



## **Entrepreneur Skills and Ethics Needed by Craftmen {Technical College Graduates} in Establishing Welding and Fabrication as a Small Scale Enterprise in Enugu State**

**George Nwachukwu Ogbonna, PhD**  
**Department of Industrial Technical Education**  
**University of Nigeria, Nsukka**

### **Abstract**

*Welding and fabrication is one of the trades in metalwork technology that can offer livelihood to craftsmen. Unfortunately, craftsmen do not possess the required skills needed. Thus, this paper Entrepreneurial skills and ethics need by craftsmen in establishing welding and fabrication as small scale enterprise in Enugu State is being investigated. The study is a descriptive research. Four research purposes, four research questions and a hypothesis were formulated to guide the study. A structured questionnaire was used as instrument for the study. The instrument contained 55 (fifty-five) test items. Three researches expect i.e. two experts from Industrial Technical Education and one expert from Department of Educational Foundations University of Nigeria, Nsukka. The reliability of the study was established using Cronbach Alpha and the reliability coefficient of the entire instrument was 0.91 which indicated high internal consistency. Based on the analysis, the study revealed that craftsmen require entrepreneurial skills and ethics in establishing welding and fabrication. It also reveals that instructors should identify and practice ethics in instructional delivery of welding and fabrication. The investigation indicated that craftsmen requires to be acquainted with the updates in managerial skills, technical skills and communication skills required in establishing and maintaining welding and fabrication. The researcher, therefore recommend that instructors and craftsmen should be retrained on entrepreneurial skills and ethics through workshops and seminars to impact and practice the ethics of the profession.*

**Keyword:** Employable Skills, Entrepreneurial Education, Entrepreneurial Skills, Ethics, Welding, Fabrication.

### **Introduction**

Technical college was established with intentions of producing craftsman and master craftsman required. Unfortunately, graduates of technical colleges (craftsman) are not professionals in their respective trades. In view of this Uya (2014) remarked that technical college graduates are incompetent, they lack required skills and entrepreneurial acumen needed for employment. This invariably explains that even teachers weren't exposed to entrepreneurial education before graduation. Entrepreneurial education as opined by Igbo (2005) is the



education that is aimed at developing the requisite entrepreneurial skills, attitude, competences and disposition that will predisposes the individual to be a driving force in managing a business. The process of managing a business is a product of entrepreneurial skill. Entrepreneurial skills according to Agada (2014), is the ability of an individual to choose appropriate skill to raise economic status and enhance success in business.

Entrepreneur activity is an embodiment of skills needed in the enhancement of business. They are numerous. According to Ossai (2012) entrepreneur skills include the technical, managerial, financial and communication skills. But the scope of this paper addressed the managerial, technical and communication skills as well as ethics needed in establishing welding and fabrication. Entrepreneurial skills should be incorporated along with ethics involved in the profession in establishing welding and fabrication as a small scale enterprise in Enugu State. The entrepreneurial skills to be incorporated according to Lidinma (2012) include managerial skills which are skills needed for effective management of human and material resources in order to achieve maximum output in an organization. Also Omeje (2013) opted that entrepreneurial education serves as a means of instilling qualities of entrepreneur in people with continued general commitment of management to ensure profit oriented business in the production and distribution of economic goods and services. The managerial skills (management acumen) consist of the abilities of an individual to formulate, and execute policies during the planning, organizing, directing and controlling activities to ensure a successful attainment of organizational objectives. The managerial activities cannot be overlooked because it plays a significant role in establishing a small scale enterprise.

In addition to managerial skills, technical skills are of paramount importance in achieving success in business organization. Buttressing this, Agada (2012) stressed that technical skills of an entrepreneur consist of the ability of the entrepreneur to perform the primary tasks inherent in a particular position. These tasks must be used to accomplish a specific assignment in a particular occupation or groups of occupations to a set standard. It involves the tasks that are relatively new and innovative enough to met with the changing industrial demands in relation to machines, equipment procured and products produced.

Beside the technical skills, the communication skills are highly needed by an entrepreneur. Communication skill according to Agada (2012) is the ability one has possessed, to transfer ones thought, ideas and information from the sender to the receiver with an effective and efficient understanding. But in situations where ideas and thoughts are not understood by the receiver, communication has not been made. Therefore, for entrepreneurial skills to be instilled in students of welding and fabrication it requires effective communication.

Welding can be described as the process of joining metallic materials by heating them to suitable temperature with or without the application of pressure. Buttressing welding further, Khama (2003) defined it as a metal joining process used in making weld at suitable temperature with or without the application of pressure. Note that welding requires skills for perfect execution. The skills needed by welders in this context are employable skills. The employable skills are needed by welders as entrepreneurs to enable them establish small scale enterprise in their state after graduation. Science, Technology, Engineering and Mathematics Network (STEMNET, 2019) defined employable skills as transferable skills needed by an individual to



make him or her employable and be able to employ others. It is worthy to note that welding cannot be executed effectively without skills in fabrication.

Thus, fabrication is described as the possibility of making student, the future craftsmen to have good knowledge of materials, techniques, safety practices and equipment involved in the production of articles or products. Fabrication according to Jude (2011) is the process of making goods, equipment and metal structures from various different materials. From the above description, welding and fabrication cannot be performed in isolation. Butressing the above description, the Federal Government of Nigeria (2007) stated that fabrication and welding are aimed at producing skilled craftsmen with good knowledge of the application of equipment, techniques and safety practices in production of metal products. Unfortunately, craftsmen are not experienced. The experienced craftsmen are the craftsmen that have been exposed to skills embedded in welding and fabrication up to a period of three years and above. And the craftsman that was exposed less than a period of three years is regarded as an inexperienced craftsman. However, it is important to note that both the experienced and less experienced do not possess entrepreneurs skills needed in establishing small scale enterprises anywhere in the country.

Enterprise can be small or medium depending on the aim of its establishment. Enterprises connote one's ability to establish a business of its own. It requires skills and courage. According to Bakare (2012) enterprise always involves a group of individuals with entrepreneurial skills working together to achieve one's objective. The entrepreneurial objectives can be achieved only when ethics are incorporated in the curriculum.

Ethics can be described as a moral principle that helps one to behave objectively in carrying out a prescribed activity. It was further defined by Ogbonna and Egoigwe (2019) as a moral principle that controls a person's behaviour in conducting activity. In the same perspective, Oswatt (2011) explained that the activities so described involve the ethical conducts and value system that can be applied to diverse problems which could be classified as consequentialism, non-consequentialism and virtual ethics etc.

Consequentialism addresses ethical theory in terms of morality as it concerns human actions regardless of the action itself. Consequentialism also fosters positive behaviour in students that attract better performance and good character. Such character to be eliminated from students includes students' aggression, attention seeking and challenge of authority which will be reduced to barest minimum to promote academic excellence. In the light of the above assertions, Boeree (2006) remarked that consequentialism produces the greatest amount of good consequence which in turn produces the greatest amount of happiness.

While non-consequentialism describes ethics on the level of human character, virtual ethics describes ethics as the desire for the best in its unique situation. It is worth knowing that these ethical theories control human responses to problems within an environment and must be incorporated into ethical models. The integration of these into school curriculum will produce the greatest amount of good consequence. Teachers that hadn't the knowledge of ethics while in school should be exposed to ethical conducts that are inherent in teaching profession. This is because according to Bullough (2011) ethical conducts and dilemmas are understood by teachers differently as they show different levels of ethnic sensitivity. Also, ethics of the profession which includes principles, codes, and standards must be utilized by teachers and inculcated to students to motivate and encourage them to acquire the entrepreneurial skills needed in establishing welding



and fabrication after graduations. This is because the employable and entrepreneurial skills are lacking among craftsman. Thus, this paper entrepreneurial skills and ethics needed by craftsman (technical college graduates) in establishing welding and fabrication as small scale enterprises is being investigated.

## Statement of the Problem

Craftsman are virtually unemployed after graduation because they lack employable and entrepreneurial skills needed in establishing welding and fabrication enterprise. In the light of the above, Uya (2014) remarked that technical college graduates (craftsmen) are incompetent, lack skills and entrepreneurial acumen needed for employment. Even teachers in technical colleges were invariably unexposed to entrepreneurial education and ethics while in school like other professions e.g. law, medicine, talk less of transcending such skills to students. It was also found from researches that students were not exposed to managerial, technical and communication skills needed by entrepreneurs in welding and fabrication.

In light of these deficiencies among craftsmen, this paper entrepreneurial skills and ethics needed by craftsmen is establishing welding and fabrication as small scale enterprise in Enugu State is being investigated.

## Purpose of the Study

The general purpose of the study was to investigate the entrepreneurial skills and ethics needed by technical college graduates (craftsmen) in establishing welding and fabrication as Small Scale enterprises in Enugu State. Specifically the study sought to determine the;

1. Managerial skills needed by craftsmen (technical college graduate) in establishing welding and fabrication as small scale enterprises in Enugu State.
2. Technical skills needed by technical college graduates (craftsmen) in establishing welding and fabrication as small scale enterprise in Enugu State
3. Communication skills needed by craftsmen or technical college graduates in establishing welding and fabrication as small scale enterprise in Enugu State.
4. Ethics needed by technical college graduates (craftsman) in establishing welding and fabrication as small scale enterprise in Enugu State.

## Research Questions

The following research questions were formulated based on the specific purposes.

1. What are the managerial skills needed by craftsmen (technical college graduates) in establishing welding and fabrication as small scale enterprise in Enugu State?
2. What are the technical skills needed by technical college graduates (craftsmen) in establishing welding and fabrication as small scale enterprise in Enugu State?
3. What are the communication skills needed craftsmen or technical college graduates in establishing welding and fabrication as small scale enterprise in Enugu State?
4. What are the ethics needed by technical college graduates (craftsmen) in establishing welding and fabrication as small scale enterprise in Enugu State?

## Null hypotheses

Ho<sub>1</sub> Experience does not significantly influence the extent craftsman possess the managerial skills needed in establishing welding and fabrication as small scale enterprise in Enugu State.

**Methodology**

Four research questions were developed to guide the study. Survey research design was adopted for the study. Osuala (2006) remarked that survey research design involves the study of both small and large population through sampling and use of questionnaire for data collection. The questionnaire used is the instrument for data collection. It contained a total of 55 (fifty-five) items based on the purposes, research questions and hypotheses formulated. The instrument was validated by three experts; two from Industrial technical Education and One from Department of Educational Foundations, University of Nigeria, Nsukka. The instrument was administered and retrieved from the respondents by the researcher and three research assistants. A return rate of 95% was recorded as 40 copies of the instrument/questionnaire were distributed and 38 copies were returned from the (craftsmen) technical college graduates. The reliability of the instrument was established using Cronbach Alpha. The reliability coefficient of the study was 0.91, which indicated that the instrument had high reliability. The data collected were analyzed using mean, standard deviation and t-test statistics. The cut-off point for decision taken on each items was 3.50. Any item with a mean score of 3.50 and above was considered needed because it was the upper limit of the rating of items. Any item below 3.50 was rejected.

**Analysis**

**Table 1:** Mean Responses of Craftsmen or Technical College Graduate on Managerial Skills Needed in Establishing Welding and Fabrication in Small Scale Enterprise in Enugu State.

| S/No. | Item States  | Mean<br>( $\bar{X}$ ) | SD   | Remarks |
|-------|--|-----------------------|------|---------|
|       | <b>To be competent in welding and fabrication graduates need the ability to;</b> |                       |      |         |
| 1     | direct the affairs of the establishment  | 4.25                  | 1.2  | Needed  |
| 2     | set attainable goals for the organization  | 3.87                  | 1.45 | Needed  |
| 3     | have good human relationship   | 4.53                  | 1.01 | Needed  |
| 4     | be sensitive to the teaching of others   | 4.43                  | 0.50 | Needed  |
| 5     | keep inventory and control it  | 3.73                  | 1.19 | Needed  |
| 6     | appraise employee growth and development   | 3.95                  | 1.11 | Needed  |
| 7     | appraise employee performance  | 3.93                  | 1.16 | Needed  |
| 8     | supervise effectively  | 3.95                  | 1.34 | Needed  |
| 9     | meet job schedule  | 3.73                  | 1.32 | Needed  |
| 10    | manage time  | 3.68                  | 1.37 | Needed  |
| 11    | make short and long term planning  | 4.43                  | 0.90 | Needed  |
| 12    | oversee organizational matters   | 3.73                  | 1.51 | Needed  |
| 13    | set channel for effective feedback from customers                                | 4.03                  | 1.27 | Needed  |
| 14    | produce demanded items before collection   | 4.22                  | 1.26 | Needed  |
| 15    | assess all activities or operations in the process of goal attainment            | 3.83                  | 1.19 | Needed  |
| 16    | foster relationship among members of the organization                            | 3.55                  | 1.30 | Needed  |
| 17    | conduct or schedule effective meetings   | 4.65                  | 1.13 | Needed  |





Table 1, showed that the mean item numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17 exceeded the criterion level of 3.50 and their value lies between 3.55 to 4.65 and were considered needed. Those values indicated that technical college graduates (craftsman) need the aforementioned managerial skills to establish and maintain welding and fabrication as small scale enterprise in Enugu State.

**Table 2:** Mean Responses of Craftsmen or Technical College Graduate on Technical Skills Needed in Establishing Welding and Fabrication as Small Scale Enterprise in Enugu State.

| S/No.  | Item States  | Mean<br>( $\bar{X}$ ) | SD   | Remarks |
|--|--|-----------------------|------|---------|
| <b>To be competent in welding and fabrication graduates need the ability to;</b> |  |                       |      |         |
| 18   | read and interpret drawing accurately                  | 3.95                  | 1.41 | Needed  |
| 19   | produce and undertake modern designs                   | 3.70                  | 1.09 | Needed  |
| 20   | handle tools and materials correctly                   | 3.80                  | 1.14 | Needed  |
| 21   | maintain good quality of work                          | 4.53                  | 0.85 | Needed  |
| 22   | classify metals correctly                              | 3.97                  | 1.23 | Needed  |
| 23   | identify different uses of metals                      | 4.08                  | 1.14 | Needed  |
| 24   | read troubleshooting codes on computer model system.   | 4.58                  | 0.50 | Needed  |
| 25   | set pressure regulation properly for automatic cutting | 4.85                  | 1.28 | Needed  |
| 26   | maintain correct welding position                      | 4.18                  | 0.90 | Needed  |
| 27   | adjust speed drive motor in automatic arc welding      | 3.73                  | 1.17 | Needed  |
| 28   | use robot for manual welding                           | 4.05                  | 0.85 | Needed  |
| 29   | braze weld   | 3.73                  | 1.19 | Needed  |
| 30   | program the automatic resistance machine weld          | 3.78                  | 1.12 | Needed  |
| 31   | identify different types of arc welding                | 3.78                  | 1.44 | Needed  |
| 32   | identify and utilize sheet metal tools                 | 4.10                  | 0.98 | Needed  |
| 33   | store hazardous substance securely                     | 3.90                  | 1.24 | Needed  |
| 34   | identify and utilize metalwork safety practice         | 4.18                  | 1.00 | Needed  |
| 35   | inspect and diagnose leakages in gas welding equipment | 3.50                  | 1.32 | Needed  |
| 36   | observe and practice general welding safety rules      | 4.15                  | 0.80 | Needed  |

Table 2, indicated that the mean item numbers 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36 exceeded the criterion level of 3.50 and their values lies between 3.50 to 4.85 which were considered needed. Those values showed that (craftsmen) technical college graduates need the technical skills to establish welding and fabrication as small scale enterprise in Enugu State.

**Table 3:** Mean Responses of (Craftsmen) Technical College Graduate on Communication Skills Needed in Establishing Welding and Fabrication in Small Scale Enterprise in Enugu State.

| S/No.  | Item States | Mean<br>( $\bar{X}$ ) | SD | Remarks |
|--|-------------|-----------------------|----|---------|
| <b>To be competent in welding and fabrication graduates need the ability to;</b> |             |                       |    |         |



|    |  |      |      |        |
|----|--|------|------|--------|
| 37 | actively listen to people and identify the barriers involved             | 3.58 | 1.32 | Needed |
| 38 | understand the need of customers   | 3.55 | 1.45 | Needed |
| 39 | communicate orally with groups   | 4.30 | 0.91 | Needed |
| 40 | read and comprehend wide range of publication                            | 3.73 | 1.35 | Needed |
| 41 | effective communicate with others using electronic communication devices | 3.93 | 1.21 | Needed |
| 42 | acknowledge differences in opinion                                       | 3.75 | 1.26 | Needed |
| 43 | explain objectively without evaluation share ones feelings               | 3.85 | 1.41 | Needed |
| 44 | share ones feeling   | 3.85 | 1.41 | Needed |
| 45 | interpret electronic diagrams verbally                                   | 3.98 | 1.17 | Needed |
| 46 | communicate with individuals of various depth of knowledge capacities    | 3.70 | 1.08 | Needed |
| 47 | understand the need of customers   | 4.05 | 0.88 | Needed |
| 48 | encourage speakers to speakers to speak more                             | 3.88 | 1.04 | Needed |

Table 3, revealed that the mean item numbers 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47 and 48 exceeded the criterion level of 3.50 and their values lies between 3.55 to 4.30 which were considered needed. These values showed that craftsmen or technical college graduates need the communication skills to establish and maintain welding and fabrication as small scale enterprise in Enugu State.

**Table 4:** Mean Responses of Craftsmen or Technical College Graduate on Ethics Needed In Establishing Welding and Fabrication in Small Scale Enterprise in Enugu State.

| S/No. | Item States   | Mean<br>( $\bar{X}$ ) | SD   | Remarks |
|-------|---|-----------------------|------|---------|
|       | <b>To be competent in welding and fabrication graduates need the ability to;</b>  |                       |      |         |
| 49    | develop good relationship to others to show admirable personality   | 3.68                  | 1.30 | Needed  |
| 50    | adopt rationale moral cost benefit analysis to members of organization and customer   | 3.88                  | 0.79 | Needed  |
| 51    | develop professional principles, codes and standards needed in organizational operations  | 3.85                  | 1.25 | Needed  |
| 52    | adopt strategies that produces the greatest amount of good consequence  | 3.53                  | 1.28 | Needed  |
| 53    | Show customers the organizational and behavioral practice that fosters ethical organization culture.                                  | 3.95                  | 1.26 | Needed  |
| 54    | Demonstrate core values of respect, responsibility, integrity, honor and care of self and others in discharging organizational duties | 3.63                  | 1.27 | Needed  |
| 55    | avoid unethical conducts in organizational practice and performance   | 4.07                  | 1.09 | Needed  |



Table 4, indicated that the mean item numbers 49, 50, 51, 52, 53, 54 and 55 exceeded the criterion level of 3.50 and their values lies between 3.53 to 4.07 and was considered needed. These values indicated/showed that craftsmen or technical college graduates needed ethics to establish welding and fabrication as small scale enterprise in Enugu state.

**Null Hypothesis**

Experience does not significantly influence the extent craftsmen possess the managerial skills needed for establishing welding and fabrication as a small scale enterprise in Enugu State

**Table 5:** Results of t-test computation for the Mean Response of Experience and Less-E experience Craftsmen on Managerial Skills needed for Establishing Welding and Fabrication as a small scale enterprise in Enugu State.

| Respondents     | Mean | SD   | N  | D.f. | t-cal | F-ratio | Decision    |
|-----------------|------|------|----|------|-------|---------|-------------|
| Less-Experience | 3.93 | 0.83 | 16 | 36   | 0.93  | 0.32    | significant |
| Experience      | 3.76 |      | 22 |      |       |         |             |

From the analysis, the t-test calculated was 0.93 and the f-ratio was 0.32. The calculated t-test was greater than the critical value of t [0.32]. The null hypothesis [Ho] was rejected and the alternative hypothesis [H<sub>A</sub>] was upheld. The study revealed that there is a significant difference between the mean responses of the less experience and experience technical teachers on the extent craftsmen possess the managerial skills needed in establishing welding and fabrication enterprise in Enugu State. In conclusion, the less-experienced technical teachers indicated that these factors generated were the extent craftsmen possessed the managerial skills needed to establish welding and fabrication enterprise in Enugu State.

**Discussion of Findings**

The findings of study revealed that 17 managerial skills are needed by craftsman (technical college graduates) in establishing welding and fabrication as small sale industries /enterprise in Enugu State. These managerial skills include; craftsmen’s ability to; direct the affairs of the establishment, set attainable goals for the organization, have good human relationship, be sensitive to the teaching of others, keep inventory and control it, appraise employee growth and development, appraise employees performance, supervise effectively, meet job schedules, manage time, make short and long term planning, oversee organizational matters, set channels for effective feedback from customers, produce demand items before collection, assess all operations or activities in the process of goal attainment, foster relationship among members of the organization and conduct or schedule effective meetings.

These findings were in agreement with Ede and Aluwong (2018) opinion which stated that managerial competencies gives the entrepreneur the ability to manage his staff, defines the expected outcome clearly and get the things done at the best way and means.

The finding of the study still reveal that 19 technical skills are needed by craftsmen in establishing welding and fabrication as small scale industry in Enugu State.





These technical skills include craftsmen ability to; read and interpret drawing accurately, produce and undertake modern designs, handle tools and materials correctly, maintain good quality of work, classify metals correctly, identify different uses of metals, read troubleshooting codes on computer, model system, set pressure regulation properly for automatic cutting, maintain correct welding positions, adjust speed drive motion in automatic arc welding, use robot for manual welding, braze weld, program the automatic resistance machine welding, identify different types of arc welding, identify and utilize sheet metal tools, store hazardous substances securely, identify and utilize metalwork safety practices, insect and diagnose leakages in gas welding equipment and observe as well as practice general welding safety rules. These finding are in line with Oviave (2009) opinion which stated that technical competences arc needed in entrepreneurship education.

The findings of the study also reveal that 12 communication skills are needed by craftsman in establishing welding and fabrication as small scale industry in Enugu State.

The communication skills includes craftsman ability to; actively listen to people and identify the barriers involved, understand the need of customers, communicate orally with groups, read and comprehend wide range of publication, effectively communicate with others using electronic communication devices, acknowledge differences in opinion, explain objectively without evaluation, share ones feelings, interpret electronic diagrams verbally, communicate with individuals of various depth of knowledge capacities, understand the needs of customers and encourage speakers to speak more.

Thus, the findings of the study is in line with Agada (2012) opinion which stated that communication is effective only when ones thought, ideas and information is transferred from the sender to the receiver with efficient understanding.

The findings of the study reveal that 7 ethical conducts are needed by craftsmen in establishing welding and fabrication as small scale enterprise in Enugu State.

The ethical conduct include craftsmen's ability to; develop good relationship to other showing admirable personality, adopt rational moral cost benefit analysis to members of organization and customers, develop professional principles, orders and standards needed in organizational operations, adopt strategies that produces the greatest amount of good consequence, show customers the organizational and behavioral practices that foster ethical organizational culture, demonstrate core value of culture, responsibility, integrity, honor and care of self and others in discharging organizational duties and avoid unethical conducts in organizational practice and performance. Buttressing these findings Sarup and Kathleen (2014) found out that technical teachers were not exposed to course work while in school which affect their decisions in handling ethical dilemmas like other profession e.g. law. This warrant teacher to be trained and retrained on ethical theories and model to enable them find solutions to students' problems.

## Conclusion

The study highlighted the importance of inculcating entrepreneurial skills to students or craftsmen to enable them establish welding and fabrication as a small scale enterprise after graduation. The study revealed some entrepreneur skills and ethics needed by craftsman in establishing welding and fabrication. These warrant graduates/craftsmen to be competent by possessing the managerial skills, technical skills, communication skills as well as ethics needed



for such establishment to enhance productivity. The managerial skills include among others the ability to direct the affairs of the establishment, have good human relationship, make short and long term planning and produce demanded item before collection.

## Recommendations

Based on the findings of the study, the following recommendations were made.

1. The government should include ethics and entrepreneur contents as part of course work for training technical college students
2. In-service training should be organized by government for craftsmen on the job, through conferences, seminars and workshops
3. Craftsmen should be encouraged to demonstrate credibility in establishing and handling welding and fabrication as small scale enterprise.
4. Craftsmen should be taught the necessary managerial skills needed in the establishment of welding and fabrication enterprise in Enugu State.

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