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# **Influence of Attitude, Subjective Norms and Personal Innovativeness on Intention to Use Open Access Journals: a case of Agricultural Research Institutes**

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## **Abstract**

This study assessed the influence of attitude and subjective norm (injunctive and descriptive) on the intention to use open access journals (OAJ); and how personal innovativeness in information technology affects intention to use open access journals among researchers in Tanzanian Agricultural Research Institutes. This study employed the Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975), and the data was collected from 121 researchers through a cross-section survey questionnaire. The findings from the study revealed that subjective norm is the strongest predictor of the intention to use OAJ, followed by personal innovativeness. Nonetheless, further analysis showed that attitude has no significant influence on the intention to use open access journals. This research contributes to knowledge on the factors that influence the intention to use OAJ by providing and empirical evidence of the drivers of the intention to use OAJ; and how personal innovativeness influences usage intention. This knowledge is essential in creating an impetus for systematic research on intention to use OAJ in order to address the dearth of empirical studies on open access journal in Tanzania.

*Keywords: Intention to use, open access journals, Attitude, Subjective norm, Personal innovativeness, Research institutes, Tanzania*

## **1.0 Introduction**

The invention of open access journals has come into existence due to the advancement of Information and Communication Technology (ICT). The open access journal (OAJ) came as a saviour to the serial crises which were faced by majority of libraries worldwide. In other words, the open access journals have come at a right time, since most of the libraries from developed and developing countries were incapable of serving their clients efficiently and effectively. The inception of open access scholarly communication is regarded as the right alternative for fastening accessibility and dissemination of research findings out of four walls, as propagated by the Budapest Open Access Initiative in 2002 and Berlin Declaration on OA Knowledge in 2003. The onset of the OAJ provides a spontaneous expansion in the way scholars collaborate among themselves. The collaboration among researchers has been witnessed in the articles published in OAJ, where most of the papers are co-authored by researchers from different areas, institutions and department (Breugelmans et al. 2018; Wagner, Park and Leydesdorff, 2015).

Although OAJ offers free and ubiquitous access to scientific information, the low attitude toward open access has persisted among researchers from the developing countries. The literature mining from studies conducted in Tanzania and elsewhere has demonstrated a negligible usage of OAJ compared to developed countries (Global Open Access Portal, 2015; Masrek and Yaakub, 2015; Pandita, 2013). Ware and Mabe's (2015) study on scientific and scholarly journal publishing revealed that a negligible amount of research findings are published in OAJ. Francescon's (2017) study maintained that most developing countries are lagging behind in harnessing the fruit of OAJ compared to the developed countries. In the same manner, Hurrell and Meijer-Kline (2011) were also concerned about the low attitude among academics towards the open access contents in comparison to the traditional journals. The above arguments express a marginalization of open access contents which leads to low attitude towards OAJ. In the same manner, Rodriguez (2014) highlighted the essence of the absence of a clear

conceptual and theoretical framework in most of the open access contents. Again, Xia (2010) documented the quality of open access journal content and argued that it bypasses the reviewing process. However, this argument does not hold water since open access articles undergo a peer review process, and some of the publishers charge for article processing cost. Additionally, the concern of free accessibility of information published in OAJ seems to hold a little value among academicians, researchers and institutions. Coupled with the above argument, the previous studies have established that a low attitude toward open access journals among authors and institutions has been inexistence for decades. Thus, to evaluate this premise, this research attempts to investigate the influence of attitude and subjective norm on intention to use open access journals. The study also assesses the influence of personal innovativeness on the intention to use OAJ, since open access involves the exploitation of technology. The study employed the Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975). Subsequently, the research questions, conceptual framework, methodology, data analysis and findings are presented.

## **2.0 Research Questions**

- What is the influence of attitude on intention to use open access journals?
- What is the influence of subjective norm on intention to use open access journals?
- What is the level of personal innovativeness on intention to use Open Access journal?

## **3.0 Conceptual Framework**

The literature review has demonstrated a variety of factors which motivate authors' intention to use open access journals. Some of the factors are associated with individual, organization, discipline, geographical location, experiences, innovativeness, a source of funds and attitude (Hurrell and Meijer-Kline (2011). Thus, in studying the factors which influence researchers' intention to use OAJ, the Theory of Reasoned Action by Fishbein and Ajzen (1975) was adopted and adapted. The TRA belongs to the field of psychology and it is useful in explaining human usage behaviour. Unlike other theory of technology acceptance, the TRA provides an explanation of human behaviour which might motivate individual intention to pursue a particular task. Fishbein and Ajzen believe that individual's desire play a great role in technological transformation, since humans have disparities in motives. Therefore, a theory which focuses on human psychology behaviour is the most appropriate for studying factors influencing intention to use open access journals. It can be contended that intention to use OAJs also requires a standing willingness to exploit new technology. The concept of intention has also been used to study exchange relationships among organizations, consumer behaviour, learning behaviour and social behaviour (Fishbein and Ajzen, 2010). In this study, the intention to use OAJ is conceptualized as the researchers' intent or expectations to publish/access research findings in open access journals. Some of the previous studies which employed TRA include Mishra, Akman and Mishra (2014) in their study of the application for green information technology acceptance, and Peslak, Ceccucci and Sendall's (2011) study on social networking behaviour. The concept of Personal innovativeness was derived from Agarwal and Parasad's (1998) study on Personal Innovativeness in Information Technology (PIIT), and this was integrated with the TRA model in order to make it robust. The inclusion of the personal innovativeness construct increases the richness of the model, since individuals usually differ in their attitude, pace and tendency to adopt a new way of doing things, especially when it comes to technologies (Nov and Ye, 2008). Likewise, the use of OAJ requires an individual perception and willingness to try out new information technology. In this research, the TRA constructs (attitude and subjective norm) were integrated with personal innovativeness in studying the factors influencing intention to use OAJ among researchers from Tanzania Agricultural research institutes.

### **Attitude**

Attitude refers to an individual's disposition towards a behaviour or conduct (Ajzen, 2002). Fishbein and Ajzen (1975) assumed that attitude towards behaviour or expected outcome is a major predictor of behavioural intention. Attitude is considered to be a significant factor which influences intention and it always captures the motivational stimulus. It also encompasses the individual's willingness to try and

amount of effort one should exert in performing the intended behavior. Studies conducted on the adoption and usage of information technology as well as information system have found that attitude plays a significant role in predicting intention to use a particular technology. Pedersen (2005) carried out a study on the adoption of mobile Internet services and found that attitude has a positive effect on the intention to adopt mobile Internet services. Pedersen concluded that an individual's decision to use system depends on attitude after making a self-evaluation. Looking at Tanzania, with regards to low usage of open access journals, Dulle, Minish-Majanja and Cloete (2010) reported that low attitude also contributes to the low adoption of Open Access. This is evidenced by the fewer scholarly works which are published in the open access platforms. Hurrell and Meijer-Kline's (2011) study on analytical review on academic attitudes toward open access publishing, found that most scholars have a low attitude towards OAJ, which was attributed to the fear of lack of quality control, lower standards, and the absence of a peer review process. Likewise, Togia and Korobili's (2014) findings revealed a variation of attitude towards OAJ among academics across countries and disciplines. The field of physics, biology, health sciences towers in the usage of open access journals in comparison to humanities and social sciences discipline. In that case, attitude plays a significant role in influencing or inhibiting behavioural intention. The above reviewed studies help to deepen an understanding of the relationship between attitude and intention to use OAJ. Therefore, it can be concluded that attitude present stimulus which can automatically trigger an individual to try a new product. In the context of this research, attitude has been hypothesized as being among the factors which influence the intention to use OAJ. Thus, the hypothesis is constructed as:

*H1: There is a significant positive relationship between attitude and intention to use open access journals.*

### **Subjective Norm**

Subjective norm is concerned with an individual's perception about what other people think of the behaviour in question. Subjective norm as an independent variable reflects a person's own estimate of the social pressure to either perform or not perform the intended behaviour (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975). It usually incorporates perceptions about what family, friends, colleagues, head of department and professional organizations think about the outcome of the behaviour (normative belief), and the degree to which this influences the behaviour or motivation to comply (Pedersen, 2005). Fishbein and Ajzen (1980) emphasized that for a particular behaviour to be accomplished the influence of subjective norm is a pre-requisite. This argument has been supported by a number of empirical studies conducted in education, psychology and technology adoption. For instance, the previous studies which assessed technology adoption have found that subjective norm exhibits a positive influence on a particular behaviour. Indeed, the usage of OAJ among researchers needs an assessment of the influence of subjective norm in order to predict the intention to use. Previous studies which included subjective norm have shown that the construct plays a significant role toward the behaviour in question. For instance, Mishra, Akman and Mishra (2014) found that subjective norm has a significant influence in motivating individuals toward intended behavior. In the same line, Albarq and Alsughayir's (2013) study on internet banking among Saudi consumers revealed that subjective norm has a positive influence on intention to use. Massoro and Othman's (2017) findings were in line with Taylor and Todd's (1995) result of assessing IT usage, where subjective norm contribute to explaining behavioral intention. The above studies concluded that subjective norm plays a significant role in influencing the intention to use new services such as internet services. In concord with other studies conducted in the information system. Subjective norm has a positive relationship with the intention to use. Therefore, the effect of subjective norm on intention is conclusive in measuring usage behaviour Ajzen (2002) and it is also a motivation to execute new behaviour. Thus, the hypothesis tested was constructed as:

*H2: There is a significant positive relationship between subjective norm and intention to use open access journals.*

### **Personal Innovativeness**

The implementation of a new technology system is connected with a person's extrinsic and intrinsic motivation. The theory of Personal Innovativeness in the context of Information Technology (PIIT) by Agarwal and Prasad (1998) explained the role played by individual's trait in the emulation of new technology, either early or late and those who reject changes. The PIIT describes personal

innovativeness with respect to perception and the subsequent role played in information usage intentions. It encompasses how an individual's stimulus can predict an effort towards the exploitation of technology. In other words, the presence of technology cannot simply guarantee the service intended without individual willingness to envisage its uses. It is personal innovativeness that embraces an individual's curiosity which is paramount in influencing the intention to use information system (Agarwal and Prasad, 1998; Rogers, 2003). Peslak et al. (2011) argued that individuals who are innovative and curious of new systems will develop intention and likely to adopt new technology, unlike individuals who are reluctant to invest their effort and time to exploit new technology. The study conducted by Ogunjobi and Fagbami (2012) revealed that most agricultural researchers have inadequate browsing skills (35.71%), which inhibit their innovativeness in the utilization of the internet. Lee, Park, Chung, and Blakeney's (2012) study on a unified perspective of the factors influencing usage intention towards mobile finance services revealed that personal innovativeness has a strong influence on its usage. The results from previous studies discussed above motivated the researcher to explore the influence of personal innovativeness on intention to use OAJ. This is due fact that the exploitation of OAJ requires an individual's innovativeness in exploiting its features. This study is the first to explore the role of personal innovativeness within a TRA framework that examines the Tanzanian Agricultural Research Institute (ARI) researchers' intention to use OAJ. Thus, the hypothesis tested in view of this relationship is stated below:

*H3: There is a significant positive relationship between personal innovativeness and intention to use open access journals.*

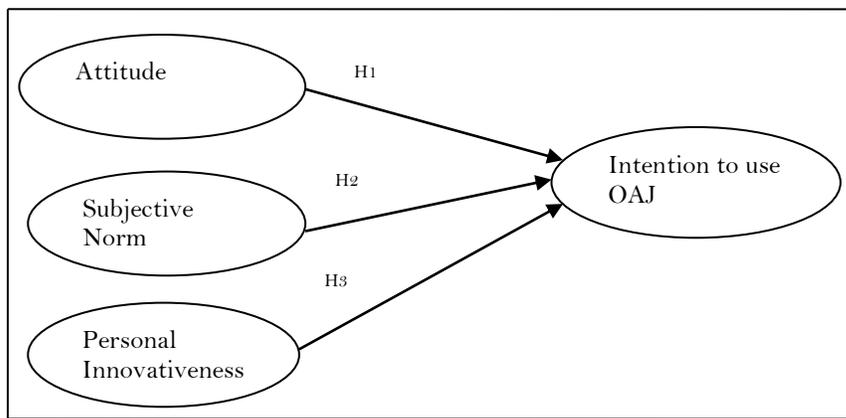


Figure- 1 Conceptual Framework

#### 4.0 Methodology

This study adopted the survey method of data collection, where self-administered questionnaire was used to collect data. The questionnaire reflects four constructs (attitude, subjective norm, personal innovativeness and intention to use OAJ) was adopted and adapted from the previous studies. The adapted questions were validated by subject experts in order to ensure coherence, reliability and consistency. Five-point Likert scale (strongly agree to strongly disagree) items were used to solicit information from researchers. The response rate was 85.2%; where 138 copies out of the 149 questionnaires distributed were returned and 121 (81.2%) were found usable for further analysis. In terms of the study population, the respondents consist of agricultural researchers working in the Ministry of Agriculture, Livestock and Fisheries (MALF) under the Directorate of Research Division (DRD) in Tanzania. The criteria for choosing the ARI researchers are their years of establishment, field of researches they dealt with, and ownership (mainly public ARI).

#### 5.0 Data Analysis and Findings

##### 5.1 Demographic Information

The Statistical Package for Social Science (SPSS) 23.0 version was used to carry out a descriptive

analysis of the demographic characteristics of the respondents, while the SmartPLS 3 software was used for the assessment of the measurement and structural models as well as for hypotheses testing. The demographic characteristics of the respondents were among the variables selected for the evaluation of the factors influencing the intention to use open access journals. A total of 121 respondents comprising 85 (70.2%) males and 36 (29.8%) female were contacted. This unequal representation of the gender in the study signifies that males constitute the majority of agricultural researchers in the area covered by the study. A large number of males in agricultural research have been attributed to the education specialization, especially in the science subjects. The age range 36-45years constitute the highest number of respondents, with 52 (43%) responses, followed by 26-35 years category with 35 (28.9%), the age range of 46-55 and 56 and above were ostensibly few. In all age groups, the number of males was more compared to females. The implication of this finding is that there is high number of young researchers within the age group 36 to 45 years. Table 1 showcases the demographic profile of the respondents.

Table-1 Demographic Profile of the Respondents

	<b>No. of Items</b>	<b>Frequency</b>	<b>Percent</b>
Gender	Male	85	70.2%
	Female	36	29.8%
	<b>Total</b>	<b>121</b>	<b>100.0</b>
<b>Education Level</b>			
	Bachelor degree	33	27.3
	Masters	65	53.7
	PhD	22	18.2
	Post Doctorate	1	.8
	<b>Total</b>	<b>121</b>	<b>100.0</b>
<b>Age Group</b>			
	26-35	35	28.9%
	36-45	52	43%
	46-55	19	15.7%
	>55	15	12.4%
	<b>Total</b>	<b>121</b>	<b>100.0</b>
<b>Position</b>			
	Principal Agriculture Research Officer	28	23.1%
	Senior Agriculture Research Officer	15	12.4%
	Research Officer	53	43.8%
	Assistant Research Officer	25	20.7%
	<b>Total</b>	<b>121</b>	<b>100.0</b>
<b>Working Experience</b>			
	1-5 years	47	38.8
	6-10	41	33.9
	11-15	11	9.1
	16-20	7	5.8
	>20	15	12.4
	<b>Total</b>	<b>121</b>	<b>100.0</b>

Source: Field Survey, 2016

Furthermore, analysis from the distribution indicates that majority of the respondents (n= 65, 53.7%) hold Masters Degree, followed by the Bachelor degree holders (n=33, 27.3%). The findings also reveal that respondents with PhD and post Doctorate degree were ostensibly few, with 22 (18.2%) and 1 (0.8%) responses respectively. With regards to working experience, majority of the respondents (n=47, 38.8%) have 1-5 years experience, while a few of them (n=7, 5.8%) have 16-20 years of experience. This

implies that researchers with 1-5 years of working experience constitute the majority. In terms of work positions of the respondents, 28 (23.1%) are Principal Agricultural Research Officers (PARO), 15 (12.4%) are Senior Agricultural Research Officers (SARO), 53 (43.8%) are Researchers and 25 (20.7%) are Assistant Researchers.

In establishing the number of publications, the researcher wanted to find out if the experience of the researchers mattered and contributed to the publications they have produced. Statistics indicate that a total of 21 respondents with experience of 6-10 years have published more in OAJ compared to other groups. As expected, about 7 respondents with more than 20 years experience are yet to publish in OAJ. This result is contrary to Mansour (2016) findings on the study of Arab authors' perceptions about the scholarly publishing and refereeing system used in Emerald's library and information science journals, which found that authors with experience of 11-20 years tower in scholarly publishing compared to other groups. However, the reasons for not publishing in OAJs platform might vary. Such reasons include low attitude, low innovativeness, low respect for OAJ outlet and the likes. Table 2 displays the distribution of publication according to years of experiences.

**Table-2. Number of Publications Vs Education Level**

Year of Experience	Number of Publication in OAJ				Total
	None	1-5	6-10	11-15	
1-5	34	12	1	0	47
6-10	20	18	3	0	41
11-15	7	4	0	0	11
16-20	4	2	0	1	7
Above 20	7	5	1	2	15
Total	72	41	5	3	121

Source: Field Survey, 2016

In furthering the analysis, the Partial Least Square-Structural Equation Modeling (PLS-SEM) Smart PLS 3.0 M3 was used to assess the measurement model, the structural model and for hypotheses testing. The choice of PLS path modeling was based on the ground that it is among statistical methods for structural equation modeling which follows path-analytics modeling procedures (Reinartz, Haenlein and Henseler, 2009). It also provides solid results even in a complex model, small sample and it is flexible (Hair, Ringle and Sarstedt, 2011). It also evaluates both formative and reflective measurement model (Henseler, Ringle and Sarstedt, 2015). With the PLS-SEM path modeling analysis the factor analysis, evaluation of validity and reliability of the measurement instruments are easily performed. In addition, the coefficient of determination and path coefficient were assessed during the evaluation of the structural model, while the path coefficient and t-statistics were often used for hypotheses testing. Since this study has a small sample size, the choice of PLS-SEM path modeling analysis was inevitable.

### *5.2 Assessment of the Measurement and Structural Models*

In PLS-SEM, the assessment of the measurement model includes the analysis of indicator outer loadings (factors analysis), reliability, internal consistency, convergent validity and discriminant validity. Internal consistency is measured with composite reliability (CR), Cronbach's alpha and average variance extracted (AVE). It is more important to note that CR values are considered more appropriate for use in PLS, as it does not assume the equal reliability of all indicators (Hair et al., 2014) in comparison to Cronbach's alpha. In this study, the Fornell and Larker's (1981) measure of internal consistency was applied as observed with previous studies (Henseler, Ringle and Sinkovics, 2000; Skaik and Othman, 2015). PLS algorithm was run to determine the values of AVE, Cronbach's alpha, Composite Reliability and R-Square. The results show that the composite reliability for all latent constructs was above 0.7 thresholds; and ranged from 0.861338 (INT) to 0.917272 (PINV). Acceptable

AVE should be above 0.5 (Hair et al., 2011), the results from the PLS algorithm show that the AVE of all latent constructs ranged from 0.609354 (INT) to 0.847201 (ATT). On the other hand, the Cronbach's alpha with a threshold of 0.7 is acceptable (Hair, Ringle and Sarstedt, 2013; Henseler, Ringle and Sinkovics, 2009). Generally, internal consistency reliability shows that the range of composite reliability is stronger as compared to Cronbach's alpha, though both provide acceptable thresholds. Table 3 shows the results of the AVE, Cronbach's alpha, Composite Reliability and R-Square which were derived from the PLS algorithm output.

**Table-3.** Cronbach's Alpha, Composite Reliability and R-Square

<b>Variables</b>	<b>AVE</b>	<b>Composite Reliability</b>	<b>R Square</b>	<b>Cronbach's Alpha</b>
Attitude	0.847201	0.917272		0.820235
Intention	0.609354	0.861338	0.2364	0.787672
Person Innovation	0.647484	0.879798		0.819407
Subjective Norm	0.708527	0.879293		0.794176

Source: PLS Output

Further analysis shows the results for factor loadings which ranged from 0.673 to 0.930. All of the factor loadings exceeded the recommended threshold value of 0.50 (Straub, 1989).

**Table-4 Factor Loadings**

<b>Constructs</b>	<b>Item</b>	<b>Loading</b>
Attitude	Att3	0.930040
	Att4	0.910729
	Att5	0.6730040
Intention	Int1	0.761267
	Int2	0.711553
	Int4	0.855706
	Int5	0.786985
Personal innovativeness	PINV1	0.850471
	PINV2	0.836251
	PINV3	0.802809
	PINV5	0.723061
Subjective Norm	Subje1	0.802295
	Subje2	0.866510
	Subje5	0.855024

The convergent validity assesses the extent to which a measure correlates positively with an alternative measure of the same construct (Hair, Hult, Ringle and Sarstedt, 2016). The results also show that the constructs are highly correlated among themselves, and the AVE values for all constructs are greater than the squared correlation with other constructs; and at the same time, has less correlation with measures of distinct constructs. The convergent validity values of the constructs range from 0.609354 to 0.847201. The found AVE values exceed the recommended threshold of 0.5, demonstrating adequate convergent validity.

The study also assessed the discriminant validity in order to measure the extent to which a construct is truly distinct from other constructs by empirical standards. Referring to Campbell and Fisk (1959), the discriminant validity assesses the extent to which a construct is unique and how it captures phenomenon not presented by another construct in the model. The rule of thumb suggests that loadings should be at least 0.32, where the loadings from 0.45 to 0.54 are considered fair, 0.55 to 0.62 are considered good, 0.63 to 0.70 are considered very good and above 0.71 are considered excellent

(Hair et al., 2016). Thus, the cross-loadings result of the indicators under study loaded higher on their own constructs, which indicates satisfactory discriminant validity (Hair et al., 2011). Apparently, the variables under study are different from each other, as they load on their respective constructs. Similarly, the square root of the constructs' AVE shows values that exceed the correlations between the constructs, and falls within the recommended threshold of 0.71 which is considered as excellent (Henseler et al., 2009).

**Table-5.** Convergent Validity and Discriminant Validity

Constructs	AVE	$\sqrt{AVE}$
Attitude	0.847	0.920
Subjective Norm	0.609	0.781
Intention	0.647	0.804
Personal Innovativeness	0.709	0.842

Source: PLS output

In the assessment of the structural model, the bootstrapping procedure was performed. This analysis is aimed to determine the statistical significance of each path by using 5000 resample (Henseler et al. 2009; Hair et al. 2011). With the bootstrapping procedure, the significance of the interrelations between the dependent and independent variable was determined. Cohen's (1988) suggestion was used to assess the path coefficients, (0.02= small relationship, 0.15=medium relationship and 0.35=large relationship). The rule of thumb for the two-tailed test for significance t-statistic recommends the p-value 0.1 for 1.65, p-value 0.05 for 1.96, and p-value 0.001 for 2.59 (Hair et al., 2011). The results indicate that two paths in the model exceed the recommended threshold of 0.1 coefficients; hence, they can be categorized as strong paths (Urbach and Ahlemann, 2010). However, one path shows a negative sign which indicates the presence of an inverse relationship. The results of the PLS algorithm and bootstrapping indicate that the t-statistic values ranged from 1.792491 to 4.445234.

Furthermore, the hypotheses testing were performed based on the path coefficient estimates and bootstrapping results. The results from these two tests were used to support or refute the hypotheses. Table 6 demonstrates the relationship, path coefficient, t-statistics, path magnitude and conclusion.

**Table-6.** Hypotheses Testing, Path Coefficient, T-statistic Value and Path Magnitude

Hypothesis	Relationship	Path Coefficient	T-Statistic	Path Magnitude	Remark
H1	Attitude → Intention	-0.112	1.792491**	Medium	Not Supported
H2:	Subjective Norm → Intention	0.248354	4.138548***	Large	Supported
H3:	Personal Innovativeness → Intention	0.302738	4.445234***	Large	Supported

\*Significance at t-value >1.96 with (p<0.05), \*\*Significance at t-value >2.59 with (p<0.01)

Source: PLS Output

## 6.0 Discussion

### *Researchers' attitude towards the intention to use Open access journals*

The results show that the path coefficient between attitude and intention to use was greater than 0.1, and has a t-statistic value greater than 1.96 ( $\beta = -0.112$  and  $t = 4.445234$ ,  $p < 0.01$ ). However, this hypothesis was not supported because of the negative sign found on the path coefficient value, which indicates that there is an inverse relationship between attitude and intention to use Open Access Journals. This contradicts the study proposition based on the previous studies (Hurrell and Meijer-Kline's, 2011; Togia and Korobili, 2014). In such situation, Urbach and Ahlemann (2010) opined that such hypothesis should be rejected. This result can be substantiated with the fact that most of the respondents were yet to publish their own research findings in OAJ as demonstrated in Table 2. The

tenacity of low attitude among respondents was also reported by Musa (2016) despite the fact that open access journals offer free accessibility in a convenient environment. Indeed, the findings showed that the researchers are comfortable with the general resources and services provided by open access journals. Although a previous study reported the existence of high attitude among respondents (Obuh and Bozimo, 2012), the respondents' awareness and familiarity with open access materials were among the determinants of its usage. Hence, this finding provides an evidence to conclude that attitude among researchers does not influence their intention to use OAJ. The results of this research are somehow in tandem (in some aspects) with Peslak's (2011) observation that attitude has little influence on sharing in social networking. However, the results of this research contradict other previous studies (Moksness and Olsen, 2017; Mohammed and Garba, 2013; Nariani and Fernandez, 2012; Obuh and Bozimo, 2012; and Albarq and Alsughayir, 2013) which confirmed that attitude plays a significant role in influencing intention. However, it should be noted that low attitude toward OAJ as found in this study may be associated with the respondents' lack of knowledge and experience in its operation. Therefore, hypothesis H1 which states that "there is a significant positive relationship between attitude and intention to use open access journals" was not supported.

#### *Researchers' subjective norm towards an intention to use Open access journals*

Subjective norm is more concerned with an individual's perception about what other people think of the behaviour in question. The results indicate that the path was great than 0.1, which depicts a strong relationship between variables. Thus, subjective norm has a significant positive influence on researchers' intention to use OAJ ( $\beta = 0.3027$ ;  $t = 4.445234$ ,  $p < 0.05$ ). Items loading for subjective norm were significant, with values ranging from 0.8023 to 0.8665 which is above the recommended threshold of 0.7. Therefore, it can be concluded that subjective influences intention to use open access journals. This finding contradicts Jiang's (2009) study which documented insignificant contribution of subjective norm toward peers' intention to adopt mobile internet services. The finding of this study is in harmony with Fong and Wong (2015); Massoro and Othman (2017); Peslak et al. (2011) and Sambe, and Raphael (2015) which found that subjective norm influences intention towards usage behaviour. This finding provides credit on the influence of professional organization, family, friends, colleagues, institution, and management for enhancing researchers' intention to use OAJ. Thus, subjective norm plays a significant role in influencing the intention to use open access journals. Based on the above finding the hypothesis (H2) which states that "There is a significant positive relationship between subjective norm and intention to use open access journals" is supported.

#### *Researchers' personal innovativeness on intention to use Open access journals*

The effect of personal innovativeness on intention to use open access journals among researchers was also assessed in the study. The inclusion of personal innovativeness (which was derived from the PIIT model) was aimed at enriching the study with more options from the respondents, in term of their level of innovativeness in the utilization of information technology feature. In assessing the influence of personal innovativeness on the intention to use OAJ, the following hypothesis (H3) was postulated: "There is a significant positive relationship between the personal innovativeness and intention to use open access journals". The finding indicates that the path coefficient was  $\beta = 0.302738$ , which indicates a large path magnitude, and it is significant ( $t = 4.1385$ ,  $p < 0.1$ ). Based on the result, hypothesis H3 which tested the relationship between personal innovativeness and intention is supported. The finding from this research is contrary to Lee et al. (2012) which reported an insignificant relationship between personal innovativeness and intention to use mobile financial services. However, this result is in harmony with Kalinic and Marinkov's (2016) study on the determinants of users' intention to adopt M-commerce. The authors found that personal innovativeness significantly affects ease of use. This finding provides a new stand that personal innovation influences intention to use open access journal.

Thus, this study is among the few studies (Lee et al. 2012; Pedersen, 2005) which assessed the influence of personal innovativeness on intention to use in the field of information science.

## **7.0 Conclusion**

This study assessed the factors that influence the intention to use OAJ among researchers from Agricultural Research Institutes (ARI) in Tanzania. To achieve this, an empirically based framework mainly drawn from the TRA (attitude, subjective norm and intention) and another factor which was generated from the literature review (personal innovativeness) was developed. The results reveal that open access journals have provided a significant effect in attracting collaboration among researchers from within and outside the organization. Findings also suggest that both subjective norm and personal innovativeness constructs have positive influence on the intention to use OAJ. It was also discovered that most of the respondents devote their time and they are eager to explore more features in order to improve their skills on OAJ. Subjective norm plays a significant role in raising the intention to use OAJ among researchers. Apart from subjective norm and personal innovativeness, further analysis demonstrated that attitude has an insignificant effect on the intention to use open access journals. In other words, the presence of attitude toward open access journals does not guarantee an individual's intention towards the intended behaviour. Most researchers normally use the research articles published in open access journals for multiple purposes; like the discovery of new development, making citation and leisure reading, although they yet to publish their own research in these journals. The findings revealed that there is persistent low attitude towards intention to use OAJ among researchers in spite of ubiquitous access and free availability on the web. This study provides both theoretical and practical contributions to the understanding of the factors influencing the intention to use open access journals.

## **8.0 Recommendation**

The importance of OAJ in terms of being freely available and the possibility of making a link to the article are fundamental for enhancing the creation of knowledge-based society. The importance of using OAJ should be more emphasized in research institutions than other organizations. These institutions are considered as factories for knowledge creation, knowledge exchange, transfer and utilization. Therefore, it is important for these institutions to develop and harness the appropriate environment that influences the intention to use OAJ, in order to enhance knowledge sharing and creation of a knowledge-based society. Management staff should guide researchers through highlighting the importance of using OAJ to researchers and institutions at large. The institutions should also make a list of reputable journals where researchers can communicate their research findings.

## **9.0 Practical implications**

The research findings reveal that the intention to use OAJ is determined by researchers' subjective norm, such as their co-researchers, professional association, organization and colleagues. It was realized that personal innovativeness (such as curiosity, eagerness, devotion of time, and the presence of internet resources) also plays a significant role in enhancing intention. Moreover, the findings from this study will enlighten the decision and policy makers in research institutes in Tanzania and other African countries to increase awareness campaign on open access journals, in order to motivate researchers and other stakeholders to raise their attitude. Obviously, research institutes are among the most recognizable factory for knowledge-creation and dissemination. Thus, the study findings indicates that policy makers and researchers from different disciplines need to make use of open access journals in order to enhance knowledge discovery, data mining and knowledge dissemination.

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