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**Proceedings of the 31st Annual National Conference of
Technology Education Practitioners Association of Nigeria**
(Formerly Nigerian Association of Teachers of Technology, NATT)



Annual National Conference

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**Technical Vocational Education and Training (TVET) and
Alternative Energy Sources for Sustainable
Economic Recovery in Nigeria**

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ENTREPRENEURIAL SKILLS NEEDED BY CRAFTSMEN FOR ESTABLISHING SMALL AND MEDIUM SCALE ENTERPRISES IN WELDING AND FABRICATION IN KWARA STATE

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Abstract: This research work looked into the entrepreneurial skill needed by craftsmen for establishing small and medium scale enterprises in welding and fabrication in Kwara state. Descriptive survey research design was used in which a questionnaire made up of forty five (45) items drafted under the following entrepreneurial skills; technical, management, planning, accounting and marketing skills used by craftsmen and it was validated by three (3) lecturers from the department of industrial and technology education and one (1) metalwork laboratory technician from the same department. The research instrument was distributed to thirty one (31) technical college teachers in four technical colleges in Kwara state and fifty (50) entrepreneurs within Ilorin metropolis. The rating scale of 2-50 was used as the acceptance value for the mean of respondents with a significance level of 0.05 and a degree of freedom of 79. All but three of the items listed under the identified entrepreneurial skills were disagreed to. It was recommended that the curriculum of technical colleges should be revised and all the identified skills be included and improved upon so as to enlighten technical college graduates on entrepreneurial skills that are important for success in establishing a business and also entrepreneurial programs should be packaged with these entrepreneurial skills so that it can be taught to craftsmen.

Keywords: Entrepreneurial Skills, Welding and Fabrication, Small and Medium Scale Enterprises

Introduction

Welding is a mechanism of joining two similar or dissimilar metals by fusion. It joins different metals/alloys, with or without the application of pressure and with or without the use of filler metal. This fusion of metals is made possible by means of application of heat. The heat may be generated either from combustion of gases (like in the case of oxyacetylene gas welding), electric arc, and electric resistance or by chemical reaction (Singh 2006). While some type of welding processes requires pressure for the fusion to be possible, it is not an essential requirement for all welding processes. Looking at the present-day image of welding, which does not yet reflect the recent progress made by the industry in machine processes and automation, it is not surprising that the percentage of Small and Medium Scale Enterprises (SMEs) fail to meet up expectations as a result of lack of entrepreneurial skills needed for the business to be a successful one. Small and medium enterprises have been considered as the engine of economic growth and for promoting equitable development. The major advantage of the sector is its employment potential at low capital cost. The labour intensity of the SMEs sector is much higher than that of the large enterprises. The role of SMEs in the economic and social development of the country is well established. The sector is a nursery of entrepreneurship, often driven by individual creativity and innovation. The relative importance of small and medium scale enterprise in advanced and developing countries has led and would continue to lead to a reconsideration of the role of Small and Medium Scale Enterprises in the economy of nations. However, SMEs cannot be successful without the utilization of skills acquired through trainings or apprenticeship in the starting of a business, management and the achievement of pre-stated goals and objectives and in doing so, it brings about the concept of Entrepreneurship.

Technical college teachers were not sampled because their number was manageable. A questionnaire titled "Entrepreneurial Skills Needed by Craftsmen for Establishment of Small and Medium Scale Enterprise" which contains forty-five (45) items developed by the researcher was used to gather data for the study. The questionnaire consisted of three sections: A, B and C. Section A shows the necessary instructions and personal data of the respondents, section B consists of 13 Technical skills needed by craftsmen and 12 Management skills needed by craftsmen while Section C consisted of 9 Planning Skills and 1 Accounting and Marketing Skills needed by craftsmen in establishing SMEs in welding and fabrication. The questionnaire was validated by three lecturers in the department of industrial and technology education. The questionnaire was administered to the respondents by the researcher with the help of research assistants. 100% return rate was obtained for teachers but for entrepreneurs 48 questionnaires were retrieved out of 50, given 96% return rate. The data obtained from the study was analyzed using the mean and standard deviation to answer the research questions while t-test was the statistical tool used to test the hypotheses at 0.05 level of significance.

Results

Table 1: Mean Response of the Respondents on Technical skills needed by Craftsmen for Establishing SMEs in Welding and Fabrication $N_1=31$ $N_2=48$

S/N	Items	\bar{X}_1	\bar{X}_2	\bar{X}_3	Remarks
1	Need for adequate safety practices in welding and fabrication	3.39	3.17	3.28	Needed
2	Critical thinking to enhance problem solving process	3.19	2.92	3.06	Needed
3	Appropriate use of tools, machines and equipment in welding and fabricating industries	3.55	3.10	3.33	Needed
4	Adequate observatory skills in arc and gas welding	3.32	3.48	3.50	Needed
5	Ability to mix the oxy-acetylene flame for gas welding	3.39	2.71	3.05	Needed
6	Ability to cooperate effectively with others in welding industries	3.58	2.88	3.23	Needed
7	Ability to use different grades of electrodes in arc welding	3.58	3.34	3.46	Needed
8	Ability to use triangulation method in pattern development	2.97	2.38	2.68	Needed
9	Ability to light welding torch in oxy-acetylene equipment	3.26	3.29	3.28	Needed
10	Ability to read codes and specifications to prepare for welding projects	2.61	2.37	2.44	Not Needed
11	Ability to interpret diagrams and tables on diagrams in descriptive engineering requirements	2.58	2.29	2.44	Not Needed
12	Ability to weld similar metals together	3.61	3.23	3.42	Needed
13	Ability to obtain, interpret and apply useful information	3.58	3.23	3.41	Needed

Where: \bar{X}_1 = mean score of technical college teachers, \bar{X}_2 = mean score of entrepreneurs, \bar{X}_3 = average mean score, N_1 = number of technical college teachers, N_2 = number of entrepreneurs.

The data in Table 1 shows that the respondents (technical college teachers and entrepreneurs) agreed with items 10 and 11 but disagreed with items 10 and 11. As the 3 items were not agreed with, it was concluded that the respondents do not agree with the items needed for establishing small and medium scale enterprises as welding and fabrication. This conclusion was known based on the mean average score calculated for each item.

Table 2: Mean of Response of the Respondents on the Management skills needed by Craftsmen in Establishing SMEs in Welding and Fabrication $N_1 = 31$ $N_2 = 48$

S/N	Items	\bar{X}_1	\bar{X}_2	\bar{X}_3	Remarks
1.	Leadership ability	3.58	3.23	3.41	Needed
2.	Ability to motivate and influence staff and colleagues	3.48	2.79	3.14	Needed
3.	Ability to handle situations effectively	2.84	2.65	2.75	Needed
4.	Risk management	2.61	2.77	2.69	Needed
5.	Ability to meet organizational goals and objectives	3.39	3.44	3.42	Needed
6.	Ability to make critical decisions	2.90	2.95	2.93	Needed
7.	Ability to work in order of importance	3.26	3.15	3.21	Needed
8.	Ability to work with and through people	3.10	3.13	3.12	Needed
9.	Ability to be dynamic	3.23	2.79	3.01	Needed
10.	Ability to show creativity in work performance	3.16	2.79	2.98	Needed
11.	Ability to coordinate workshop activities	3.32	2.81	3.07	Needed
12.	Ability to understand inside and outside of channels	2.90	2.54	2.72	Needed

Where, \bar{X}_1 = mean score of technical college teachers, \bar{X}_2 = mean score of entrepreneurs, \bar{X}_3 = average mean score, N_1 = number of technical college teachers, N_2 = number of entrepreneurs.

The data in Table 2 shows that both the technical college teachers and entrepreneurs agreed with all the items as Management skills needed by craftsmen in establishing small and medium scale enterprises in welding and fabrication.

Table 3: Mean Response of the Respondents on the Planning Skills needed by Craftsmen in Establishing SMEs in Welding and Fabrication $N_1 = 31$ $N_2 = 48$

S/N	Items	\bar{X}_1	\bar{X}_2	\bar{X}_3	Remarks
1.	Ability to schedule time in respect to workload	3.29	3.23	3.26	Needed
2.	Effective time management skills	3.15	3.23	3.29	Needed
3.	Needs for creation of business plan	3.42	2.83	3.13	Needed
4.	Ability to distribute job allocation to staff	3.42	2.75	3.09	Needed
5.	Need for effective resources allocation and project analysis	3.42	3.31	3.37	Needed
6.	Formulation of team work	3.23	3.15	3.19	Needed
7.	Need for constant evaluation of resources and tasks at hand	3.19	2.94	3.07	Needed
8.	Effective need for utilization of manpower and material resources	3.45	3.23	3.34	Needed
9.	Ability to meet deadlines	3.81	3.73	3.77	Needed

Where, \bar{X}_1 = mean score of technical college teachers, \bar{X}_2 = mean score of entrepreneurs, \bar{X}_3 = average mean score, N_1 = number of technical college teachers, N_2 = number of entrepreneurs.

The data in Table 3 shows that both the technical college teachers and entrepreneurs agreed with all the items as planning skills needed by craftsmen in establishing small and medium scale enterprises in welding and fabrication.

Table 4: Mean Response of the Respondents on the Accounting and Marketing Skills needed by Craftsmen for Establishing SMEs in Welding and Fabrication $N_1 = 31$, $N_2 = 48$

S/N	Items	\bar{X}_1	\bar{X}_2	\bar{X}_c	Remarks
1	Ability to advertise product properly using various mediums	3.13	2.50	2.82	Needed
2	Ability to relate with customers effectively	3.52	3.44	3.48	Needed
3	Product promotional skills	3.23	3.19	3.21	Needed
4	Effective market research on latest designs	3.71	2.63	3.17	Needed
5	Creative and imaginative skills	3.48	3.02	3.25	Needed
6	Effective use of social and mass media	2.81	2.39	2.55	Needed
7	Needs for good accounting skills	2.68	2.42	2.55	Needed
8	Needs for effective record keeping of sales and purchases	3.61	2.80	3.20	Needed
9	Ability to make use of accounting software	2.61	1.98	2.30	Not Needed
10	Keeping track of expenses and customers record	2.87	3.33	3.10	Needed
11	Needs for personal financial responsibility on Small and Medium Scale Enterprises (SMEs)	2.77	2.42	2.60	Needed

Where: \bar{X}_1 = mean score of technical college teachers; \bar{X}_2 = mean score of entrepreneurs; \bar{X}_c = average mean score; N_1 = number of technical college teachers; N_2 = number of entrepreneurs.

The data in Table 4 shows that the both the technical college teachers and entrepreneurs agreed with all the items except for item 9.

Table 5: t-test analysis of Technical College Teachers and entrepreneurs on the Technical skills needed by craftsmen for establishing Small and Medium Scale Enterprises in Welding and Fabrication

S/N	Respondents	N	Mean	SD	t	t _{cal}	Remark
1	Teachers	31	3.17	0.88	77	1.18	Ns
2	Entrepreneurs	48	3.30	0.76			

Table 5 shows that there is no significant difference in the mean responses of technical college teachers and entrepreneurs on the technical skills needed by craftsmen for establishing small and medium scale enterprise in welding and fabrication in Kwara state, hence the null hypothesis was accepted.

Table 6: t-test analysis of Technical College Teachers and entrepreneurs on the Management Skills needed by Craftsmen for Establishing Small and Medium Scale Enterprises in Welding and Fabrication

S/N	Respondents	N	Mean	SD	t	t _{cal}	Remark
1	Teachers	31	3.23	0.78	77	2.11	Ns
2	Entrepreneurs	48	3.38	0.67			

Table 6 shows that there is no significant difference in the mean responses of respondents on the management skills needed by craftsmen for establishing small and medium scale enterprise in welding and fabrication in Kwara State, hence the null hypothesis was accepted.

Findings and Discussion

It was revealed in this study that craftsmen must acquire some entrepreneurial skills. The skills identified in this research are Technical skills, Management skill, Accounting and Marketing skills are Needed Entrepreneurial Skills by Craftsmen for Establishing Small and Medium Scale Enterprises in Welding and Fabrication which conforms with Idangula, Nankore and Saha (2011) on Entrepreneurial Skills in Technical Vocational Education and Training as an Approach for Achieving Youth Empowerment in Nigeria, which revealed that acquire entrepreneurial skills as a tool for starting and management of an enterprise.

Technical skills which includes the need for adequate safety practices in welding fabrication, this is the process of following rules and regulations that are related to work with the welding apparatus. Also adequate observatory skills in arc and gas welding deals with the ability to study the processes of working with welding and fabrication, subsequently before operating any of them to avoid wastage of resources and accidents. Another skill is the appropriate use of tools, machines and equipment in welding and fabrication thus this deals with the ability to understand the use of machines, tools and equipment that are used in welding and fabrication, these were all revealed among others under research question 1 and it shows that these skills are needed by craftsmen in establishing SMEs in welding and fabrication and it conforms with the work of Kari (2014) on Entrepreneurial Skills Needed by Technical College Graduate for Establishing Small and Medium Scale Enterprises in Electrical/Electronics in Lagos State. It was revealed in the study that acquisition of technical skills is very important in the establishment of business as it teaches the learner the use of machines and basic skills in business, it also is true with the work of Anyakoha (2009) on New Entrepreneurship Education and Wealth Creation Strategies: Practical Tip for Economic Empowerment and Survival, the study described technical skills as the skills needed to run the day-to-day activity of an enterprise.

Management skills such as leadership skills, this deal with the ability to make management decisions that has the possibility of affecting the welfare of the organization negatively or positively, also the ability to meet organizational goals and objectives, this implies the craftsmen must be able to meet up with the organization goals so as to improve its production level and effective managing of the business and they must also be able to handle situations effectively, they must possess this ability in order for them to keep a cool head during a time of crisis in the organization and develop ways in which the crisis can be resolved effectively, these was revealed among others under research question 1 as Management skills needed by Craftsmen for Establishing SMEs in Welding and Fabrication, it is in agreement with a project that was channeled towards Developed Entrepreneurial Skills of Farmer which was funded under the Sixth Framework Program for Research and Technological Development of the European Commission (2005-2006), the project examined the economic, social and cultural factors hindering the development of entrepreneurial skills of farmers, in the project, management skills which include financial management and administration skills, human resources management skills, customer management skills and general planning skill were all described to be important for farmers to succeed in business. Emeryyaku (2011) also describe management skill as needed skills for planning, decision making, human interrelation, creative and innovative changes, leadership attitude and ability to handle situation effectively in his research entitled Entrepreneurship Skills Required by Youths for Effective Marketing of Agricultural Products in Nsukka Agricultural Zone of Enugu state, Nigeria, it was revealed in the study that youths must have the charisma of a leader, its features and characteristics to manage the people they work together with.

Planning skills which includes ability to meet deadlines, thus, the craftsmen must be able to satisfy the needs of their customers by meeting up with the time range given to their customers in-respect to the collection their goods, also the effective need for utilization of manpower and material resources; this deals with the ability to put into good use, the workers and raw materials at ones disposal effectively to aid productivity, another skill is the ability to schedule time in respect to workload, thus the craftsmen must be able to identifies works that will take a long time to finish with the ones that will take a short time, so therefore separating them from each other not only to save time but also energy and capital resources, among others which were all revealed under research question 3 to be Planning Skills needed by Craftsmen for Establishing SMEs in Welding and Fabrication. It is in consonance with the work of Kadir (2014) on Entrepreneurial Skills Needed by Technical College Graduates for Establishing Small and Medium Scale Enterprises in Electrical/Electronics in Lagos state, where it was revealed that organizational skills forms part of the major entrepreneurial skills needed by entrepreneurs for establishing an enterprise. Accounting and management skills, such as ability to relate with customers effectively; that is, having a good rapport with one's customer to know their personality and generally the kind of people they are. Product promotional skills; this is ability to woo your customers like selling of goods at a lower price at some period of time. Effective market research on latest designs; this involves finding out about the products customers are demanding for the most, the kind of material and the characteristics of these materials among other which were all revealed under research question 4 as the Accounting and Marketing Skills needed by Craftsmen for Establishing Small and Medium Scale Enterprises in Welding and Fabrication, it is also revealed in the study that Craftsmen need accounting and marketing skills for the smooth interpretation of financial statements, sales and purchases and the need to be financial conscious in starting and handling of SME enterprise. This is also in-line with an article written and published by Singh, (2012) on the 25 Most Important Business and Career Skills, where it was revealed that marketing skills is the ability to attract potential investor and customer towards an established business.

It was revealed from the study that the need for adequate safety practices in welding and fabrication, critical thinking to enhance problem solving processes among others were judged not Significant and therefore the Null hypotheses was accepted as their t -cal was lower than the criterion t -critical value, which means that there is no significant difference in the mean responses of technical college teachers and entrepreneurs. The Null hypotheses on management skills was accepted, this conforms with Estonyeaka (2011) work which revealed that management skills is the needed skills for planning, decision making, human interrelation, creative and innovative changes, leadership attitude and ability to handle situation effectively. It was also revealed in the study that youth must have the charisma of a leader, its features and characteristic to manage the people they work together with.

Conclusion

The research work revealed the entrepreneurial skills needed by craftsmen for establishing Small and Medium Scale Enterprise (SMEs) in Welding and Fabrication in Kwara State and the skills identified are technical skills, management skills, planning skills, accounting and marketing skills in which several questions were generated to equip craftsmen with knowledge that are off great importance to the creation of a SME business. Teachers in technical colleges will need to be retrained on the use of various machines and equipment that are used in the welding and fabrication industries so that they can transfer the knowledge to their student effectively. It was also concluded that the teaching of entrepreneurship education should be improved upon in technical colleges as various skills relevant to establishment of SMEs in welding and Fabrication have been identified, which will lead to achievement of better success of the will be an entrepreneur.

Recommendations

1. General knowledge should be taught with technical and vocation as it will help learners acquire various knowledge such as communication skills, socio-personal skill etc which are not in the technical and vocational education curriculum and this can be achieved by merging technical and vocational courses with general courses.
2. The identified basic entrepreneurial skills should be packaged and added to the curriculum of entrepreneurial programs so that it can be taught to craftsmen through organization of seminars, workshops among others. It can be packaged in form of textbooks, practical workbook among others which will be used during the training of entrepreneurs.
3. Welding and fabrication curriculum should be revised often by the curriculum experts so the skills requirement of job can be improved upon in the curriculum which will help the graduates of technical colleges to secure employment.
4. The federal government should set up organizations that will not only borrow aspiring entrepreneurs' funds to start a business but also to monitor their development and assist them to stand on their own.

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