

**ENTREPRENEURIAL COMPETENCIES REQUIRED BY FOUNDRY CRAFTSMEN  
FOR ENTERING INTO POTS MANUFACTURING ENTERPRISE.**

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### ***Abstract***

*This study focused on identifying entrepreneurial competencies required by foundry craftsmen for entering into pots manufacturing enterprise. Three research questions were developed and answered in line with the purpose of the study. Three hypotheses were formulated and tested at the probability level of 0.05 level of significance and 25 degree of freedom. Survey research design was adopted for the study. The study was carried in Ogun State with a population of 27 made up of 3 foundry teachers and 24 pot casters. A structured questionnaire containing 30 competency items was developed and used for data collection while 3 experts were engaged to face validate the instrument. The reliability coefficient of the instrument was found to be 0.81 using Cronbach Alpha. The data collected were analyzed using mean and standard deviation to answer the research questions and t-test to test the hypothesis of no significance at 0.05 level of significance. The result of the study revealed 8 competencies for planning, 15 competencies for manufacturing and 7 competencies for marketing of pots respectively. In all 30 entrepreneurial competencies were identified in this study for entering into pots manufacturing enterprise. The findings on the hypotheses revealed non existence of significant difference in the mean responses of foundry teachers and pot casters who are respondents to this study. The study recommended that the 30 entrepreneurial competencies be packaged into the training of foundry craftsmen in the nation's technical colleges.*

***Keywords: Technical College, Foundry Craft Practice, Entrepreneur, Competencies, Entrepreneurial Competencies, Pots, Cast iron, Casting.***

## **Introduction**

The attainment of vision 2020 rests on the Nigeria nation to realize her potentials in Vocational and Technical Education (VTE). VTE programmes are meant to equip individuals with the necessary knowledge, attitude and skill for self reliance, hence the programmes are offered at different levels of education to produce different categories of manpower. The Federal Government of Nigeria (FGN, 2014) identified universities, polytechnics, colleges of education and technical colleges as institutions that offer VTE programmes. Each of these institutions prepares different categories of manpower. One critical stage is the technical college where the low level manpower is prepared.

Technical colleges (TC) according to Olakotan (2015) are institutions where students are trained to acquire relevant knowledge and applied skills in different occupations for self-reliance, and employment in the world of work. TC according to the National Board for Technical Education (NBTE, 2004) are established to produce craftsmen at the craft (secondary) level and technicians at the advanced craft (post-secondary) level.

The various occupational areas obtainable in TC are so relevant that their services are needed in every area of human endeavor; however, the emphasis on this study is Foundry Craft Practice (FCP).

FCP equips students with skills in casting, moulding, core making, pattern development, pattern making and forging among others. The importance of FCP in production of goods and services for the development of the nation and to meet the needs of individuals cannot be over-emphasized. Therefore, it is of paramount importance that foundry craftsmen are nurtured with practical skills aimed at moulding them to become entrepreneurs.

An entrepreneur according to Ikewoha (2007) is any person who uses his skill to discover hidden business opportunity and exploit it for a profit. Activities of an entrepreneur

according to Ikewoha include: planning, organizing, leading and controlling among others. The entrepreneur is a giver of employment, provider of infrastructures and valuable services to the community (Lidimma, 2012). Aminu (2009) posited that the success of an entrepreneur is dependent on his determination, leadership quality, creativity, self-nurturing, self-discipline, energetic, future oriented among other notable characteristics. It is then believed that if entrepreneurs are nurtured with worthy characteristics, its resultant effect would be overt in self reliance and acquisition of right competencies.

Competencies according to Sanchez (2011) are clusters of related knowledge, traits, attitudes and skills that affect a major part of one's job; that correlate with performance on the job; that can be measured against well-accepted standards; and that can be improved via training and development. Olaitan (2003) cited in Lidimma (2012) averred that to be competent means that the individual has acquired the knowledge, skills, attitude and judgments which is required in order to perform successfully at a specified proficiency level in a given work.

Therefore, entrepreneurial competencies are the skills necessary for an entrepreneur to venture into an enterprise, organize and manage an enterprise ably and competently and above all realize the goal for which the enterprise is established. These competencies help an entrepreneur to successfully venture into an enterprise. In the context of this study, entrepreneurial competencies are the knowledge, skills and behavior required by foundry craftsmen for manufacturing cast iron pots for earning income for survival.

Bamiro, Nzediegwu, Oladejo, Rahaman and Adebayo (2011) noted that pots are deep round containers used for cooking things with common ones being made of aluminium, cast-iron and tin. Pots according to Encarta (2009) are containers made of metal, pottery or glass that is usually cylindrical and watertight with an open top and sometimes a lid, used

especially for cooking or storage. Since materials for producing pots ranges from aluminium, cast iron, tin and clay among others, this study specifically focused on cast iron pots.

Cast iron contains about 3.5 percent carbon and is in the same family with pig iron. To produce cast iron pots, casting is inevitable. Casting takes place when liquid metal is poured into a mould and then allowed to cool and solidify taking the shape of the mould in every detail. Casting processes make it possible to produce pots rapidly and economically. Because of its many advantages, casting is one of the most important methods of manufacturing pots.

It is noteworthy that foundry craftsmen require entrepreneurial competencies for planning, implementing, coordinating and evaluating the enterprise towards achieving stated objectives. Hence foundry craftsmen can be trained to function effectively in cast iron pots manufacturing enterprise. This is against the notion that craftsmen produced in the nation's technical colleges lack competent skills needed to function effectively in the world of work.

### **Statement of the Problem**

One of the major components of achieving vision 2020 is to encourage local manufacturing and promote small and medium scale enterprises. To achieve this, required entrepreneurial competencies must be instilled in foundry craftsmen right in the training institutions to encourage self-reliance, creativity and excellence.

### **Purpose of the Study**

The purpose of this study is to identify entrepreneurial competencies required by Foundry Craftsmen for entering into pots manufacturing enterprise.

Specifically, the study sought to identify:

1. Entrepreneurial competencies required by Foundry Craftsmen for success in planning for pots manufacturing enterprise
2. Entrepreneurial competencies required by Foundry Craftsmen for success in manufacturing of pots
3. Entrepreneurial competencies required by Foundry Craftsmen for success in marketing pots

### **Research Questions**

1. What are the entrepreneurial competencies required by Foundry Craftsmen for success in planning for pots manufacturing enterprise?
2. What are the entrepreneurial competencies required by Foundry Craftsmen for success in manufacturing of pots?
3. What are the entrepreneurial competencies required by Foundry Craftsmen for success in marketing pots?

### **Research Hypotheses**

**HO<sub>1</sub>:** There is no significant difference in the mean ratings of foundry teachers and pot casters on entrepreneurial competencies required by Foundry Craftsmen for success in planning for pots manufacturing enterprise

**HO<sub>2</sub>:** There is no significant difference in the mean ratings of foundry teachers and pot casters on entrepreneurial competencies required by Foundry Craftsmen for success manufacturing of pots

**HO<sub>3</sub>:** There is no significant difference in the mean ratings of foundry teachers and pot casters on entrepreneurial competencies required by Foundry Craftsmen for success in marketing pots

## **Methodology**

### **Research Design**

This study made use of a survey research design. Accordingly, Nworgu (2006) buttressed the fact that the design was considered suitable for the study since it sought the opinions of foundry teachers and pot casters on entrepreneurial competencies required by foundry craftsmen for entering into pots manufacturing enterprise.

### **Area of Study**

The study was conducted in Ogun State. The choice of the state was informed by the fact one of the seven technical colleges in the state offer foundry craft practice and the people of the state patronize cast iron pots in different sizes.

### **Population**

The population of this study was 27. This comprise of 24 pot casters and 3 foundry teachers.

### **Sample and Sampling Technique**

No sampling technique was adopted, since the population was manageable.

### **Instrument for Data Collection**

The instrument for data collection was a four point scaled structured questionnaire in line with the research questions. The questionnaire was scaled as Highly Required (HR), Required (R), Moderately Required (MR) and Not Required (NR). The numerical values assigned to

the scale were 4, 3, 2 and 1 respectively. The questionnaire was validated by three experts, and yielded a reliability coefficient of 0.81 using cronbach alpha

### **Data Collection**

The instruments were personally administered on the respondents by the researchers.

### **Method of Data Analysis**

The data collected were statistically analyzed using descriptive statistics of means and standard deviation and inferential statistic of t-test as appropriate. A mean of 2.50 and above was considered positive and agreed upon, while a mean rating of less than 2.50 was regarded as negative and disagreed upon. The t-test statistic was used to test the null hypotheses at 0.05 level of significance.

### **Results and Discussions**

#### **Research Question 1**

What are the entrepreneurial competencies required by Foundry Craftsmen for success in planning for pots manufacturing enterprise?



**Table 1: means ratings and t-test analyses of foundry teachers and pot casters on entrepreneurial competencies required by foundry Craftsmen for success in planning for pots manufacturing enterprise**

N = 27

S/N	ITEM STATEMENT	X	SD	t-cal	t-tab	Remarks
1.	Formulate specific objectives for the cast iron pots manufacturing enterprise	3.74	0.78	0.81	2.06	Required NS
2.	Review objectives of the enterprise periodically based on changes in market demand and supply	3.88	0.75	0.25	2.06	Required NS
3.	Draw plans for the enterprise	3.70	0.73	1.21	2.06	Required NS
4.	Make budget for the enterprise	3.42	0.57	0.76	2.06	Required NS
5.	Source capital for the enterprise	3.62	0.62	1.34	2.06	Required NS
6.	Procure equipment for the cast iron manufacturing enterprise	3.18	0.70	0.88	2.06	Required NS
7.	Identify market for purchase of raw materials	3.39	0.59	0.55	2.06	Required NS
8.	Identify alternate ways of sourcing for raw materials	3.47	0.56	1.38	2.06	Required NS

Key: NS = Not Significant

The data in table 1 showed that the 8 competency items had their means ranged from 3.47 to 3.88. This indicated that each of the items had a mean above the cut-off point of 2.50 which indicated that all the 8 competency items were required by foundry craftsmen for success in planning pots manufacturing enterprise. Also, the items had their standard deviation ranged from 0.56 to 0.78 which revealed that the respondents were not far from the mean and from one another in their opinions. The result on the hypothesis also revealed that all the 8 items had their t-cal values lower than the t-table value of 2.06. This indicated that there was no significant difference in the mean ratings of the responses of foundry teachers and pot casters on entrepreneurial competencies required by foundry craftsmen for success in planning pots

manufacturing enterprise. Hence, the hypothesis of no significant difference was upheld for the 8 items.

## Research Question 2

What are the entrepreneurial competencies required by Foundry Craftsmen for success in manufacturing of pots?

**Table 2: means ratings and t-test analyses of foundry teachers and pot casters on entrepreneurial competencies required by foundry Craftsmen for success in manufacturing of pots**

N = 27

S/N	ITEM STATEMENT	X	SD	t-cal	t-tab	Remarks
9.	Pattern making	3.12	0.31	0.72	2.06	Required NS
10.	Mould making	3.34	0.30	1.54	2.06	Required NS
11	Preparing sand	3.39	0.37	0.28	2.06	Required NS
12	Sift sand with riddles	3.41	0.34	0.64	2.06	Required NS
13	Packing prepared sand around pattern	3.36	0.36	1.18	2.06	Required NS
14	Ramming packed sand with rammer	3.33	0.32	1.83	2.06	Required NS
15	Venting of moulds	3.49	0.37	0.97	2.06	Required NS
16.	Gating of moulds to accommodate pouring basin, sprue, runner, gate and riser	3.25	0.35	0.67	2.06	Required NS
17.	Removal of pattern using draw pin	3.93	0.36	0.79	2.06	Required NS
18.	Patching up small breaks in the mould	3.42	0.64	1.22	2.06	Required NS

19.	Heat metal to molten form	3.55	0.33	0.58	2.06	Required NS
20.	Pouring of molten metal	2.99	0.54	1.17	2.06	Required NS
21.	Exercising patience for cooling and solidification	3.67	0.38	0.83	2.06	Required NS
22.	Removal of pot	3.37	0.25	0.46	2.06	Required NS
23.	Finishing	3.28	0.30	0.85	2.06	Required NS

Key: NS = Not Significant

The data in table 2 showed that the 15 competency items had their means ranged from 2.99 to 3.93. This indicated that each of the items had a mean above the cut-off point of 2.50 which indicated that all the 15 competency items were required by foundry craftsmen for success in manufacturing pots. Also, the items had their standard deviation ranged from 0.25 to 0.64 which revealed that the respondents were not far from the mean and from one another in their opinions. The result on the hypothesis also revealed that all the 15 items had their t-cal values lower than the t-table value of 2.06. This indicated that there was no significant difference in the mean ratings of the responses of foundry teachers and pot casters on entrepreneurial competencies required by foundry craftsmen for success in manufacturing pots. Hence, the hypothesis of no significant difference was upheld for the 15 items.

### Research Question 3

What are the entrepreneurial competencies required by Foundry Craftsmen for success in marketing pots?

**Table 3: means ratings and t-test analyses of foundry teachers and pot casters on entrepreneurial competencies required by foundry Craftsmen for success in marketing pots**

N = 27

S/N	ITEM STATEMENT	X	SD	t-cal	t-tab	Remarks
24.	Advertise already manufactured pots	3.44	0.38	0.65	2.06	Required NS
25	Survey the markets for selling manufactured pots	3.21	0.45	0.97	2.06	Required NS
26	Ascertain costs of various quality of pots in the market	3.41	0.30	1.28	2.06	Required NS
27	Fix price for pots according to size	3.30	0.32	0.76	2.06	Required NS
28.	Keep record of purchase and sales	3.32	0.35	0.81	2.06	Required NS
29	Keep all financial records as well as income and expenditure	3.35	0.36	1.24	2.06	Required NS
30	Arrange for safe keeping of financial proceeds from sales of pots	3.29	0.32	0.76	2.06	Required NS

Key: NS = Not Significant

The data in table 3 showed that the 7 competency items had their means ranged from 3.21 to 3.44. This indicated that each of the items had a mean above the cut-off point of 2.50 which indicated that all the 7 competency items were required by foundry craftsmen for success in marketing pots. Also, the items had their standard deviation ranged from 0.30 to 0.45 which revealed that the respondents were not far from the mean and from one another in their opinions. The result on the hypothesis also revealed that all the 7 items had their t-cal values lower than the t-table value of 2.06. This indicated that there was no significant difference in

the mean ratings of the responses of foundry teachers and pot casters on entrepreneurial competencies required by foundry craftsmen for success in marketing pots. Hence, the hypothesis of no significant difference was upheld for the 7 items.

### **Discussion of findings**

Result of the study in table 1 showed that 8 entrepreneurial competencies were required by foundry craftsmen in planning for pots manufacturing enterprise. The result agrees with the submission of Olaitan (2003) cited in Lidimma (2012) who noted that planning should have direction towards a goal and should be organized to seek information continuously for problem solving and decision making process.

In table 2, the result of the study revealed that 15 competencies were required by foundry craftsmen in manufacturing pots. The result represents the opinions of foundry teachers and pot casters who are experts in field. Nevertheless, the results agrees with the submission of Yisa (2010) who identified pattern making, mould making, preparing and sifting of sand among others as key competencies required in casting operations.

The result in table 3 revealed that 7 competencies were required by foundry craftsmen in marketing pots. The results represent the opinions of the researchers as supported by foundry teachers and pot casters.

Findings on the hypothesis revealed that there was no significant difference in the mean ratings of the responses of the foundry teachers and pot casters on 30 entrepreneurial competencies required by foundry craftsmen for success in pots manufacturing enterprise. This indicated that the professional experience of the respondents in their chosen fields did not significantly influence their responses and since the 30 entrepreneurial competencies

items were adjudged required, the two groups of respondents were in agreement with the competencies based on their experiences.

### **Conclusion**

The impart of foundry craftsmen to the attainment of vision 2020 which seems unnoticed is revived in this study. Since every home cannot do without pots and that cast iron pots serve the need of people for various purposes, be it domestic, commercial and even cooking for occasion which others types of pots cannot withstand due to size and high heat consumption. This study therefore remains an eye opener in the field of manufacturing thus promoting self-reliance of foundry craftsmen and creating awareness of hidden prospects in the craft. It is then found from the findings of this study that 30 entrepreneurial competencies are required for success in entering pots manufacturing enterprise. Based on this revelation, it is therefore recommended that the 30 entrepreneurial competencies are packaged into the training of foundry craftsmen in Ogun State and perhaps Nigeria as a whole.

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