brantley, Bruns, and Duffin (2015:434) report that copyright and other concerns are more serious issues to consider than awareness. The results from this study show that exactly half of the respondents (28 out of 56) are aware of the institutional self-archiving policy, while the other half are not. This shows a much lower level of awareness when compared to the level of awareness of the institutional repository itself as reported in the previous section. This result is as expected if it is taken into account that the institutional self-archiving policy at Stellenbosch University was only established three years ago, while the repository has been in existence for much longer.

The lower level of awareness regarding the self-archiving policy was also reflected in respondents' comments on the open-ended question regarding what the Library and Information Service can do better in order to persuade researchers to comply with the self-archiving policy. Comments such as "I was not aware of the policy myself", "Better communication" and "Schedule small group training/information sessions in each Division/Department" all indicate that a low level of awareness is prevalent and should be addressed.

Regarding how researchers became aware of the self-archiving policy (see figure 7), the majority of respondents (19) mentioned communication / information provided by the Library and Information Service as means of becoming aware of the policy. Twelve respondents reported communication from their faculties or departments as raising awareness, while five respondents mentioned that they became aware of the policy from colleagues.

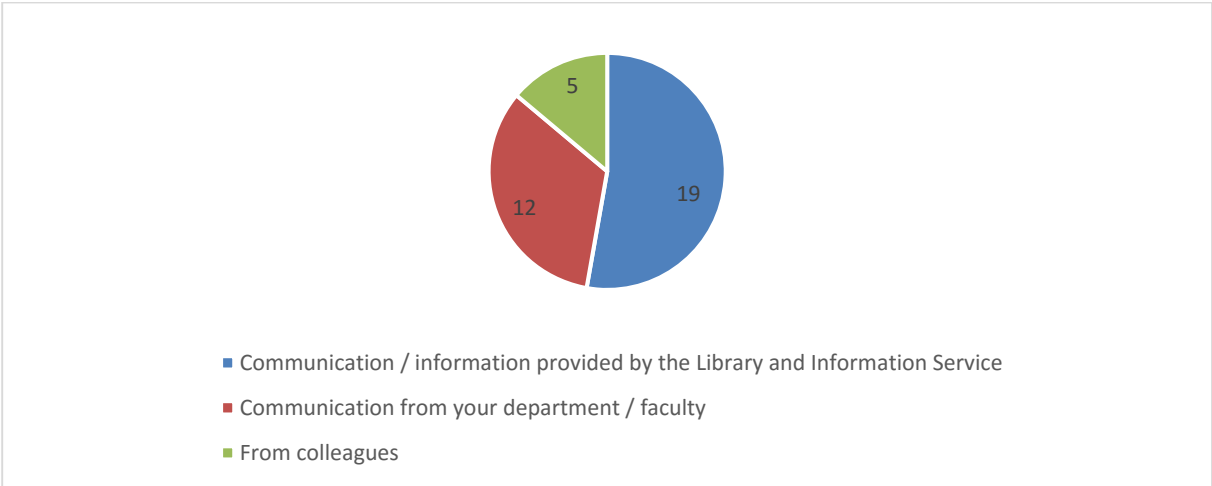


Figure 7: How researchers became aware of the self-archiving policy

Researchers were also asked whether they have complied with the self-archiving policy by depositing copies of their research outputs in the institutional repository. Only 13 out of the 56 respondents (approximately 23%) reported that they have complied with the policy. This shows that awareness of the self-archiving policy does not necessarily translate into buy-in or compliance and is in accordance

with the findings from Betz and Hall (2015:43) who report that acquiring faculty buy-in with regards to self-archiving policies is a challenge. The findings also echo the sentiments of other studies that low faculty participation in self-archiving is a prevalent issue (Jantz and Wilson, 2008:187, Kim, 2011:246 and Fortier and Laws, 2014:1). What exactly the barriers are which prevent researchers from complying will be discussed in the following section.

Researchers who indicated that they have complied with the policy were also asked to indicate how they went about depositing their output in the institutional repository. Stellenbosch University Library and Information Service currently offers three options for deposit, namely for researchers to register as submitters on the repository and deposit output themselves directly into the repository, deposit via faculty librarians where the researcher sends a copy of his or her output to a faculty librarian who deposits on his or her behalf and lastly via the Digital Scholarship Division in the library where a staff member from the division will deposit on the researcher's behalf. Five respondents replied that they are registered as submitters on the repository, four reported that they submit via a faculty librarian and three via the Digital Scholarship Division. One researcher commented that a departmental secretary is responsible for the deposit of research output. The results show no significant variance in terms of a preferred option for depositing, but it does indicate that all three options provided by the library are being utilised. We do, however, have to keep in mind that as repository statistics show (as was reported in section 2.6), most deposits to the repository are made by library staff members and not academics themselves.

4.5 Attitude toward the self-archiving policy and depositing research output in the IR

In this section data is analysed in order to establish the attitude of researchers toward self-archiving and depositing copies of their research output in the institutional repository. The discussion also explores the perceived barriers towards self-archiving as experienced by researchers.

Respondents were asked whether they would consider depositing copies of their research outputs in compliance with the self-archiving policy in future. Thirty-nine respondents (approximately 70%) replied that they would consider deposit, while only six respondents replied that they would not. Eleven respondents replied that they were uncertain. This, together with the fact that only six respondents see self-archiving to have no benefits, points to a relatively positive attitude towards self-archiving among researchers. These results echo the findings of Koulouris et al (2013:776) and Yang and Li (2015) which report that researchers are not necessarily against the concept of self-archiving, but struggle with other issues such as uncertainty regarding deposit (as was reported on in section 2.5).

Respondents were also asked to comment on their decision to consider depositing articles in compliance with the policy. Forty respondents opted to comment and from these open-ended comments several positive themes could be detected, although some barriers and uncertainties, which will be discussed in more depth later in this section, were also raised. Seven respondents replied to a general open-ended comments field regarding the self-archiving policy. These comments are also taken into account in this discussion.

With regards to a positive attitude many of the comments reflected willingness to comply and acknowledged potential benefits such as sharing research outputs openly, for example “It makes sense ... why do research and not make it available in more than one way?” and “I think that it is beneficial for the individual, department and university that research outputs be centrally collected and made available”. It is also evident from the comments that many researchers were not aware of the policy, but are willing to comply now that they have become aware of it, for example “I was not aware of this, but now I am and I will participate” and “If the process is explained and the benefits made clear I should have no opposition to doing it”. A summary of the most prevalent themes of positive comments is shown in table 2.

<i>Comment theme</i>	<i>Frequency of theme</i>
Willingness to comply with policy	16
Sharing research output and increased availability and visibility	8
Was not aware of policy, but willing to comply	7
Central archiving of research output	4
General comments regarding benefits for the individual	4
Significance of the policy	3
General comments regarding benefits for the institution	2

Table 2: Summary of themes of positive comments

Regarding comments that indicate a more negative attitude toward the self-archiving policy, the most frequent theme to emerge from the comments concerns uncertainty regarding the deposit process and in some cases unawareness regarding compliance to the policy, for example “I am not sure what the reasons or the benefits are, and how much effort it requires” and “[I] am not sure what it entails”. The second prevalent theme to emerge concerns the fact that researchers view self-archiving as an administrative burden, for example “It adds an extra administrative process in an already busy schedule” and “At the moment it just seems like another administrative chore that I'd rather delay, because there are other more urgent tasks demanding my attention”.

Another prevalent theme was the fact that researchers are not convinced that self-archiving in the repository adds to the visibility of their research output and four of them mention that they deposit

their work on other platforms, for example “I have my research output on Research Gate. Therefore not that much gain in visibility by also having it on Sun Scholar” and “Already subscribed to international archiving services which have wider reach”. Time constraints and concerns regarding copyright issues were also commented on. A summary of the most prevalent themes in the negative comments are shown in table 3.

<i>Comment theme</i>	<i>Frequency of theme</i>
Uncertainty regarding and / or unawareness of deposit process	15
Administrative burden	7
Not convinced that self-archiving adds to the visibility of research outputs	7
Time constraints	5
Concerns regarding copyright issues	3

Table 3: Summary of themes negative comments

Some comments pointed to a lack of understanding of the purpose of the policy and the repository rather than a specific negative or positive attitude, for example “Is it simply duplicating Scopus [?]” and “All papers published are available through library data bases”. Three respondents notably commented that they believed the repository to be only for preserving theses and dissertations, for example “Did not realise before of the need to self-archive copies of research output other than student theses”.

Respondents were asked to identify potential barriers to complying with the self-archiving policy by selecting from a list of four options namely uncertainty regarding copyright issues, uncertainty regarding the deposit process, uncertainty regarding the version of research outputs to be deposited and lastly that they do not believe self-archiving to be beneficial. A fifth option where respondents could specify other barriers was also included. From this option the following themes were identified, namely lack of awareness of the policy, self-archiving being an administrative burden, other options of archiving research outputs are available and time constraints. These are in also line with the comments identified and summarised in table 3. A summary of the barriers is presented in figure 8 below.

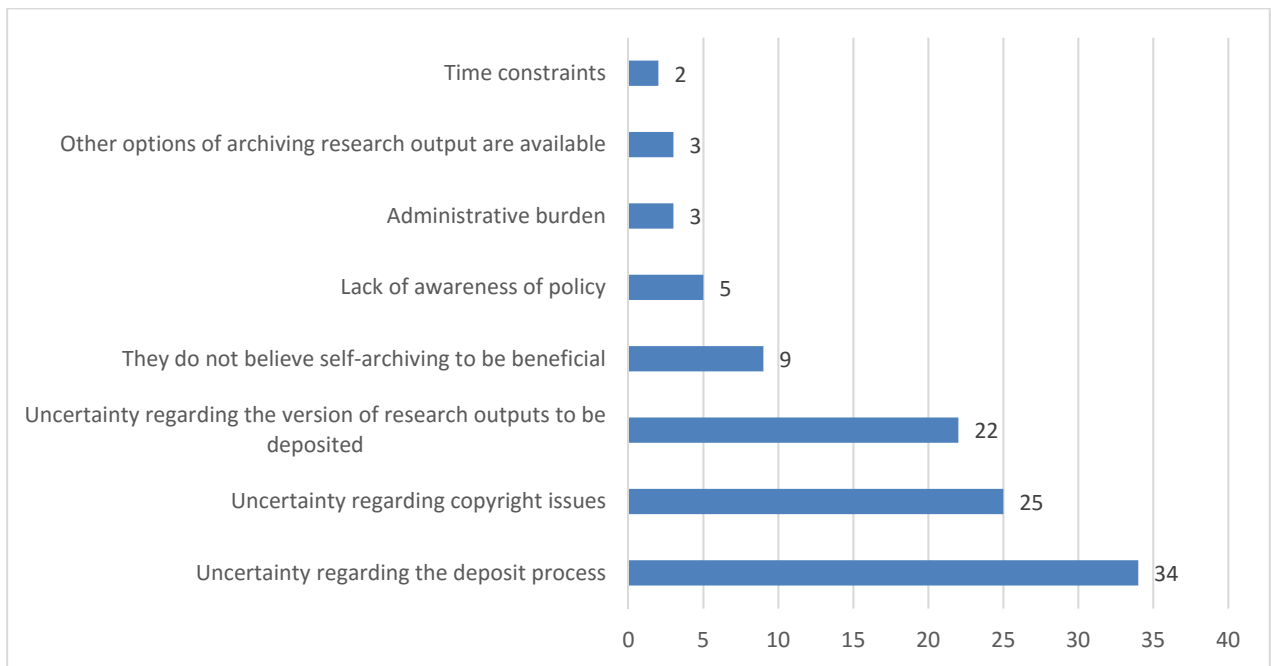


Figure 8: Barriers to self-archiving

The barrier mentioned the most by respondents was uncertainty regarding the deposit process. As was reported in section 2.5, this is in line with the findings of Yang and Li (2015) who state that researchers are not necessarily against the concept self-archiving, but unaware of the deposit process. It is also in line with the findings of Manjunatha and Thandavamoorthy, 2011:109, Koulouris et al, 2013:776, Betz and Hall, 2015:55 and Thompson, Akeriwe and Aikins, 2016:332 who state that the user experience regarding deposit of articles in institutional repositories should be taken into account. Concerns regarding copyright issues and the version of research outputs to be deposited were also mentioned frequently by respondents. These issues are also mentioned in the literature as general barriers towards self-archiving (Cullen and Chawner, 2011:469 and Brantley, Bruns and Duffin, 2015:434).

Few respondents mentioned that researchers may not believe self-archiving to be beneficial as a barrier. This, once again, echoes that finding that Stellenbosch University researchers are in general not negatively inclined to the policy itself.

An open-ended question regarding what the Library and Information Service can do better in order to persuade researchers to comply with the self-archiving policy was included in the questionnaire. Forty-five researchers opted to comment or provide suggestions. These comments are further discussed in chapter five with regards to recommendations, but are included in this discussion as the themes which emerged from the comments correlate to the barriers identified by researchers. A summary of the themes are presented in table 4.

<i>Comment theme</i>	<i>Frequency of theme</i>
Increase awareness of self-archiving by communication and providing information	15
Library should assist with the process	9
Explain the process better	8
Simplify the process and / or align with existing processes	7
Explain and showcase benefits and impact	6
Provide training	5
Provide incentives for researchers to comply	3
Library has done enough	2

Table 4: Summary of themes relating to barriers

The most prevalent theme to emerge concerned increasing awareness of self-archiving by providing information and improving communication between the library and researchers, for example “Inform staff of the policy” and “Personal communication between library staff and researchers”. This points to the fact that researchers seem to experience a relatively high level of uncertainty regarding self-archiving and this is in line with the most prevalent negative theme, namely uncertainty regarding and / or unawareness of deposit process, to emerge from comments regarding future deposit. It is further in line with the most prevalent barrier to self-archiving identified by researchers, which is uncertainty regarding the deposit process.

Some of the other themes, for example that the library should assist with the process of self-archiving and that the process of self-archiving should be simplified or aligned with existing processes also correlate with the themes of self-archiving being an administrative burden and time consuming, which were identified in the comments regarding future deposit. It is also reflected in the barriers specified by researchers themed as “administrative burden” and “time constraints”.

4.6 Benefits of complying with the self-archiving policy

This section explores the sub-question of what value Stellenbosch University researchers see in self-archiving by looking at the reported perceived benefits of complying with the self-archiving policy.

Respondents were asked to select the main benefits of complying with the self-archiving policy from a drop-down list in the questionnaire. The list of benefits mirrors the general benefits of institutional repositories as discussed in chapter two, section 2.3, and depicted in table 1 in the chapter. The reason for this is that most of the benefits of self-archiving policies discussed in the literature refer to benefits for the repository itself in terms of growth and use (Kennan, 2011:302, Xia et al, 2012:97, Pinfield et al, 2014:2406 and Betz and Hall, 2015:43) and benefits regarding the acceleration of green Open Access (Harnad, 2015b:133). For this study, it was, however, important to find out what benefits

researchers perceive for themselves, their institution and in terms of good scholarly communication, in order to expand on their attitudes towards self-archiving.

From the results summarised in figure 9 it is clear that researchers most frequently mentioned individual benefits such as enhanced visibility and impact of their research output, centrally archiving their research output and sharing it with peers. Compliance with institutional requirements was also mentioned frequently, which is in line with the theme of “willingness to comply with the policy” which was detected as being most frequently mentioned in the comments (see table 2). The so-called “greater good” benefits of sharing research findings with the public or community (Harnad, 2015b:134 and SPARC, 2017) was mentioned less frequently. Not many researchers viewed analysis of research performance as a benefit and this is understandable as the SUNScholar repository currently does not offer an active service to researchers in terms of analysis of research performance, although it does have the potential to track performance in terms of views and downloads of research output. Retention and control of copyright was also only mentioned by a few researchers. This is also not unexpected as the literature shows that researchers in general have concerns regarding copyright in institutional repositories (Cullen and Chawner, 2011:469) and do therefore not really see retention and control of copyright as a potential benefit of self-archiving. Only ten researchers reported that they do not know of any benefits as they are not familiar with the concept of self-archiving, while only six mentioned no benefits at all. These six respondents represented different faculties with two being from the Science Faculty and one each from Economic and Management Sciences, Arts and Social Sciences, Agri-Sciences and Medicine and Health Sciences. This means that no significant difference in attitude relating to discipline, as reported in the literature in section 2.5, can be determined. Regarding age and rank, four of the six respondents represented the youngest age group, namely 31-40 years old, with one representing the 41-50 age group and one the 61+ age group. This is not in line with what is generally reported in the literature relating to younger researchers being more “enthusiastic about the benefits” of self-archiving (see Cullen and Chawner, 2011:467, as was reported in section 2.5).

The acknowledgement of the benefits of self-archiving by Stellenbosch University researchers as summarised in this section strengthens the argument that these researchers have a relatively positive attitude towards self-archiving and do perceive self-archiving to have value.

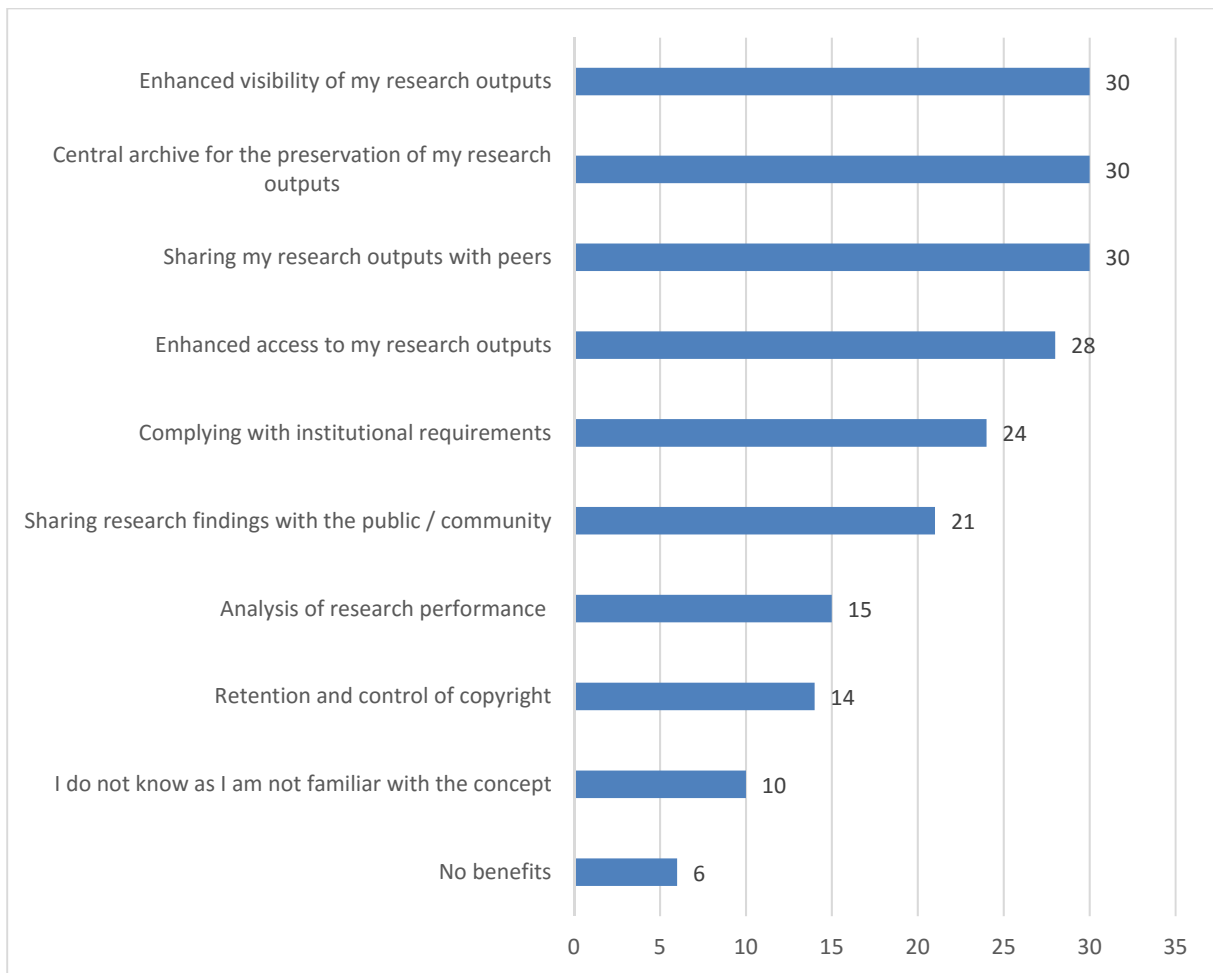


Figure 9: Benefits of self-archiving

The next section discusses the value perceived by Stellenbosch University researchers in using the repository and explores what correlation there exists between Stellenbosch University researchers' perceived and documented benefits of using an institutional repository.

4.7 Value perceived by Stellenbosch University researchers in using the repository

This section seeks to address the sub-question of what value Stellenbosch University researchers see in using the repository and what correlation there is between Stellenbosch University researchers' perceived and the documented benefits of using a repository.

Respondents were asked to select the main benefits of complying with the self-archiving policy from a drop-down list in the questionnaire. The list was informed by the main value and benefits of institutional repositories as discussed in the literature. The results of this question are depicted in figure 10.

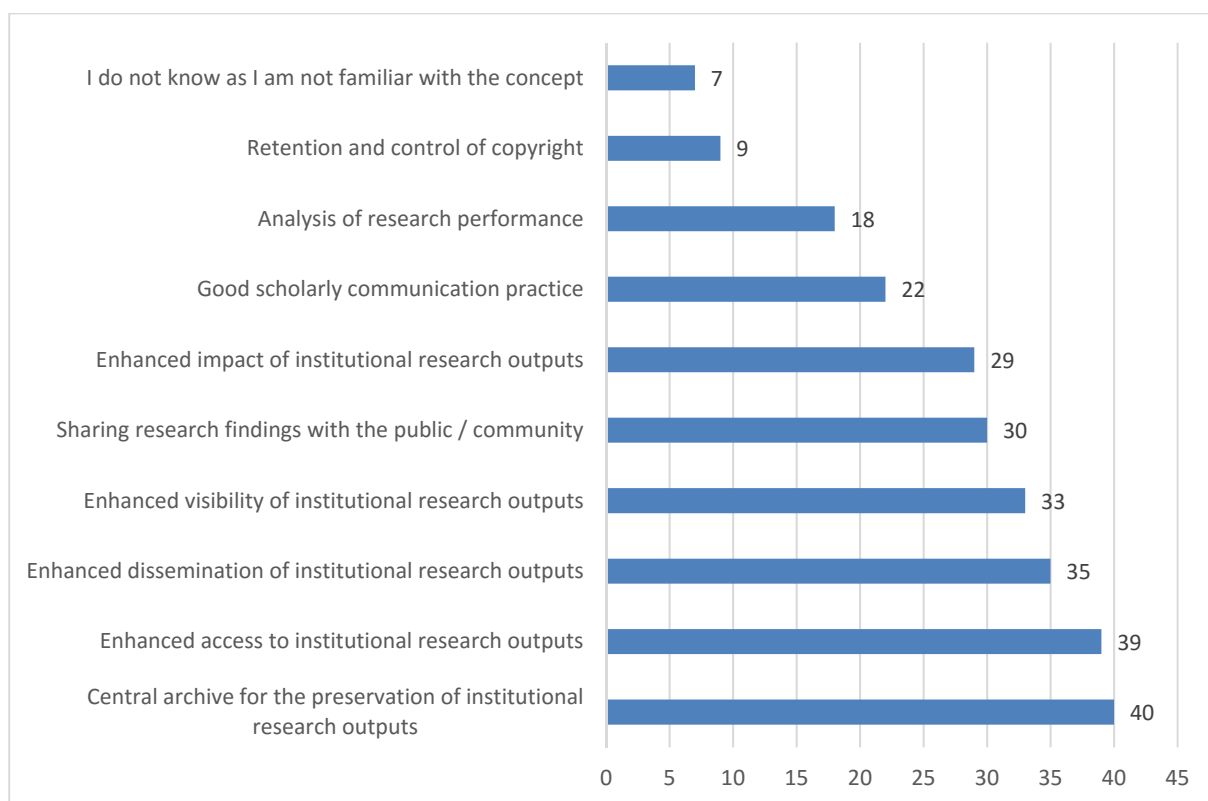


Figure 10: Benefits of the institutional repository

The most mentioned (40 times) benefit was that the institutional repository serves as a central archive for the preservation of institutional research outputs, closely followed by the benefits of enhanced access to institutional research outputs (39 times), enhanced dissemination of institutional research outputs (35 times) and enhanced visibility of institutional research outputs (33 times). These benefits all relate to the aspects of accessibility and visibility of research outputs and are all frequently mentioned in the literature as benefits of institutional repositories and having value for both the researcher and the institution (Organ, 2006, Jain, Bentley and Oladiran, 2009:4, Kennan, 2011:303, Ale-Ebrahim et al, 2014:121, Stevenson and Zhang, 2015:1521 and Lee et al, 2015:1) – refer to section 2.3 for detail.

Sharing research findings with the public and community and enhanced impact of institutional research outputs were mentioned 30 and 29 times respectively and also relates to aspects of accessibility and visibility. This finding is aligned with the benefits of institutional repositories mentioned in the literature, for example Ale-Ebrahim et al (2014:121) and Jain, Bentley and Oladiran (2009:4) who believe that visibility of research output in repositories can lead to higher impact.

A number of articles in the literature cite one of the main benefits of institutional repositories as having the potential to change scholarly communication practices for the better (Prosser, 2003:167, Lynch, 2003:1, Harnad et al, 2008:37, Gibbons, 2009:13, Cullen and Chawner, 2011:469 and Marsh,

2015:164). This benefit, however, was one of the lesser mentioned benefits as perceived by Stellenbosch University researchers and was mentioned only 22 times. Analysis of research performance also proved to be one of the lesser mentioned (18 times) benefits in this study. This correlates with the findings of Cullen and Chawner (2011:462) who state that although institutional repositories may be able to provide value added services in terms of analysing research performance, librarians are more often aware of these benefits than researchers are.

Retention and control of copyright was the least mentioned benefit, only being mentioned nine times. This once again relates to the findings of Cullen and Chawner, 2011:469, mentioned earlier in this chapter, which state that it is common for researchers to have concerns about copyright in institutional repositories. These concerns would likely have researchers view retention and control of copyright as the least beneficial aspect of institutional repositories.

A benefit which was not listed as a specific benefit in the dropdown list provided to respondents in the questionnaire concerns is the value of making theses and dissertations available on repositories and is mentioned as a benefit by many authors including Cullen and Chawner (2011:469), Ezema and Ugwu (2013:493), Björk, Laakso, Welling and Paetau (2014:239), Marsh (2015:165) and Thompson, Akeriwe and Aikins (2016:328). This was, however, mentioned by a few researchers in comments, for example “It is useful for theses, which are not usually available otherwise” and “It is a nice solution to a non-problem. (Except for theses.)”.

In general, the findings of this study with regards to the value and benefits of institutional repositories correlates with the findings of the literature in general and this is evident when considering the findings of, for example, Cullen and Chawner (2011:465) who rate the benefits of institutional repositories as perceived by researchers from highest to lowest as:

- “They give the work of the institution more exposure”
- “Institutional repositories help institutions organize their research output and preserve it long term”
- “They give the work of the individual researcher more exposure”
- “They represent an exciting new mode of scholarly communication”
- “They reduce the dependence of tertiary institutions on increasingly expensive modes of scholarly/research publishing”

These findings mirror the findings of this study where benefits of visibility and central preservation for researchers and the institution are rated higher than benefits concerning scholarly communication practices.

4.8. Conclusion

In this chapter the alignment between what was reported in literature and findings from this research, concerning the value and benefits of institutional repositories and self-archiving policies, is very clear. The barriers experienced by researchers regarding self-archiving also aligns with what was reported in the literature; as does the fact that researchers generally do not seem opposed to the principle of self-archiving.

Some findings in the chapter do, however, vary from the literature, for example the fact that researchers at Stellenbosch University exhibit a high level of awareness of the institutional repository. The significant difference in attitude and awareness according to discipline and/or age of researchers, which is found in the literature, could also not be proven in the results of this study and is thus another finding which varies from the literature.

Chapter 5: Recommendations and conclusion

5.1 Introduction

This chapter discusses recommendations relating to the main question and sub-questions of this study in the light of the findings discussed in chapter 4. This chapter also serves as a conclusion.

As was reported in section 1.2 of this report, the objectives of the study were to examine to what extent Stellenbosch University researchers are aware of the institutional repository (IR) and the Stellenbosch University's self-archiving policy, what their attitude towards the institutional repository and self-archiving is and is and how they use the institutional repository and perceive the benefits of self-archiving. These objectives were used to develop the following guiding research questions:

Research questions

The main research question of the study is: to what extent are researchers at Stellenbosch University aware of the **value and benefits** of the institutional repository and the university's self- archiving policy? Chapter 4 reports extensively on the results from the research conducted. The response to the question is reported in brief in section 5.1.7 below.

Six sub-questions supported/underpinned the main question. These were the following:

1. What is the documented value of a self-archiving policy or mandate for building an institutional repository?
2. What are the documented benefits of preserving and making research output available in institutional repositories?
3. What is the **level of awareness** that Stellenbosch University researchers have of the university's self-archiving policy and its institutional repository?
4. What is the general attitude towards the university's self-archiving policy and depositing research output in an institutional repository?
5. What value do Stellenbosch University researchers see in self-archiving?
6. What correlation is there between Stellenbosch University researchers' perceived and the documented benefits of using the repository?

The response to each of the questions is discussed briefly in the sections below – starting first with the sub-questions and then answering the main research question.

5.1.1 The documented value of a self-archiving policy or mandate for building an IR

From the literature review it can be concluded that self-archiving policies or mandates are viewed as valuable in terms of building institutional repositories and increasing participation in and use of institutional repositories as was discussed in section 2.4 of this report. Self-archiving policies in general promote and encourage green open access, but many institutions still do not have self-archiving policies, as discussed in section 2.2.3, Stellenbosch University being one of only seven institutions in South Africa with an institutional self-archiving policy in place.

5.1.2 Benefits of preserving and making research output available in IRs

The concept of institutional repositories is well established in terms of scholarly communication as discussed in section 2.2.2 of this report. The value of institutional repositories is widely recognised in the literature as seen in sections 1.6 and 2.2.2 of this report and institutional repositories play a crucial role in making research outputs widely visible and accessible. The benefits of institutional repositories for society, individual researchers and institutions are also well documented in the literature, as discussed in section 2.3 of this report, and can be broadly summarised as follows:

- Changing scholarly communication practices for the better
- Providing increased access to institutional research output (including theses and dissertations)
- Providing increased access to individual research output, leading to increased impact
- Centrally archiving research output

These findings provided the necessary guidance to inform questions 5 and 10 of the questionnaire and led to the results provided briefly in section 5.1.7.

5.1.3 Stellenbosch University researchers' awareness of the IR and the self-archiving

The analysis of results in this study points to a high level of awareness of the institutional repository among the selected group of Stellenbosch University researchers as reported on in section 4.3. These findings are not in line with the general documented findings regarding awareness of institutional repositories as discussed in section 2.5 of this report which describe an overall lack of awareness among researchers. The high level of awareness of the institutional repository could perhaps be attributed to the fact that the institutional repository has been operational for nine years and secondly to the fact that the Library and Information Service has been successful in raising awareness regarding the repository by means of communication with researchers. This does, however, not mean that the

library should become complacent, but that it should be inspired to continue marketing the institutional repository as an open access initiative as this can impact awareness positively.

According to the results of this study, Stellenbosch University researchers' awareness of the institutional policy on self-archiving is lower compared to their awareness of the institutional repository as such, as reported on in section 4.4. This may be attributed to the fact that the policy has only been in existence for three years. From the data analysis it can be surmised that the majority of the researchers who are aware of the policy became aware of it by means of communication or information provided by the Library and Information Service.

5.1.4 Attitude to self-archiving and depositing research output in the IR

Analysis has shown that the selected Stellenbosch University researchers, in general, have a relatively positive attitude to self-archiving and are willing to comply with the policy, although actual compliance with the institutional policy on self-archiving remains low (see section 4.5). Many barriers to self-archiving which may explain the low compliance have been identified. The main barriers relate to uncertainty regarding the deposit process and unawareness of the policy. There is also a strong indication from the analysis that researchers view self-archiving as an administrative and time consuming burden and that the Library should help researchers with self-archiving.

5.1.5 Value and benefits of self-archiving in the Stellenbosch University IR

The findings of this study indicate that Stellenbosch University researchers perceive self-archiving in the institutional repository to have significant value and benefits. These recognised benefits align with findings in the literature and mostly relate to enhanced access to and visibility of research and central archiving of research output.

5.1.6 Correlation between the perceived and the documented benefits of using the IR

The findings discussed in section 4.7 of this report suggest a strong correlation between Stellenbosch University researchers' perceived value and benefits of institutional repositories and documented value and benefits thereof. The findings in the study mirror findings in the literature where it is reported that researchers generally value the benefits regarding visibility, access and preservation of institutional outputs higher than benefits related to scholarly communication practices.

5.1.7 Awareness of the value and benefits of the IR and the self-archiving policy

In answer to the main research question of this study it can be reported that Stellenbosch University researchers are aware of the value and benefits of the institutional repository and the self-archiving policy to a large extent, but that much can be done to improve their compliance with the policy.

From the findings reported above it was possible to identify remedial actions. These actions are provided as recommendations in section 5.2 and 5.3 below.

5.2 Recommendations

In view of the fact that communication from the Stellenbosch University Library and Information Service seems to be effective, coupled with the fact that many respondents commented on not being aware of the self-archiving policy, as discussed in section 4.5, it is recommended that the Library and Information Service implement a clear marketing and communication strategy regarding the self-archiving policy. A marketing and communication strategy should raise awareness of the institutional policy on self-archiving and could include one or more of the following, derived from respondents' comments regarding what the Library and Information Service do better in order to persuade researchers to comply with the policy, also discussed in section 4.4:

- Information sessions at departmental level
- Information sessions at faculty level
- Personal communication between the library and the individual researchers
- Monthly reminders in terms of compliance with the policy
- Twice yearly sessions dedicated to self-archiving

In light of the suggestions reported in section 4.4 it is recommended that the Library and Information Service offer departmental information sessions annually - to also ensure that any newly appointed researchers become aware of the policy. These sessions should be informative regarding the purpose and process of self-archiving and also showcase the value and benefits of self-archiving. The sessions could be followed up upon with e-mail communication regarding self-archiving and compliance to departments at regular intervals.

Because Stellenbosch University researchers have a positive attitude (see 5.1.4/section 4. above) it is therefore recommended that the Library and Information Service reviews its current processes of deposit and offer expert guidance to researchers in terms of self-archiving. This may improve the

general attitude of researchers to self-archiving and motivate them to comply with the institutional policy on self-archiving.

Once again referring to respondents' comments the following strategies are recommended:

- Align the deposit process with existing administrative processes, for example the annual research output survey at the institution where researchers have to submit details of their research output for reporting and subsidy purposes.
- Review the current deposit process and attempt to develop a simpler process and provide clear guidance and training to researchers in view of the process.
- Consider offering incentives to researchers for complying with the policy.
- Showcase the benefits of self-archiving by for example offering a value added research performance analysis service to researchers, illustrating access to their output in the repository.

It is further recommended that the value and benefits of the institutional repository and self-archiving be continuously and actively marketed by the Library and Information Service to ensure that these open access initiatives remain relevant.

5.3 Recommendations for further research

In light of the fact that it was shown in this study that Stellenbosch University researchers are more aware of the institutional repository than the average other researcher, it is recommended that further research be conducted to find out why this higher level of awareness exists.

5.4 Conclusion

This study has shown that open access is a well-established and familiar scholarly publication strategy with wide reaching benefits. The study has also shown that institutional repositories have recognised value and proven benefits and that the selected Stellenbosch University researchers are aware of their institutional repository and the benefits associated therewith.

The study has further highlighted that self-archiving is an important means to successfully achieving green open access and that most researchers, including Stellenbosch University researchers have a positive attitude towards self-archiving. Despite this attitude, participation in self-archiving remains low at Stellenbosch University and it is clear that libraries should work towards removing the barriers which prevent researchers from complying with self-archiving policies.

Lastly, in view of the results of this study, the investment which Stellenbosch University Library and Information Service has made in terms of the institutional repository, as an open access initiative, is meaningful and should be sustained.

In closing: The institutional repository is perceived as valuable and should therefore be regarded as an asset of the university.

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Appendix A: Stellenbosch University institutional permission



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INSTITUTIONAL PERMISSION:

AGREEMENT ON USE OF PERSONAL INFORMATION IN RESEARCH

Name of Researcher: Maria Cornelia Seyffert-Wirth
Name of Research Project: Perceptions of value: the case of Stellenbosch University Library and Information Service Institutional Repository
Service Desk ID: IRPSD 580
Date of Issue: 22 August 2017

You have received institutional permission to proceed with this project as stipulated in the institutional permission application and within the conditions set out in this agreement. This permission includes documentation analysis, focus group interviews and individual interviews.

1 WHAT THIS AGREEMENT IS ABOUT	
What is POPI?	<p>1.1 POPI is the Protection of Personal Information Act 4 of 2013.</p> <p>1.2 POPI regulates the entire information life cycle from collection, through use and storage and even the destruction of personal information.</p>
Why is this important to us?	<p>1.3 Even though POPI is important, it is not the primary motivation for this agreement. The privacy of our students and employees are important to us. We want to ensure that no research project poses any risks to their privacy.</p> <p>1.4 However, you are required to familiarise yourself with, and comply with POPI in its entirety.</p>
What is considered to be personal information?	<p>1.5 'Personal information' means information relating to an identifiable, living, individual or company, including, but not limited to:</p> <p>1.5.1 information relating to the race, gender, sex, pregnancy, marital status, national, ethnic or social origin, colour, sexual orientation, age, physical or mental health, well-being, disability, religion, conscience, belief, culture, language and birth of the person;</p> <p>1.5.2 information relating to the education or the medical, financial, criminal or</p>

	<p>employment history of the person;</p> <p>1.5.3 any identifying number, symbol, e-mail address, physical address, telephone number, location information, online identifier or other particular assignment to the person;</p> <p>1.5.4 the biometric information of the person;</p> <p>1.5.5 the personal opinions, views or preferences of the person;</p> <p>1.5.6 correspondence sent by the person that is implicitly or explicitly of a private or confidential nature or further correspondence that would reveal the contents of the original correspondence;</p> <p>1.5.7 the views or opinions of another individual about the person; and</p> <p>1.5.8 the name of the person if it appears with other personal information relating to the person or if the disclosure of the name itself would reveal information about the person.</p>
Some personal information is more sensitive.	<p>1.6 Some personal information is considered to be sensitive either because:</p> <p>1.6.1 POPI has classified it as sensitive;</p> <p>1.6.2 if the information is disclosed it can be used to defraud someone; or</p> <p>1.6.3 the disclosure of the information will be embarrassing for the research subject.</p> <p>1.7 The following personal information is considered particularly sensitive:</p> <p>1.7.1 Religious or philosophical beliefs;</p> <p>1.7.2 race or ethnic origin;</p> <p>1.7.3 trade union membership;</p> <p>1.7.4 political persuasion;</p> <p>1.7.5 health and health related documentation such as medical scheme documentation;</p> <p>1.7.6 sex life;</p> <p>1.7.7 biometric information;</p> <p>1.7.8 criminal behaviour;</p> <p>1.7.9 personal information of children under the age of 18;</p>

	<p>1.7.10 financial information such as banking details, details relating to financial products such as insurance, pension funds or other investments.</p> <p>1.8 You may make use of this type of information, but must take extra care to ensure that you comply with the rest of the rules in this document.</p>
2 COMMITMENT TO ETHICAL AND LEGAL RESEARCH PRACTICES	
You must commit to the use of ethical and legal research practices.	<p>2.1 You must obtain ethical clearance before commencing with this study.</p> <p>2.2 You commit to only employing ethical and legal research practices.</p>
You must protect the privacy of your research subjects.	2.3 You undertake to protect the privacy of the research subjects throughout the project.
3 RESEARCH SUBJECT PARTICIPATION	
Personal information of identifiable research subjects must not be used without their consent.	3.1 Unless you have obtained a specific exemption for your research project, consent must be obtained in writing from the research subject, before their personal information is gathered.
Research subjects must be able to withdraw from the research project.	3.2 Research subjects must always be able to withdraw from the research project (without any negative consequences) and to insist that you destroy their personal information.
Consent must be specific and informed.	<p>3.3 Unless you have obtained a specific exemption for your research project, the consent must be specific and informed. Before giving consent, the research subject must be informed in writing of:</p> <p>3.3.1 The purpose of the research,</p> <p>3.3.2 what personal information about them will be collected (particularly sensitive personal information),</p> <p>3.3.3 how the personal information will be collected (if not directly from them),</p> <p>3.3.4 the specific purposes for which the personal information will be used,</p> <p>3.3.5 what participation will entail (i.e. what the research subject will have to do),</p> <p>3.3.6 whether the supply of the personal information is voluntary or mandatory for</p>

	<p>purposes of the research project,</p> <p>3.3.7 who the personal information will be shared with,</p> <p>3.3.8 how the personal information will be published,</p> <p>3.3.9 the risks to participation (if any),</p> <p>3.3.10 their rights to access, correct or object to the use of their personal information,</p> <p>3.3.11 their right to withdraw from the research project, and</p> <p>3.3.12 how these rights can be exercised.</p>
Consent must be voluntary.	3.4 Participation in the research project must always be voluntary. You must never pressure or coerce research subjects into participating and persons who choose not to participate must not be penalised.
Using the personal information of children?	<p>3.5 A child is anybody under the age of 18.</p> <p>3.6 Unless you have obtained a specific exemption in writing for your research project, you must obtain</p> <p>3.6.1 the consent of the child's parent or guardian, and</p> <p>3.6.2 if the child is over the age of 7, the assent of the child,</p> <p>before collecting the child's information.</p>
Research subjects have a right to access.	3.7 Research subjects have the right to access their personal information, obtain confirmation of what information is in your possession and who had access to the information. It is strongly recommended that you keep detailed records of access to the information.
Research subjects have a right to object.	<p>3.8 Research subjects have the right to object to the use of their personal information.</p> <p>3.9 Once they have objected, you are not permitted to use the personal information until the dispute has been resolved.</p>
4 COLLECTING PERSONAL INFORMATION	
Only collect what is necessary.	4.1 You must not collect unnecessary or irrelevant personal information from research subjects.

Only collect accurate personal information.	<p>4.2 You have an obligation to ensure that the personal information you collect is accurate. Particularly when you are collecting it from a source other than the research subject.</p> <p>4.3 If you have any reason to doubt the quality of the personal information you must verify or validate the personal information before you use it.</p>
5 USING PERSONAL INFORMATION	
Only use the personal information for the purpose for which you collected it.	<p>5.1 Only use the personal information for the purpose for which you collected it.</p> <p>5.2 If your research project requires you to use the personal information for a materially different purpose than the one communicated to the research subject, you must inform the research subjects and Stellenbosch University of this and give participants the option to withdraw from the research project.</p>
Be careful when you share personal information.	<p>5.3 Never share personal information with third parties without making sure that they will also follow these rules.</p> <p>5.4 Always conclude a non-disclosure agreement with the third parties.</p> <p>5.5 Ensure that you transfer the personal information securely.</p>
Personal information must be anonymous whenever possible.	5.6 If the research subject's identity is not relevant for the aims of the research project, the personal information must not be identifiable. In other words, the personal information must be anonymous (de-identified).
Pseudonyms must be used whenever possible.	5.7 If the research subject's identity is relevant for the aims of the research project or is required to co-ordinate, for example, interviews, names and other identifiers such as ID or student numbers must be collected and stored separately from the rest of the research data and research publications. In other words, only you must be able to identify the research subject.
Publication of research	<p>5.8 The identity of your research subjects should not be revealed in any publication.</p> <p>5.9 In the event that your research project requires that the identity of your research subjects must be revealed, you must apply for an exemption from this rule.</p>
6 SECURING PERSONAL INFORMATION	
You are responsible for the confidentiality and	6.1 Information must always be handled in the strictest confidence.

5

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<p>security of the personal information</p>	<p>6.2 You must ensure the integrity and security of the information in your possession or under your control by taking appropriate and reasonable technical and organisational measures to prevent:</p> <p>6.2.1 Loss of, damage to or unauthorised destruction of information; and</p> <p>6.2.2 unlawful access to or processing of information.</p> <p>6.3 This means that you must take reasonable measures to:</p> <p>6.3.1 Identify all reasonably foreseeable internal and external risks to personal information in your possession or under your control;</p> <p>6.3.2 establish and maintain appropriate safeguards against the risks identified;</p> <p>6.3.3 regularly verify that the safeguards are effectively implemented; and</p> <p>6.3.4 ensure that the safeguards are continually updated in response to new risks or deficiencies in previously implemented safeguards.</p>
<p>Sensitive personal information requires extra care.</p>	<p>6.4 You will be expected to implement additional controls in order to secure sensitive personal information.</p>
<p>Are you sending any personal information overseas?</p>	<p>6.5 If you are sending personal information overseas, you have to make sure that:</p> <p>6.5.1 The information will be protected by the laws of that country;</p> <p>6.5.2 the company or institution to who you are sending have agreed to keep the information confidential, secure and to not use it for any other purpose; or</p> <p>6.5.3 get the specific and informed consent of the research subject to send the information to a country which does not have data protection laws.</p>
<p>Be careful when you use cloud storage.</p>	<p>6.6 Be careful when storing personal information in a cloud. Many clouds are hosted on servers outside of South Africa in countries that do not protect personal information to the same extent as South Africa. The primary example of this is the United States.</p> <p>6.7 It is strongly recommended that you use hosting companies who house their servers in South Africa.</p> <p>6.8 If this is not possible, you must ensure that the hosting company agrees to protect the personal information to the same extent as South Africa.</p>

7 RETENTION AND DESTRUCTION OF PERSONAL INFORMATION	
You are not entitled to retain personal information when you no longer need it for the purposes of the research project.	7.1 Personal information must not be retained beyond the purpose of the research project, unless you have a legal or other justification for retaining the information.
If personal information is retained, you must make sure it remains confidential.	7.2 If you do need to retain the personal information, you must assess whether: <ul style="list-style-type: none"> 7.2.1 The records can be de-identified; and/or whether 7.2.2 you have to keep all the personal information. 7.3 You must ensure that the personal information which you retain remains confidential, secure and is only used for the purposes for which it was collected.
8 INFORMATION BREACH PROCEDURE	
In the event of an information breach you must notify us immediately.	8.1 If there are reasonable grounds to believe that the personal information in your possession or under your control has been accessed by any unauthorised person or has been disclosed, you must notify us immediately. <p>8.2 We will notify the research subjects in order to enable them to take measures to contain the impact of the breach.</p>
This is the procedure you must follow.	8.3 You must follow the following procedure: <ul style="list-style-type: none"> 8.3.1 Contact the Division for Institutional Research and Planning at 021 808 9385 and permission@sun.ac.za; 8.3.2 you will then be required to complete the information breach report form which is attached as Annexure A. 8.4 You are required to inform us of a information breach within 24 hours. Ensure that you have access to the required information.
9 MONITORING	
You may be audited.	9.1 We reserve the right to audit your research practices to assess whether you are complying with this agreement.

	<p>9.2 You are required to give your full co-operation during the auditing process.</p> <p>9.3 We may also request to review:</p> <p>9.3.1 Forms (or other information gathering methods) and notifications to research subjects, as referred to in clause 3;</p> <p>9.3.2 non-disclosure agreements with third parties with whom the personal information is being shared, as referred to in clause 5.4;</p> <p>9.3.3 agreements with foreign companies or institutes with whom the personal information is being shared, as referred to in clause 6.5.</p>
10 CHANGES TO RESEARCH	
You need to notify us if any aspect of your collection or use of personal information changes.	<p>10.1 You must notify us in writing if any aspect of your collection or use of personal information changes (e.g. such as your research methodology, recruitment strategy or the purpose for which you use the research).</p> <p>10.2 We may review and require amendments to the proposed changes to ensure compliance with this agreement.</p> <p>10.3 The notification must be sent to permission@sun.ac.za.</p>
11 CONSEQUENCES OF BREACH	
What are the consequences of breaching this agreement?	<p>11.1 If you do not comply with this agreement, we may take disciplinary action or report such a breach to your home institute.</p> <p>11.2 You may be found guilty of research misconduct and may be censured in accordance with Stellenbosch University or your home institute's disciplinary code.</p>
You may have to compensate us in the event of any legal action.	<p>11.3 Non-compliance with this agreement could also lead to claims against Stellenbosch University in terms of POPI and/or other laws.</p> <p>11.4 Unless you are employed by or studying at Stellenbosch University, you indemnify Stellenbosch University against any claims (including all legal fees) from research subjects or any regulatory authority which are the result of your research project. You may also be held liable for the harm to our reputation should there be an information breach as a result of your non-compliance with this agreement.</p>

12 CONTACT US

Please contact us if you have any questions.

Should you have any questions relating to this agreement you should contact permission@sun.ac.za.

Annexure 'A'

Instruction:

Please send this Notice to permission@sun.ac.za. If you have any difficulty completing the Notice, please contact the Division for Institutional Research and Planning at 021 808 9385. You must confirm that the Notice was received.

NOTIFICATION OF INFORMATION BREACH

Name of Researcher: _____

Name of Research Project: _____

Service Desk ID: _____

A security breach happens when you know (or you **reasonably believe**) that there has been:

- (a) loss of Personal Information ("PI")
- (b) damage to PI
- (c) unauthorised destruction of PI
- (d) unauthorised access to PI
- (e) unauthorised processing of PI

Date and time of security breach:	
Brief description of the security breach (what was lost and how). Please identify the equipment, software and/or physical premises and whether it is by hacking, lost device, public disclosure (email), theft or other means:	
Name of the person/s responsible for the security breach (if known):	
Is the security breach ongoing?	
Describe the steps taken to contain the security breach:	
What steps are being taken to investigate the cause of breach?	

Appendix B: E-mail cover letter

Dear colleague

My name is Mimi Seyffert-Wirth, a student at the Department of Information Studies at the University of Pretoria and a staff member of Stellenbosch University Library and Information Service. I would like to invite you to take part in a survey, the results of which will allow the Library and Information Service to improve its services to researchers and will also contribute to a research project in order to complete my Masters of Information Technology.

The purpose of this study is to determine to what extent Stellenbosch University researchers are aware of the value and benefits of the Institutional Repository (SUNScholar) and the university's self-archiving policy. You were selected as a participant based on your NRF rating as a C-rated or Y-rated researcher, recognised for having contributed a body of quality work in your discipline. Participation should not take more than 10 minutes of your time.

Copies of Stellenbosch University institutional permission for the study, as well as ethical clearance from the University of Pretoria may be accessed here: [SU permission](#) / [UP ethical clearance](#).

Yours sincerely

Mimi Seyffert-Wirth

Appendix C: Questionnaire

*Dear prospective participant

Please take some time to read the information presented here, which will explain the details of this project.

Your participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

The purpose of this study is to determine to what extent Stellenbosch University researchers are aware of the value and benefits of the Institutional Repository (SUNScholar) and the university's self-archiving policy.

The questionnaire will take approximately 10 minutes to complete and will contain a combination of questions covering researchers' awareness of the Institutional Repository and the self-archiving policy, their attitude to depositing research outputs in the Institutional Repository and their perception of the value and benefits of the repository and the self-archiving process.

RIGHTS OF RESEARCH PARTICIPANTS:

You have the right to decline answering any questions and you can exit the survey at any time without giving a reason.

You are not waiving any legal claims, rights or remedies because of your participation in this research study.

Your information and response to the survey will be protected by the fact that all research responses collected will be anonymised and treated as confidential.

If you have any questions or concerns about the research, please feel free to contact the researcher, Mimi Seyffert-Wirth (mseyf@sun.ac.za) and/or the Supervisor, Dr Martie van Deventer (mvandeve2017@gmail.com).

- I agree to take part in this survey
- I decline to take part in this survey

***Faculty:**

- AgriScience
- Arts & Social Sciences
- Economic & Management Sciences
- Education
- Engineering
- Law
- Medicine & Health Sciences
- Military Science
- Science
- Theology
- Other:

***Age category:**

- 20-30
- 31-40
- 41-50
- 51-60
- 61+
- I prefer not to say

***Are you aware of the Stellenbosch University institutional repository (IR), SUNScholar, managed by the Library and Information Service?**

- Yes
- No

How did you become aware of the institutional repository?

- Bi-annual graduation process
- From colleagues
- Communication from your department / faculty
- Communication / information provided by the Library and Information Service
- Other:

What do you perceive as the main benefits of an institutional repository as a digital system of capturing, archiving and managing institutional research outputs? Please mark all that apply.

- I do not know as I am not familiar with the concept
- Enhanced access to institutional research outputs
- Enhanced dissemination of institutional research outputs
- Enhanced visibility of institutional research outputs
- Enhanced impact of institutional research outputs
- Central archive for the preservation of institutional research outputs
- Analysis of research performance
- Retention and control of copyright
- Good scholarly communication practice
- Sharing research findings with the public / community
- No benefits
- Other:

***Are you aware of the Stellenbosch University institutional policy on the self-archiving of research output, adopted in December 2014, which requires researchers with a Stellenbosch University affiliation to deposit copies of their research output in the institutional repository?**

- Yes
- No

How did you become aware of the self-archiving policy?

- From colleagues
- Communication from your department / faculty
- Communication / information provided by the Library and Information Service
- Other:

***Have you ever deposited copies of your research output in the repository in compliance with the policy?**

- Yes
- No

How do you deposit your research output to the repository? Please mark all that apply.

- I registered as a submitter on the repository
- Via my faculty librarian
- Via the Digital Scholarship division in the library
- Other:

What do you perceive as the main benefits of complying with a self-archiving policy which requires researchers to deposit copies of their research output in an institutional repository? Please mark all that apply.

- I do not know as I am not familiar with the concept
- Enhanced access to my research outputs
- Sharing my research outputs with peers
- Enhanced visibility of my research outputs
- Enhanced impact of my research outputs
- Central archive for the preservation of my research outputs
- Analysis of my research performance
- Retention and control of copyright
- Complying with institutional requirements
- Sharing research findings with the public / community
- No benefits
- Other:

In your opinion - what barriers prevent staff from complying with the self-archiving policy? Please mark all that apply.

- Uncertainty regarding copyright issues
- Uncertainty regarding the deposit process
- Uncertainty regarding the version of research outputs to be deposited
- They do not believe self-archiving to be beneficial
- Other:

***Would you consider depositing copies of your research output in the repository in future?**

- Yes
- No
- Uncertain

Please explain the choice you made above:

What can the Library and Information Service do better in order to persuade researchers to comply with the self-archiving policy?

Please state any general questions or comments you may have regarding the institutional repository.

Please state any general questions or comments you may have regarding the self-archiving policy.

Appendix D: University of Pretoria ethical clearance



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Enquiries : Dr Marlene Holmner
Tel. nr. : +27 (0)12 420-5215
Fax nr. : +27 (0)12 362-5181
E-mail : marlene.holmner@up.ac.za
Office : IT 6-43

**Faculty of Engineering, Built
Environment and Information
Technology**

School of Information Technology

2017-08-02

ETHICAL CLEARANCE FOR MIMI SEYFFERT-WIRTH

Dissertation Title: Perceptions of value: the case of Stellenbosch
University Library and Information Service Institutional Repository

This is to confirm that the Research Committee of the Department of Information Science approved the application by Mimi Seyffert-Wirth for ethical clearance. Ms Seyffert-Wirth complied with the standard requirements for ethical clearance as set out by the University of Pretoria's Faculty of Engineering, Built Environment and Information Technology (EBIT), as follows:

- She signed and submitted all the application forms required for ethical clearance;
- She submitted her data collection instruments for vetting by both the Research and Ethics Committees; and
- She implemented all corrections recommended by the above-mentioned committees.

The Research Committee of the Department of Information Science therefore requests permission for Ms Seyffert-Wirth to collect the data she needs in order to complete and submit her mini-dissertation for examination. The Committee further appreciates any effort by appropriate authorities to expedite this process, and expresses its gratitude in anticipation.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'M. Holmner', written over a dotted line.

Dr Marlene Holmner

Dr Marlene Holmner
Academic Coordinator: Carnegie MIT
Department of Information Science
E-mail: marlene.holmner@up.ac.za