

Factors influencing the adoption and use of open access scholarly publishing in selected public universities in Kenya

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Received: 8 July 2021

Accepted: 13 June 2022

The purpose of the study was to explore the factors that influence the adoption and use of open access scholarly publishing (OASP) by researchers in selected public universities in Kenya. Using the Unified Theory of Acceptance and Use of Technology (UTAUT) model as a study lens and the questionnaire as the data collection tool, the study collected data from academic researchers in three Kenyan public universities, namely the University of Nairobi (UoN), Kenyatta University (KU) and Jomo Kenyatta University of Agriculture and Technology (JKUAT). The findings of the study indicate that there are several factors associated with facilitating conditions (FC), performance expectancy (PE), internet skills, and social influence (SI) that influence these researchers' intention to adopt and use OASP in the selected universities. Consequently, we believe that addressing the inhibitors of the adoption of OASP in Kenyan universities would be key to the successful and effective use of OASP. Enablers such as ICT infrastructure, staff capacity and clear policies should be enhanced so as to optimise researchers' capabilities. Based on the findings, the study makes several recommendations to improve the adoption and use of OASP in Kenya's institutions of higher learning.

Keywords: Open access, scholarly publishing, scientific research, public universities

1 Introduction

Open access (OA) is a buzzword in the world of scholarly publishing. Defined as the practice of making peer-reviewed scholarly research and literature freely available Online without restriction, OA has brought significant changes in the way scholarly publishing is practiced by academics. Joshi, Vatnal and Manjunath (2012) posit that OA resources are free of copyright and licensing restrictions. Coupled with the emergence of the internet and the capacity to manipulate and turn content into digital form, OA continues to shape the information landscape including the scholarly publishing industry. The benefits of adopting OA as a new normal in scholarly publishing cannot be overemphasised. Bashorun et al. (2013), for example, reported in their study that the free accessibility of OA research information on the public internet permits any user to access research findings, resulting in the wider dissemination and use of the results, yielding high societal impact. DeAngelis (2004) posits that this wider dissemination of research is catalysed by free access to the end users at the point of consumption. Suber (2010) and Jain (2012) opine that the free availability of OA research findings, which are free from copyright restrictions, coupled with free Online accessibility in any format, promotes a faster and wider dissemination of scholarly content. According to Dulle (2008), the new mode of scholarly publishing through the OA system has freed the scholarly communication process from the challenges of regulated distribution and delays paving the way for broader and faster dissemination of scholarly content.

Open access to scientific literature is important to researchers especially in developing countries (Eve 2015). This is because researchers have limited resources and libraries are continually facing budget cuts for subscriptions to print information resources (Boufaars & Laakso 2020). Open access is also useful in creating awareness among the public about science and new innovations that are geared towards alleviating social and economic challenges (Bonn 2015). The main principle of OA is that wider access to publicly funded scientific research, which is "a public good", is essential for knowledge creation and distribution (Osborne 2015). Mashroofa (2016) notes that OA is equally useful for authors and readers, as it allows every stakeholder of the scientific community to use and re-use information. Piwowar et al. (2018) point out that open access articles are more cited than subscription-based articles or articles published in print format. Similarly, articles of

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those authors who self-archive their article/s are more cited compared with articles in journals that are subscription based. Laakso, Solomon and Björk (2016) assert that OA journals have more scientific impact because of their increased citations. Furthermore, authors who are researchers become the main beneficiaries of the wider visibility of their publications disseminated through open access, as it helps them in wide readership, citations, and acknowledgement by other authors. Eve (2014) agrees that OA is also beneficial to libraries since it solves the problem of the so-called crises of “price and permission”. It has been, however, acknowledged that there are some concerns that inhibit the uptake of OA, for example, article processing charges (APC), the mushrooming of predatory journals and fake editorial boards (Beall 2015). As observed by Cortegiani and Shafer (2018), due to the existence of predatory journals, there is an ongoing and concerted effort by the scholarly community to fight against this trend. The “Think. Check. Submit.” campaign has been advanced as a way of educating scholars on how to identify the legitimate journals.

Despite the many benefits associated with OA, academics and institutions around the world have not uniformly adopted OA as a new model of scholarly publishing. Various regions of the world are at different stages of adoption. Adoption in the context of this study is the process through which an institution or an individual takes up and implements the systems and technology of open access scholarly publishing (OASP) (Khalili 2011). Understanding the critical factors, both positive and negative, that influence scholars’ decision to accept and adopt OASP, is therefore paramount. There are factors or determinants that attract scholars to OASP for purposes of disseminating their research findings, which are mainly referred to as enablers or success factors. Several studies have been done to shed more light on these enablers, as well as the challenges that academics face when adopting and/or using open access (see Schaper & Pervan 2007; Venkatesh et al., 2003; Tibenderana & Ogao 2009 & Hess et al. 2007). The authors mention several enablers of the adoption and use of OA publishing that include self-efficacy (internet skills or proficiency), attitude, facilitating conditions, effort expectancy (ease of use), social influence, and performance expectancy (benefits or relative advantage and perceived usefulness). However, there are also negative forces that work against the adoption of OA scholarly publishing. These include technological factors as cited by Al Salmi (2014), legal and ethical issues (Lwoga & Questier 2014), quality control (Schmidt 2010), administrative issues such as lack of clear mandates and policies (Dulle 2010), low levels of awareness (Grundmann 2009) and cost implications (Ramavhona & Mokwena 2016). These challenges are further complicated by predatory publishing which is corrupting open access (Beall 2012).

2 Contextual setting of the study

In Kenya, as reported by Mutwiri (2014) and Rotich (2011), researchers have had a slow approach to adopting OA publishing despite it being introduced in Kenyan universities for the purpose of disseminating and accessing, as well as improving research. Kenyan researchers also have limited use of quality or recognised OA channels from where they can publish their research findings. This limitation according to Chilimo et al. (2017) is due to a lack of accreditation mechanisms for regional and national journals which are exposing Kenyan academic researchers to unscrupulous journal publishers and predatory publishing channels. According to Rotich (2011), factors such as the poor distribution of journals, irregular publication management and poor sustainability have led to a lack of visibility of scholarly works by Kenyans and Africans in general. Empirical evidence on the causes of the low uptake of OA publishing among Kenyan researchers and scholars has not been adequately researched and established. This study, therefore, aims at using the Unified Theory of Acceptance and Use of Technology (UTAUT) to explore the factors that influence the adoption and use of OA scholarly publishing by researchers in selected public universities in Kenya. The targeted universities were the University of Nairobi (UoN), Kenyatta University (KU) and Jomo Kenyatta University of Agriculture and Technology (JKUAT). The three universities are the oldest in the country, having been established as fully fledged universities in 1970, 1985, and 1994, respectively. The UoN is the largest university with an academic staff component of over 2200, while KU and JKUAT boasts of approximately 1100 and 600 academic staff members, respectively.

3 Objectives of the study

In its endeavour to explore the factors that influence the adoption and use of open access scholarly publishing in selected universities in Kenya, the study specifically sought to:

- assess the performance expectancy associated with OASP, that is, perceived benefits or advantages derived from the acceptance and use of OA scholarly publishing;
- examine the extent to which researchers felt that adopting and using OASP were influenced by their peers;
- examine the extent to which facilitating conditions influenced researchers’ adoption and use of OASP; and
- assess the influence of effort expectancy (that is, the ease of use) on the researchers’ adoption and use of OASP.

4 Theoretical framework

The study used the UTAUT as a framework to guide the study. The UTAUT is an amalgamation of essentials drawn from eight information systems models. These include the Theory of Reasoned Action (TRA); the Technology Acceptance Model (TAM); the Motivation Model (MM); the Theory of Planned Behaviour (TPB); Combined TAM-TPB (C-TAM-TPB); the Model of PC Utilisation (MPCU); the Diffusion Innovation Theory (DIT) and the Social Cognitive Theory (SCT) (Rosen 2005; Schaper & Pervan 2007; Venkateshet et al. 2003). Despite its originality and application in the adoption and use of information technology, the choice of UTAUT to anchor the current study is premised upon its usage in technology-based information platforms, systems, services, and/or products. The model has been successfully applied to study the adoption or use of open access scholarship, platforms, technologies or products (see Dulle & Minishi-Majanja 2011; Bwalya & Ssebbale 2017).

The UTAUT model constructs that were considered for the study are: effort expectancy, performance expectancy, facilitating conditions, social influence, internet skills as well as attitude. UTAUT proposes that the aforementioned factors are moderated by gender, experience, voluntariness and age (see Suhendra, Hemana & Sugiharto 2009; Ghobakloo, Zulkifli & Aziz 2010; Al-Shafi & Weerakkody 2009). Further application and comparison of the UTAUT with eight other individual models as done by Wu, Toa and Yang (2007) showed that the former (UTAUT) was the best to explain the interrelationships of technology acceptance behaviour variables.

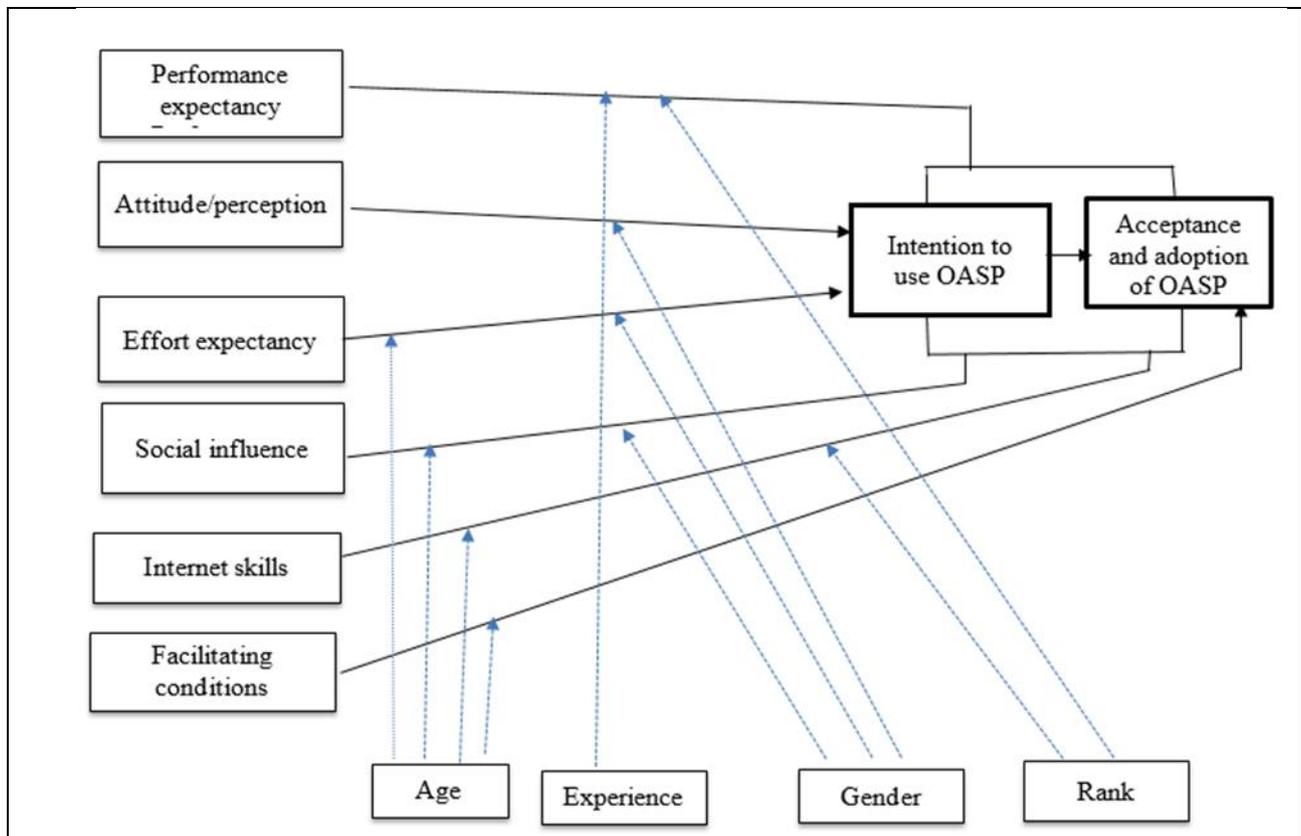


Figure 1 Research model based on UTAUT (Adopted from Dulle 2010; Venkatesh et al 2003)

The UTAUT variables provided the areas that constituted the research themes upon which to anchor the study. Consequently, the study focused on factors associated with facilitating conditions, performance expectancy, effort expectancy, social influence and internet skills and attitude. In addition, factors that could not be classified in any of the aforementioned categories of factors but were considered to be context-based (local factors peculiar to the study) were included as areas of interest in the study. The following section explains each of the UTAUT independent variables and how they related to the current study

- *Facilitating conditions*

“Facilitating conditions” are the required administrative, economic and technical capacity that an organisation needs and which a person believes it possesses in order to support the introduction of an innovation (Venkatesh et al. 2003). According to the researchers and in the context of this study, facilitating conditions is a collective term denoting a set of environmental,

technological and managerial enablers that influence the uptake of a system, in this case OA scholarly publishing. These facilitating conditions in the OA ecosystem include facilities such as ICT infrastructure, internet access, management support, staff capacity and scholarly content availability, to mention but a few. Several studies on technology adoption have reported facilitating conditions as a strong predictor of adoption and use of technological innovations (see for example, Dulle, Minishi-Majanja & Cloete 2011; Lwoga & Questier 2014; Singeh, Abrizah & Karim 2013; Tavares & Oliviera 2016; Mtebe & Raisamo 2014; Khalili 2011; Khalili & Singh 2012).

- *Performance expectancy*

According to Dulle (2010), performance expectancy explains how OA publishing assists in facilitating improved access, publishing, effort involved in accessing, and the dissemination of research findings. Most of the researchers acknowledge that effort expectancy and performance expectancy are the most commonly mentioned factors influencing the use of OA publishing (see Schroter, Tite & Smith 2005). According to Raju et al. (2010), the use of OA publishing is associated with opening up democratic access to up-to-date scholarly knowledge, literally opening the conventional scholarly market. According to Utuluand Bolarinwa (2009) and Schroter, Titeand Smith (2005), free access to scholarly works gives great support to researchers and scholars by having works published and accessed by a wide variety of scholars.

- *Effort expectancy*

Al Salmi (2014) proposes that effort expectancy is the degree of ease of use associated with the application of an innovation. Other models have implemented this construct with different terminologies such as “complexity” in MPCU, “ease of use” in DOI and “perceived ease of use” in TAM. Rogers (2003) stated that innovations that are easy to understand will take less time to embrace than those that are not. This determinant is invaluable in both voluntary and mandatory usage contexts, although its importance wanes over time (Venkatesh et al. 2003). The current study presupposes that the ease of use of OA channels and systems may influence the adoption of OASP.

- *Social influence*

Social influence is said to be “the level at which an individual perceives his/her peers believe a new innovation should be used” (Venkatesh et al. 2003:451). Social influence is referred to in other models in various terms, such as “image” in DOI, “social factors” in MPCU and “subjective norm” in TRA, TPB and C-TAM-TPB. In the UTAUT model, this construct has been found to have a direct effect on peoples’ desires to use a new technology (Venkatesh et al. 2003).

- *Internet skills*

Internet skills refer to what a person believes he/she can do with the internet proficiency he/she possesses. It has been demonstrated as a key factor when deciding to adopt and use technology (Dulle 2010). In the current study, internet self-efficacy is considered an important factor in determining whether or not to adopt and use OA scholarly publishing. To use open access to the maximum is largely dependent on internet usage; researchers must be adept at accessing the internet and publishing research content.

- *Attitude*

As explained by Venkatesh et al. (2003), in this context a person’s attitude represents their overall reaction towards a system. The authors further ascertain that attitude was not anticipated to have a significant effect on the intention of scholars adopting and using OA scholarly publishing. Despite that aspect, studies by Rosen (2005), and Schaper and Pervan (2004) noted that attitude towards adopting technology was found to have a strong influence on the intention to use new technology. This study thus anticipated that peoples’ attitudes towards adopting OA technology were a significant predictor of OA publishing.

5 Research methodology

This study adopted a positivist research paradigm, according to which the researchers discovered realities through participants’ own views, and their specific background and experiences (Yanow & Schwartz-Shea 2012). According to Creswell and Creswell (2018), a positivist paradigm, sometimes also referred to as post-positivism, reflects a deterministic philosophy about research in which causes probably determine effects or outcomes. On his part, Pickard (2013) opines that the positivist research aims at understanding the entire context of the study by seeking to understand the actions or opinions, taking into account the setting in which the study is produced. The positivist paradigm is often used in quantitative studies. The paradigm was deemed appropriate as the study sought to explore the factors that influence the adoption and use of OASP in selected universities in Kenya.

The descriptive survey design was used in this study whereby a questionnaire was used as the instrument for data collection. In the views of Kothari and Garg (2019), a survey design takes into consideration all the stages involved in a survey concerning the situation being studied. Aina (2012) and Hasim and Salman (2010) found that a survey design allows for data collection from a large sample due to its relative cost efficiency as compared to the experimental method that uses

small samples. Thus, it was a better choice to be used in this study as the target population was not only dispersed but also large. Creswell and Plano Clark (2011) state that the goal of descriptive surveys is to estimate as accurately as possible the nature of the existing characteristics of a population and that the surveys also seek to describe a situation and look for patterns within the sample group that can be generalised to the defined population of the study.

The study population for this study comprised of academic staff employed by three public universities in Kenya, the University of Nairobi (UoN), Kenyatta University (KU) and the Jomo Kenyatta University of Agriculture and Technology (JKUAT). The selected universities were considered appropriate for the study due to their long history of more than twenty years as institutions of higher learning in Kenya; they are also deemed to be more stable in terms of ICT infrastructure and have a high number of full-time researchers. In addition, the institutions are located close to each other, a situation that made it cost-effective to conduct the current study. Finally, the three universities have already adopted OA channels for scholarly publishing such as OA institutional repositories and an OA journal system. The aforementioned factors were considered as the prerequisites for the study as advised by Kashorda and Waema (2014). The study targeted academic staff ranked from lecturer to professor. Academic staff in this study refers to those university employees involved in teaching and research. At the inception of the study in 2015, the three targeted universities (UoN, KU and JKUAT) had an academic staff population of 1,472,894, and 643 respectively, giving a total of 3009. Based on a sample size determination formula taken from Krejcie and Morgan (1970), for a population of 3,009 (rounded off to 3,000), a sample size of 341 with a 95% confidence level and .05% confidence interval (margin error) was considered adequate.

A representative sample of academics employed at the selected universities was obtained through stratified random sampling whereby the population was divided into strata based on the academic positions of the respondents from the different universities. Each sample was selected in proportion to the size of the population of each stratum, thus the bigger the population of the stratum, the bigger the sample (Schutt 2009). A sample of 341 comprised 167 academic staff from the UoN, 73 from the JKUAT and 101 from KU.

The study used a questionnaire comprised of twenty-five (25) statements on the five-point Likert scale to measure the OA adoption and use level in four dimensions, which included performance expectancy (PE), social influence (SI), facilitating conditions (FC) and effort expectancy (EE). The mean score was used as an indication of the ranking factor and the factors influencing the uptake of OA scholarly publishing were evaluated through multiple hierarchical regression. Likert scale items were rated between the scales from “strongly agree” to “strongly disagree”. A total of 284 (83%) participants responded to the survey.

The study also conducted semi-structured interviews with librarians and university administrators who were purposively sampled. Eight (8) out of the fifteen (15) librarians sampled and seven (7) out of fourteen (14) sampled university administrators participated in the face-to-face interviews.

6 Data analysis and presentation

The research generated both qualitative and quantitative data; therefore, different data were analysed differently. Quantitative data from the closed-ended questions were generated and analysed using version 22.0 of the Statistical Package for Social Science (SPSS). Frequencies and percentages were computed. Tables were also used to present the data. The weighted mean was computed using the following formula used for calculating the mean for grouped data:

$$\text{Weighted mean } (\bar{x}) = \frac{\sum xw}{\sum x}$$

$\sum wx$ is the sum-product (multiplication of weight w by its matching value x , and summing the resultant values) and $\sum x$ the sum of the values. The least weight (that is, 1 [one]) in a five- or three-point scale was allocated to the least desirable option while the highest weight – depending on the scale used in a question – was allocated to the most desirable option. For example, in the case where the most desirable option in a five-point scale was “strongly agree” and the least desirable option was “not at all”, the former was given the highest weight (that is, 5) than the latter, which received a weight of one (that is, 1).

The interviews generated qualitative data which were grouped into wider themes and content analysed by using Word Process.

7 Results and discussion

7.1 Respondents' profile

A total of 284 out of the 341 questionnaires distributed to respondents were duly fully completed and returned, while 57 were either not returned or were returned in such a faulty state that they could not be used in the analysis. The 284 usable questionnaires translated to a response rate of 83% for the study.

Table 1 Respondents' biodata: institution, gender, age, academic qualification and position/rank (N= 284)

<i>Respondents' biodata</i>		<i>n</i>	<i>% of N</i>
Institutional affiliation	UoN	116	41
	KU	99	35
	JKUAT	69	24
Gender	Male	154	54
	Female	130	46
Age	60+	51	18
	51-60	202	71
	41-50	54	19
	31-40	28	10
Academic qualification	Masters	156	55
	PhD	128	45
	Professor	17	6
Academic position/level	Associate professor	35	12
	Senior lecturer	84	30
	Lecturer	148	52

7.2 Factors influencing the adoption and use of OA scholarly publishing

The aim of the study was to establish the factors influencing the uptake of OA scholarly publishing by researchers in public universities in Kenya. Twenty-five (25) statements on the five-point Likert scale were used to measure the adoption and use of OA academic publishing in four dimensions, which included performance expectancy (PE), social influence (SI), facilitating conditions (FC) and effort expectancy (EE). The mean score was used as an indication of the ranking factor and the factors influencing the uptake of OA scholarly publishing were evaluated through multiple hierarchical regression.

Data collected from the administrators by using the interview schedule enriched the findings from the main survey. In addition to supporting the above main constructs as factors that influence the uptake of OASP, the administrators affirmed their positive attitude towards OA. This works favourably in formulating policies that support the adoption of OA. Awareness was also indicated as a factor that influenced the adoption of OASP as reported by administrators who also double as researchers.

7.2.1 Performance expectancy (PE)

Performance expectancy (PE) was defined as the perceived benefits or advantages derived from the acceptance and use of OA scholarly publishing. It could also mean an improvement in job performance. The researchers established that most of the interviewees (administrators) was of the opinion that the use of OA scholarly publishing is a good idea to embrace because it creates visibility of research which is good for the dissemination of knowledge. In the words of one administrator:

Before the establishment of our OA Institutional Repository, the name of our university was nowhere in the world as far as visibility of our research was concerned, but now the world has located us.

Table 2 Factors associated with performance expectancy (PE) in the adoption of OASP (N=284)

	Strongly agree%	Agree%	Somewhat agree %	Disagree %	Strongly disagree %	Weighted mean
Researcher attains a high H-index.	29	70	0	1	0	4.27
Facilitates faster and wider dissemination of research throughout the web.	24	66	4	3	3	4.05
Permits free access to research content.	16	69	15	0	0	4.01
Allows free indexing in databases or search engines.	15	70	11	2	2	3.94
Promotes a large readership.	10	76	10	2	2	3.90
Enables researchers to retain copyright of their work.	7	77	12	2	2	3.85
Provides greater exposure within and beyond the scientific community throughout the web.	20	39	26	13	2	3.62
The work is more often cited and therefore has high impact.	22	38	23	10	7	3.58

According to the findings in table 2, the respondents were in agreement that the perceived benefits (performance expectancy) of OA scholarly publishing include: OA permits free access: 100%; author attains high H-index: 99%; OA allows larger readership: 96%; free indexing in databases and retention of one's copyright: 96%; it allows faster and wider dissemination: 94%; offers greater exposure: 85%; and facilitates more citation leading to high impact: 83%. These findings are supported by several other previous studies, amongst others Ghalandari (2012), Ramavhona and Mokwena (2016) and Kim et al. (2016), which reported performance expectancy as a strong predictor of OA scholarly publishing.

The findings of this research are much the same as those of the study conducted by Dulle, Minishi-Majanja and Cloete (2010) to determine the most important factors influencing the implementation of OA scholarly communication in Tanzanian public universities. That study which targeted 544 researchers and 69 policymakers revealed that the majority of respondents were positive that OA publishing would improve and offer benefits in accessing and disseminating research. The respondents agreed that OA scholarly publishing was a better system in many ways than the conventional subscription-based scholarly publishing.

7.2.2 Social influence

Social influence is said to be "the extent to which one has a feeling of using a new system that colleagues or peers believe is important" (Venkatesh et al. 2003:451). The study has established that most of the researchers are in agreement that social influence (SI) is a factor that influences their acceptance and use of OA scholarly publishing as depicted in table 3.

Table 3 Social influence (SI) as a factor influencing the adoption and use of OASP (N=284)

	Strongly agree%	agree%	Somewhat agree %	Disagree %	Strongly disagree %	Weighted mean
My supervisor recommends that I publish in OA channels.	15	84	1	0	0	4.14
I publish in OA channels on the recommendation of my peers.	11	88	1	0	0	4.10
Recommendation from grant-awarding bodies to publish in OA channels.	8	90	1	1	0	4.05
People who are important to me, e.g. research collaborators and mentors, encourage me to publish in OA.	13	50	35	1	1	3.73
My peers' articles in certain OA channels motivate me to publish in OA channels.	11	49	38	1	1	3.68

Of the targeted sample, 90% agreed that recommendations from grant-awarding bodies to publish in OA is an aspect of social influence that affects their adoption and use of OA scholarly publishing. The influence of peers and of supervisors is also rated highly with scores of 84% and 80% respectively as aspects of social influence that have affected the respondents' adoption of OA. The results of the study are in line with Suber (2004) who recommended that scholars who embrace OA should persuade their peers to promote OA scholarly publishing at their institutional meetings, workshops and conferences. He further suggested that researchers advocate for the same through the journals and newsletters that are used in their disciplines and mentor young researchers who would be future authors. If one uses OA for one's work, it is easier to be an ambassador of the same because personal experience is more convincing than good policy arguments (Suber 2004). Nonetheless, the key challenge is how to gain the attention of busy colleagues and convince them that this is necessary for their research and career development. This can only be achieved through researchers influencing their fellow researchers as per the popular saying, "birds of a feather flock together" (Suber 2004).

OA scholarly publishing is about sharing the results of research findings with colleagues worldwide without barriers. This widens the user community and increases the impact of one's research.

The study negates the findings of Gul, Shah and Baghwan (2010) who reported on the role of funding bodies in promoting OA awareness, and concluded they had no significant role in this regard. This was also the finding of Coonin and Younce (2010) who concluded that in the decision making of publishing journals the influence of the funding body was considered insignificant. Nariani and Fernandez (2012) found that one major reason for publishing in OA journals was that researchers' mentors recommended that they do it. Schonfield and Housewright (2010) further found that peer networks were among the major factors that influenced faculty members to use new electronic research resources, thus strongly supporting the findings of the current research. Word of mouth was considered the most common way through which faculties learned about new research resources as they interacted with their peers and colleagues.

7.2.3 Facilitating conditions

In the current study, the term "facilitating conditions" refers to the extent to which the researchers believe the existence of adequate management support, ICT infrastructure, proactive advocacy, staff capacity, network literacy, availability of policies and mandates all influence the adoption and use of OA scholarly publishing. The respondents were required to show their level of agreement with seven Likert scale statements as shown in table 4.

Table 4 Facilitating conditions for OASP (N=284)

	Strongly agree%	Agree%	Somewhat agree %	Disagree %	Strongly disagree %	Weighted mean
Support from specific staff to assist with system operations.	24	66	4	6	0	4.08
Management support from the mother institution in terms of policy and mandate formulation and adoption.	16	77	5	2	0	4.07
Adequate ICT infrastructure and high-speed internet connectivity.	18	70	12	0	0	4.06
Sufficient ICT skills or network literacy.	24	64	7	2	3	4.04
Proactive advocacy and promotion or awareness.	15	79	2	2	2	4.03
Necessary knowledge to use OA.	6	68	22	4	0	3.76
Pay publishing fee through institutional membership funding the establishment of OA channels.	7	65	23	5	0	3.74

Five out of seven statements on facilitating conditions attained a mean score of over four, an indication that this is a very strong factor that influences the adoption and use of OA scholarly publishing. It has been found that most of the respondents agree that facilitating conditions influence the adoption and use of OA scholarly publishing. These conditions were represented by several statements such as proactive advocacy and promotion or awareness; adequate ICT infrastructure and high-speed internet connectivity; support from specific staff to assist with system operations; sufficient ICT skills or network literacy; necessary knowledge to use OA; management support from the mother institutions in terms of policy; mandate formulation and adoption; and the payment of publishing fees through institutional membership and funding for the establishment of OA channels. The findings were supported by earlier work done by researchers such as Dulle (2010), Khalili and Singh (2012), Khalili (2011), Mtebe and Raisamo (2014), Dulle, Minishi-Majanja and Cloete (2010), Lwoga and Questier (2014), Singeh, Abrizah and Karim (2013), Park and Qin (2007) and Suber (2010), who agreed that facilitating conditions are crucial to the adoption of OA scholarly publishing.

According to Khalili and Singh (2012), the existence of strong ICT infrastructure and network connectivity is a crucial factor that determines the successful adoption and use of OA scholarly publishing. Khalili (2011:80) advocates the belief that OA is an old tradition that has been made possible by new technology to enhance the dissemination of the public good, which is information. Khalili (2011) posits that researchers can take advantage of internet connectivity and ICT infrastructure to share knowledge without cost and boundary barriers if the necessary environment in terms of facilitating conditions is available. This study concurs with the findings of Mtebe and Raisamo (2014) that the level at which facilitating conditions such as internet connectivity, staff skills and capacity as well as management support were made available greatly influences the adoption and use of technology. Similarly, Dulle, Minish-Majanja and Cloete (2010) reported that the main issues that interfered with the use of OA to access and publish were poor research conditions, poor network skills and slow internet connectivity, thus also supporting the findings of the current study. On the same note, Park and Qin (2007) found that most researchers agreed about the importance of an effective technological infrastructure to help facilitate the conditions for AO publishing with its advantages such as fast and easy access to data, easy communication between writers and readers, a fast publishing process, and a wealth of available data.

According to Barbour and Patterson (2006), the quality of internet connectivity in the poorer areas of our world will continue to negatively affect access to OA resources. According to De Beer (2005), due to poor network connectivity, accessing OA scholarly content has become a frustrating experience which has resulted in very minimal OA benefits being realised in South Africa. Similarly, Wang and Su (2006) found that one of the issues that was associated with OA scholarly publishing was ICT infrastructure. Compared to the cost incurred with printing and mailing printed journals, the distribution of scholarly content via the internet is cheap and fast. The internet is seamless and therefore information can be distributed more widely than in printing. The unlimited storage space of the internet allows access not only to the findings of papers but also to relevant raw data and background information which enhance their value for scientific research (Barbour & Patterson 2006).

7.2.4 Effort expectancy

Ease of use or effort expectancy (EE) in this research has to do with the level of ease with which OA scholarly publishing channels/outlets and other associated items and facilities can be used. The researchers established that the respondents agreed that ease of use is a factor that influences their choice to adopt and use OA scholarly publishing. This is depicted in table 5.

Table 5 Effort expectancy (EE) as a factor that may influence the adoption and use of OASP (N-284)

	Strongly agree %	Agree%	Somewhat agree%	Disagree%	Strongly disagree %	Weighted mean %
Access to and use of research content in OA channels in my institution is easy.	21	69	8	1	1	4.08
Using OA facilities (e.g. IRs) is easy.	20	70	8	1	1	4.07
Access to OA scholarly publishing platforms/channels is easy.	1	76	23	0	0	3.78
Free availability for readers is easy.	7	74	11	6	2	3.78
The process of self-archiving is easy.	10	60	10	10	20	3.60

All the respondents (100%) strongly agreed, agreed or somewhat agreed that it is easy to access OA, and this positively influences their uptake of OA scholarly publishing. Another total of 98% agreed that access to and use of OA research content as well as using OA facilities are easy, thus encouraging them to accept and adopt OA scholarly publishing. A total of 92% of the researchers agreed that free availability of OA research content for readers is easy and 80% agreed that the process of self-archiving is easy. All these aspects of ease of use (EE) have influenced the researchers positively in their adoption and use of OA scholarly publishing.

This study is supported by the findings of Park and Qin (2007), Dulle, Minish-Majanja and Cloete (2010), Sanchez-Tarrago and Fernandez-Molina (2009), Mann et al. (2008) and Khalili and Singh (2012) who reported that availability and ease of use have a positive effect on the use of OA scholarly published research contents. Ease of use as a constructor factor tied to effort expectancy in this study means the degree of convenience experienced when using OA scholarly published research contents. It is also closely related to availability. Researchers prefer using articles that are readily available on the internet rather than spending time searching for printed materials in the library. Further, Mann et al. (2008) reported that the major argument advanced by the supporters of OA is easier access to scientific knowledge. The majority of the participants (90%) in the study felt that OA scholarly publishing help to achieve this. Most of the interviewees (administrators and librarians) indicated that ease of use applies to access but that the process of publishing in OA is complicated.

7.2.5 Context-based factors that might influence the adoption and use of scholarly publishing

Most of the interviewees (administrators and librarians) identified funding, quality issues, legal matters such as copyright issues, awareness, conservativeness and a lack of clear policies as other factors that determine the uptake of OA scholarly publishing by researchers in public universities in Kenya. Several studies have indicated that copyright and plagiarism issues are major factors that hinder the publishing of research content in OA channels (Dulle 2010; Fang & Zhu 2006; Grundmann 2009). Scholars and researchers consider the quality of the publication in which they publish as a very important factor (Warlick & Voughan 2006; Utulu & Bolarinwa 2009). There is sometimes a sense that the quality of the research published in OA journals is inferior because these publications are not subjected to a rigorous peer-review process in comparison with conventional print journal articles (Schmidt 2010). Often a lack of well-stated policies to support OA at institutional level contributes to the low rate of OA adoption. This study has also drawn from a comparative study by Carr et al. (2006) on deposit rates for annual research output in institutional repositories which revealed that institutions with OA policies achieved more in a year or two in terms of OA publications than those without such policies and mandates. If all the stakeholders in OA scholarly publishing could develop and implement well-defined OA policies and mandate researchers to disseminate their research through OA channels, then considerable growth towards OA adoption could be realised (Dulle 2010). According to Fang and Zhu (2006), authors are said to be sceptical about publishing in OA outlets due to fear of compromising the integrity of their work. When it comes to publishing on OA platforms, most of the research reveals that young and upcoming researchers are hesitant to publish in OA journals due to quality concerns.

8 Conclusion and recommendations

The study concluded that factors associated with facilitating conditions (FC) such as support from staff and management (mean of 4.08 and 4.07 respectively), network literacy and adequate ICT infrastructure, coupled with factors associated with performance expectancy (PE) such as authors attaining high H-Index and facilitation of faster and wider dissemination of research findings, significantly influenced researchers' uptake of OASP. Social influence (SI) in terms of supervisors' recommendations and motivations plus funders' support in the form of research grants also played a role in influencing researchers' adoption and use of OASP in Kenya.

The study recommends that greater proactive advocacy of OA with emphasis on its benefits should be carried out – something that will increase awareness of it. Measures should be put in place to enhance capacity building among the researchers to promote the adoption and use of OA scholarly publishing among them. There is an urgent need for universities in Kenya to improve their ICT infrastructure as this was found to be a limiting facilitating factor towards the adoption and use of OA scholarly publishing. Factors to take into consideration would include the installation of wireless internet connections as well as software that is technology based that could ease the use of ICT in the interest of OA scholarly publishing. The administration should ensure that the ICT environment is user friendly. The issue of other facilitating factors should also receive attention especially sound policies and management approaches that are geared towards the adoption and effective use of OA scholarly publishing channels. Lastly, researchers should be encouraged to collaborate with their peers in the fields of specialisation to ease the burden of costly author's fees.

9 Implications of the study

The findings of this study give us a better understanding of the factors that influence the adoption and use of OA scholarly publishing at public universities in Kenya. Although several studies on OA have been done in Kenya, none has identified the push-pull factors that affect the adoption and use of OA scholarly publishing at public universities. This study identifies these factors and therefore findings of this research would be valuable to other institutions in Kenya and possibly to other developing countries which have similar research environments. The outcome of this study is expected to be beneficial to public universities interested in adopting OASP. It could possibly help them to plan and make informed investment decisions regarding the adoption of OASP. In particular, the study will allow the universities to identify the enablers and maybe also the barriers in the adoption of OASP. This would make it possible for institutions to take specific measures that would enhance the enablers and overcome the barriers in their adoption and use of OASP.

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