

Competencies Needed by Electrical Technology Education Lecturers in the Use of Social Media for Research Activities in Tertiary Institutions

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Abstract

The study determined the competencies needed by Electrical Technology Education Lecturers in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria. Three research questions one hypothesis guided the study. The study adopted descriptive survey research design. The population comprised of 63 respondents from University, Polytechnic and Colleges of Education. The instrument used for the study was four points rated 33 item questionnaires. No sampling was carried out since the entire population of 63 was considered manageable. The instrument for the study was validated; pilot tested and Cronbach Alpha reliability found to be 0.87. Data collected was analyzed using mean, standard deviation and t-test at 0.05 level of significance using SPSS version 20. The study found out that Electrical Technology Education Lecturers (ETEL) need 26 competencies at different levels and magnitude while seven competencies were not needed. There was no significant difference in the mean ratings of male and female ETEL on the competencies needed by ETEL in the use of social media for research activities. Based on the findings, it was recommended among others that: management of each of the tertiary institutions should use the identified competencies needed to organize special training workshop for the ETEL in the use of social media for research activities.

Keywords: competencies needed, social media, research activities.

Introduction

One of the basic functions of tertiary institutions is the conduct of research. These are institutions where intensive research is carried out for better production of goods and services, teaching and learning in preparing individuals for future challenges or engagement. The academic staff of these institutions is required to carry out research activities as their promotion is based on teaching/learning, community services and academic research outputs. Apart from the academic staff being promoted through research publications, research activities enhance their credibility, status, and also add value both to their immediate community and the larger global community (Nwakpa, 2015). The development of any country is predicted on the ability to carry out research in diverse area of the

economy. There are different medium for accessing information and literature review for research activities. One of the mediums is social media. Vasileiadou and Vliegthart(2009) confirmed that the increasing use of the Internet in research has brought forth several studies on whether the Internet facilitates research work and improves productivity of any nation. The importance and impact of social media are not only felt within the academe but also in the realm of science and research.

Social media are different from traditional or industrial media in many ways including quality, accessibility, frequency, usability, speed and permanence (Agichteinet *al.*, 2008). According to Bryer and Zavatarro (2001) Social media are technologies that facilitate social interaction, possible collaboration and useful deliberation across stakeholders. With ready access to a vast range of people and data, social media offers much potential for conducting research by Electrical Technology Education Lecturers in tertiary institutions. Electrical Technology Education Lecturers are saddled with the responsibility of teaching electrical technology students in various tertiary institutions. An electrical technology lecturer like any other lecturer usually holds an open-ended position that covers teaching, research and administrative responsibilities (Reddy, 2017).

Research leads to an original contribution to knowledge in a particular field of inquiry by defining an important question or problem and then answering or solving it in a systematic way. It is a systemic attempt, search or investigation to find solutions to problems or questions in order to increase the sum of knowledge (Bako, 2005). This mean that a good Electrical technology lecturer must also possess in addition to pedagogy and technical skills, a research skill which are vital in discharging of his duties. The usage and preference of social media tool or site may be influenced by gender.

Gender differences are noticeable in Social Networking Sites preferences and amount of use. Females use social media for maintaining existing relationships, academic purposes and following agenda higher than males, while males use it for making new relationships at a rate higher than the females (Mazman, 2011). This is in line with Atanasova (2016) who opined that male are more likely to use social media to seek information, while female use social platforms to connect with people. Male do open social media accounts to network, they are more often looking to form new relationships, female are more focused on sustaining existing ones. In the United State gender, income and education have little impact on whether or not someone uses social media. But these factors do have a big impact on which social networks. Many top social network including facebook, pintrest and Instagram have strong skew toward female users. Pew (2015) revealed that women in US are more likely to use facebook by 11%,

Pinterest by 29% and Instagram by 7%. But Twitter and LinkedIn continue to attract a mostly male audience. Hashtags (2013) revealed that more men log on social media platform each month compare to women.

In this study, there is need to determine the competencies needed by both female and male Electrical Technology Education Lecturers for effective utilization of social media for research activities. This will reveal the competencies needed by both female and male Electrical Technology Education Lecturers for conducting research activities using social media in fast changing working environment. The rapid advancement of media technology had a great impact on the way people communicate on a daily basis. The growing dimension of the use of the social media among Electrical Technology Education Lecturers of today cannot be over emphasized. However, it has been observed that most Lecturers are not using social media for research activities because they lack the skills and competencies for it (Omotunde, 2017). Some Electrical Technology Education Lecturers due to lack of appropriate competencies have the perception that social media services, such as Twitter and Facebook, are only for those with nothing better to do with their time. They have no relevance to support research activities (Kelly, 2013). Hence, there is a need to determine the competencies needed by Electrical Technology Education Lecturers in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria.

Aim and Objectives of the Study

The aim of this study is identify the competencies needed by Electrical Technology Education Lecturers in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria. Specifically, the study identified competencies needed in the use of social media for:

1. Finding research information.
2. Keep research information up to date.
3. Collaborating with other Researchers.

Research Questions

The following research questions guided the study:

1. What are the competencies needed by technology lecturers in the use of social media for finding research information?
2. What are the competencies needed by technology lecturers in the use of social media for keep research information up to date?
3. What are the competencies needed by technology lecturers in the use of social media for collaborating with other Researchers?

Hypothesis

Ho: There is no significant difference between the mean ratings of male and female Electrical Technology Education Lecturers on the competencies needed in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria.

Method

Descriptive survey research design was adopted for the study. Descriptive survey research design is appropriate for this research because questionnaire will be used to elicit the responses from Electrical Technology Education Lecturers in tertiary institution in North West Zone, Nigeria. The study was carried out in all the institutions that offered Electrical Technology option in North West Zone of Nigeria. The population of the study consists of all Electrical Technology Education Lecturers in the Department of Technical Education in all tertiary institutions in North West Zone, Nigeria. It is made up of 14 females and 49 males Electrical Technology Education Lecturers in the various institutions that offered Electrical Technology Education options, in the Department of Technical Education. The entire population of Electrical Technology Education Lecturers is considered manageable. Consequently, no sampling was carried out.

A structured questionnaire was employed as instrument for data collection. The questionnaire title: Instrument for Assessing Competencies Needed by Electrical Technology Education Lecturers in using Social Media for Research activities (IACINETLSMRA). IACINETLSMRA consists of 33 items with 4-point rating scale of Highly Needed (4), Needed (3), Moderately Needed (2) and Not Needed (1) response options for answering research question one, Highly Possessed (4), Possessed (3), Moderately Possessed (2) and Not Possessed (1) response options for answering research question two and Strongly Agreed (4), Agreed (3), Disagreed (2) and Strongly Disagreed (1) response options for answering research question four. The instrument was developed by the researcher using information obtained through literatures reviewed.

The instrument for data collection was validated by three lecturers in the Department of Industrial and Technology Education, Federal University of Technology, Minna. They were requested to determine the adequacy of content, logical sequence and suitability of the technical terms used by the researcher. All the corrections raised were effected before the final copy was produced. To determine the reliability of the validated instrument (validated questionnaire), 10 copies of the questionnaire was administered on 10 Electrical Technology Education Lecturers (ETEL) in a pilot study carried out in Minna, Niger State

which is outside the study area and does not form part of the study. This population comprised of four ETEL in College of Education, Minna and six ETEL in Federal University of Technology, Minna. Cronbach Alpha statistics was used to determine the reliability coefficient and the reliability coefficient of the instrument was found to be 0.87. The reliability index of 0.87 was an indication that the instrument was reliable for the actual field work.

The researcher administered the instrument with the help of three research assistants. Mean and standard deviation was used to answer the research questions, while t-test was used to test the null hypothesis at 0.05 level of significance. All statistical analysis was done using the Statistical Package for the Social Sciences (SPSS) version 21. For the decision rule on the null hypotheses, if the t-probability value (Sig. 2-tailed) calculated by the computer is greater than 0.05, it means there is no significant difference, then the null hypothesis was upheld (accepted) but if the probability value (Sig. 2-tailed) is less than 0.05 then there is significant difference, therefore the null hypothesis is rejected.

Decision on the research question items was based on the real lower and upper limit of numbers on the four point rating scale used for the study as shown below:

- 3.50 – 4.00 = Highly Needed (HN)/Highly Possessed (HP)/Strongly Agree (SA).
- 2.50 – 3.49 = Needed (N) / Possessed (P)/Agree (A).
- 1.50 – 2.49 = Moderately Needed(MN) Moderately Possessed(MP)/Disagree (D).
- 0.5 – 1.49 = Not Needed (NN)/ Not Possessed (NP)/Strongly Disagree (SD).

Results

The results of this study are presented in accordance with the research questions and the hypothesis that guide the study.

Research Questions One

What are the competencies needed by Electrical Technology Education Lecturers in the use of social media for finding research information?

Table 1: Mean and Standard Deviation of Respondents on the competencies needed by Electrical Technology Education Lecturers in the use of social media for finding research information

S/N	ITEM	\bar{x} N=63	SD	R
Competencies for finding research information				
1	Ability to use Blogging to provide one-to-one communication paradigm.	3.41	0.50	N
2	Ability to use Wikis and Google Docs in identifying research opportunities.	3.40	0.49	N
3	The use of Wikis, Google Docs, Academia, and Mendeley tools in literature review.	1.21	0.41	NN
4	Ability to retrieve major data on news, stories and events on social media.	1.16	0.37	NN
5	Ability to identify and use research information icons, menu and windows on computer clearly.	1.18	0.38	NN
6	Competent to make backup copies of research information, document and file.	1.14	0.35	NN
7	Competent to design research information effectively.	1.76	0.43	MN
8	Ability to select research experiences relevant to specific situation and environment using social media.	1.79	0.41	MN
9	Ability to filter vast array of information in order to prevent information overload.	1.29	0.46	NN
10	Competent to analyse lots of information from different sources using social medial tools.	3.56	0.50	HN
11	Ability to create research experiences relevant to specific situation and environment using social media.	1.98	0.49	MN
12	Ability to link with professional bodies' page on facebook.	2.94	0.62	N
13	Ability to connect with research expert on linkedin.	1.60	0.49	MN

Key: N= Number of Respondents, \bar{x} = Mean, SD = Standard Deviation, R= Remark, HN= Highly Needed, N= Needed, MN =Moderately Needed, NN= Not Needed.

Table 1 shows the clustered mean and standard deviation on the competencies needed by Electrical Technology Education Lecturers in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria. The respondents' mean of item 10 is within the ranges of 3.51 to 3.67 which signified that it is highly needed competencies in the items listed. Also the respondent's mean of items 1, 2, and 12 are within the ranges of 2.59 to 3.49 which is an indication that the competencies in the items listed are needed by the respondents.

The competencies listed in items 7, 8 and 11 moderately needed by the respondents since their mean ranges within 1.52 to 2.46. Similarly the

competencies listed in items 3, 4, 6 and 9 are within the ranges of 1.14 to 1.49 which signified that the competencies are not needed by the respondents. The standard deviation of the 13 items ranged from 0.37 to 0.65 which is an indication that the opinions of the respondents were not far from each other. The result implies that the Electrical Technology Education Lecturers need eight competencies for finding research information at different levels and magnitude while five competencies were not needed by the respondents. This could be due to the fact that the respondents are already familiar with the competencies listed in these five items.

Research Questions Two

What are the competencies needed by Electrical Technology Education Lecturers in the use of social media for keeping up to date research information?

Table 2: Mean and Standard Deviation of Respondents on the competencies needed by Electrical Technology Education Lecturers in the use of social media for keeping up to date research information.

S/N	ITEM	\bar{x} N=63	SD	R
14	Ability to keep update research information directly with the people involved in the research using social media.	1.59	0.50	MN
15	Establish and maintaining research records using social media tools.	3.41	0.50	N
16	Ability to retrieve feedback/responses from colleagues without delay on research related issues.	3.41	0.50	N
17	Ability to receive frequent update from professional body through social media platform.	1.62	0.49	MN
18	Ability to give and receive recommendations thereby enriching research information.	3.41	0.50	N
19	Ability to add and delete information that is related to research activities.	1.30	0.46	NN
20	Competent to make-up backup copies of research document and file.	1.56	0.50	MN
21	Ability to save and re-run searches on citation data base.	3.40	0.49	N
22	Ability to save time by running searches routinely.	1.49	0.50	NN
23	Competent to keep up to date with multiples journals with multiples publishers.	3.40	0.49	N

Key: N= Number of Respondents, \bar{x} = Mean, SD = Standard Deviation, R= Remark, HN= Highly Needed, N= Needed, MN =Moderately Needed, NN= Not Needed.

Table 2 shows the mean and standard deviation on the competencies needed by Electrical Technology Education Lecturers in the use of social media for research

activities in tertiary institutions in North West Zone, Nigeria. The respondents mean of items 15,16,18,21 and 23 are within the ranges of 2.59 to 3.49 which is an indication that the competencies in the items listed are needed by the respondents. The competencies listed in items 14,17 and 20 are moderately needed by the respondents since their mean ranges are within 1.52 to 2.46. Similarly the competencies listed in items 19 and 22 within the ranges of 1.14 to 1.49 which signified that the competencies are not needed by the respondents. The standard deviation of the 10 items ranged from 0.46 to 0.50 which is an indication that the opinions of the respondents were not far from each other. The result implies that the Electrical Technology Education Lecturers need eight competencies for keeping up to date research information at different levels and magnitude while two competencies were not needed by the respondents. This could be due to the fact that the respondents are already familiar with the competencies listed in these two items.

Research Questions Three

What are the competencies needed by Electrical Technology Education Lecturers in the use of social media for research for collaborating with other researchers?

Table 3: Mean and Standard Deviation of Respondents on the competencies needed by Electrical Technology Education Lecturers in the use of social media for collaborating with other researchers

S/N	ITEM	\bar{x} N=63	SD	R
Competencies for collaborating with other Researchers				
24	Exchanging of knowledge and ideas with industry through social media platform.	3.40	0.49	N
25	Ability to exchange knowledge and ideas with policy makers through social media platform.	2.86	0.54	N
26	Ability to create research activities network.	3.40	0.49	N
27	Ability to connect with other researchers through ResearcherGate on facebook and other social media platform.	2.46	0.50	MN
28	Participating in online discussion using social media tools.	3.48	0.50	N
29	The use of Standard profiles on LinkedIn that contains a wealth of individual employment data that researchers can utilize.	2.40	0.49	MN
30	Ability to use Networking tools such as Facebook, Google+, and LinkedIn for finding research collaborators.	3.41	0.50	N
31	Connecting with partners in research and development.	3.41	0.50	N
32	Ability to use Collaborative authoring tools such as Google Docs, wikis in research.	1.60	0.50	MN
33	Ability to look for reference manager and apply it for collaborating functionality.	3.46	0.50	N

Key: N= Number of Respondents, \bar{x} = Mean, SD = Standard Deviation, R= Remark, HN= Highly Needed, N= Needed, MN =Moderately Needed, NN= Not Needed.

Table 4 shows the mean and standard deviation on the competencies needed by Electrical Technology Education Lecturers in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria. The respondents' mean of items 24, 25, 26, 28, 30, 31 and 33 are within the ranges of 2.59 to 3.49 which is an indication that the competencies in the items listed are needed by the respondents. The competencies listed in items 27 and 32 are moderately needed by the respondents since their mean ranges within 1.52 to 2.46. The standard deviation of the 10 items ranged from 0.49 to 0.54 which is an indication that the opinions of the respondents were not far from each other. The result implies that the Electrical Technology Education Lecturers need all the competencies for collaborating with other researchers at different levels and magnitude.

Hypothesis

There is no significant difference between the mean ratings of male and female Electrical Technology Education Lecturers on the competencies improvement needs in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria.

Table 4: t-test Analysis of the Mean Ratings of male and female Electrical Technology Education Lecturers on the competencies needed in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria

Group	N	\bar{x}	SD	Df	t-value	p-value, Sig. (2-tailed)	Alpha Level	Decision
Male	49	2.59	0.55	61	0.93	0.054	0.05	Upheld(NS)
Female	14	3.24	0.42					

The result of analysis presented in Table 4 indicated that there is no significant difference in the mean scores of male Electrical Technology Education Lecturers (mean and standard deviation are 2.54 and 0.55 respectively) and female Electrical Technology Education Lecturers (mean and standard deviation are 3.24 and 0.42 respectively) on the competencies needed in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria. Electrical Technology Education Lecturers [ETEL]; $t(61) = 0.93$, $p = 0.054$. The hypothesis was therefore upheld (accepted). This result implies that both male and female Electrical Technology Education Lecturers need competencies in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria.

Discussion of Findings

Findings on the competencies needed by Electrical Technology Education Lecturers in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria as shown on Table 1, 2 and 3 reveal that Electrical Technology Education Lecturers need 26 of the identified competencies at different levels and magnitude while seven competencies were not needed. This could be due to the fact that the Electrical Technology Education Lecturers are already familiar with the competencies listed in these seven competencies items. The finding among others revealed that Electrical Technology Education Lecturers need competencies in the use of blogging to provide one-to-one communication paradigm; ability to use Wikis and Google Docs in identifying research opportunities; competencies in analyzing lots of information from different sources using social media tools; establish and maintaining research records using social media tools; as well as ability to save and re-run searches on citation data base.

From these deficiencies it can be deduced that Electrical Technology Education Lecturers need competencies in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria. This is in line with the finding of Omotunde (2017) who in a study on Information communication technology training needs of academic staff in universities in Ekiti State found out that most Lecturers are not using social media for research activities because they lack the knowledge and competencies for it, as such they need improvement. Similarly Kelly (2013), in a study on usage of social media to enhance your research activities found out that some Electrical Technology Education Lecturers due to lack of appropriate competencies have the perception that social media services, such as Twitter and Facebook are only for those with nothing better to do with their time. Kelly (2013) revealed that social media are relevant to support research activities and called for the necessity for lecturers to drop their ignorant and acquire the needed competencies in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria.

To buttress on the competencies needed by Electrical Technology Education Lecturers Ahmed, *et al.*, (2012) in a study on technophobia versus ICT acceptance and use in teaching and learning among academic staff of universities in Northern Nigeria found out that despite advancement in ICT, some Electrical Technology Education Lecturers do not utilize social media for research activities. Ahmed, *et al.*, (2012) found out in various tertiary institutions many lecturers have not been using social media for research work. The authors added that ICT has reshaped the responsibilities of the Electrical Technology Education Lecturers over the last decade by infusing ICT into teaching which emerged as an

issue of educational reform across countries. Ahmed, *et al.*, (2012) called for the necessity to encourage Electrical Technology Education Lecturers to use ICT to facilitate their teaching tasks, research activities and create better learning environments.

Findings on hypothesis as displayed on Table 4 reveal that there was no significant difference in the mean ratings of male Electrical Technology Education Lecturers and female Electrical Technology Education Lecturers on the competencies improvement needs in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria. The hypothesis was therefore upheld (accepted). This result implies that both male and female Electrical Technology Education Lecturers need competencies improvement in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria.

This finding is in line with the findings of Mazman (2011) who in a study on gender difference in using social media found out that gender differences are noticeable in social networking sites preferences and amount of use. Mazman (2011) discovered that females use social media for maintaining existing relationships, academic purposes and following agenda higher than males, while males use it for making new relationships at a rate higher than the females. This is in line with Atanasova (2016), who in a study on gender specific behaviors on social media found out that male are more likely to use social media to seek information research, while female use social platforms to connect with people. Male do open social media accounts to network, they are more often looking to form new relationships, female are more focused on sustaining existing ones.

Similarly, Pew (2015) in a study of the most active gender on social media found out that women are more likely to use facebook by 11%, pintrest by 29% and Instagram by 7%. But Twitter and LinkedIn continue to attract a mostly male audience. Hashtags (2013) in a study on gender and social media usage found out that more men log on social media platform each month compare to women. The diverse opinion of the researchers on gender influence on social media usage both male and female Electrical Technology Education Lecturers use social media for one or two friendly activities and when exposed to the important of using social media for research activities are likely to benefit by it. This called for the necessity for competencies improvement among both male and female Electrical Technology Education Lecturers in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria.

Conclusion

The digital revolution has arguably transformed every aspect of human discipline. The revolution did not sphere research; rather it has brought a radical change into how knowledge is created, generated, communicated, store, used and how research is conducted. Identifying competencies needed by Electrical Technology Education Lecturers in the use of social media for research activities in tertiary institutions is necessary if the lecturers are to acquire skill and competencies in the use of social media for research activities in tertiary institutions in North West Zone, Nigeria. This allows the Electrical Technology Education lecturers to know where are deficient and seek for improvement.

Recommendations

Based on the findings from this study, the following recommendations are made:

1. The management of each of the tertiary institutions should intensify effort to use the identified competencies needed to organize special training workshop for the Electrical Technology Education Lecturers in the use of social media for research activities
2. The Federal Ministry of Education, NUC, NBTE and NCCE should use the identified competencies to upgrade the training curriculum used for preparing Electrical Technology Education Lecturers in various tertiary institutions.
3. Training institutions and industrial organizations should use the identified competencies to develop re-training programme or competencies improvement programme for Electrical Technology Education Lecturers.

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