

Work related Competencies needed by Mechanical Technology Education Undergraduate Students of Universities for Employment in Enugu State.

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Abstract

The study was a survey research conducted to determine work related competencies needed by mechanical technology education undergraduate students of universities for employment. Two research questions and two null hypotheses tested at .05 significance level guided the study. A 40 item questionnaire was constructed, validated by three experts and the reliability of 0.87 was determined using Cronbach Alpha formula and was used to generate data from 90 respondents made up of 80 undergraduate students and 10 lecturers of mechanical technology education. The finding of the study showed that mechanical technology education final year undergraduate students of universities needed work related competencies for employment. Testing of the two hypotheses revealed that there was no significant difference between the mechanical technology education final year undergraduate students of universities and their lecturers on the work related competencies they needed for employment. The study concluded that undergraduate students of mechanical technology education on their graduation should exhibit acceptable work related competencies for success in their work place. It was recommended among others that curriculum and education planners should inculcate work related competencies in the curriculum.

Key words: work, mechanical technology, employment.

Introduction

Mechanical technology education undergraduate students need to exhibit acceptable work attitude for success in their trained occupation. Work is an activity that produces something of value for people (Beach, 2009). It is an effort aimed at the production of goods and services that will be beneficial to man and his fellow human beings (Hoyt, 2010). Work consists of the use of existing physical and mental energy for the accomplishment of specific purpose. Webster (2012)

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described work as the ability to have paid employment and achieve personal satisfaction. This implies that work is any venture undertaken physically or mentally for one's satisfaction, self esteem and for the benefit of others.

Many people today perceive work only as a source of receiving money. Work should be a necessary evil to be undertaken by man for nobler cause than to earn a living and meeting initial personal needs. Work is conceived to be implying psychological, social and economic roles in the development of the society. According to Wenrich (2008), people work because they need income, activity, self respect, respect for others and they need to express themselves creatively. Work should not only be seen as a means of income, but also considered as an activity that develops someone psychologically, socially, creatively and economically, and one from which other people gain satisfaction.

Habits include not only scientific skills but also practical and intellectual virtues as prudence, which governs ethical actions, and skills in arts, which perfect man's creative power Blacknre (2012). According to Blacknre, mechanical technology education undergraduate students of universities need to possess certain work-related skills which are neither cognitive nor psychomotor in nature. This skill comprises of a closely knit set of generic transferable, technical and non technical competencies considered necessary for long term survival in the world of work. Mechanical technology education undergraduate students should know that it also takes some non technical competencies in terms of work related skills, habits, attitude and value for one to succeed in a job.

Brock (2010) identified some work attitude skill needed for success in the work place to include intra-personal qualities in terms of individual responsibility, self management, integrity and service to customers. The role played by one's intra and inter personal qualities in job survival

cannot be over emphasized. It is very important to properly manage self, co-operate with others and exhibit the desired traits to succeed in an employment and to remain employable.

Employment is the work that you do to make a living. It is the capability of getting and keeping satisfactory work (Walter, 2015). Employability skills are set of achievements, understandings and personal attributes that make individuals more likely to gain employment and to be successful in their chosen occupation (Peter, 2016). It is also a set of attributes skills and knowledge that all labour market participants should possess to ensure they have the capability of being effective in the work place to the benefit of themselves, their employer and the wider economy (Martz, 2016).

According to Macculloch (2011) mechanical technology is education for economic development. Elobuiké (2009) identified mechanical technology education as a branch of education that is concerned with the development of competent workers in terms of acquisition of adequate knowledge, skills and work related competencies. It gives adequate training and education to undergraduate students of universities and enables them to acquire skills necessary for success in chosen careers. Onoh (2011) opined that technology education was started with the concept of traditional apprenticeship training and it helped undergraduate students to get employment on their graduation.

The undergraduate students of mechanical technology are expected to be employable on graduation because they have passed through formal institutions and have acquired both coordinated knowledge and skills needed on the job. Mechanical technology equips the students with potentials that cover technical and non technical competencies for employment.

The concern of this study is that mechanical technology education undergraduates students of universities might not have work related competencies for employment. Many of them after graduation stayed without employment for many years. It seems that they lack the work related competencies necessary for employment which are in the terms of adequate technical and non technical work related competencies. The problem of this study therefore is what are the works

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related competencies needed by mechanical technology education undergraduate students of universities for employment?

The purpose of the study was to determine the work related competences needed by mechanical technology undergraduates students of universities for employment. Specifically, the study sought to determine:

1. the extent of technical work related competencies needed by mechanical technology education undergraduates students of universities for employment in Enugu State.
2. the extent of non technical work related competencies needed by mechanical technology education undergraduates students of universities for employment in Enugu State..

Research Questions

The following research questions were posed to guide the study.

1. What are the technical works related competencies needed by final year mechanical technology undergraduate students of universities for employment in Enugu State?
2. What are the non technical works related competencies needed by final year mechanical technology undergraduate students of universities for employment in Enugu State?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance.

H₀₁: There is no significant difference between the mean responses of final year mechanical technology education undergraduate students of universities and their lecturers on the technical work related competencies they needed for employment in Enugu State.

H₀₂: There is no significant difference between the mean responses of final year mechanical technology undergraduate students of universities and their lecturers on non technical work related competencies they need for employment in Enugu State.

Method

The design for the study was a survey research design. The study was carried out in Enugu State of Nigeria. The population for the study was 90 respondents, comprising of 10 lecturers and 80 undergraduate students of mechanical technology education of Enugu State University of science and technology and University of Nigeria, Nsukka. The population for the study was not too large, therefore there was no sampling. The entire population was used.

The instrument for data collection was a structured questionnaire. The questionnaire had two parts, I and II. Part I dealt with the information relating to the bio data of the respondents. Part II was divided into two sections: A and B, section A dealt with technical work related competencies, while section B dealt with non technical work related competencies. It was made up of 40 questionnaire items. The respondents were asked to rate the items on four points rating scale as shown below:

- Very Great Extent (VGE) 4 points
- Great Extent (GE) 3 points
- Low Extent (LE) 2 points
- Very Low Extent (VLE) 1 points

The instrument was validated by three experts and the validated instrument was pilot tested. Cronbach Alpha method was used to determine the reliability. The reliability coefficient of 0.87 was obtained for the instrument. The questionnaire was administered on the respondents by the researcher and a research assistant. Ninety questionnaire items were distributed and 85 of them were collected after two days. The return rate was 94.4%.

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Results

Data for the study were presented and analyzed based on the research questions and hypotheses that guided the study. The details are contained in tables 1- 4.

Research Question 1

What are the technical works related competencies needed by undergraduate students of mechanical technology education for employment in Enugu State?

Table 1

Mean ratings of the technical works related competencies needed by final year undergraduate students of mechanical technology education for employment in Enugu State.

S/N	Item Statement	Lecturers		Students		Overall		Decision
		X ₁	SD ₁	X ₂	SD ₂	X ₃	SD ₃	
1	Demonstrating strong desire to succeed	3.50	0.53	3.88	0.52	3.70	0.53	Agree
2	Willing to work hard	3.50	0.53	3.44	0.50	3.47	0.52	Agree
3	Adapt for new changes	3.50	0.53	3.48	0.65	3.22	0.60	Agree
4	Initiate benefiting actions	3.50	0.53	3.44	0.60	3.47	0.57	Agree
5	Carry out benefiting actions	3.50	0.53	3.60	0.60	3.55	0.57	Agree
6	Displaying a degree of excellence	3.50	0.53	3.80	0.40	3.65	0.47	Agree
7	Able to follow instructions	3.50	0.53	3.70	0.70	3.60	0.62	Agree
8	Able to keep workshop regulations	3.50	0.52	3.75	0.56	3.63	0.54	Agree
9	Able to do precise and exact work on workshop	3.50	0.52	3.20	0.60	3.40	0.56	Agree
10	Neat and orderly manner	3.50	0.52	3.37	0.60	3.45	0.56	Agree
11	Punctual to duty	3.50	0.52	3.20	0.70	3.45	0.61	Agree
12	Dedicated	3.50	0.52	3.60	0.60	3.55	0.56	Agree
13	Regular attendance to workshop	3.50	0.52	3.50	0.50	3.50	0.51	Agree
14	Accomplishing assignment on schedule	3.50	0.52	3.10	0.70	3.30	0.61	Agree
15	Productive on machine with minimum amount of time	3.50	0.52	3.80	0.65	3.45	0.59	Agree
16	Correct interpretation of mechanical blue print	3.50	0.51	3.50	0.61	3.50	0.56	Agree
17	Correct application of mechanical blue print	3.50	0.52	3.62	0.68	3.56	0.60	Agree
18	Ability to keep equipment clean after use	3.50	0.52	3.60	0.50	3.55	0.51	Agree
19	Ability to finish work according to stand	3.50	0.51	3.40	0.52	3.45	0.52	Agree
20	Correct use of instrument	3.50	0.51	3.47	0.69	3.49	0.60	Agree

Grand mean	3.50	0.52	3.37	0.59	3.50	0.56	Agree
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Data in table 1 showed that the respondents agreed on all the items as the work related competencies needed by final year undergraduate students of mechanical technology education for employment. The mean values were above the benchmark of 2.50 and the grand mean for the two groups of the respondents were also above 2.50. This means that final year mechanical technology undergraduate students of universities needed all the technical work related competences indicated in table 1 for employment.

Research Question 2

What are the non technical works related competencies needed by final year mechanical technology education undergraduate students for employment in Enugu State?

Table 2

Mean ratings of non technical work related competencies needed by final year mechanical technology education undergraduate students for employment in Enugu State.

S/N	Item statement	Lecturers		Students		Overall		Decision
		X ₁	SD ₁	X ₂	SD ₂	X ₃	SD ₃	
21	Willing to work with others	3.50	0.52	3.70	0.61	3.60	0.57	Agree
22	Able to deal promptly with challenges	3.50	0.51	3.54	0.70	3.52	0.61	Agree
23	Able to deal effectively with challenges	3.50	0.51	3.68	0.88	3.60	0.70	Agree
24	Acceptance of criticism positively	3.50	0.51	3.30	0.58	3.40	0.55	Agree
24	Thoughtful of the needs of others	3.50	0.52	3.28	0.75	3.40	0.64	Agree
26	Emotionally stable	3.50	0.52	3.38	0.97	3.44	0.75	Agree
27	Persevering	3.50	0.51	3.44	0.70	3.44	0.61	Agree
28	Tolerance	3.50	0.52	3.40	0.61	3.44	0.57	Agree
29	Reliable	3.50	0.51	3.37	0.60	3.44	0.56	Agree
30	Responsible	3.50	0.52	3.30	0.80	3.40	0.66	Agree
31	Honest	3.50	0.52	3.30	0.80	3.34	0.66	Agree
32	Self confidence	3.50	0.52	3.40	0.60	3.45	0.56	Agree
33	Obedient to constitute authority	3.50	0.47	3.50	0.52	3.50	0.50	Agree
34	Good relationship with colleagues	3.50	0.52	3.75	0.55	3.62	0.54	Agree
35	Loyalty to the management	3.50	0.51	3.70	0.48	3.60	0.50	Agree
36	Diligence	3.60	0.50	3.50	0.80	3.55	0.65	Agree
37	Initiative approach to work	3.50	0.42	3.45	0.59	3.48	0.51	Agree
38	Kindness	3.50	0.52	3.35	0.64	3.43	0.58	Agree
39	Good relationship with customers	3.50	0.51	3.35	0.67	3.42	0.60	Agree
40	Ability to be articulate	3.50	0.51	3.36	0.64	3.43	0.58	Agree

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Grand mean	3.51	0.51	3.46	0.66	3.32	0.60	Agree
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The result presented in Table 2 shows that the respondents agreed on all the items as the work related competencies needed by final year undergraduate students of mechanical technology education for employment. The mean values were above the benchmark of 2.50 and the grand mean for the two groups of the respondents were also above 2.50. This means that final year mechanical technology undergraduate students of universities needed all the non technical work related competencies indicated in table 2 for employment.

Hypotheses

H₀₁: There is no significant difference between the mean responses of final year mechanical technology education undergraduate students of universities and their lecturers on the technical work related competencies they needed for employment in Enugu State.

Table 3

t-test analysis of technical work related competencies needed by final year mechanical technology education undergraduate students of universities and their lecturers for employment in Enugu State.

Respondents	N	X	SD	Df	t-cal	t-crit	Decision
Lecturers	10	3.50	0.50	88	±0.60	±1.96	Do not
Students	80	3.40	0.60				Reject H ₀₁

The data presented in Table 3 indicated that at 0.05 level of significant, t-calculated of 0.60 is less than t-critical which is 1.96. This implies that there is no significant difference in the mean ratings of mechanical technology education final students of universities and their lecturers on the technical work related competencies they needed for employment in Enugu State.

H₀₂: There is no significant difference between the mean responses of final year mechanical technology undergraduate students of universities and their lecturers on non technical work related competencies they need for employment in Enugu State.

Table 4

t-test analysis of non technical work related competencies needed by final year mechanical technology education undergraduate students of universities and their lecturers for employment.

Respondents	N	X	SD	Df	t-cal	t-crit	Decision
Lecturers	10	3.51	0.51	88	±0.30	±1.96	Do not
Students	80	3.46	0.66				reject H ₀₂

The data presented in Table 4 indicated that at 0.05 level of significant, t-calculated of 0.30 is less than t-critical which is 1.96. This implies that there is no significant difference in the mean ratings of mechanical technology education final students of universities and their lecturers on non technical work related competencies they needed for employment.

Discussion of Findings

Analysis of respondents to research questions one and two revealed that all the 40 items listed had mean ratings that qualify them as work related competencies needed by final year undergraduate students of mechanical technology education for employment in Enugu State. This was observed from overall mean(x) values which range between 3.22 and 3.70 for research question one and between 3.34 and 3.62 for research question two, indicating agreed because the mean values were above the benchmark of 2.50.

The grand mean (x) for the two groups of the respondents respectively in the two research questions were above 2.50, showing that they agreed to the items as the work related competencies needed by final year undergraduate students of mechanical technology education for employment.

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The closeness of the responses as shown by the entire standard deviation (SD) indicates homogeneity in their responses. This means that final year mechanical technology undergraduate students of universities needed all the work related competences indicated in tables 1 and 2 for employment. The findings support Blacknre (2012) assertion that mechanical technology education students need to exhibit acceptable work related competences for employment.

Testing of the two hypotheses as shown in table 3 and 4 revealed that there is no significance difference on mechanical technology education undergraduate students and their lecturers on the technical and non technical work related competencies they needed for employment.

Conclusion

Undergraduate students of mechanical technology education on the graduation should exhibit acceptable work related competencies for success in their work place. It is very essential for their employment; therefore undergraduate students should endeavor to acquire these work related competencies. It will go a long way to help them get the job and be retained in the job as long as they want. Work related competencies helps graduates to be effective and productive in their chosen career. It is powerful tool for the graduates' employment.

Recommendations

Based on the findings of the study the following recommendations were made:

1. The curriculum and education planners should inculcate work related competence in the curriculum at all level in our educational institutions.
2. The government and NGO should organize seminars and conferences where undergraduate students would be exposed on the important of work related competencies for employment.
3. Work related competencies for employment should be made an essential component of every course taught in the universities.

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