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The Access and use of Library and Internet as Information Source by Agricultural Academics and Extension Workers within King Cetshwayo District Municipality of Kwazulu-Natal Province, South Africa

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Abstract

Information plays a vital role in agricultural production, it is believed to be the foundation for improved agriculture. To improve agriculture, access and use of information is required. This study investigated the access to and use of library and internet by agricultural extension workers and academics as information source. Shannon and Weaver model theory was used to underpin the study. Purposive sampling was used to select three local municipalities within King Cetshwayo District of KwaZulu-Natal Province in South Africa. Quantitative technique was adopted with self-administered structured questionnaire. Convenience sampling technique was adopted to select 60 extension workers in three offices of the department of agriculture located in Eshowe, Melmoth and Ngwelezane and 9 academics from department of agriculture, University of Zululand, making the total number of the study participants sixty-nine (69). Statistical package for social sciences (SPSS) software was used to analyse data collected. Findings revealed that internet facilities are not adequate in agricultural department offices located in the rural areas, thereby, led to minimal use of internet.; Academics regular access to internet led to regular use of internet. Also, Academics had high access to library but low use of library. Most extension workers do not have access to library, thereby, they hardly use library for information source. The study recommends that effort should be made to train, especially the old extension workers on the use of internet for agricultural information source. Use of library should be encouraged among academics and extension workers.

Keywords: Agricultural academics. Agricultural extension workers, Information sources, Internet, Library

Introduction

Agriculture is generally referred to as the mainstay of African economy, the real driver of economic growth. According to David and Grobler (2019), there is growing public interest in agriculture and its role in assuring provision of food supply. In order for food production to be abundant, the need arise for agricultural extension workers and academics to have unlimited access to agricultural information day-to-day. As indicated by Adanlawo and Rugbeer (2019), information and communication plays a vital role in the day to day running of any activities, agriculture inclusive. It is one of the basic human needs as it is regarded as an important factor of production. David and Grobler (2019) opine that access and the use of information is germane to the development of agriculture. The roles of agricultural academics and extension workers are paramount in enhancing agricultural production (Msuya, *et al.,* 2017; Kassem *et al.,* 2018). Agricultural academics and extension workers play a critical role in providing new information technologies to farmers which invariably leads to increase productivity, farm income and improved standard of living. Therefore, agricultural academics and extension workers are key players in the advancement of agriculture (Enwelu *et al*., 2017; Msuya *et al*., 2017).

There are quite a number of agricultural information sources that may be available for accessibility and use by both agriculture extension workers and academics such as library, internet, individual/colleague collections, bookshop, media such as radio, television, dailies, agricultural exhibitions, posters, seminars, conferences and workshops among others. The development of internets and advancement in telecommunications provide numerous opportunities to obtain a variety of agricultural information for decision making use. According to Nwobodo and Nwabugwu (2016), Internet has an important role in connecting research, extension and the farmers towards expanding agricultural communities. It is essential that academics and extension workers are well positioned to make use of Internet to access information that could facilitate the accomplishment of the farmers' production objectives Samansiri and Wanigasundera (2014); Aldosari *et al.* (2019) aver that Internet has the ability to overcome barriers of time and distance as information could be accessed anywhere at any time.

According to Ezeala and Yusuf (2011); Musingafi and Zebron (2015), the library remains the greatest means of discovery. The need for library is to house the

collection of relevant information in various forms and effectively manage the increased information generated. For library to fulfil its essential roles, it must facilitate maximum provision of information to their users by giving out and receiving information resources from other libraries. If the libraries are to play their role in providing agricultural information creditably, David and Grobler (2019) aver that they must possess adequate and appropriate information resources and services and give user-oriented services.

Studies have shown that agricultural development in most African countries have been hampered by low level of agricultural information exchange (Aldosari *et al*., 2019; David and Grobler, 2019), this does not exclude KwaZulu-Natal province of South Africa. The challenge is due to inadequate agricultural information sources and lack of access to the sources. In a bid to respond to these inadequacies and also address the gaps created by these shortcomings, the need for this study arose to examine the accessibility and the use of library and internet by agricultural academics and extension workers for information source. To fulfil the study objectives, the following questions become pertinent: What access do agricultural academics and extension workers have to library and internet in King Cetshwayo District Municipality of Kwazulu-Natal Province? What is the level of use of library and internet by agricultural academics and extension workers in King Cetshwayo District Municipality of Kwazulu-Natal Province?

Problem Statement

The agricultural sector is faced with the problem of improving output to cater for the ever growing population in the present time of decreasing natural resources. The sector has not grown as fast as the population. Decline in agricultural development is attributed to a number of constraints which includes lack of adequate information provision (Block, 2014). In order to feed the world's increasing population, it will be necessary to increase food production and doing so, will require adequate access and use of information that can deliver current and appropriate technical knowledge to agricultural academics and extension workers, who are saddled with the responsibility of research and dissemination of relevant and current information to farmers. Decline in agricultural activities in King Cetshwayo district has been recorded (Masuku *et al.,* 2017). Nxumalo and Oladele (2013) affirm that efforts are concentrated on urban areas for information source, while the rural areas of which

King Cetshwayo District falls are often neglected. Therefore, this study investigates the access to and the use library and internet as information sources by agricultural academics and extension workers in King Cetshwayo District Municipality of Kwazulu-Natal Province.

This study pursues to examine:

1. The accessibility of library and internet use by agricultural academics and extension workers in King Cetshwayo District Municipality of Kwazulu-Natal Province
2. The level of use of library and internet by agricultural academics and extension workers in King Cetshwayo District Municipality of Kwazulu-Natal Province.

Theoretical Framework

This study is underpinned by Shannon and weaver model of communication. Shannon and Weaver's original model contains five elements: information source, transmitter, channel, receiver, and destination. The information source is where the information is stored, which this study identifies as internet and library. In order to obtain information from these sources (internet and library), the information, which Shannon and weaver refer to message has to be encoded into signals by the senders (agricultural academics and extension workers), so it can gets to its target receiver (farmers). The information is passed though adopted channel(s) for dissemination after it has been encoded. The receiver (farmers) think over the information before it arrives at destination (Adanlawo and Rugbeer, 2019). At the destination point, the farmers make decision and act based on the received information which improves his knowledge on the topic. Aldosari *et al*. (2019) assert that information as well as knowledge mean the same thing: which indicates that knowledge is acquired through information communicated to one. Most often, agricultural academics source for information and transfer the information to the extension workers for final dissemination to farmers.

As indicated above, there is a link among academics, extension workers and farmers. Communication of agricultural information involves researchers and extension workers as the intermediaries and farmers. As the theory portrays, the feedback mechanism also showed that farmers are able to communicate through the

extension workers to agricultural academics. The theoretical framework also demonstrated that information flow is a vertical approach as it enables farmers to communicate directly with the extension workers. Mugwisi, Mostert and Ocholla (2015) aver that agricultural extension officers are intermediaries between academics and farmers. They operate as facilitators and communicators, helping farmers in their decision-making and ensuring that appropriate knowledge is implemented to get the best outcomes.

It is essential that agricultural extension workers need to communicate general agricultural information to farmers to enable them reach an optimal production. Fangohoi *et al.* (2018) identify agricultural extension workers' duty as to encourage farmers to adopt new/improved farming method and organising study groups. Umar *et al.* (2015) aver that extension workers are expected to have a wide knowledge of agriculture, as effective agricultural information delivery requires recognizing the needs of farmers and determining how best to provide them with the information that they need. Access to and the use of appropriate information source may provide better knowledge to farmers that will result to improved agricultural production.

The Access to and use of Agricultural Information

The demanding role of extension workers necessitates the use of new information and communication techniques (Fischer and Hajdu, 2015). The pertinent roles of both agricultural academics and extension workers are germane to the development of agricultural activities, thereby, access and use of adequate and recent agricultural information is essential. Studies have indicated that access to and use of agricultural information are important components to every nation for agricultural development, as it will enhance the information awareness of farmers as advised by agricultural academics and extension workers (Samansiri and Wanigasundera, 2014; Enwelu *et al*. (2017). Access to information by agricultural academics and extension workers improves their knowledge in discharging their duties to farmers (Rad *et al*., 2014). This indicates that access to current and updated information is pertinent to extension workers' ability to perform effectively.

Similarly, Ezeh (2013) professes information to be a powerful tool for improving the delivery of basic services and enhancing development of agricultural opportunities. The development in information technology has brought a change to access and use

of information. According to Fangohoi *et al*. (2018), access to information can be obtained in a short while now. According to Onwubuya, Nenna and Ugbaja (2015), the societies shall depend on internet in the current era of technology advancement as an important part to relate with all those kinds of activities. Mugwisi, Mostert and Ocholla, (2015) assert that internet has the speed to provide a platform for academics and extension workers to access the latest information and also to obtain feedback from farmers. Agricultural information is no doubt central in enhancing agricultural productivity and facilitating poverty alleviation among rural farmers (Msuya *et al.,* 2017). However, for information to be available to the users, it has to be sourced from media such as library and internet. The library and internet have continued to be an important means of communication that has aided and improved the process of agricultural production in a variety of ways (Sa'adu *et al.,* 2018).

Methodology

The study focused on the access and use of internet and library by agricultural academics and extension workers as agricultural information sources. The study scope was limited to South Africa. The study was carried-out in King Cetshwayo District which is one of the eleven districts of KwaZulu-Natal Province with the seat of administration located in Richards Bay. Purposive sampling was used to select three local municipalities of uMhlathuze, uMlalazi and Mathonjaneni in King Cetshwayo District of KwaZulu-Natal Province of South Africa as the study sampling population. Quantitative technique was adopted with structured questionnaire. The questionnaire was self-administered to collect primary data from randomly selected 60 extension workers in the offices of the department of agriculture located in Eshowe (uMlalazi), Melmoth (Mathonjaneni) and Ngwelezane (uMhlathuze). The questionnaire was evenly distributed among the three department offices, with each having 20 questionnaires. Also, questionnaires were administered to nine (9) agricultural academics, which were the entire academic staff of the department of agriculture, University of Zululand as at the time of the study. The University of Zululand is the only University within King Cetshwayo District. In total, 69 respondents, comprising 60 extension workers and 9 agricultural academics constitute the study sampling population. The questionnaire was interviewer administered, all the sixty-nine (69) were retrieved which indicates 100% success

rate. Statistical Package for Social Sciences (SPSS) software was used to analyse data collected.

Results and Discussion

Respondent gender

Table 1 depicts (n=37/69) which constitutes 53.6% of the study respondents as female, while (n=32/69) 46.4% represents male respondents. Meanwhile, the result also portrays male respondents as the majority of the agricultural academics with (n=7/9) which adds to 77.8% of the study academics participants. Female respondents were revealed as the majority of the extension workers with (n=35/60) which makes 58.3%, although, majority of male extension workers were recorded in Ngwelezane with (n=12/20) which constitutes 60%. The result generally illustrates that men (male) are more into agricultural academics than female, while, female extension workers are slightly higher than male counterparts.

			Gender		Total
			F	M	
N of inst.	Eshowe	Count	11	9	20
		% within Name of inst.	55.0%	45.0%	100.0%
	Melmoth	Count	16	4	20
		% within Name of inst.	80.0%	20.0%	100.0%
	Ngwelezane	Count	8	12	20
		% within Name of inst.	40.0%	60.0%	100.0%
	UNIZULU	Count	2	7	9
		% within Name of inst.	22.2%	77.8%	100.0%
	Total	Count	37	32	69
		% within Name of inst.	53.6%	46.4%	100.0%

Table 1: Respondents' gender

Experience of the respondents

Table 2 discloses (n=44/69) which makes 63.8% of the respondents having minimum of six (6) years' experience. In Eshowe, 50% (n=10/20) are having minimum of 6 years' experience, while, 45% (n=9/20) have maximum of five (5) years' experience. The remaining 5.0% (n=1/20) did not indicate year(s) of experience. In Melmoth, 85% (n=17/20) of the respondents have minimum of 6 years' experience, with the remaining 15% (n=3/20) having experience of five years and below. Majority of the extension workers at Ngwelezane (n=11/20) 55% have at least of 6 years' experience, with the remaining (n=9/20) 45% having maximum of five (5) years' experience. University of Zululand records similar result, with (n=5/9) 55.6% having minimum of 6 years' experience, while, (n=4/9), 44.4% have maximum experience of five (5) years. The table depicts Melmoth as having the most experienced extension workers with (n=17/20), 85% having above eleven (11) years of experience. Ngwelezane extension workers have the least years of experience, as (n=13/20), 65% which represents (0-5years=9 and 6-10years=4) form the majority of the extension workers. In overall, the respondents' demographic characteristics portrays that the respondents are highly qualified, although they have varied work experience. The result validates Adanlawo, Vezi-Magigaba and Owolabi (2021|) finding which necessitates education and experience as key instruments for any activity success.

			Years of Experience.					Total
				0-5yrs	11-20yrs	21-30yrs	31+	6-10yrs	
N of inst.	Eshowe	Count	1	9	6	0	4	0	20
		% within Name of inst.	5.0%	45.0%	30.0%	0.0%	20.0%	0.0%	100.0%
	Melmoth	Count	0	3	8	7	2	0	20
		% within Name of inst.	0.0%	15.0%	40.0%	35.0%	10.0%	0.0%	100.0%
	Ngwelezane	Count	0	9	5	1	1	4	20
		% within Name of inst.	0.0%	45.0%	25.0%	5.0%	5.0%	20.0%	100.0%
	UNIZULU	Count	0	4	4	1	0	0	9

	% within Name of inst.	0.0%	44.4%	44.4%	11.1%	0.0%	0.0%	100.0%
Total	Count	1	25	23	9	7	4	69
	% within Name of inst.	1.4%	36.2%	33.3%	13.0%	10.1%	5.8%	100.0%

Table 2: Respondents years of experience

Access to internet by agricultural academics and extension workers

The study sought to investigate the access and utilization of internet and library by academics and extension workers by establishing the availability, accessibility and the utilisation of these information sources by the respondents. The aim of this question was to determine the accessibility of internet in the respondents' place of work. Table 3 shows that 75% (n=45/60) of extension workers have constant and direct access to internet with the availability of computer in their offices. The figure is represented as follows: Eshowe 70% (n=14/20); Melmoth 75% (n-15/20) and Ngwelezane 80% (n=16/20). The result for the academics defer, as 88.9% indicated that they have direct access to internet, while the remaining 11.1% (n=1/9) did not answer the question. 20% (n=4/20) of the respondent from both Eshowe and Melmoth indicated that they did not have computer in their offices, thereby, they do not have access to internet. Meanwhile, there were no respondents from both University of Zululand and Ngwelezane that indicate that that they do not have access. The table reveals that 20% (n=4/20) of respondents from Ngwelezane do not have access to internet all the time. No respondent from Eshowe and Melmoth and UNIZULU opted for this option, however, 10% (n=2/20) Eshowe, 5% (n=1/20) Melmoth and 11.1% (n=1/9) UNIZULU did not answer the question. The result clearly indicates that academics have constant and direct access to internet; this will definitely enhance their research capability. Extension workers access to internet is encouraging with 75% of the respondents indicating access to internet. The result contradicts Kiplang'at and Ocholla (2005); Ezeh (2013) studies results that indicate access to internet as still very low.

			Access to Internet				Total
				No	Not all times	Yes	
N of inst.	Eshowe	Count	2	4	0	14	20
		% within Name of inst.	10.0%	20.0%	0.0%	70.0%	100.0%
	Melmoth	Count	1	4	0	15	20
		% within Name of inst.	5.0%	20.0%	0.0%	75.0%	100.0%
	Ngwelezane	Count	0	0	4	16	20
		% within Name of inst.	0.0%	0.0%	20.0%	80.0%	100.0%
	UNIZULU	Count	1	0	0	8	9
		% within Name of inst.	11.1%	0.0%	0.0%	88.9%	100.0%
	Total	Count	4	8	4	53	69
		% within Name of inst.	5.8%	11.6%	5.8%	76.8%	100.0%

Table 3: Respondents access to internet

Library accessibility by agricultural academics and extension workers

The respondents were asked to indicate their access to library and the use of library for agricultural information source. Table 4 portrays academics to having constant access to library with 88.9% (n=8/9), while, 11.1% (n=1/9) did not answer the question. The result indicates that academics have a ready access to library. The table reveals that majority of extension workers do not have access to library, in Eshowe, 40% (n=8/20) indicates access to library, 45% (n=9/20) in Melmoth, while 35% (n=7/20) in Ngwelezane. The result indicates that only 40% (n=24/60) have constant access to library. A large portion of the respondents (extension workers) 53.3% (n=32/60) do not have access to library, with 6.7% (n=4/60) of the extension workers indicate that they do not at all times have access to library. Meanwhile, one respondent (Ngwelezane) did not answer the question. The results clearly indicate that extension workers access to library is minimal. The result corroborates with Mugwisi (2014) finding which found that extension workers do not have access to libraries and thereby, consult departmental collections. Library access is posited by Sobalaje *et al* (2019) to be a potential support to agricultural research by enhancing

access to information through the effective management of its resources and the provision of a wide range of information services and products to academics, extension workers and policy makers in the agricultural sector.

			Access to Library			Total
				No	Not all times	Yes	
N of inst.	Eshowe	Count	0	11	1	8	20
		% within Name of inst.	0.0%	55.0%	5.0%	40.0%	100.0%
	Melmoth	Count	0	11	0	9	20
		% within Name of inst.	0.0%	55.5%	0.0%	45.0%	100.0%
	Ngwelezane	Count	0	10	3	7	20
		% within Name of inst.	0.0%	50.0%	15.0%	35.0%	100.0%
	UNIZULU	Count	1	0	0	8	9
		% within Name of inst.	11.1%	0.0%	0.0%	88.9%	100.0%
	Total	Count	1	32	4	32	69
		% within Name of inst.	1.4%	46.4%	5.8%	46.4%	100.0%

Table 4: Respondents access to library

The level of use of internet for information source

The relevance of this part is to determine the rate at which both academics and extension workers use internet to source for agricultural information. The motive behind the question was to know and ascertain the embracement of innovative means for information sourcing. Majority of the academics make use of internet frequently. A significant portion of 44.4% (n=4/9) use internet for more than four (4) hours in a day, while the remaining 55.6% (n=5/9) use internet daily for agricultural information purposes. When compare with extension workers, none of the extension workers make use of internet for four hours in a day. The table portrays 66.7% (n=40/60) of extension workers using the Internet daily to source for agricultural information. Daily use of internet by extension workers is represented as thus: Eshowe 60% (n=12/20), Melmoth 65% (n=13/20) and Ngwelezane 75% (n=15/20). A

significant number of the extension workers (n=15/60) 25% use internet per week with Eshowe (n=6/20), Melmoth (n=6/20) and Ngwelezane (n=3/20). Meanwhile, only 8.3% (n=5/60) of the extension workers use internet when the need arises. The findings indicate that extension workers are embracing the use of internet to source for agricultural information. The discoveries confirmed that both academics and extension workers generally had a positive attitude towards the use of internet, though, the study reveals that internet is more in use by academics than extension workers. The finding validates Afzal *et al. (*2016); finding which indicates that internet use is gaining popularity among agricultural extension workers.

			Frequency of internet use				Total
			More than 4hours daily	daily	weekly	when needed	
N of inst.	Eshowe	Count	0	12	6	2	20
		% within Name of inst.	0.0%	60.0%	30.0%	10.0%	100.0%
	Melmoth	Count	0	13	6	1	20
		% within Name of inst.	0.0%	65.0%	30.0%	5.0%	100.0%
	Ngwelezane	Count	0	15	3	2	20
		% within Name of inst.	0.0%	75.0%	15.0%	10.0%	100.0%
	UNIZULU	Count	4	5	0	0	9
		% within Name of inst.	44.4%	55.6%	0.0%	0.0%	100.0%
	Total	Count	4	45	15	5	69
		% within Name of inst.	5.8%	65.2%	21.8%	7.2%	100.0%

Table 5: Respondents use of internet

The rate of use of library by academics and extension workers

The purpose of the question was to determine the level at which library is being used by both agricultural academics and extension worker; in other word to test the popularity of library as a source of agricultural information. Among the academics, the results indicate that only 22.2% (n=2/9) use library daily, with 11.1% (n=1/9) use at least once in a week. 33.3% (n=3/9) use the library once in a month, while, 22.2% (n=2/9) only use the library when the need arises. Meanwhile, one (1) respondent

among the academics did not respond to the question. Similar responses were gotten from extension workers, 18.3% (n=11/60) indicated that library is used at least once in a week, which represents Eshowe 15% (n=3/20), Melmoth 20% (n=4/20) and Ngwelezane 20% (n=4/20). Another 36.7% (n=22/60) specified that they make use of the library at least once in a month. The responses for the use of library only when needed were indicated by extension workers as follows: Eshowe 45% (n=9/20), Melmoth 55% (n=11/20) and Ngwelezane 35% (n=7/20). No respondent among the extension workers indicates daily use of library. The overall results depict that only 1.1% of both academics and extension workers use library daily, with another small portion of 17.4% (n=12/69) use the library at least once in a week. The results indicate that library use is not popular among agricultural academics and extension workers in the study area. The findings confirm Kiplang'at and Ocholla (2005); Mugwisi (2014) studies which conclude that the use of library is becoming very unpopular among extension workers and agricultural academics. Meanwhile, Sobalaje, and Ogunmodede (2015) encourage the use of library as source of information for economic improvement.

			Frequency of library use					Total
				daily	monthly	weekly	when needed	
N of inst.	Eshowe	Count	0	0	8	3	9	20
		% within Name of inst.	0.0%	0.0%	40.0%	15.0%	45.0%	100.0%
	Melmoth	Count	0	0	5	4	11	20
		% within Name of inst.	0.0%	0.0%	25.0%	20.0%	55.0%	100.0%
	Ngwelezane	Count	0	0	9	4	7	20
		% within Name of inst.	0.0%	0.0%	45.0%	20.0%	35.0%	100.0%
	UNIZULU	Count	1	2	3	1	2	9
		% within Name of inst.	11.1%	22.2%	33.3%	11.1%	22.2%	100.0%
	Total	Count	1	2	25	12	29	69
		% within Name of inst.	1.5%	2.9%	36.2%	17.4%	42.0%	100.0%

Table 6: frequency of library use

Conclusion and Recommendations

Agricultural extension information is essential to improving farmers' knowledge skills for sustainable agricultural practices. The study through the review of literature and theoretical framework have been able to establish the importance of agricultural information to the development and sustainability of agricultural practices. Findings found that there are more female as extension workers than male. This is an indication that females are more interested in extending information to farmers on agricultural practices than male. The study indicates male dominance of agricultural academics. This pose a challenge for women to be more educated to function more in the area of agricultural academics. The academics have more access to internet than the extension workers, this reflects on the use of internet by the duo. Internet use is more favoured by academics than extension workers. Though, extensions workers record low use of internet as the access to internet is lower comparing to the academics. It could be said that access to internet affects the use of internet by extension workers, although agricultural extension workers record an encouraging response in the use of internet daily with 66.7%. There is the need to encourage more usage of internet as information source, especially among the old extension workers.

Academics had high access to library but low use of library. High access and use of internet by the academics might be the reason for decline in the use of library by academics for agricultural information source. On the contrary, majority (53.3%) of agricultural extension workers do not have access to library, thereby, low use of library for agricultural information source. The study concludes that academics have access to library but do not regularly make use of it, while, extension workers access to library is limited and it invariably tells on the use for information source. In conclusion, internet facilities are not adequate in agricultural department offices located in the rural areas. This is likely to hinder access to current and innovative information to be disseminated for the development of the agricultural system.

In order to have access to and circulate timely information to farmers, transportation would be required by agricultural academics and extension workers in order to be able to reach a larger portion of the farmers. Though, there is an increase in the use of internet by extension workers, more effort should be made to train, especially the old extension workers on the use of internet for agricultural information source. Use

of library should be encouraged among academics and extension workers, as library offers e-resources services these days. Future research study could focus on the impact of agricultural information on the development of agricultural activities.

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