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**Scholars and Institutional Repositories: Perceptions of
Academic Authors towards Self -Archiving their Scholarly
Works in the Bergen Open Research Archive**

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Master thesis
International Master in Digital Library Learning
2010

Declaration

I certify that all materials in this dissertation which is not my own work has been identified and that no material is included for which a degree has previously been conferred upon me.

.....*Bullola*..... (Signature of candidate)

Dedication

Dedicated to my nieces Kelly, Julie and Mambo ,and my nephew Wetsho.

Keep aiming high, the sky is the limit.

Acknowledgements

I wish to express my sincere gratitude and thanks to God Almighty for His never-failing love and guidance throughout my writing of this thesis.

I would also like to convey my heartfelt gratitude to the European Union for awarding me an Erasmus Mundus scholarship which enabled me pursue my studies and thereby add to the wealth of my knowledge.

My gratitude and appreciation also extend to the following people who rendered significant help in the development of this thesis:

My supervisor, Professor Ragnar Nordile for his invaluable professional advice, encouragement and for his many hours of proof-reading the draft chapters of the thesis;

My DILL lecturers; Nils Pharo, Anna-Maria Tammaro, Sirje Virkus, Aira Lepik, Pat Dixon and Vittore Casarosa for their support and guidance throughout the course of my study;

Professor and Dr. Totolo for always being there for me and for making me see opportunities I would otherwise have missed. Their love, support and advice will always be cherished;

Dr. Jorosi, for his remarkable patience and, kindness and for always availing himself when I needed his assistance;

My friend Charity Bbalo, for her generous work of editing my scripts. I will always be grateful for her assistance;

My mother ,Lesegonyana Hulela; my grandmother, Kejeleng Hulela; my sisters, Annie and Kobe; my brother in law, Julius and my nieces and nephew for believing in me and for their never-ending love and support which kept me going even in tough moments. They are the props of my life;

Mr. and Mrs. Jussa for their kindness and for generously running my errands throughout the two years I had been away from home;

My DILL course mates especially Florence Mirembe for making my academic life an appreciable experience and for enriching my life with their love and friendship; and

All my relatives and friends, too numerous to mention, who stood by me and encouraged me to pursue my dreams.

My special thanks and gratitude go to the University of Bergen Library for granting me permission to carry out my research using data from their institution. The Bergen Open Research Archive staff: Ole Evensen Gunner, Monica Roos, Ingrid Cutter, Irene Eikefjord and Heidis Hofstad, deserve special acknowledgement for their generous support and assistance.

Finally, I thank the Government of Botswana for their encouragement and for granting me unpaid study leave. I will always remember their kindness and support in my endeavors.

Acronyms

BOAI: Budapest Open Access Initiative

BORA: Bergen Open Research Archive

Frida: **F**orskning**s**resultater, **i**nformasjon og **d**okumentasjon av vitenskapelige **a**ktiviteter

IR: Institutional Repository

IRs: Institutional Repositories

NORA: Norwegian Open Research Archive

OA: Open Access

OAI: Open Access Initiative

OSI: Open Society Institute

PEPIA: Project for Electronic Publications and Institutional Archives

SPARC: The scholarly Publishing & Academic Resources Coalition

UB- University of Botswana

UHR: Norwegian Association of Higher education Institutions

UiB- University of Bergen

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Abstract

This study describes the perceptions of academic authors towards self-archiving; specifically exploring the motivations and deterrence factors influencing decisions to deposit their works in an institutional repository (Bergen Open Research Archive). The study investigates factors influencing self-archiving in general in terms of constructs based on Kim`s (2008) work.

The research question addressed is what are the motivation and deterrence factors influencing academic authors to deposit their scholarly works in the Bergen Open Research Archive (BORA). The study participants consist of 50 academic authors from seven departments at the University of Bergen. A questionnaire was used for data collection. Additionally, academic authors from the University of Botswana were also surveyed to contrast the findings with the ones from the University of Bergen.

The findings show that altruism is the most motivating factor that influences academic authors to deposit their work in an institutional repository. The academic authors also perceive an institutional repository as a secure place to preserve their scholarly works. However, regarding copyright concerns and additional time and effort required for depositing work to an institutional repository, the results provide evidence that these might be major deterrents to IR contribution. The results of this study will provide insight to BORA administrators in their attempt to improve the services of the repository while supporting open access of scholarly works.

Key words: Self-Archiving, Institutional Repository, Archives, Academic Authors, Scholars, Open Access, University of Bergen, Norway.

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Chapter 1: Introduction

1.1. Problem Context

The purpose of this study was to investigate the perceptions which academic authors have regarding self-archiving as well as the motivation and deterrence factors influencing their participation or contribution to the University of Bergen Institutional Repository (Bergen Open Research Archive). Kim`s model of factors influencing self-archiving behavior has been applied and used as a point of departure. This study was motivated by the fact that open access (OA) advocates that researchers should make their research literature freely accessible online (without expectations of monetary benefits).

“By "open access(OA)" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself” (Budapest Open Access Initiative, 2002).¹

Libraries worldwide are facing major challenges of cost increases in many scholarly journals and budgetary cutback. Scholars and researchers are faced with major barriers of lack of access to the current literature in their field because the libraries can no longer purchase all the needed journals due to high prices. Reflecting back on my work experience as a Librarian at Botswana National Veterinary Laboratory, I used to be always devastated when the library missed the traditional subscriptions for some journal issues due to budget cuts. The bound journals normally had missing issues and the number of subscribed journals was subsequently decreasing every passing year. This did not only frustrate me but the researchers as well were subdued by the fact that they could not find the quality literature to refer to when doing their researches or conducting veterinary tests. Therefore, this rapid increase in the prices of traditional journals and the diminishing library budgets creates a demand for open access publications. The principle or the initiative of open access is way of increasing continuity and efficiency in research if

¹ <http://www.soros.org/openaccess/read.shtml>

researchers can maximize their access to the literature (Velterop, 2004). Open access for research literature bridges the gap between the haves and have-nots in terms of access to research literature or scholarly work.

Open access can be achieved through two different strategies, the golden road and the green road. The former refers to publishing in an open access journal while the latter is through self-archiving in different venues such as subject or institutional repositories. This study was interested in the latter strategy which can be achieved if only the researchers are motivated to participate in the repositories by contributing their scholarly work to them. Recruiting content contributors is always a “hard nut to crack.”

1.2. Problem Statement

Like several other prominent councils, the Norwegian Association of Higher Education Institutions (UHR)² has gone out of its way to raise awareness of open access publishing, both in the higher education and research sectors. In 2005, the UHR published and distributed a letter to all its member institutions, which proved to be a landmark in the development of open access. The letter encouraged the institutions to recommend that researchers publish their research results in peer reviewed open access journals. It also made a strong recommendation about the establishment of an institutional repository that would guarantee free availability of pre-print, post-print and accepted doctoral theses. This accelerated the development of open access in both university and college Libraries in Norway. Each institution had to make different innovations to provide open access to research information. The University of Bergen was amongst the early adopters of the concept of Institutional repository; it established its open institutional repository (Bergen Open Research Archive)³ in 2004.

However, the success of the open access institutional repository could be measured by the extent to which it captures a large number of the scholarly works produced by university communities,

² http://www.uhr.no/om_uhr/about_uhr

³ <https://bora.uib.no/>

that is, where the university community (faculty, researchers and students) is committed to contribute to its institutional repositories (Thomas,2007). Academic authors are seen to be vital content contributors of institutional repository, yet several studies reports low rates of academic authors' contribution to institutional repositories (Grundmann, 2009, Davis and Connolly, 2007, Smith, 2008, Foster and Gibbons 2005, Kim, 2008, Allen, 2005). What really makes the academic authors reluctant to participate into institutional repository? Since academic authors are expected to be main contributors of BORA, investigating the factors that can either motivate or deter them from contributing is cardinal. There seems to be a rather scarce amount of studies relating to motivation and deterrence of depositing scholarly work in institutional repositories in Norway.

This study is an attempt to bridge this gap and focus on the Bergen Open Research Archive. The research asks the question: What motivation and deterrence factors influence academic authors to deposit their scholarly work to the Bergen Open Research Archive?

The aim of this research is to explain the perceptions of academic authors` behavior towards self-archiving.

The specific objectives are:

- To investigate the factors that motivates academic authors to deposit their work in Bergen Open Research Archive.
- To find out whether there are any factors that hinder authors from depositing their work in Bergen Open Research Archive.
- To investigate the factors influencing academic authors to deposit their scholarly works in self-archiving venues

1.3. Research questions

- What factors motivate academic authors to deposit their work into the Bergen Open Research Archive?
- What are the factors that become barriers or deterrents to academic authors in depositing

scholarly works in Bergen Open Research Archive?

1.4. Significance of Study

This is the first study of this kind carried out at the University of Bergen. Therefore, information gathered as a result of this study will provide insight to BORA administrators in their attempt to improve the services of the repository while supporting open access of scholarly works. They will better understand the factors that influence academic authors to contribute and not to contribute and come up with appropriate policies or service models. This research can also be useful worldwide. Other institutions who could experience similar problems of low participation to IR may find some of the results worthwhile. Moreover, the result of this study will hopefully be useful in stimulating further research on self-archiving behavior and also contribute to the existing body of knowledge.

1.5. Delimitations of the Study

The research is limited to the University of Bergen. In particular, it focuses on the university academic authors, notably the faculty, non-faculty researchers and PhD students. The choice of the University of Bergen was due to the fact that it was one of the first main universities in Norway to implement an institutional repository. Secondly, the University of Bergen is an international research university dedicated to advancing research, science and higher education. It is involved in extensive international collaboration and has signed bilateral agreements with universities, research institutions and academic centers of excellence worldwide. The researcher also worked there as an intern and is familiar with the University's Institutional Repository.

Additionally, academic authors from the University of Botswana were also surveyed to contrast the findings with the one from the University of Bergen. However, it is worth noting that the study's focus is the University of Bergen, it does not purport to be a comparative study.

1.6. Theoretical framework

This study employs a model of factors that influence faculty contribution to IRs proposed by Kim (2008) to determine the perceptions of academic authors regarding motivators and inhibitors of participating to Bergen Open Research Archive, using the five constructs: Costs, perceived intrinsic and extrinsic benefits, individual characteristics, and contextual factors. The model was developed based on the socio-technical network model and social exchange theory and it depicts the relationship between various factors and the contribution to an IR. See section 3.3 for details. Figure 1.1 below depicts the constructs of Kim`s model.

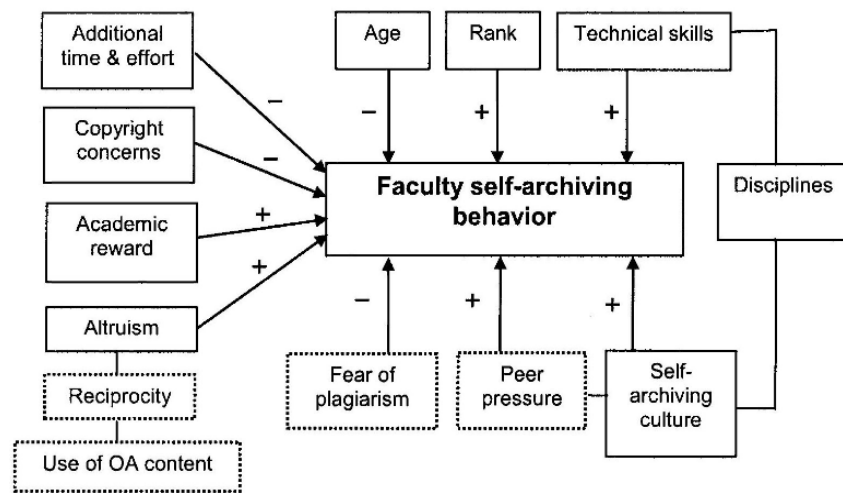


Figure 1.1 Model of Factors affecting Self-archiving Behavior

1.7. Thesis Organization

This thesis is organized to accomplish the objectives defined above. The thesis consists of 5 chapters, including the present introductory chapter. Chapter 2 discusses the concept of open access, self-archiving, and institutional repository and review literature of the past research similar to this studies. Chapter 3 describes the methodology employed in this study. A chapter 4 provides the results and data analysis. Chapter 5 concludes with an overall summary of findings, recommendations and suggestions for further research.

CHAPTER 2: LITERATURE REVIEW

"Researchers must take back the publication process and publish through open access. Then we can reach our readers directly. I like to compare this with the extinction of the dinosaurs. Just as the dinosaurs had to die out, so too will the publishing houses be forced to their knees and open access will become the main channel for scientific publication." palaeontologist Jørn Hurum⁴

"It is a nice thought that all research will be publicly accessible, but problems will arise if the guidelines steering publication in that direction are too stringent, we researchers must be able to decide ourselves when and where our research will be published. We know best what the most suitable channels are. The requirement to publish in open channels must not lead to a re-examination of researchers' rights," said Professor Torvund⁵

2. Introduction

Self-archiving is an area which has been investigated by many researchers from different disciplines. The subject has been tackled from a wide range of perspectives and the researchers have come up with various findings, depending on the areas they studied. In this study, the researcher was interested in finding out the factors that influence academic authors to deposit their scholarly works to an institutional repository, particularly to explain the motivation and deterrence factors. This section contains a review of literature on different views and perspectives relevant to this study. The concepts of open access as a point of departure to self – archiving in institutional repository, which is the focal point of this research, are discussed in this section. The literature review is not an exhaustive discussion of all relevant studies concerning self-archiving behavior due to time constraints.

2.1 Open Access Movement

Open access can be seen as a way of liberalizing scholarly literature to enhance scholarly communication. The centerpiece of the scholarly communication is the characteristics of the organization of research (Frandsen, 2009). The advent of information and communication

⁴ <http://www.forskningsradet.no/en/Newsarticle/Public+research+private+profit/1226993960699>

⁵ *ibid*

technologies (ICTs) has brought about rapid access to information and knowledge exchange, hence the increase of scholarly communication taking place in ICT environments. The radical transformation of scholarly publishing was fueled by the introduction of computerized networks (Frandsen, 2009). The increase was stimulated more by the open exchange of information. Therefore, the opportunity of the use of ICTs fueled the adoption of the open access principle. The development OA movement was also stimulated by the rapid increase of journal subscription fees and declining research library budgets which resulted in the so called “serials crises” which left many libraries under financial constraints for many years (Chan, 2004; Bjork, 2004; Hess, et al, 2007). The serial crises can be traced back to the 1970s, when subscription prices started to rise, and it still continues (Frazier, 2001). The libraries were unable to cope with the rising subscription price of traditional journals, particularly the science and medical journals, and were forced to cancel subscriptions or cut off some journal titles, which consequently reduced access to research literature. OA means that one can have access to scientific publication via a public website; the article can be read, copied and distributed for non-commercial purposes without any payments or restrictions (Bjork, 2004). Suber (2007) stated that OA literature “is a digital, online, free of charge, and free of most copyright and licensing restrictions”. He asserted that OA removes price barriers and permission barriers.

2.2. Open Access Declarations, Statements or Initiative

The OA movement consists of various aspects such as political, technological, legal and economic factors. A number of declarations emanated from the political actions taken to support OA (Frandsen, 2009). The meetings held in Budapest (December 2001), Bethesda (June 2003), and Berlin (October 2003) resulted in declarations and statements that contain the three major definitions of open access. According to Suber (2004), these three major public definitions do not differ significantly but agree on the essentials of OA and are treated as collective statements, the BBB definitions of OA, and most of OA proponents agree on these BBB statements. The following section describes the BBB definitions.

2.2.1. Budapest Open Access Initiative (BOAI)

The Budapest Open Access Initiative traces its origin from the meeting convoked in Budapest (the capital city of Hungary) by the Open Society Institute (OSI)⁶ in December 2001. Participants drawn from across the world representing many disciplines were called forth to make research articles in all academic fields publicly accessible online. The focus was to explore strategies on how individual current initiatives could help each other to make OA a success. The meeting was also to look for ways on how OSI and other foundations could utilize their resources to the maximum to foster the transition of OA and make OA publishing self-sustainable (BOAI, 2002). In a nutshell, BOAI advocates that the researchers should adhere to the OA principle by making their research literature freely accessible online without expectations of payments. BOAI defines OA as follows:

“There are many degrees and kinds of wider and easier access to this literature. By "open access" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited (Budapest Open Access Initiative, 2002)”.

Chan (2004, p280) asserts that the definition “underscores the open or non-proprietary nature of internet technologies and their potential, as well as the recognition that research results are utilized when others are permitted to build upon them, provided credits are duly given”.

BOAI initiative stipulated two complimentary strategies that will engage academic authors to participate in realizing OA to scholarly journal literature. These are Self-Archiving and Open Access journals (Budapest Open Access Initiative, 2002);

⁶ <http://www.soros.org/>

1. Self –Archiving delineates the practice of depositing post-prints and pre-prints research articles in e-prints archive or open access digital repository which are interoperable (Budapest Open Access Initiative, 2002). E-prints archive and digital repository terms are always being used interchangeably (Chan, 2004, Kennan, 2008).
2. An open access journal refers to publishing in open access journals which do not charge any subscription access fee. However, these open access journals depend on other means such as pay-author fee for taking care of the publishing expenses (Chan, 2004).

2.2.2. Bethesda Statement on Open Access Publishing

Suber (2003) reports that the Bethesda statements⁷ of principle were drafted during a one-day meeting held on April 11, 2003 at the headquarters of the Howard Hughes Medical Institute in Chevy Chase, Maryland and finally endorsed by the individual participants who attended the meeting. They signed the statement on (behalf of) group consensus. In June 2003, the statement was released. The purpose of the statement was to invigorate the discussion among the biomedical research community in order to speed up the concept of providing open access to scientific literature. The working definition of OA publication stipulated by Bethesda statement is as follows (Suber, 2003):

An Open Access Publication is one that meets the following two conditions:

1. The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship, as well as the right to make small numbers of printed copies for their personal use.
2. A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established

⁷ <http://www.earlham.edu/~peters/fos/bethesda.htm>

organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving (for the biomedical sciences, PubMed Central is such a repository).

2.2.3. Berlin Declaration on Open Access to knowledge in the Sciences and Humanities.

The Berlin declaration⁸ emerged from a conference on Open Access to knowledge in the Sciences and Humanities arranged by the Max Planck Society in Berlin, Germany in October 2003. The participants from leading international research institutes and universities discussed new ways of accessing scientific knowledge and cultural heritage through the use of the Internet. The signatories pledged to support the OA paradigm by encouraging their researchers and grant recipients to make their research output openly accessible and also to encourage the holders of cultural heritage to support OA by making their resources openly accessible as well (<http://oa.mpg.de/openaccess-berlin/berlindeclaration.html>). The Berlin statement gives a definition of OA in line with the BOAI and Bethesda principles, but is more or less a reflection of the Bethesda declaration. OA is defined by the Berlin declaration as “a comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community” (<http://oa.mpg.de/openaccess-berlin/berlindeclaration.html>). According to the Berlin declaration, OA contributions must satisfy the following two conditions:

1. The author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (community standards, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work, as they do now), as well as the right to make small numbers of printed copies for their personal use.

⁸ <http://oa.mpg.de/openaccess-berlin/berlindeclaration.html>

2. A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving.

2.3. Open access models

OA can be seen as an element in the changes of scholarship in general (Frandsen, 2009). There are many strategies to provide OA, but not all of them are true Open Access models. However, there are some OA models which provide true Open Access, fulfilling the purpose stipulated in BBB statements(Bernius et al, 2009). The figure 2.1 below shows different types of providing Open Access.

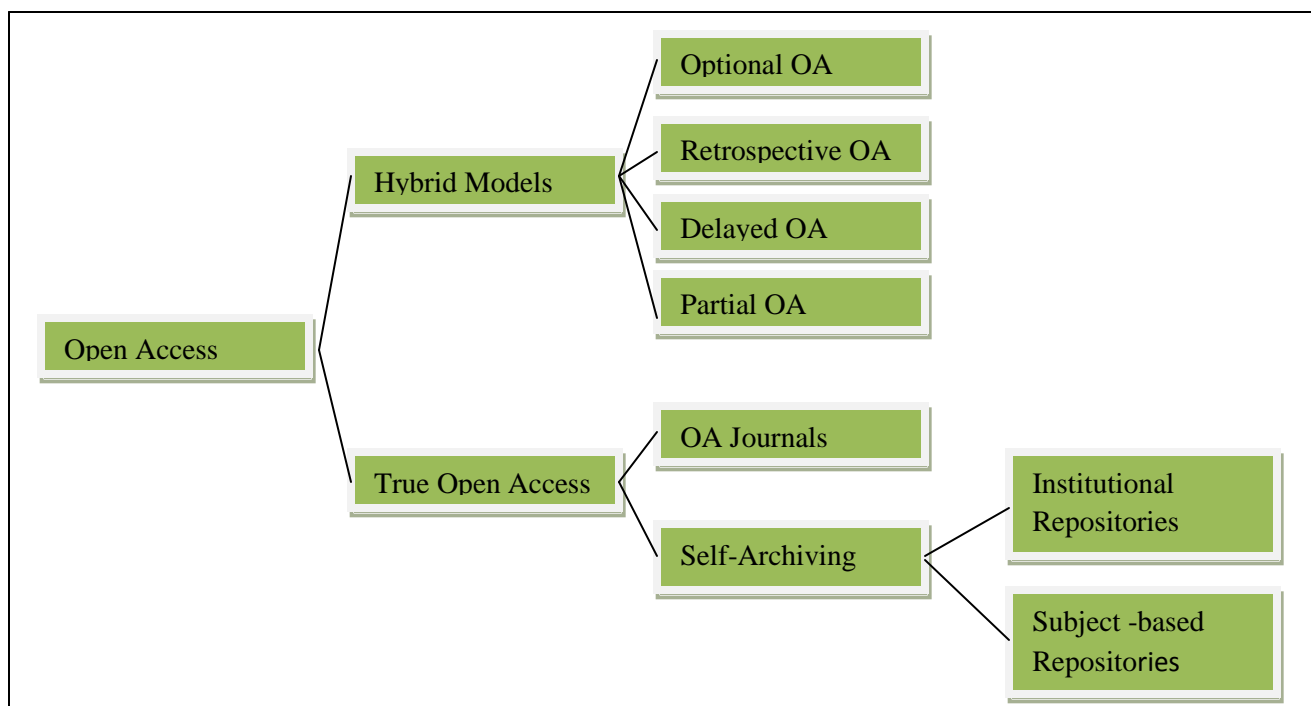


Figure 2.1: Open Access Models (Bernius et.al, 2009)

2.3.1 Hybrid Models

The hybrid model permits the journals maintained by the traditional subscription model to experiment with OA without jeopardizing the business and to see whether the authors can be interested in author -side funded OA (Woodward and Estelle, 2010) .Most, scientific journals tend to provide “partial OA” to their content. In this way, some parts of the journal are without cost. In the same way, some journals make free pre prints of articles to be published in the forthcoming issue (Bernius et al, 2009). This is done for a short time only.

“Delayed OA” however, entails that a publisher allows journal articles to be accessed after a certain period. After this, the author enjoys the exclusive rights of the article (Bernius et al, 2009). Generally, the embargo period lasts between six to twenty-four months. Publishers then leave the decision to the author as to whether an article can be openly accessed or not (Bernius et al, 2009). By paying a fee, the author assures free accessibility of her work. The drawback lies in the relatively high publication fee per article. (Bernius et al, 2009)This may discourage authors from considering using this model.

The third model for hybrid OA, “Retrospective OA” includes access to retro-digitalized material like journal volumes. However, OA advocates view these hybrid models as corresponding only conditionally with free access to scientific work (Bernius et al, 2009). According to Cox and Cox cited in Woodward and Estelle (2010), the number of publishers offering a hybrid model increased between 2005 and 2008 even though some publishers still do not offer this option. Beside the hybrid OA, the true OA can be achieved through OA journals and self-archiving.

2.3.2 True Open Access

The two ways to achieve OA that have been stipulated by BOAI statement are regarded as true OA (Bernius et al, 2009 and Suber, 2008). The authors can either provide open access to their scholarly works through publishing in open access journals, or through self-archiving, when

authors deposit their research articles that have been published in traditional journals in repositories or archives (Swam and Brown, 2004, Harnad, 2005, Guedon, 2004). The former strategy is called the “golden road” to OA while the latter is called the “green road” OA. Both routes are leading to the same direction, the OA destination.

2.3.2.1 Open Access Journals

Open access journals are journals that use a funding model that does not require readers and their institution libraries to pay for access. OA journals have adopted “author pays” model, which means that they charge the authors for handling fees for accepted papers (Allen, 2005). However, the author`s research grant or institutions normally cater for those charges, the authors rarely pay for those fees by themselves (Allen, 2005; Suber, 2007). The major research funders such as the Welcome Trust, the US national Institutes for Health have guaranteed to cover the cost of open access publishing. However, this is exceptional to the author who does not have research grant (independent author) and this model can have implications to authors from poor countries who cannot afford to pay OA journal processing fees. Both Schroter and Smith(2005)and Swan and Brown(2005) in their studies found that the authors are not supporting the idea of author charges without being assisted by any institutional support and that the situation can be worse for authors from developing countries and for authors without any research funding (Schroter and Smith, 2005; Swan and Brown,2005). Whilst there are some profit making OA journal publishers such as BioMed Central known as BMC⁹, there are also non-profit OA journal publishers such as Library of Science (PLoS)¹⁰, with minimal processing fee or author fee.

Another concern from the authors was the issue of quality. Many authors stated that they would likely continue to submit their work to journals from which they have assurance that they offer high quality regardless of paying author charges. Schroter and Smith (2005) claims that since the journal quality is more important to the authors compared to open access, it calls for the open access journals to reassure authors of the quality of their journals. According to OA activist Peter

⁹ <http://www.biomedcentral.com/>

¹⁰ <http://www.plos.org/>

Suber, the quality of OA journals is not being compromised because it follows the same standards, the same procedures and the same people (editors and referees) as in traditional journal publishing (Suber, 2007).

OA journals have been increasing rapidly as evidenced by the growing number listed in the Directory of Open Access journals (DOAJ)¹¹ which is maintained by Lund University Library. DOAJ was developed after the first Nordic conference on scholarly communication in Lund/Copenhagen in 2002 and currently it has registered approximately 4878 OA journals at the time of writing. Björk et al (2008) reported of 2,961 OAJs listed in DOAJ in 2006 and Kennan (2008) reported 3,683 OAJs listed in DOAJ in 2008. This shows that the number of OAJs increase by every passing year.

The details of OA journals will not be discussed further since it is beyond the scope of this study. Another means of realizing true OA, which is the central focus of this study, is through self-archiving into repositories or archives.

2.3.2.2. Self-Archiving

This is a more auspicious strategy than OA journals because it is less expensive and it can boost the achievement of OA without affecting publishing in traditional journals anyhow (Suber and Arunachalam, 2005). The green route makes publications available freely in parallel with any publication system but is not itself publishing. This OA model is embraced by many OA advocates or proponents (Swan, 2007; Bernius et al., 2009). Self-archiving, the green route to OA means that the authors can publish their articles in a scientific journal and also take part to provide OA to their scholarly work by depositing the copies of those articles into OA institutional archives or repositories (Carr and Harnad, 2005; Linde et al., 2009; Allen, 2005; Kennan, 2008). Self -archiving can be performed by Library staff or administrators on behalf of authors, or the articles can be harvested from the author`s website even though the name self implies that the authors perform the deposit by themselves (Kennan, 2008).

¹¹ <http://www.doaj.org/>

The term self-archiving started to appear in the literature in the year 1999. It was first used by Steven Harnad and Paul Ginsparg; the well-known pioneers of self-archiving practice (Pinfield, 2004). The term originates from the Computer Sciences field meaning a program that archives files automatically. Ginsparg and Harnad subsequently employed the term to authors and their research papers (Pinfield, 2004). The researchers in this field were making their research output available in ftp archives some decades ago and subsequently on websites (Swan and Brown, 2005). In 1991 Paul Ginsparg established an online scientific preprint service, arXiv, which gives the scientists the privilege to exchange ideas prior to publication and Steven Harnad later on after three years posted a subversive proposal on the internet, advocating for self-archiving and requesting the researchers to start depositing their articles in a publicly accessible internet archive (Markey, 2006). The idea behind Steven Harnad's subversive proposal was to encourage researchers to increase visibility of their scholarly work to remove the access barrier caused by the high prices of journal subscriptions, which impede global research sharing (Markey, 2006). Self-archiving can be achieved in three ways: by depositing a copy of an article on the author's personal web sites, department web sites or institutional website; by depositing articles in subject based archives and repositories; and finally by depositing articles in institutional archives and repositories. Bjork (2004) identified these main forums. Allen (2005) asserts that the subject based repositories and institutional repositories represent more recent well-organized ways of self-archiving, whereas self-posting in authors' home pages involves dispersed system which complicates information retrieval. Only the last two self-archiving places will be discussed in the following section.

2.4 Subject Based Repositories

Subject repositories or disciplinary repositories (archives) have evolved in a few select fields where culture for sharing preprints existed prior to the Internet. They became more common especially in the sciences in 1990s and were based loosely on the model provided by the creators of arXiv.com (Genoni, 2004). arXiv is the first disciplinary repository to be developed. This arXiv repository provides open access to content comes from the fields of physics, mathematics, non-linear science, computer science, quantitative biology, quantitative finance and statistics.

arXiv is based at Cornell University which is a non-profit educational institution. Everyone contributing material to arXiv should conform to Cornell University academic standards (<http://arxiv.org/>). Currently as of June 2010, it provides open access to 607,993 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics.

Other pertinent e-print services supporting research and scholarly communication have emerged in some other disciplines as well, for example, Research papers in Economics, Chemistry Preprint Server, the Philosophy of Science Archive (Genoni, 2004).

2.5 Institutional Repositories

As already stated above, institutional repositories are proposed as one of the major strategies for achieving OA and it is growing vigorously in the academic institutions. Westrienen and Lynch`s (2005) survey of 13 countries revealed that 100% of universities in Germany, Norway and Netherlands had already implemented IRs, followed by 95% in Australia, 50% in US, 27% in France, and 22% in Italy and UK.

The repositories in most cases adhere to the OA principle, that is, they are compliant to the Open Archives Initiative and usually mandate self-archiving or encourage the authors to deposit their work in an IR voluntarily (Kennan, 2007).

Many definitions of institutional repositories (IR) have been provided in the literature, the most cited one being Clifford Lynch`s definition. Lynch (2003) defines institutional repositories as

“a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long – term preservation where appropriate, as well as organization and access or distribution”. (Also cited in Chan (2004); Foster and Gibbons (2005); Lynch and Lippincott (2005); Jones (2006); Bailey (2008); Kim (2008) and Grundmann (2009).

Lynch and Lippincott (2005) stated that there are two views of institutional repositories that differ in emphasis, though they are not discrepant; one may be seen as a subset of the other. The first view is that IR can be seen as mainly dealing with dissemination of various types of e-prints for faculty work, and this is clearly connected to the goal of providing OA to faculty publications. The second view, characterized IR as extensively storing the documentation of the intellectual work (both research output and teaching materials) of the institution, records of its intellectual and cultural life, and corroborating for present and future scholarship(Lynch and Lippincott, 2005). They also state that this kind of IR contains not only e-print but also includes videos, learning objects, software, datasets and other materials as well. This is the ideal IRs that Lynch was referring to in his aforesaid definition (Lynch and Lippincott, 2005). On the other hand, Steven Harnad, the conspicuous self-archiving activist tends to disagree with an IR which includes various types of materials(Chan,2004;Harnad,2003).He gives priority to an IR which focuses only on storing and providing OA to peer-reviewed publications created by faculty, leaving out other services articulated by Lynch(Chan,2004).

The Scholarly Publishing & Academic Resources Coalition (SPARC)¹² narrowed the definition of IR to focus on a particular type of IR, the one which can serve as a part in a restructured scholarly publishing model and also as a tangible paragon of institutional quality.“Institutional repositories is a digital archive of the intellectual product created by faculty, research staff, and students of an institution and accessible to end users both within and outside of the institution, with few if any barriers to access” (Crow, 2002; Johnson, 2002; Genoni,2004). In order to make explicit explanation of their intended meaning of IR, they described IR as having four essential elements:

- **Institutionally defined**

IRs differs from Subject based repositories by their nature of capturing original research and other intellectual output limited to a single institution. In other words, IR solely

¹² <http://www.arl.org/sparc/about/index.shtml>

stores content coming from different fields but is limited to a single institution (Crow, 2002; Johnson, 2002; Genoni, 2004).

- **Scholarly**

IR could contain any scholarly work created by faculty and non-faculty researchers, students and other staff members.

- **Cumulative and perpetual**

The content will be preserved and made accessible on a long -term basis.

- **Open and interoperable**

IR system should be compatible to Open Archives Initiative, a protocol for metadata harvesting in order to be harvested by multiple search engines and other discovery tools.

Lynch`s description of an IR incorporates the four key elements articulated by SPARC. He also emphasizes on long-term preservation and the need for collaboration and commitment among IR stakeholders. Moreover, Lynch sees IR as complementary to traditional publishing model.

“While operational responsibility for these services may reasonably be situated in different organizational units at different universities, an effective institutional repository of necessity represents a collaboration among librarians, information technologists, archives and records managers, faculty, and university administrators and policymakers. At any given point in time, an institutional repository will be supported by a set of information technologies, but a key part of the services that comprise an institutional repository is the management of technological changes, and the migration of digital content from one set of technologies to the next as part of the organizational commitment to providing repository services. An institutional repository is not simply a fixed set of software and hardware” (Lynch, 2003).

On the other hand, SPARC `s definition describes the capability of IR to change the scholarly communication system (Bailey, 2005), and it places IR as an alternative to the traditional

publishing model. Bailey claims that it should not be seen as a duplicate of formal scholarly publishing structures which already exist.

2.6. Benefits of an open access IR

IRs provide a venue for academic authors to deposit their scholarly work in a reputable forum. One can quickly and easily locate and retrieve more relevant research in the IRs when compared to the print journals, and this would improve scholarly communication and advance scholarly research (Johnson, 2002). IR gives opportunity to scholars to have access to others researchers' work that is to say, it facilitates free sharing of information and this can prevent replication of research. It can also encourages collaboration, people of similar research interest can contact one another for research activities

One of the essentials of institutional repository is to increase the visibility of the institution's scholarly work by making them available online (Swam and Carr, 2008). One of the criteria used to rank the universities is the availability of scholarly research online (Kgautlhe, cited in Moahi, 2009). IR is a better strategy of showcasing what the institution has when compared to institution's website and departmental websites (Swam and Carr, 2008). The shortcoming of other such venues is that they are frequently out of date or incomplete (Swam and Carr, 2008). IR does not only benefit the institutions by showcasing the research results, it also serves as a way of providing management and preservation of research output (Moahi, 2009). "The inclusion of long-term digital preservation is considered by some to be an essential feature of an IR, though this is a contentious area (Chan, 2004, pg282)."

IR does not only increase the visibility of the institution but also increases the visibility of academic authors; their work will receive more citation because they will be publicly accessible online. Jones, Andrew and MacColl (2006) states that the researchers benefit from the impact of their scholarly work, but not in monetary terms. They want to reach out to their peers who will in turn read, use, comment, acknowledge and build upon their work (Jones, Andrew and MacColl, 2006). Open access IR is the best tool to increase the visibility of the researchers when compared

to traditional journals which are more limited in its possible impact. Unlike open access repositories, traditional journals are not available to everyone.

2.7. Previous Research: Reasons for participation and non participation in an IR by authors

Though academic authors are interested in wider dissemination of their scholarly work, persuading them to deposit their work in an institutional repository continues to be a major challenge (Cullen and Chawner, 2008). It has been noted in the literature about the low faculty deposits rates in IR (Allen, 2005; Chan, 2004; Davis and Connolly, 2007; Foster and Gibbons, 2005; Grundmann, 2009, Kim, 2009; McDowell, 2007; Smith, 2008). This goes back to the statement articulated by Salo (2007) cited in Grundmann (2009, p.3) “the idea if you build it, they will come has not panned out in the case of IR”. Shears (2003) cited in Kim (2009) asserts that the success of an IR should ultimately be measured by its use. The academic authors as the end users and contributors play a vital role to the success of an IR. Ideally, they should use an IR as a source of information to find relevant work by other researchers and they should also use it to deposit their scholarly work in order to contribute to knowledge sharing (Kim, 2009). However, the previously mentioned trends of low faculty deposits rates confirm reluctance to participation in IR by academic authors. Several studies have been carried out to investigate this problem and found several reasons for faculty participation in self-archiving.

Swam and Brown (2005) carried out an author survey in 2004 to examine the authors` self-archiving behavior. They surveyed 1,296 researchers internationally. They found that forty-nine percent of all the researchers studied had self-archived before in one of the self-archiving venues (personal website or institutional website, subject repository and institutional repository) during the last three years. According to Swam and Brown (2005) more people preferred to deposit copies of their articles in a personal or institutional website than in other methods stated above. Despite the increase in self- archiving activity, Swam and Brown (2005) noted that awareness of self-archiving remain low particularly to those who have not self-archived before.

Cullen and Chawner (2008) conducted a pilot study of academics' attitude towards institutional repositories. In their findings, they found that New Zealand academics who deposited their research output in institutional repositories were motivated more by the fact that their works would gain increased exposure hence make a contribution to the public good. On the other hand, both contributors and non-contributors were concerned about the quality assurance and prestige of an IR, risk of copyright infringement, intellectual property right, and potential for plagiarism.

Linde et al., (2009) carried out interviews as a follow up experiences of the researchers who participated in a pilot project of self-archiving their peer – reviewed journal articles from the last 5 years. The participants were from seven institutes of higher education in Sweden. In their findings, the majority of participants expressed the advantages of increased dissemination and the availability of their articles to everyone. Several participants also raised a concern about self-archiving author versions of their articles because they feared that they might spread erroneous formulations, and that the page references were not the same with the ones in the publisher version, therefore the citation would be difficult.

Antelman (2006) surveyed authors' self-archiving practices in six Social Science disciplines, these included Sociology, Anthropology, Economics, Political Science, Geography, and Psychology. The results of the study revealed that social scientists were self-archiving at a high rate and that the publisher self-archiving policies did not influence their self-archiving behavior. Antelman claimed that it is the discipline-based norms and practices that mould self –archiving behavior rather than the conditions of copyright transfer agreements.

Foster and Gibbons (2005) conducted observation (traditional anthropological participant observation) and interviews to study faculty members' work practices and their perceptions of IR at the University of Rochester. The participants were faculty members from Departments of Economics, Physics, Political Science, Linguistics and the Graduate Program in Visual and Cultural Studies. They videotaped faculty as they performed their work, asked some follow up questions and triangulated this with telephone interviews. They found that authoring and co-

authoring, archiving, dissemination of one's own work, and reading relevant work performed by other authors are the most individual needs for the faculty for using digital tools. The faculty did not find IR features valuable despite its benefits. Foster and Gibbons (2005) proposed two ways to clearing the misconception the faculty is having with IR in the drive for IR content. Firstly, they suggested that the IR should be designed in such way that it will become much easier for the faculty members to submit their items to the IR and showcase their work hence their visibility. Another strategy is to speak the same language with faculty members in order to attract them.

Davis and Connolly (2007) evaluated the reasons for non-participation in IR of Cornell University's institutional repository. They found that the IR had little content and the faculty was not utilizing it. They interviewed eleven researchers from the faculty of sciences, social sciences and humanities and found that many faculties posted their work in their personal webpage and disciplinary repositories which are believed to be having a more significant representation in the eyes of global community than one's affiliate institution. The reasons for not using digital repositories raised by faculty members included; copyright concerns, fear of plagiarism and having their work scooped, learning curve, fear that posting pre-print can jeopardize one's publication success, associating their work with inconsistent quality, reluctance of depositing work which has not been peer reviewed. However, the study also found the reasons for using digital repositories: permanence, timeliness and registration. From the eleven faculty members interviewed, four people were aware of Cornell's Dspace and only one interviewee had deposited items in it. The authors found that the reasons for not using Cornell Dspace included: faculty seeing Dspace as duplicate of efforts since it serves the same purpose with the subject repositories they are already using, lack of Dspace functionality, community salience, faculty perceived an institutional repository to be totally isolated from other institutional repositories. Davis and Connolly(2007) claimed that the issue of scholarly communication crisis which hampers access to literature is not essential to faculty, however disciplinary norms and reward system influence different perception the faculty is having towards the functions, risks, and benefits associated with using digital repositories. Davis and Connolly (2007) called for IRs to address the cultural diversity within the faculty in order to serve the needs of the faculty.

Allen (2005) conducted a study using a survey and follow up interviews to investigate academic authors from humanities about their attitudes towards deposit in institutional repositories. Interviewees stated the disadvantages of IR publishing system to include increased risk of plagiarism from OA online documents, breaking copyright agreement and they were also concerned about technical issues such as compatibility and changes in file format. Some researchers thought that depositing their work in IR would prove to be complicated or costly. However, they were motivated to deposit their work into IR by the increased accessibility for readers.

Another study carried out by Lawal (2002) was to determine the use and non –use of e-print by various disciplines in the field of science. In his results, he found that 18% of researchers at least used one archive and the rest 82% researchers did not use any. The reason for participating on e-print archive included wider dissemination of scholarly work, visibility, and exposure of researchers. However, the reasons for non-use included publishers` policies and technical difficulties.

Kim (2008) conducted a similar study to address the problem of low faculty participation to IR. The problem was addressed by investigating motivations and impending factors that influence faculty`s decision to self-archiving. As already mentioned, Kim put together all the factors found and other studies discussed above and proposed a conceptual model of self – archiving behavior based on the Socio-Technical network model and social exchange. The study used survey and in-depth interview methods to investigate the assistant, associate, and full professors of seventeen Universities in the US. The results of the study showed that the altruism factor significantly influenced the faculty`s self-archiving behavior .Altruism is natured more by reciprocity instead of pure altruism. Another factor that followed altruism was self-archiving culture. Kim claimed that faculty self –archiving behavior is influenced significantly by intrinsic benefits rather than by extrinsic benefits and also claimed that the ability of IR to preserve scholarly work influence faculty to deposit their work in IR and copyright is a major concern to IR contributors compared to non-contributors (Kim, 2008). At the end of the study, Kim came up with an updated model of factors influencing self-archiving behavior and the present study applies that model.

2.8. Open Access and Institutional Repository in Norway

OA gained momentum in Norway in 2004 when the authorities and organizations started to embrace it. By then, the Norwegian association of higher education institutions (UHR) published a document on OA to scientific articles and distributed it to all member organizations in 2005. The reason for publishing this document was an effort to work hand in hand with central authorities towards solving the economic questions relevant to research literature (Hedlund and Rabow, 2007). UHR recommended many things, among which were:

- To run an active information campaign in support of OA
- To find joint solutions together with publishers of OA journals for the payment of author fees. On ad hoc basis fund separate articles in OA journals
- To urge for publication in OA with peer review
- To establish/develop open repositories that gives a comprehensive overview of the department`s research
- To adopt general principles that recommend authors to parallel – publish in the institutional repository(IR)
- To contribute to the cooperation between the IRs and the system for research documentation FRIDA/ForsDok to simplify the reporting of the researchers
- To contribute to getting educational material and dissertations included in the departmental institutional repositories

2.8.1 Initiatives

Universities of Oslo, Bergen and Trondheim were the first Norwegian universities to set up open repositories before the recommendation letter from UHR. Other open access repositories

increased significantly after recommendation from UHR in 2005. BIBSYS¹³ formed a consortium (BIBSYS Brage) with Norwegian universities, colleges and other research institutions to establish open access repositories at the institutions which are part of BIBSYS (Hedlund and Rabow, 2007). The government of Norway supported the consortium by funding the Project for Electronic Publications and Institutional Archives (PEPIA) in 2006, in order to support the establishment of IRs. The Norwegian Archive, Library and Museum Authority pay 50% and the remaining 50% is shared between participating institutions (Joki and Teknobyen, 2007). BIBSYS (developer) was given the mandate to oversee the project. The consortium chose the Dspace platform. Joki and Teknobyen (2007) asserted that the progress of the PEPIA project is evidence of the possibility of creating an IR consortium to work towards the development of an IR in one software platform. The BIBSYS consortium comprises 31+ libraries (Hedlund and Rabow, 2007).

Another initiative established towards advocating for open access is Norwegian Open Research Archives (NORA)¹⁴, which is a venue for cooperation and standardization for all open research archives in Norway. The initiative started its operations with the four main universities in Norway; Oslo, Bergen, Trondheim and Tromsø in 2005 and later on in 2007, the National Library and BIBSYS joined (Frantsvag, 2008). The main purpose of NORA is to harvest metadata from its contributors and give access to the archives content through a search facility (Frantsvag, 2008). NORA is funded by Norwegian Digital Library at AMB development (Norwegian Archive, Library and Museum Authority. NORA's search system is being managed by Oslo University's IT department, USIT (Hedlund and Rabow, 2007).

¹³ BIBSYS is a key supplier of products and services for higher educational institutions, other research institutions in Norway, public administrative institutions and the National Library of Norway.

¹⁴ <http://www.ub.uio.no/nora/search.html>

2.9. Bergen Open Research Archive

In late 2004 of the University of Bergen library launched the Bergen Open Research Archive (BORA), one of the first of its kind based on Dspace in Scandinavia. Bora is the University of Bergen`s institutional repository.

BORA`s administrative and technical base is grounded in the acquisitions department of the library. BORA works concurrently with other repositories (such as closed or dark archive) that are under the authority of the University of Bergen library. In doing so, it is hoped that the repositories working as one entity, will be in line with Lynch`s criteria of offering management services and the dissemination of the University`s digital assets (Jones, no date). All important academic material such as research articles, working papers and masters and doctorates theses are stored in BORA, which acts as the University`s public face of archival research. BORA meets the following six general criteria of an Institutional repository (Jones, no date):

- It is institutional defined, that it is to say it is branded by the University and all collections are structured in relation with the institution`s organization.
- The scholarly criteria entails that a wide-range of scholarly material are kept in it.
- It is cumulative and perpetual, meaning that the gathering of new material is ongoing and constant, with most items persistently identifiable.
- Its characteristic of being open and interoperable makes it possible for BORA to comply with the OAI-PMH 2.0 protocol and to provide data to the Norwegian Open Research Archives (NORA), which is aggregator.
- By capturing and preserving events of campus life, it accepts most documents that are relevant to the University, while the less obvious uses are yet being critically analyzed.
- It is searchable within constraints, meaning a full-text interface in addition to browsing by some metadata elements that include a controlled vocabulary.

2.9.1 BORA workflow

On 30 April 2009, the University of Bergen passed a mandate (<http://www.uib.no/filearchive/2009-039.pdf>) on open access at the University. To be able to meet this mandate the library developed a technical solution that makes the institutional repository able to harvest from Frida, which is a reporting system proposed by the Ministry of Education and Research. When the researchers are reporting in Frida, they are at the same time given an option to archive the material in the institutional repository by uploading the full text and providing the metadata. From there the metadata and full text document are sent to a dark archive where copyright clearance and other administrative issues are done. After material is copyright -cleared it sent to the institutional repository for Open Access archiving (BORA). If the copyright issues are has not cleared, the materials will be stored in the dark archive for long-term preservation. Figure 2.2 below gives an overview of dataflow from Frida to BORA.

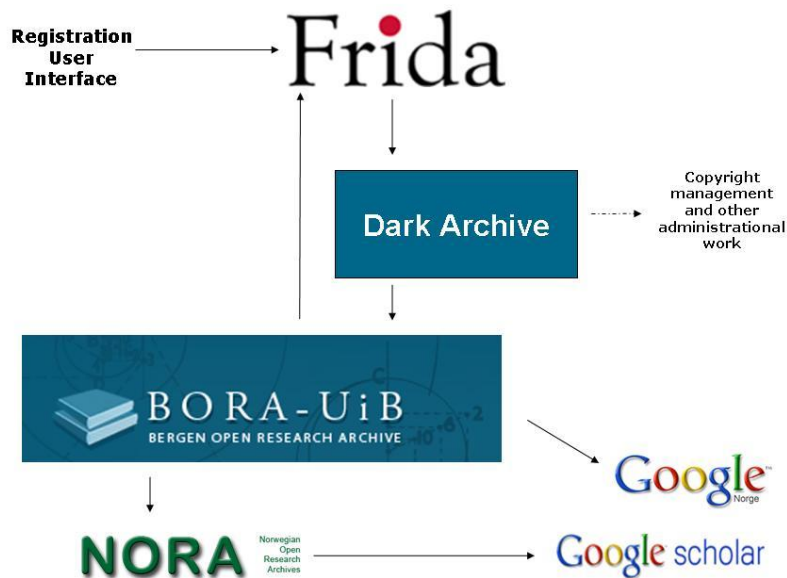


Figure 2.2: Dataflow from FRIDA to BORA

CHAPTER 3: Methodology

The section on methodology highlights the methods and techniques that were used in order to realize the objectives or the purpose of the study. It deals with the following items: research purpose, research design, research strategy, population of the study, sampling, techniques used to collect data and, how data were analyzed, ethical considerations and limitation of the research.

3.1 Research purpose

The principal aim of the research has been to describe the perceptions of academic authors' behavior towards self-archiving. The relevance and proper timing of this study stems from the current pilot project being carried out by the University of Bergen Library called "Increased access to research results", whereby seven selected departments deliver full-text versions of their published research results in Frida. Thereafter, the UiB library will make those materials available in BORA by harvesting from Frida if the author and publisher permit. It is therefore appropriate to understand the attitudes of academic authors towards depositing their scholarly work into the Bergen Open Research Archive, because the researchers are already aware of the concept. Moreover, it is valuable to have this information to inform the project.

Therefore, the research asks the question: What motivation and deterrence factors influence academic authors to deposit their scholarly work to the Bergen Open Research Archive.

3.2. Research design

After considering different authors' views and the nature of the phenomenon under investigation, the researcher found it fit to apply a qualitative and quantitative approach in this study. It is worth noting that this research is based on a primarily qualitative design, hence the use of open ended questions to collect descriptive and detailed data. The two approaches were combined in a consecutive manner within the interpretivism paradigm. Combining closed-ended and open-ended questions is very advantageous because it allows for easy computation while at the same time giving an opportunity to respondents to develop their own ideas. "Open-ended questions are

designed to allow the respondents to further explore a concept. Instead of limiting the possible number of choices like we do with nominal, ordinal, interval, and ratio level questions, the answers giving open-ended questions are realistically limitless.”(Wrench et al., 2008).

3.3. Research Strategy

This research has employed a survey strategy. Survey as a research strategy is a method of collecting large amounts of data from a population (Saunders et al., 2003: 92). Survey research collects data from a sample of individuals through their responses to standardized questions. The use of both quantitative and qualitative questions as mentioned in 3.2 is appropriate to obtain an in-depth understanding of the problem under study. The survey has employed the model of factors affecting self-archiving proposed by Kim (2008). Kim (2008) put together the findings from previous studies about researchers` behavior towards self-archiving and has proposed a conceptual model of the factors based on the Social-Technical Network Model and Social Exchange Theory. Therefore the present study has applied some constructs from Kim`s model to see whether those factors were reflected also in the University of Bergen situation. Kim`s model was used as the most authoritative or well developed to investigate factors affecting self-archiving .This study has not attempted to verify or test Kim`s model, rather applied some constructs to align with the data available for this study. See figure 1.1, Kim`s model.

Table 3.1. Definitions of variables adopted in this study (Kim,2008)

Factors / Independent variables		Definitions	Sources
Costs	Copyright concerns	The extent to which professors perceive requirements to ask permission from publishers, possibilities of copyright infringement, and frictions among co-authors in self-archiving research work	Gadd et al., 2003a, 2003b
	Additional time and effort	The extent to which self-archiving is perceived to require time and effort	Foster and Gibbons, 2005; Van House, 2003
Extrinsic benefits	Accessibility	The extent to which professors perceive self-archived materials to be	Kling and McKim, 1999

		available in a stable manner, over time	
	Publicity	The extent of perceived readership and citation rate of self-archived materials	Kling and McKim, 1999
	Trustworthiness	The extent to which professors perceive self-archived materials to have credibility	Cronin, 2005; Kling and McKim, 1999
	Academic reward	The extent to which professors perceive self-archiving to influence tenure and promotion	Cronin, 2005; Kling and Spector, 2003
	Professional recognition	The extent to which professors perceive self-archiving research work to increase visibility in their field	Cronin, 2005; Swan and Brown, 2005
Intrinsic benefits	Altruism	The extent to which professors have altruistic motivation to self-archive	Cronin, 2005; Kankanhalli et al., 2005
Contextual factors	Trust	The extent to which professors perceive readers' good intentions and competence in using self-archived materials	Van House, 2002; Van Raan, 1997
	Self-archiving culture	The extent to which professors perceive that it is common to self-archive, in both their field and their academic department	Kling et al., 2002; Swan and Brown, 2005
	Influence of external actors	The extent to which professors perceive the influence of co-authors, grant-awarding bodies and universities on the decision to self-archive	Kling et al., 2003

3.4. Population of the study

The population of the study was the academic authors in seven departments participating in the Library pilot project (Increased access to research results) at the University of Bergen. The population comprises faculty, researchers and PhD students. These seven departments included:

- Archaeology, History, Culture Studies and Religion

- Biology
- Economics
- Information Science and media studies
- Physics and technology
- Public health and primary Health Care
- Centre of Medieval studies

3.5. Research Sample

The research sampling strategy employed in this study was self-selection, which is a non-probability sampling. According to Creswell (2002:167), it is not always possible to utilize probability sampling when doing research. The respondents from the aforementioned departments participated voluntarily in response to the survey link attached in their departments' websites. The self-selection technique is useful as it is fast and relatively easy to do. It can also reach many participants. Despite the advantage of this sampling strategy, the volunteered participants may not be representative of the target population due to many factors. For instance, only people who are interested in the topic of the research may participate. Pickard (2007, p.95) stated that when "non-probability sampling is used you must take care with any statements you make that attempt to generalize to the wider population", However, this research is not meant to generalize but rather it can point to the factors that can be further explored in the future.

It is not possible to calculate the response rate because the number of people who received the questionnaire was unknown; however, the total number of respondents was 50.

3.6. Data collection instrumentation

This study employed an online questionnaire to collect data. The use of a questionnaire allows respondents to provide information independently on their own, and hopefully, not intimidated by the presence of the researcher. Online questionnaire is becoming popular due to the rapid growth in internet use.

3.6.1 Advantages of online questionnaire

Gaide (2005) outlined the advantages for using online questionnaire:

- People are more likely to respond online to questions that seems to be sensitive than they would be in a telephone interview or a mail-in interview.
- Minimization of data entry error. Unlike the traditional mail and telephone surveys, the researcher does not need to enter data manually. Online questionnaire data is collected electronically through a software program and is then downloaded into a statistical program for detailed analysis hence time saving and increased accuracy.
- Increased item response rate. Most of the online questionnaire software can be programmed in such ways that the designer can make some questions compulsory if needed, whereas traditional mail surveys are often returned with data missing in some fields. Online questionnaire can also eliminate the possibility of errors caused by handwriting illegibility.
- Online questionnaire is cheap compared to print distribution. With online survey, you can reach out to many respondents through one link.
- Online questionnaires are more likely to be returned more quickly than print questionnaire.

3.6.2. Disadvantages of using online questionnaire

Though online questionnaire was preferred in this study, it has some limitations. Potential limitations of online questionnaires outlined in (<http://www.evalued.bcu.ac.uk/tutorial/4a.htm>) include:

- Participants may experience technical problems
- non-users might be overlooked
- those who are less confident users of electronic services may be less willing to complete an online questionnaire
- online questionnaires can generate low response rates
- unintended participants may respond by notification from colleague or friend
- Linearity- participants may be reluctant to go back to previous pages; therefore, they may not understand some questions.

3.6.3. Instrument design

A survey questionnaire was designed to gather information about the perceptions that academic authors have towards self-archiving, particularly the factors that motivate and deter them from depositing their scholarly work into institutional repository (BORA). The survey contained both closed and open-ended questions. In designing the questionnaire, the researcher was heavily guided by Kim`s (2008) questions. The reason for the adoption of these questions was that Kim brings together what the findings from previous empirical study about researchers` behavior towards self-archiving and proposed a conceptual model of the factors based on the Social-Technical Network Model and Social Exchange Theory. Where necessary; the questions were modified to suit the University of Bergen sample. Some questions were omitted to avoid a lengthy questionnaire which might discourage the potential respondents to participate.

The data-gathering instrument was composed of 15 closed ended questions and 9 open ended questions (Refer appendix 2). The questionnaire was divided into five parts. The first part which consisted of question 1 to 4 intended to obtain the demographic details of the respondents. The

second part aimed at collecting data about the self-archiving experience of the respondents, it composed of question 5 to 8. The third part was awareness of the Bergen Open Research Archive (question 9 to 11). The fourth part obtained data about the reasons and concerns about making scholarly work available on public internet (question 12 to 13). Question 12 was made up of 23 scale items and question 13 was an open-ended question still capturing the same information. As already mentioned earlier, the 23 likert- scale items were adapted from Kim`s 33 likert-Scale items which were proposed guided by the literature reviewed to measure the factors or constructs.

The last part of the questionnaire focused on the reasons for depositing in BORA in future (question 14 to 15). Question 14a asked about whether the respondents intended to contribute to BORA in the near future. Question 14b asked about the reason for future contribution, question 14c was open-ended still asking about the motivation for contribution. Question 15a and 15b intended to obtain data about the deterrence of contributing to BORA, the former contained scale questions and the latter was an open-ended question

3.6.4. Pilot-testing of the questionnaire

Wrench et al (2008), asserted that a researcher could really only know how the respondents will answer the survey by giving it to people to pilot test. Data collection was preceded by a Pilot testing of the questionnaire. The pilot testing was conducted at Oslo University College with academic authors from the department of Library and Information Science. The Reason for pilot testing was to test the open-ended questions and scale questions intended to be used in the questionnaire. The questions were tested for bias, sequence, validity and clarity. The pilot - testing greatly assisted the researcher to decipher the reliability and usefulness of the open-ended questions set for the research. Ambiguous and difficult questions were altered and others were completely discarded. The respondents suggested that some scale questions should be amended, the issues which were not relevant to Norwegian context were altered, and for example, “depositing work on publicly accessible websites adversely affect my opportunity for tenure and promotion”. Tenure was removed from the above scale question because it does not apply to the Norwegian context. The alternatives for academic authors’ position or rank were provided in both English and Norwegian as suggested by respondents.

3.6.5 Online Questionnaire software and distribution

The online questionnaire was designed using QuestBack which is commercial software for online survey. The researcher's university had paid for the license, therefore was chosen not for its superiority to the other online survey tools but because it was the most convenient one available. QuestBack is easy to use and it has a variety of features which enables a designer to tailor her or his survey for a particular use. Questback is also convenient because one can easily manipulate collected data and the results are provided in graphs which are easy to understand. Questback has a feature for analyzing data and making reports in different formats. The summarized data can be exported to power point, pdf, word and excel and the raw data can be exported to SPSS, csv and excel for further analysis.

The online questionnaire was distributed between 15 April and 23 April 2010. Due to fewer respondents, the deadline was extended to 11 May 2010. Before distributing the questionnaire, permission was sought from the University of Bergen Library director. The URL link was sent to the coordinator of the pilot project (Increased access to research results). Prior to distributing the questionnaire, the representatives of the departments were briefed about the objectives and significance of the research. Then, each head of the department distributed the questionnaire through their department website.

3.7. Data Processing and Analysis

The data collected in the present study were of two types as already mentioned. The quantitative data collected from the questionnaire were analyzed using simple descriptive statistics, in terms of means and percentages provided by Questback statistical facilities. Then, the summarized data were exported to Microsoft Excel and SPSS for further analysis and error correction. The qualitative part of the data was coded and categorized to identify significant themes. Findings are presented in descriptive form with quotations and narrative interpretations.

3.8. Ethical considerations

The introductory consent letter was attached to the online questionnaire. The letter introduced the researcher and outlined the purpose of the research and what was expected from the participants.

The letter also contained information about the nature of participation (voluntarily), anonymity for the individual participant (that no identity will be used) and confidentiality of their views.

3.9. Research Limitations

The questionnaire was made short to avoid intimidating the participants, and this resulted to omission of questions, which may be helpful in the analysis of Data.

3.10 University of Botswana survey

Data were also collected from the University of Botswana to contrast with the University of Bergen findings. The questionnaire was the same as the one sent to the University of Bergen. Same procedures as used to collect data from the University of Bergen were followed. The survey was limited to the Faculty of Science and the sample was self- selected. The rationale for selecting Faculty of Science was that it has a larger proportion of scholarly works in the University of Botswana institutional repositories (UBRISA).

CHAPTER 4: Results and Data Analysis

This section presents and discusses the findings of the research. The findings are summarised in tables and figures and followed by discussions under each sub heading presented in accordance with the stated objectives formulated to guide the study.

The results of the two institutions (University of Bergen and University of Botswana) are presented separately and compared at the end.

Before the survey results were fully analyzed, a tentative examination of frequency distribution of responses was done. Where it was deemed applicable, response categories for certain questions were either grouped or disbanded in order to make the final analysis more clear.

4.1. Data Analysis: University of Bergen

4.1.1 Demographic Distribution

The University of Bergen department distribution shows that the majority of 11(22%) of the 50 who responded to the questionnaire were from the Department of Information Science and Media and the Department of Public Health and Primary Health Care. 9(18%) were from the Department of Biology, 8(16%) were from the Department of Physics and Technology, 4(8%) were from the Department of Archaeology, History, Culture Studies and Religion; and Centre of Medieval Studies and 3(6%) which is the lowest proportion were from the Department of Economics. Both the Department of Information Science and Media and the Department of Economics belong to the community of Social Sciences in the Bergen Open Research Archive. The former had a large proportion of scholarly work stored in the repository, whereas the latter had a small proportion. This may be a possible reason for more participants from the Department of Information Science and Media and less participants from the Department of Economics. Figure 1 below gives a summary of the distribution of respondents by department.

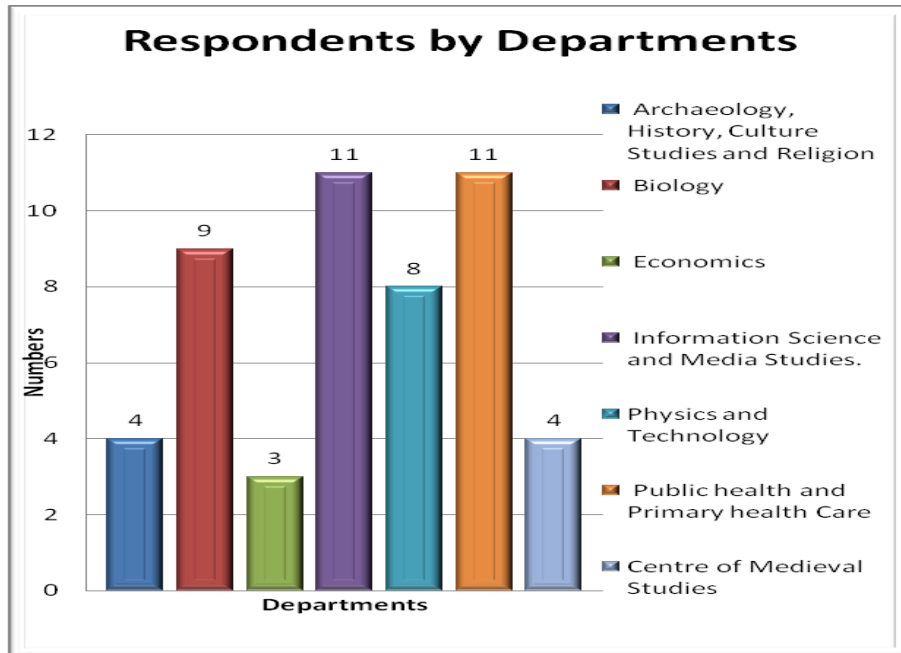


Figure 4. 1: Distribution of Respondents by department

The rank distribution of respondents shows that the greater proportion of respondents were professors 19 (38%), 11(22%) were phd students, 8 (16%) were research fellows, 9(18%) were associate professors, 2(4%) were senior researchers and 1(2%) were lecturers. No assistant professor responded to the questionnaire. One of the criteria used for ranking professors is the number of articles they have published, so it was not surprising to have many of them participate in this study. They might be interested and familiar with the concept of self-archiving and open access.

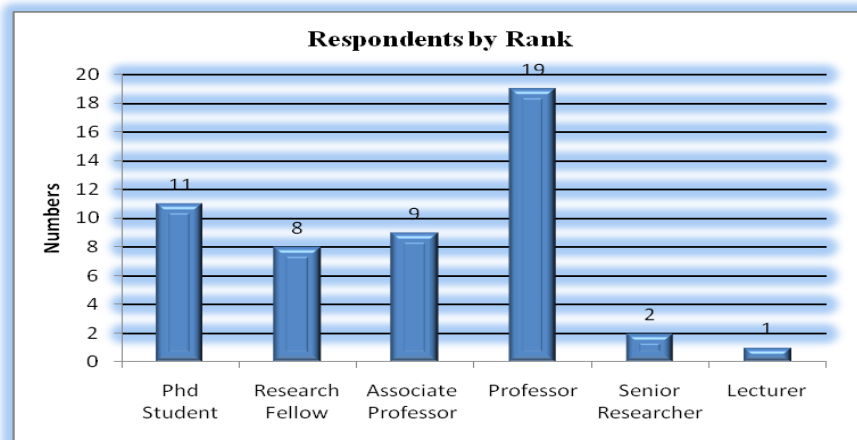


Figure 4.2: Respondents by Rank

4.1.2. Self-Archiving Experience

4.1.2.1. Self-archiving venues

The researchers can provide open access to articles by depositing their copy of an article on a personal, departmental or institutional website, or deposit it in an open repository such as institutional repository (institutional open access archive) and subject-based repository (subject based open access archive) (Swam and Brown, 2005).

The respondents were asked to select the self-archiving places they had used to deposit their materials and they were allowed to select multiple venues. In addition to the stipulated self-archiving venues, the respondents were given option to state any other self-archiving place they had used which was not given in the list. Two respondents out of 50 did not self-archive in any venue before, the remaining 48 respondents used a departmental website, personal web page, an institutional repository and subject-based repositories.

Institutional repositories build on a growing grassroots faculty practice of posting research online, most often on personal web sites and also on departmental sites or in disciplinary repositories (Johnson, 2002). Swan and Brown (2005) found that most researchers preferred to deposit their copies of articles in personal, departmental or institutional websites rather than the other self-archiving venues mentioned above. Similar results were found in the current study. The most frequently used self-archiving venues indicated by the respondents were departmental websites and personal webpages. IR was used by less than half of the respondents even though BORA has been operating for many years since its launch in 2004. It is not surprising to see that subject-based repositories were used by less than half of the respondents because they do not exist in all disciplines. The individual researchers started to put their own publications on their homepages from the earliest days when the web evolved. The researchers might assume that self-posting in their homepages or departmental websites is the most common open access strategy suitable for this time of open access movement, basing the assumption on their earliest experience. As one of the respondents remarked,

“My work is already accessible to the outside world from my personal home page. I see no point in expending resources to duplicate this information in BORA” (Respondent #6)

Out of the 48 self-archivers, 19(40%) were the IR contributors, whilst 29(60%) were IR non-contributors. Figure 4.3 below graphically depicts the self-archiving venues used by respondents and figure 4 .4 represents the total number of IR (BORA) contributors and IR non-contributors.

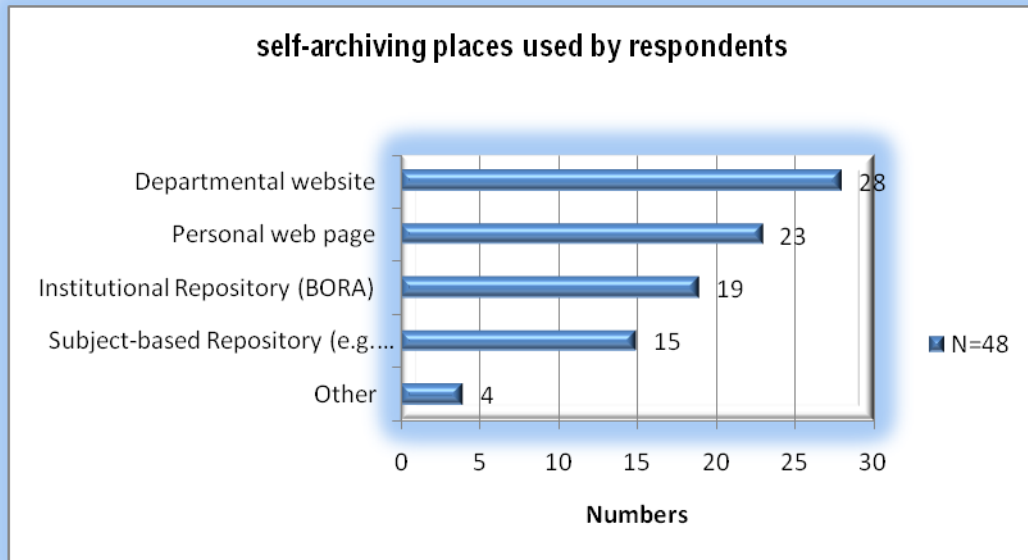


Figure 4. 3: Self-archiving venues used by respondents.

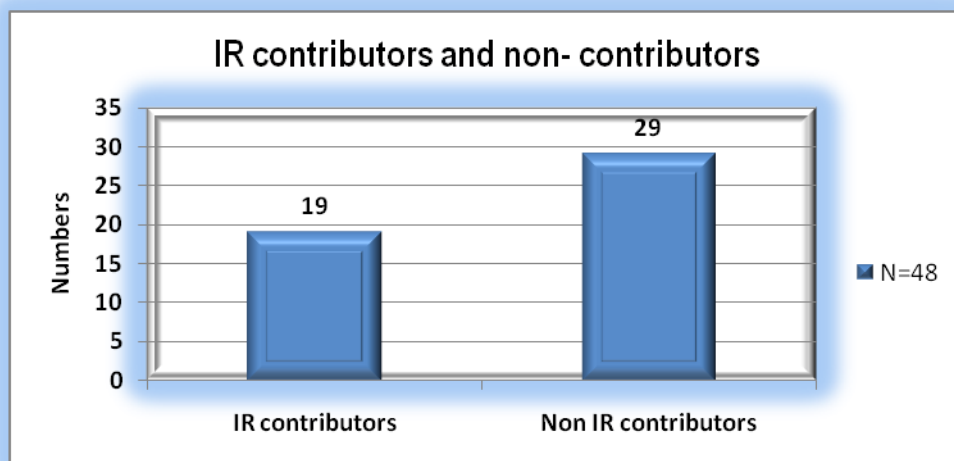


Figure 4. 4: IR contributors and non-contributors

It was interesting to further examine the IR contributors both by position and by department. Most of the participants who contributed to IR came from the department of Information Science and Media. The departments of Archaeology, History, Culture studies and Religion had only one IR contributor, while participants from the Department of Economics have not contributed to IR. The Department of Information Science and Media was more likely to be interested in the concept of IR, hence their participation in IR. Figure 5 graphically gives an overview of IR contributors from different departments. Refer to figure 4.1 for the total number of participants of each department.

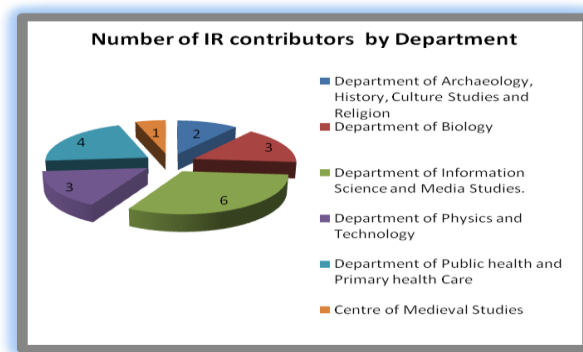


Figure 4. 5 . IR contributors by department

Table 4.1 below shows that of the 19 IR contributors, who responded to the questionnaire, 5 were professors, 5 Associate Professors (Førsteamanuensis), 3 were PhD students (Stipendiat) and Research fellow (Postdoktor), 2 were Senior Researchers and 1 was a lecturer. As already stated above, the professors and associate professors were expected to be IR content contributors since they had been involved with the publishing business. Other groups might have published few articles or had not published any article.

Table 4.1. IR contributors by Position

IR contributors by position	Freq
Phd Student(Stipendiat)	3
Research Fellow(Postdoktor)	3
Associate Professor (Førsteamanuensis)	5
Professor	5
Senior Researcher	2
Lecturer	1
Total	19

4.1.2.2 self-archived materials

Respondents were asked to indicate the type of content they had deposited in the self- archiving venues indicated above in Table 4.1. They also mentioned other materials they had deposited such as teaching materials (lecture notes, slides, handouts) and monograph. Table 4.2 gives a summary of materials deposited in self-archiving venues by respondents. It is worth noting that the respondents were given option to choose more than one type. Therefore, the frequency shown in Table 4.2 is more than the total number of respondents.

Table 4. 2. Types of materials self-archived by respondents

Type of materials self-archived by respondents	Freq	percent
Pre-print(pre-peer-review)	11	22
Post-print(peer-reviewed, accepted version)	18	36
Publisher`s pdf	19	38
Un refereed articles(draft articles)	7	14
Book chapters	7	14
Thesis or dissertation	20	40
Other	14	28

The above table shows that theses /dissertation had been self-archived by 20(40%) respondents. Interestingly, although in general researchers are concerned about copyright infringement (Cullen and Chawner, 2008; Davis and Connolly, (2007), publisher`s pdf files were self-archived by the majority of respondents 19 (38%). Few respondents indicated that they had self-archived un- refereed articles and book chapters.

4.1.2.3 Depositors

Of the 48 respondents, 40(80%) deposited their work by themselves, 14 (28%) indicated that their co- authors had deposited their materials, 9(18%) respondents indicated that the library staff had deposited their materials were all among the 19 respondents who indicated that they used the institutional repository to deposit their scholarly work. Only 1 respondent indicated that the research assistants and teaching assistants had deposited their scholarly work. The respondents

also mentioned that the publishing houses and the national library did the depositing for them. An overview of people who do the actual depositing is depicted in figure 4.6 below.

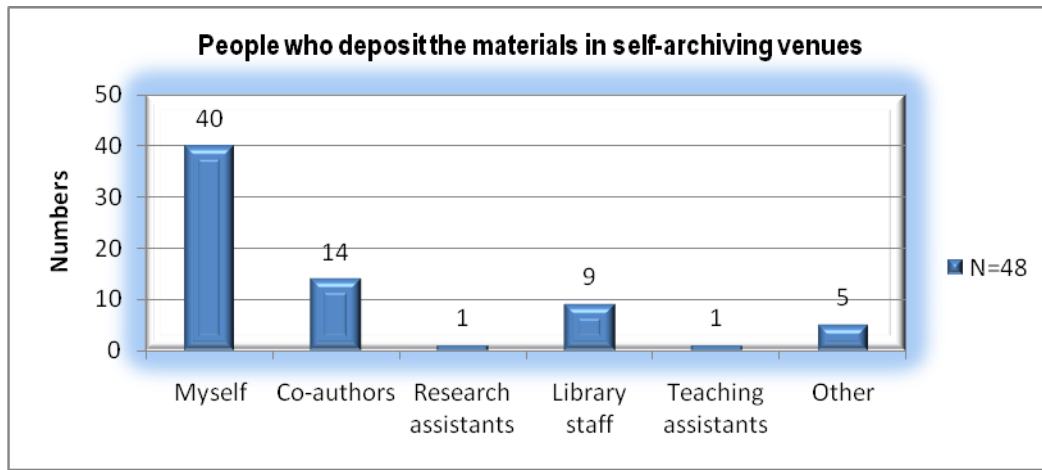


Figure 4.6. People who deposit the materials in self-archiving venues

4.1.3. Awareness of BORA(Institutional Repository)

The respondents were asked about their awareness of the Bergen Open Research Archive. The awareness of BORA was high, 41 respondents stated that they were aware of BORA. A possible reason for the high rate of awareness of BORA is that it was launched in 2004, so it has been operating for 6 years.

The respondents were also asked whether they would like to contribute to BORA in future. The respondents to this question were categorized into three, the future IR contributors, non-contributors(those who indicated that they were not intending to contribute to BORA) and the last category was the respondents who expressed uncertainty. Cross-tab analyses were extensively carried out to find out the awareness of BORA within these categories. Despite the high level of awareness, some academic authors were still reluctant to contribute their materials to BORA. Among the 41 respondents who were aware of BORA, 20 respondents indicated that they would be likely to contribute their scholarly work into BORA in future, 6 respondents mentioned that they would be unlikely to contribute their scholarly work into BORA and 15 respondents were uncertain. Only 1 respondent who was unaware of the existence of BORA indicated no intention to contribute to BORA. 2 respondents from IR future contributors and

non-contributors were not aware of the existence of BORA, 7 respondents from the category of those who were uncertain, were not aware of BORA. It can be seen that the awareness of IR is not a guarantee that academic authors will contribute their work to it. This confirms the statement said by Salo (cited in Grundmann, 2009,p3) that “the idea if you build it, they will come has not panned out in the case of IR”, therefore it is clear that more effort is required for recruitment. If awareness is not what keeps academic authors from depositing their work into BORA ,what could be the reason?

“ Trying to get researchers to support the move towards open access,which most agree would be good for the science in principle,is like to get people to behave in a more ecological way.while most people recognise the need to save energy and recycle waste it takes much more than just awareness to get them to change their habits on a large scale.It takes a combination of measures of many different kinds,such as technical waste disposal infrastructure,legislation and taxation to get massive behavioural changes underway.”(Bjork,2004,p17)

The summary is shown in figure 4.7

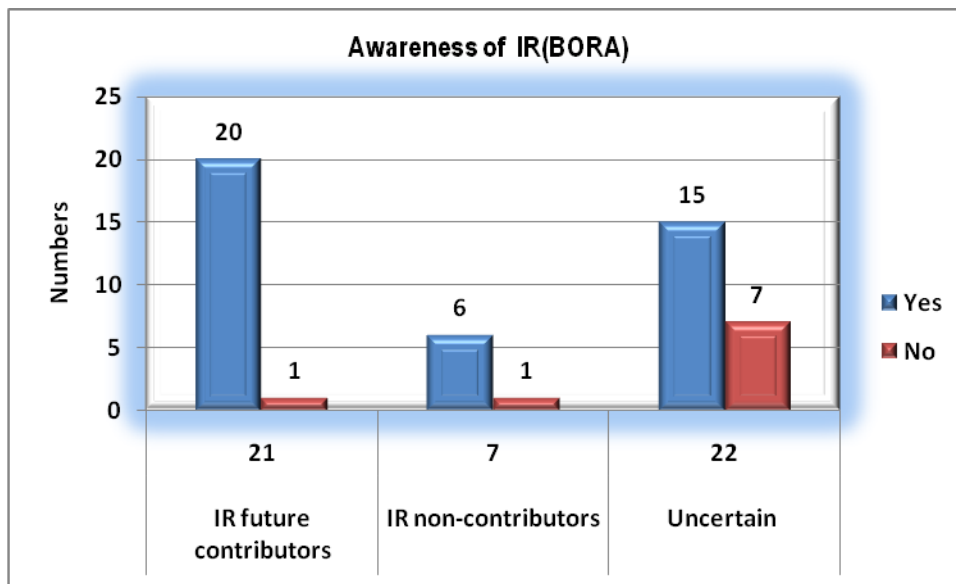


Figure 4.7. Awareness of BORA by IR future contributors,non-contributors and uncertain contributors

Table 4.3 shows the list of how respondents heard about their institutional repository. The most common way that the respondents learnt about BORA was through their colleagues within and

outside their departments .Another way indicated by most of the respondents was through the presentations made by IR staff during faculty or departmental meetings. Other respondents learnt about BORA when they were told to publish their masters thesis into BORA during submission. One respondent knew about BORA through students as reflected in his remark, “Students have deposited theses in BORA.” (respondent #20)

Table 4.3 below gives a summary of how respondents have known about BORA.

Table 4.3 . How respondents heard about BORA

How respondents heard about BORA	Freq	Percent
During presentations by BORA staff in our faculty/department meetings	14	33,3
I read from University newsletter	9	21,4
I heard about it from my colleagues in my department/ faculty/another faculty/department	19	45,2
I discovered publicity about BORA in University/library web site	8	19
I have been approached by the library staff	1	2,4
Other	4	11,9
N*	42	
*N = number of respondents answered the question		

4.1.4. Factors influencing self-archiving behavior

In order to identify factors influencing self-archiving behavior in general, the respondents were asked to indicate the reasons for making their scholarly work publicly accessible. 11 factors affecting self-archiving behavior were adopted from Kim(2008) , see Table 3.1 . The reason for adopting these factors was that Kim puts together what had been identified by several emperical studies. 23 Likert-scale items adapted from Kim`s 36 scale items were used, see Appendix 2. The respondents were asked to indicate whether they strongly agree, somewhat agree, were neutral, somewhat disaagreed or strongly disagreed with statements presented to them. Three groups were used to compare the mean of the rating of these items: IR future contributors , IR

non contributors (respondents who indicated that they had no intentions to contribute to IR and Uncertain group (the respondents who were not sure whether they will contribute or not.

Group analysis was done, “strongly” and “somewhat” responses were combined into two scales: agree and disagree. The scales were re-coded using SPSS, the choice of “agree” was rated as 2 and “disagree” as 1. This group analysis excluded the respondents who were neutral about the statements. For interpretation of the scores, “agree” is in the ratio of **1.50-2.00** and “disagree” is in the ratio of **1.00-1.49**.

The factors listed in Table 4.4 below were measured by these 23 likert scales. Each factor was represented by between four and one statements.

Table 4.4 . Factors influencing self-archiving behavior

Items	IR future con	Non- future con	Uncertain	Total Mean
Publicity				1.89
Trustworthiness				1.82
Altruism				1.80
Professional recognition				1.80
Additional time				1.73
Accessibility				1.70
Copyright concerns				1.66
Self-archiving culture				1.47
Trust				1.36
Academic reward				1.26
Influence of external actors				1.26

4.1.4.1 Copyright concerns

Four scale statements measured copyright concerns:

- I fear to infringe copyright when posting my work on publicly accessible website.

- I have to ask permission from publishers in order to make my work available on publicly accessible websites.
- I have to ask for permission from co-authors or collaborators before posting my work on publicly accessible websites.
- I fear that if I post my work on publicly accessible websites, I may not publish it in peer-reviewed Journal

The mean value for each item shows that there was no significant difference between them. The overall mean for copyright concerns factor was 1.66. The majority of respondents from the three groups had similar perceptions about copyright. They agree with statement about copyright concerns. Even those respondents, who would contribute to Institutional repository (BORA) in the future, were also worried about the publishers' policy (refer appendix 3).

Some of the comments made by respondents emphasizing copyright concerns include:

“Even though it is good to open up the access to published materials, I will not make any unpublished data on the open websites before it is accepted for publishing. I would not publish any unpublished work that I wish to later publish in a peer-refereed journal, since this may strongly minimize the chances to get it published! While getting peer-refereed material spread to colleagues that cannot afford the high costs of many of the western journals, that is good.” (Respondent#9)

“...and it is also hard to get clear information about whether or not one is violating the publisher's copyright.” (Respondent#13)

“ I think that posting research on the web prior to publication in peer-reviewed journals could affect the chance of getting it published (at least in some journals), but posting the work after publication probably makes no difference.” (Respondent#23)

“I'm wary of any [publishing venue] which is not peer reviewed and would not participate in it because of quality issues and potential plagiarism and copyright infringement issues.” (Respondent#44)

“It's a shame that some publishers (e.g. Universitetsforlaget) don't allow the final version of an article to be published on open access archives, as I don't want to publish the peer-reviewed word-file (as the pagination will not match the printed version etc.).” (Respondent# 47)

4.1.4.2 Additional time

Additional time was measured by one statement; “additional time and effort is required to make publicly accessible for open access”. The average value for this factor is 1.73, and shows that the majority of the respondents were concerned about the process they had to undergo when depositing their work. Interestingly, Swam and Brown (2005) found that articles are deposited quickly, their study also revealed that it often happens that the first article that an author self-archives takes between a few minutes and an hour to deposit. The present study reveals that the respondents found self-archiving to be time consuming because they do not have time to deal with clearing copyright, which might be confusing sometimes.

Two respondents stated the following reasons:

“My decision is based on ease of use, routine, and peer-pressure (or lack thereof). I feel I spend too much time self-documenting for the administration, this leaves less time for publishing research results. I would like a semi-open catalogue for drafts and open-access publishing for my results...” (Respondents#48) Not sure

“I do not have the time to contact the publishers and journals where my work is published and get their acceptance. This must be done by the university or university library”. (Respondents#15)

Some respondents were also concerned about the technical difficulty of depositing their scholarly works into BORA:

“The university's system is hard to use and hard to get access to, and it is also hard to get clear information about whether or not one is violating the publisher's copyright”. (Respondent# 13)

Surprisingly, the majority of the respondents who were not intending to contribute to BORA were not concerned about additional time and effort unlike the IR future contributors and those who were not certain. The mean value for IR future contributors was 1.7, for non- future contributors was 1.2, which signifies disagreement and 1.8 for those who were uncertain (refer appendix 3).

4.1.4.3 Accessibility

Accessibility was measured by two statements.

- Research and teaching materials on publicly accessible websites are not preserved for perpetuity.
- Publicly accessible websites will increase the chance to communicate my research findings with other people, my peers.

The mean (1.70) which was also high showed that the respondents were willing to give away their research outputs. There was no significant difference between the statements. However, the IR future contributors and the group of those who were uncertain agreed that research and teaching materials on publicly accessible websites are not preserved for perpetuity, whereas the non- future contributors disagreed with that. The non- future contributors group might trust the self-archiving venues to preserve their scholarly work while there were other reasons that hindered them from contributing to BORA. Both groups agreed that publicly accessible web sites would increase the chance to communicate their research findings with peers and other people. The majority of IR future contributors group agreed with this statement (refer appendix 3).

“...While getting peer-refereed material spread to colleagues that cannot afford the high costs of many of the western journals, that is good.” (Respondent #9)

4.1.4.4. Publicity

The publicity factor was measured by two statements:

- Depositing my work will enlarge readership of the materials

- Depositing scholarly work will increase potential impact of my work.

Based on the average value of each statement, there was no significant difference between these two statements. Publicity had the highest mean of 1.89. Both IR future contributors, non-future contributors and those who were uncertain showed similar mean values on these two statements measuring publicity (refer appendix 3). Since the majority of both groups agreed that depositing their work will enlarge readership of the materials and will also increase potential impact of their work, it would appear that publicity might influence the decision to self-archiving positively.

4.1.4.5. Trustworthiness

Trustworthiness was measured by asking the respondents to what extent they agreed with the following three statements:

- I trust the quality of materials on publicly accessible websites from authors employed by reputable institutions
- I trust the quality of materials on publicly accessible web sites from authors employed by reputable researchers in my field.
- I trust the quality of peer-reviewed articles on publicly accessible web sites.

The majority of the respondents in all the groups agreed with all the three statements above and the overall mean of this factor is 1.82 mean. Trustworthiness might be the possible reason that makes IR non-future contributors to be reluctant to deposit their work in to BORA if they work is not peer reviewed.

4.1.4.6. Professional recognition

The respondents were asked to rate to what extent they agreed with two statements which used to measure professional recognition;

- Depositing my research work on publicly accessible websites will increase my visibility within the discipline to which I am affiliated.

- Available scholarly work on publicly accessible websites will be cited more frequently.

Interestingly, the results revealed that the majority of the respondents from all three groups had similar perception about both statements.

4.1.4.7. Academic reward

Two statements were used to measure academic reward factors:

- Posting my scholarly work on publicly accessible web sites adversely affects my opportunity for promotion.
- Posting my work on publicly accessible websites will increase chances for attaining grants research.

There was no significant difference between average score of both statements by all the groups. The majority of the respondents disagreed with both statements. The overall mean was 1.26. It would appear that self-archiving practices did not affect the respondents` promotion. However, amongst the IR non – future contributors, half of respondents (3 out of 6) agreed with the statement, this could be the possible reason for not contributing.

One respondent, who was not sure whether to contribute to BORA, commented that it was not clear that BORA would cater for royalties of their self-archived articles or monographs. “Norwegian researchers have a right to a certain amount of royalty when their articles or books are reused. How BORA takes care of this problem is unclear to me.” (Respondent#49) uncertain

4.1.4.8. Altruism

Respondents were asked to what extent they agreed that their self-archived scholarly works on publicly accessible websites give other scholars an opportunity to have access to the materials they could not otherwise access. The factor was measured by only one statement. When comparing the mean values between the three groups, there was a contrast between their mean values. The two groups IR future contributors (2.0) and uncertain group (1.8) agreed with the

altruism factor, whereas the IR non –future contributors disagreed with altruism with average value (1.4) Between the two groups that agreed with altruism, the mean values indicated that the respondents who would contribute to IR (BORA) in future strongly agreed with altruism factor than those who were not sure whether they would contribute (refer appendix 3). The overall mean value provided by all respondents was 1.80.

4.1.4.9. Trust

Trust was measured by two statements:

- I fear that if I post my materials on publicly accessible websites, readers may plagiarize or fail to cite my work.
- Research and teaching materials on publicly accessible websites are not maintained securely

The mean for each group indicated that there was no significant difference between these two items, but the two groups, IR – future contributors and IR non-future contributors disagreed with both statements, while the uncertain group agreed with both statements (refer appendix 3). Trust could be a possible reason that made the respondents to be uncertain to contribute, they feared to be scooped.

One respondent commented that:

“... Would not participate in it because of quality issues and potential plagiarism ...”

4.1.4.10. Self-archiving culture

Self –archiving culture was measured by one statement; “it is common in my field for researchers to post their work on publicly accessible sites”. When comparing the mean values of the three groups, there was a contrast. The IR future contributors agreed with the statement while other two groups disagreed with the statements. All respondents from Department of Archaeology, History, Culture Studies and Religion; and Centre of Medieval Studies disagreed

with the self-archiving culture statement. This is not surprising because it is common in their disciplines to publish their research results in monographs, unlike in other disciplines such as Physics where by self-archiving and repositories are usually seen as a continuation of a print-culture norm of circulating preprints individually. Overall mean value of self-archiving culture of the three groups was 1.47, the majority of the respondents did not find it common to self-archive in their fields.

Below are the comments made by respondents in relation with self-archiving culture:

“It is routine in my field to publish discussion papers, i.e pre-publication work, before submitting them to peer-reviewed journals. However, only acceptance in a journal is regarded as a "real" publication. Work that has been made public on websites (or in hardcopy) but does not make it through the peer reviews is considered unpublished.” (Respondents#2)

“My department encourages public accessibility.” (Respondents#34)

4.1.4.11. Influence of external actors

Three statements measured the influence of external actors;

- My decision to make or not make my work publicly accessible on website was influenced by my co-authors.
- My decision to make or not make my work publicly accessible on website was influenced by my grant-awarding body.
- My decision to make or not to make my work publicly accessible on website was influenced by my university or department.

There was a significant difference among the three statements. The first two statements did not have any difference but the latter statement differed with them. All three groups agreed with the two first statements and the IR future contributors and IR non – future contributors respondents agreed with the last statement while the respondents who were not sure whether they would contribute disagreed with the last statement (refer appendix 3). Perhaps the difference between the statements could be the reason that some of the respondents might not have received any

grant or published with other people. The overall mean for this factor was 1.26, which was the lowest amongst other factors. This indicates that the decision to self-archive scholarly work might not be based on the influence of external actors.

4.1.5. Motivations for IR participation

In order to understand the motivational factors influencing the academic authors to deposit their scholarly work into IR, respondents were asked to indicate the reasons for future contribution. This question was asked only to those who indicated that they would most likely contribute in future. Those who were uncertain also responded to this question. A five –point Likert -scale (1= very unimportant, 2= somewhat unimportant, 3=neutral, 4= somewhat important, 5= very important) was used to rate the reasons.

The five –point Likert – scale were merged into two groups for easy analyses; very unimportant and somewhat unimportant were grouped together under “1= unimportant” category. Somewhat important and very important became “2=important”. For interpretation of the scores, “important” is in the ratio of **1.50-2.00** and “unimportant” is in the ratio of **1.00-1.49**.

Table 4.5 shows that since academic authors had benefited from other people `s research, they would also like to give away their scholarly work to other people. This implies that they were influenced to participate in an IR by altruism factor. Other important motivating factors were the preservation of scholarly work in an IR, retaining the rights for their scholarly work and their visibility within their university and departments. The fact that contribution to IR would increase chances of promotion was not an important issue to the respondents, it seemed to have less impact to them. There is no correlation between contributing to IR and academic authors' promotion. It also shows that IR did not have an impact on the respondents' financial reward.

Table 4.5. Motivation factors for IR (BORA) contribution in future

Items	Freq	Mean	Std. Dev
I would like to give away my scholarly work to others because I have also gained from other people`s researches.	35	1.89	.323
The IR would preserve my materials	25	1.80	.408
I would retain the rights of my work	30	1.77	.430
I would receive recognition from my university and my department.	31	1.77	.425
My contribution would count to my financial reward	21	1.43	.507
My contribution would increase chances for my promotion	28	1.36	.488

4.1.6.Deterrence for IR contribution

As already stated in section 2.7, academic authors as the end users and content contributors play a crucial role to the success of an IR (Kim, 2008). However, the literature mentions that academic authors are still reluctant to contribute to IR. Therefore, it is very essential to investigate the issues that might discourage the academic author from participating in IR, and the University of Bergen library management can follow up these issues.

In order to study the reasons that might deter academic authors from contributing to IR (BORA), the respondents who indicated that they would not contribute in future were asked the reasons for not doing so. Those who were not sure whether they would contribute also responded to this question. A five –point Likert -scale (1= strongly disagree, 2= disagree, 3=neutral, 4= agree, 5= strongly agree) was used to rate the deterrents factors. For interpretation of the scores, “agree” is in the ratio of **1.50-2.00** and “disagree” is in the ratio of **1.00-1.49**.

The major deterrents indicated by the respondents were: fear of copyright issues, extra time required for depositing work and the fear that they may not be able to publish later in peer-reviewed journals. The respondents were neutral about fear of plagiarism and less concerned about lack of secure maintenance of self-archived material in an IR. This implies that, though they were reluctant to contribute to BORA, they still perceived it to be a good place for preservation of scholarly work. Technical difficulties seemed not to be deterrence for participating in BORA. However, a few respondents reported to have difficulties to deposit their work into BORA, for instance one remarked, “I want to publish on BORA, but it is really hard to get access. The university library seems not to take electronic publishing seriously, as they don't answer emails concerning registration and upload.” (Respondent# 13)

In addition, many respondents already self-archived their scholarly works in other publicly accessible venues. Respondents who clearly stated that they would not contribute to BORA were worried about repeating the same process, which is duplication of efforts and waste of resources.

“My work is already accessible to the outside world from my personal home page. I see no point in expending resources to duplicate this information in BORA”. (Respondents#7)

Table 4.5 below gives the mean of deterrence factors.

Table 4.6. Deterrence factors for IR (BORA) contribution

Items	Freq	Mean	Std. Dev
I fear to infringe with publishers` copyright policies	23	1.78	.422
Depositing my work would require extra-time	22	1.73	.456
If I deposit my work into IR, I may not be able to publish it later in peer –reviewed journal.	23	1.70	.470
Other researchers may plagiarize my work before I published it.	22	1.55	.510
Depositing my work in IR would be difficult because it is technically complicated.	21	1.38	.498
Lack of secure maintenance of self-archived materials	19	1.37	.496

4.2. University of Botswana(UB) preliminary analysis

4.2.1 Demographic Information

These data were also collected from University of Botswana to supplement the data collected from University of Bergen. As already stated, this study was about University of Bergen, therefore only selected data from University of Botswana were analysed to enable this study to compare and contrast the motivation and deterrence factors of these two universities. The University of Botswana has a new institutional repository called UBRISA¹⁵ which started its operation last year in 2009.

The questionnaire was sent to academic authors in the faculty of science. 27 people responded to the questionnaire. 6 were from the Department of Environmental Science, 4 were from the Department of Biological Sciences, 4 were from the Department of Mechanical Engineering, 3 were from the Department of Chemistry, 3 were from the department of Computer Science, 2 were from the department of Physics, the Departments of Environmental health, Architecture and Planning, Geology and Mathematics had 1 respondent. Majority of respondents have age range of 35-44(11) and 45-54 (11) and the rest 5 have age range of 55-64. Figure 4.8 below gives an overview of distribution by Position

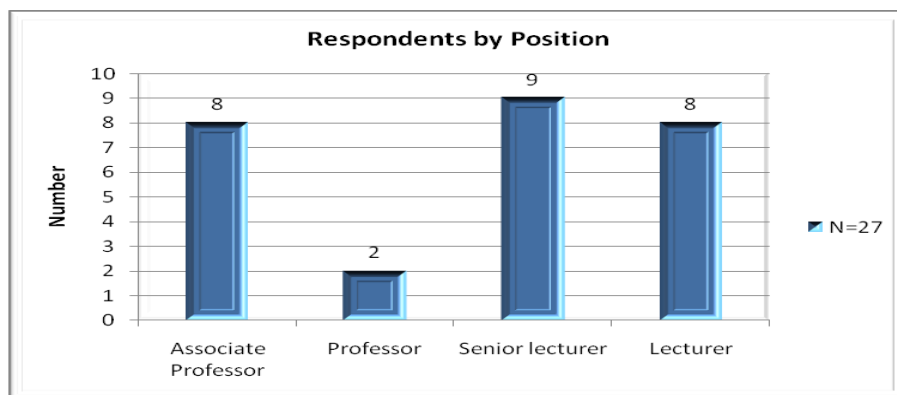


Figure 4.8. Respondents by position-UB

¹⁵ <http://168.167.8.4:8080/xmlui>

4.2.2 Self-Archiving Experience

The majority of the respondents(11) had self-archived their work in departmental websites. IR was used by less than half respondents(8), and 3 respondents used personal website. Though subject repositories exist in science discipline(ArXiv and Pubmed) ,only (1) respondent used them. Other venues indicated by respondents were blackboard(learning management system) and journals. Most of the respondent had deposited publisher`s pdf copier. Figure 4.9 gives a summary of the type of self-archived materials by University of Botswana academic authors .

Table 4.7: Type of Materials self-archived by respondents-UB

Type of Materials self-archived by respondents	Freq
Pre-print(pre-peer-review)	3
Post-print(peer-reviewed, accepted version)	9
Publisher`s pdf (Final version of refereed articles)	10
Un refereed articles(draft articles)	1
Book chapters	5
Thesis or dissertation	9
Other	8

Other types of materials self-archived by University of Botswana academic authors were lecture presentations, problems with solutions,MCQ,handouts for students and lecture notes.

4.2.3. Motivations for IR participation

The respondents who indicated that they would like to contribute in the future were asked to give reasons for doing so. Same procedure as in section 4.1.5 was followed to analyze the motivation factors for UBRISA future contributors.

The the ability of IR to preserve the scholarly materials was found to be the most important motivation to contribution to IR by the respondents from the University of Botswana. According to Wilczek and Glick (2006) “preservation is the act of physically and intellectually protecting and technically stabilizing the transmission of the content and context of electronic records across space and time, in order to produce copies of those records that people can

reasonably judge to be authentic”. This implies that the respondents are more interested in the platforms that can support preservation. Even though the respondents agreed with the statement, “my contribution would increase chances for my promotion but it received the lowest mean. This implies that academic reward did not affect by self-archiving in IR (UBRISA). Table 4.4 summaries the motivation factors that influence academic authors to contribute to UBRISA.

Table 4.8. Motivation factors for IR (UBRISA) contribution in future

Items	Freq	Mean	Std. Dev
The IR would preserve my materials.	18	1.94	.236
I would like to give away my scholarly work to others	21	1.86	.359
I would receive recognition from my university and my department.	20	1.85	.366
I would retain the rights of my work.	20	1.80	.410
My contribution would count to my financial reward because I have also gained from other people`s researches.	17	1.71	.470
My contribution would increase chances for my promotion.	20	1.65	.489

4.2.4.Deterrence for IR contribution

The respondents who stated that they were not willing to contribute to UBRISA in future were asked for reasons that hindered them from contributing. Same procedures as in 4.16 were followed to identify the deterrence factors. The most common deterrence factors to UBRISA contribution were technically difficulties, extra –time required for depositing materials ,Lack of secure maintenance of self-archived materials and fear of plagiarism. It was not suprising to see that technical difficuties emerged the highest barrier because Africa in general is still lagging behind in terms of the use of information technology.Techno-phobia can make one feel reluctant to deposit one`s material in an IR. Interestingly, copyright issues seemed not to be a concern to the majority of respondents from University of Botswana. Copyright concerns have been

reported to be a major issue raised by academic authors in several studies and this is in contrast with the findings from the University of Botswana. The table 4.5 below gives an overview of the mean values of deterrence factors affecting IR(UBRISA) contribution.

Table 4.9. Deterrence factors for IR (UBRISA) contribution

Items	Freq	Mean	Std. Dev
Depositing my work in IR would be difficult because it is technically complicated.	9	1.67	.500
Depositing my work would require extra-time	11	1.64	.505
Lack of secure maintenance of self-archived materials	10	1.60	.516
Other researchers may plagiarize my work before I published it.	10	1.60	.516
I fear to infringe with publishers` copyright policies	11	1.45	.522
If I deposit my work into IR, I may not be able to publish it later in peer –reviewed journal.	10	1.40	.516

The findings for motivation and deterrence factors from University of Botswana they are compared with the ones from University of Bergen in Chapter five.

Chapter 5: Summary, Conclusion and Recommendation

This chapter discusses the major findings of the present study. The comparison will be made with data from other studies. In particular, some data collected from the University of Botswana(UB) will be compared with the data collected from University of Bergen(UiB) to see whether there are differences or similarities in motivations and deterrence towards participating to IR between the academic authors of these universities. This chapter also gives the summary and recommendations, the suggestion for further research.

The study purpose was to investigate perceptions of the academic authors have regarding self – archiving, particularly motivation and deterrence factors influencing their contribution institutional repository.

The questions asked by this study were:

- What factors motivate academic authors to deposit their work into Bergen Open Research Archive?
- What are the factors that become barriers or deterrents to academic authors in depositing scholarly works in the Bergen Open Research Archive?

5.1. Self-Archiving Venues

Self-archiving is another means for academic authors to provide open access. This is a more auspicious strategy than publishing in OA journals because it is less expensive(Suber and Arunachalam,2005). Steven Harnad posted a subversive proposal on the internet requesting researchers to start depositing their articles in a publicly accessible internet archive. The idea behind his request was to encourage researchers to increase visibility of their scholarly work by providing open access(Karen,2006). Though providing open access to research literature is a good way of removing access barrier caused by the high prices of traditional journal subscription, it does not mean that researchers will automatically make their works publicly available and accessible online. However, researchers have some reasons behind depositing their

working in self-archiving venues including institutional repositories. Persuading academic authors to deposit their work in an institutional repository is a major challenge. Knowing the factors that influence academic authors or researchers to deposit their work on publicly accessible website can give the IR managers an insights on how to improve IR services and policies to attract content contributors. An institutional repository without content will be like an empty warehouse.

As already discussed in chapter 2, self-archiving can be achieved by depositing a copy of an article on the author's personal web sites or departmental website. Secondly academic authors can also deposit their articles in the institutional repository or subject repository such as aXiv. The survey of the University of Bergen indicated that researchers deposited their scholarly work in different self-archiving venues which are publicly accessible. Departmental websites was used by many respondents followed by personal websites .The survey from the University of Botswana also revealed similiar findings. Repositories were preferred by less than half respondents from both universities. Swan and Brown(2005) found that the authors used personal or institutional websites, opted to use the more formal repositories. Kim(2008) found that personal web pages were the most popular venue followed by research group websites and thirdly department websites.

This study found that the respondents who had not deposited their scholarly works into institutional repository were content with the self-archiving venues they had used before. They saw depositing their work into an IR as a duplication of efforts and waste of resources because their work is already on publicly accessible websites. Although the sample was too small to permit generalization, the repository managers need to convince the researchers about the benefits of open access repository. Swam and Carr(2008) found that personal,departmental and institutional websites are frequently out of date or incomplete. This can disadvantage the academic authors if at all they would want their scholarly works to be accessible to everyone.

5.2 Factors influencing academic authors' self-archiving behavior

Copyright concerns

The findings of this study confirmed earlier studies (Lawal, 2002; Allen, 2005; Swan and Brown, 2005; Davis and Connolly, 2007; Cullen and Chawner; 2008; Kim, 2008; Linde et al., 2009) that researchers fear that, when self-archiving their scholarly works, they would break copyrights agreement. Copyright issues was a general preoccupation among the respondents who indicated that they will deposit their work into BORA, those who were uncertain whether they would deposit their work or not and those who completely indicated that they were not interested in depositing their work in BORA. Respondents of the study articulated that it is difficult to get clear information about publisher's copyright policy. This study did not investigate awareness of publishers' copyright policy or law. However, the findings revealed that the academic authors lacked awareness of publishers' policy. This is evident in the remark,

“...and it is also hard to get clear information about whether or not one is violating the publisher's copyright.” (Respondent#13).

The university library should share some light on the role of the SHERPA/RoMEO with researchers. The SHERPA/RoMEO project was developed for addressing issues related to publishers' copyright policies and authors' archiving rights. RoMEO is a database which is maintained by SHERPA, it list journals' and publishers' copyright agreements. It is expected that once the academic authors are knowledgeable about with copyright issues, they would start to self-archive in greater numbers. In contrast to this study, Antelman's (2006) study revealed that publishers self-archiving policies did not influence academic author behaviour. Antelman claimed that it is the discipline –based norms and practices that mould self-archiving behaviour rather than the conditions of copyright transfer agreements.

Additional Time

Though self-archiving does not require a lot of time, some researchers had perceptions that it takes time. The findings revealed that some respondents perceived self-archiving as time consuming, which leaves less time for doing research. Some respondents stated that they took

time clearing copyright issues, which sometimes they found confusing. Respondents also reported that they had technical difficulties when trying to deposit their work in an IR (BORA). One respondent suggested that the university library should do the clearance of copyright on their behalf. These issues should be addressed by the university library; otherwise additional time would remain a deterrent to self-archiving. Another possible strategy among others that can be employed is to conduct training for researchers on how to use BORA.

Publicity, Accessibility and Professional Recognition

There is clear evidence that academic authors were interested in wider dissemination of their scholarly work. Like other previous studies (Lawal, 2002; Allen, 2005; Swan and Brown, 2005; Davis and Connolly, 2007; Cullen and Chawner; 2008; Kim, 2008; Linde et al., 2009) this study found that academic authors are motivated to self-archive their materials to increase accessibility to a larger number of people. Being accessible will increase the citations of their work and make them visible to their peers in their disciplines. Crow (2002) stated that since academic authors seek to publish for professional recognition and career advancement, their needs should be addressed by an IR.

Academic Reward

The study revealed that academic reward did not affect the decision for self-archiving. Respondents perceived self-archiving to have less impact on their promotion and in increasing their chances of getting research grants. Even those who were not intending to contribute to BORA in future did not perceive self-archiving as affecting their chances of promotion. The study found similar results with Kim (2008)'s study.

Altruism

Altruism seemed to be one of the main factors influencing self-archiving behavior. Researchers deposit their work into self-archiving places in order to give other scholars opportunity to have access to their materials they could not otherwise have. Kim (2008) strongly believes that faculty self-archivers had the intention of availing their research works to the public domain, for they

selflessly publish it on the Internet. The results of this study confirmed Kim`s statement, altruism was found to be one of the major factors influencing self-archiving behavior.

Trust

Other previous studies (Davis and Connolly, 2007; Cullen and Chawner, 2008; Kim, 2008) found that the researchers were concerned with plagiarism. The researchers feared to be scooped before publishing their work. In contrast, this study found that the majority of respondents were not concerned about plagiarism or being scooped if they self-archived their materials. However, a few respondents from this study perceived self-archiving as a potential for plagiarism and this might impede them from participating in BORA. However, Harnad (2006) asserted that there is a high possibility of plagiarism of all work made publicly available, but also claimed that it is easier to find out that your work has been plagiarized when it is online.

Trustworthiness

The study revealed that trustworthiness received a high mean value. If the academic authors expect the self-archived materials to be perceived as credible, they might be reluctant to deposit works which are not peer reviewed.

Self-archiving culture

This study found that the respondents differed in their perceptions on self-archiving as a common practice in their discipline. The majority of respondents did not perceive self-archiving to be common in their disciplines. However, the majority of respondents from the Department of Public health and Primary health Care (4 out of 5) and the Department of Biology (4 out of 6) reported that self-archiving did exist in their fields. The assumption that the faculty in the fields where subject –based repository exist tended to self-archive more in their institutional repository was not supported by the findings of this study. Only four respondents out of 19 from the Department of Public health and Primary health Care and Department of Physics and technology indicated that they would self-archive their work in BORA in the future. These two departments do have subject –based repositories, thus this study`s findings contrasted the claim made by

Andrew (2003), “There is a direct correlation between willingness to self-archive and the existence of subject-based repositories”.

Influence of external actors

This study found that the influence of external actors, such as grant awarding body, department and co-authors, was perceived to have little impact on self-archiving. As already stated, the possible reason might be that some respondents might not have received grant from any grant awarding body or some might not have published with anyone.

5.3. What factors motivate academic authors to deposit their work into Bergen Open Research Archive?

Respondents who indicated that they would like to contribute to BORA in future were asked the reasons for doing so. The University of Bergen findings revealed that the most motivating factor is altruism. The academic authors would give away their scholarly works to others by depositing to IR (BORA) because they had also gained from other people`s work. Altruism was followed by the preservation of materials in IR. The respondents perceived IR as a secure place to preserve their materials. Other motivating factors were publicity, to receive recognition in their university and in their departments; the respondents would deposit their work to an IR to retain their rights. In contrast, the University of Botswana findings revealed that the most frequent reason why the respondents deposit their work to UBRISA is the ability of IR to preserve their scholarly works, followed by altruism; publicity and retaining the rights of their works. Kim (2008) also found that altruism factor is significantly influencing the faculty`s self-archiving behavior. One can conclude that altruism is a universal factor influencing self-archiving. The findings revealed that the majority of respondents from the University of Botswana were motivated to contribute to IR because they perceived it to effecting in their academic reward. In contrast, the findings from the University of Bergen showed that self-archiving was not perceived to have any impact in academic reward.

5.4. What are the factors that become barriers or deterrents to academic authors in depositing scholarly works in Bergen Open Research Archive?

The University of Bergen findings showed that copyright issues and additional time required for depositing their work in BORA were the major deterrence; the fear of plagiarism was neutral. Kim (2008) found similar findings in her study. This is in contrast with the findings from University of Botswana, where the major deterrence is technical difficulties; lack of secure maintenance of self-archiving materials and fear of plagiarism. Additional time required for depositing scholarly work was a major deterrence for both universities. The findings from the University of Botswana revealed that copyright issues are not a major deterrence factor to IR contribution. It is surprising because the literature revealed that copyright issues are a major concern to many researchers.

5.5. Recommendations

Based on the results of this study, this research recommends that the University of Bergen Library should carry out training to teach the academic authors about BORA services and how it works. This is expected to reduce the technical difficulties/barriers and time and effort taken to deposit materials.

Since copyright concerns were a general preoccupation among the respondents, this study suggests that the University of Bergen Library should share some light on the role of SHERPA/RoMEO with the researchers. It is expected that that once the researchers are educated on the issues related to publishers' policies, they will deposit their works BORA in greater numbers. This will contribute towards solving the problem of low content in BORA.

Since the results revealed that publicity is one of the most reasons why the participants would like to contribute their scholarly works to BORA, the University Library should also raise awareness about the benefits of Open Access institutional repository in relation to academic authors' visibility.

5.6. Limitations and Future Research

The results of this study cannot be generalised to the whole population of the University of Bergen academic authors due to the limited number of participants and issues raised in the questionnaire. However, these results can still give an indication of trends and attitudes that can be further explored in the future. Further research with a more carefully selected sample will be needed to provide more definitive conclusions of motivation and deterrence factors influencing academic authors to contribute their scholarly work into the University of Bergen repository.

The reason behind the factors influencing self-archiving behaviour have not been fully explored in this study, to provide a compelling argument as to the reasons behind the motivation and deterrence factors, this study recommends doing further research on this aspects using interviews.

5.7. Conclusion

In conclusion, the current study has been conducted to investigate academic authors' motivation and deterrence factors towards contributing their works in an IR (BORA). The findings indicated that academic authors have certain reasons for contributing to an IR; these reasons could be used to inform the policy makers and to improve the services of IR (BORA).

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APPENDICES

Appendix 1: Consent letter

Dear Participant

You are being invited to participate in research study about perceptions of academic authors towards self- archiving their scholarly work to Institutional Repository. The research survey is being conducted by Barulaganye Hulela in fulfillment of the requirements of International Masters in Digital Library and Learning at Oslo University College. The objective of this research survey is an attempt to understand the motivation and deterrence factors that make academic authors choose whether or not to deposit their research output to the Bergen Open Research Archive. Your opinions are highly appreciated.

If you agree to participate, you will be asked to fill a web questionnaire that takes about 10-15 minutes to complete. The questions you will be asked involves your experience with self-archiving, what things that make or inhibit you to make available your scholarly work to the Bergen Open Research Archive and demographic information. Few selected interviewees will be invited to participate in a follow up interview.

To ensure confidentiality, no information will be collected that can link your questionnaire back to you, your privacy is very important. The data will be reported in aggregate, no individual will be identified. The information you provide will help understanding what motivate and deter the depositing of scholarly work, and the information collected may not benefit you directly, but what learned from this study should provide general benefits to The University of Bergen.

It is completely up to you whether to participate in this study. You may withdraw at any time. Your completed questionnaire will be considered your consent to participate.

If you have any questions or concerns about completing this questionnaire, please contact me at:

bhulela@yahoo.com

+4745081609

Or contact my supervisor at:

Ragnar.Nordlie@jbi.hio.no

+47 90534918

Thank you in advance for completing the survey.

Sincerely, Barulaganye Hulela

Appendix 2: Questionnaire

Institutional Repository (IR) is a digital collection capturing, preserving, organizing and providing access to scholarly output created by research community and managed at an institutional level. The researchers can deposit their pre-print or post-print articles or any other materials in the IR to make them available on public internet (self - archiving).

DEMOGRAPHIC INFORMATION

1. What Department do you belong to?

- Department of Archaeology, History, Culture Studies and Religion
- Department of Biology
- Department of Economics
- Department of Information Science and Media Studies.
- Department of Physics and Technology
- Department of Public health and Primary health Care
- Centre of Medieval Studies
- Other, please specify

2. What is your position?

- Phd Student(Stipendiat)
- Research Fellow(Postdoktor)
- Assistant Professor (Universitetslektor)
- Associate Professor (Førsteamanuensis)
- Professor
- Other, please specify

3. How long have you been in this position you selected above? Please provide number of years.

Select answer

4. What is your age range?

- 20-24
- 25-34

- 35-44
 - 45-54
 - 55-64
 - +65
-

YOUR SELF-ARCHIVING EXPERIENCE

5. Which venues have you used to deposit your research output or teaching material? Please select all that apply.

- Personal web pages
 - Departmental/University websites
 - Subject-based Repository (e.g. Pubmed, ArXiv)
 - Institutional Repository (BORA)
 - Other, please specify
-

6. What kind of materials have you deposited in the above mentioned venues? Please select all that apply.

- Pre-print(pre-peer-review)
 - Post-print(peer-reviewed, accepted version)
 - Publisher`s pdf (Final version of refereed articles)
 - Un refereed articles(draft articles)
 - Book chapters
 - Thesis or dissertation
 - Other, please specify
-

7. Who deposit your work in the above places mentioned in question 5. Please select all that apply.

- Myself
- Co-authors

- Research assistants
 - Library staff
 - Teaching assistants
 - Other, please specify
-

8. For how long have you been involved with self-archiving in the above places mentioned in question 5?

- 1 year or less
 - 2-4 years
 - 5-6 years
 - Over 6 years
-

AWARENESS OF BERGERN OPEN ACCESS RESEARCH ARCHIVE

9. Are you aware of University of Bergen Institutional Repository (BORA)? If no, please go to question 12.

- Yes
 - No
-

10. How did you know about BORA?

- During presentations by BORA staff in our faculty/department meetings
 - read from University newsletter
 - I have heard about it from my colleagues in other faculty/department/discipline
 - I discovered publicity about BORA in University/library web site
 - I have been approached by the library staff
 - Other, please specify
-

11. Have you used BORA to find articles to use when conducting your research?

- Yes
- No

REASONS AND CONCERNS ABOUT MAKING YOUR SCHOLARLY WORK AVAILABLE ON PUBLIC INTERNET

*** 12. To what extent do you agree or disagree with below statements concerning making your scholarly work publicly accessible online? 1=strongly disagree 2=disagree 3=Neutral 4=agree 5=Strongly agree**

	1	2	3	4	5
Depositing my scholarly work on publicly accessible web sites will increase the chance to communicate my research findings with other people, my peers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Depositing my research work on publicly accessible web sites will increase my visibility within the discipline to which I am affiliated to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Depositing my work will enlarge readership of the materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Depositing scholarly work will increase potential impact of my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available scholarly work on publicly accessible web sites will be cited more frequently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I fear to infringe on copyright when posting my work on publicly accessible website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have to ask permission from publishers in order to make my work available on publicly accessible website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have to ask for permission from my co-authors or collaborators before posting my work on publicly accessible websites.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I fear that if I post my work on publicly accessible websites, I may not publish it in peer-reviewed Journal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Posting my work on Publicly accessible websites adversely affect my opportunity for promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Posting my work on publicly accessible websites will increase chances for attaining grants for research.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Posting my scholarly work on publicly accessible website give other scholars opportunity to have access to the	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

	1	2	3	4	5
materials they could not otherwise access.					
Research and teaching materials on publicly accessible websites are not preserved for perpetuity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research and teaching materials on publicly accessible websites are not maintained securely.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional time and effort is required to make my work publicly accessible for open access.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I fear that if post my materials on publicly accessible web sites, readers may plagiarize or fail to cite my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust the quality of materials on publicly accessible web sites from authors employed by reputable institutions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust the quality of materials on publicly accessible web sites from authors employed by reputable researchers in my field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust the quality of peer-reviewed articles on publicly accessible web sites.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is common in my field for researchers to post their work on publicly accessible web sites.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My decision to make or not make my work publicly accessible on web site was influenced by my co-authors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My decision to make or not make my work publicly accessible on web site was influenced by my grant-awarding body.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My decision to make or not make my work publicly accessible on web site was influenced by my university or department.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. If you have other opinions which are not mentioned above, please state them.

14 a. Do you intend to contribute to Institutional Repository(BORA) in the future within 2 years

Yes No Not sure

14 b. How important the below reasons to you to contribute to BORA in the future? If you do not have intentions to contribute in the future to IR, please go to question 15a .

	Very important	Somewhat important	Neutral	Somewhat unimportant	Very unimportant
My contribution would increase chances for my promotion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would retain the rights of my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My contribution would count to my financial reward.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would receive recognition from my university and my department.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to give away my scholarly work to others because I have also gained from other people`s researches.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The IR would preserve my materials.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14 c. If you have others reasons that will motivate you to contribute in the future, state them below

15 a. If you do not intend to contribute to Institutional Repository(BORA) what deter you from doing so? To what extent do you agree or disagree with the below statements concerning the barriers or deterrence to contribute to BORA. 1=strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

	1	2	3	4	5
Lack of secure maintenance of self-archived materials.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I fear to infringe with publishers` copyright policies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other researchers may plagiarize my work before I published it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Depositing my work would requires extra-time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I deposit my work in IR ,I may not be able to publish it later in peer –reviewed journal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Depositing my work in IR would be difficult because it is technically complicated .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15 b. If you have other reasons not mentioned above ,please state them.

Appendix 3. Cross tabulation - factors influencing self-archiving behavior

Publicity	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. Depositing my work will enlarge readership of the materials	19	2.0	5	1.6	20	1.9
2. Depositing scholarly work will increase potential impact of my work	19	2.0	5	1.6	17	1.8

Trustworthiness	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. I trust the quality of materials on publicly accessible websites from authors employed by reputable institutions	14	1.9	5	1.4	10	1.8
2. I trust the quality of materials on publicly accessible web sites from authors employed by reputable researchers in my field.	17	1.9	6	1.5	13	1.8
3. I trust the quality of peer-reviewed articles on publicly accessible web sites.	20	2.0	6	1.7	17	1.9

Altruism	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. Posting my scholarly work on publicly website give other scholars opportunity to have access to the materials they could not otherwise access	20	2.0	5	1.4	20	1.8

Professional recognition	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. Depositing my research work on publicly accessible websites will increase my visibility within the discipline to which I am affiliated.	19	1.9	6	1.5	18	1.8
1. Available scholarly work on publicly accessible websites will be cited more frequently	15	1.9	6	1.5	15	1.7

Accessibility	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. Research and teaching materials on publicly accessible websites are not preserved for perpetuity.	13	1.6	2	1.0	20	1.5
2. Publicly accessible websites will increase the chance to communicate my research findings with other people, my peers.	20	2.0	6	1.5	18	1.8

Copyright concerns	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. I fear to infringe copyright when posting my work on publicly accessible website.	17	1.5	6	1.5	16	1.7
2. I have to ask permission from publishers in order to make my work available on publicly accessible websites.	16	1.8	6	1.7	15	1.7
3. I have to ask for permission from co-authors or collaborators before posting my work on publicly accessible websites.	16	1.6	6	1.5	21	1.8
4. I fear that if I post my work on publicly accessible websites, I may not publish it in peer-reviewed Journal	14	1.6	6	1.7	16	1.8

Self-archiving culture	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. It is common in my field for researchers to post their work on publicly accessible sites	11	1.6	6	1.3	15	1.4

Additional time	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. additional time and effort is required to make publicly accessible for open access	15	1.7	6	1.2	20	1.8

Academic Reward	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. Posting my work on publicly accessible websites adversely affect my opportunity for promotion.	13	1.2	6	1.5	15	1.1
2. Posting my work on publicly accessible websites will increase chances for attaining grants for research	12	1.4	6	1.3	12	1.3

Influence of external actors	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. My decision to make or not make my work on publicly accessible websites was influenced by my co- authors	11	1.1	5	1.2	14	1.2
2. My decision to make or not make my work on publicly accessible websites was influenced by my grant awarding body.	14	1.1	5	1.2	18	1.1
3. My decision to make or not make my work on publicly accessible websites was influenced by my university or department.	13	1.2	6	1.5	15	1.1

Trust	IR contributors		Non-cont		Uncertain	
	Freq	mean	Freq	mean	Freq	mean
1. I fear that if I post my materials on publicly accessible web sites, readers may plagiarize or fail to cite my work.	19	1.2	6	1.3	15	1.7
2. Research and teaching materials on publicly accessible websites are not maintained securely	14	1.9	5	1.4	10	1.8

