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Abstract- Acquiring jewelry education to become a jeweler in Ghana is either by School-Based or Apprenticeship. A concern expressed by some jewelry industry practitioners is that most students who acquire jewelry education through School-Based in Ghana are unable to practice as jewelers because there is a mismatch between skills that students acquired while in school and the jewelry industry's needs. Correspondingly, Jewelry Apprenticeship has also saw a decline in patronage in recent times due to lack of regulatory framework, which has led to some Master and Apprentice Jewelers exploiting the training process. This study sought to conduct a comparative analysis to establish the similarities and differences that exist between these two Jewelry programmes. The study adopted the Mix Methods research approach with descriptive and evaluation as the research methods used. The researchers used Purposive and Snowball sampling techniques to draw a sample size of 300. Data collection tools used were observation, interview, and questionnaire. It emerged that the two jewelry education programmes have some similarities and differences in their processes of teaching and learning of jewelry that has to enable them to train jewelers for the industry. There is the need to incorporate where possibly the good practices of one system of jewelry education into the other.

Keywords: comparative analysis, jewelry, jewelry apprenticeship, school-based education, jewelry education.

I. INTRODUCTION

All over the world, different cultures/countries have a unique vocation that is practiced by its people. Jewelry (Goldsmithing) is one of such careers which is practiced in Ghana. Acquiring education to build a profession in Jewelry making in Ghana is done either through School-Based or Apprenticeship. Fening (2015) postulates that School-Based Jewelry education in Ghana started at the tertiary level in Kwame Nkrumah University of Science and Technology, Kumasi in 1968 and at the second cycle level in 1990 at the then Labone Secondary School. Since then many other schools both at the second cycle and tertiary levels in Ghana have

introduced Jewelry into their programmes of study (CRDD 2008).

A concern expressed by some players in the jewelry industry in Ghana is that most students who acquire jewelry education through the School-Based programme are not able to practice as jewelers after graduation (E. K. Asante-Asare, personal communication March 20, 2016). The worry of the jewellery practitioners is that there is disparity between what is teachers teach and that of jewelry industry's needs (Atchoarena 2001). Before the introduction of school based jewelry education in Ghana, acquiring skills in jewelry making was only possible through apprenticeship. Even that one could get the opportunity to learn jewelry through once family relation to a jeweler, because they consider jewelry trade to be a legacy preserved for particular family and could only be passed on to its generation with women being excluded from practicing (Kotoku 2009; Palmer 2009). Available statistics show that apprenticeship in the area of Jewelry is responsible for training about 80 to 90% of Jewelers in Ghana (Atchoarena & Delluc 2001). However, patronage in jewellery apprenticeship has decline in the in recent times (Kotoku; Fening & Asomaning 2014). Among the reasons for the decline is the lack of policy that regulates the Apprenticeship in Jewelry system. Even though an Act of Parliament (Act 718) which was promulgated in 2006 to established Council for Technical and Vocational Education and Training (COTVET) to manage and oversee all aspects of Technical and Vocational Education and Training in the formal, non-formal and informal sectors of the country. Mean while the jewelry apprenticeship in Ghana is still not being regulated (A. R. O. Addo, personal communication, December 14, 2017).

According to Palmer (2009), the lack of regulatory framework has led to the exploitation of the apprenticeship programme by some masters and apprentice jewelers. For instance, some masters deliberately refuse to teach the apprentices what they should know to become jewelers (Anokye & Afrane 2014). Instead, the apprentices are used by their master to do all of the works (including domestic chores and source of cheap labor) that is not related in training to become a jeweler (Donkor 2006).

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Notwithstanding these problems, there are indeed some good practices within these two modes of acquiring Jewelry Education in Ghana. This study therefore, sought to undertake a Comparative Analysis to establish the similarities and differences between these two Jewelry Education programmes in Ghana.

II. LITERATURE REVIEW

a) Vocational Education Training

For me, the big driver in vocational education is that it involves real-time, real-world activities, with an opportunity to have a coach or guide available to review feedback, reflect with the person, or even to be that guiding hand through the process. (Andy Symth cited in Lucas, Spencer & Claxton 2012, p. 59).

The significance from Smith's statement is that the aim of Vocational Education and Training (VET) to be imparting individuals with skills that can be applied on-the-job at the workplace. In other words, individuals who acquire VET stand a chance of having direct and instantaneous effects on productivity which eventually contribute to economic growth. According to Greinert (2005), VET was introduced into the school-based system to enhance the apprenticeship system of training. However, apprenticeship turned out to be a source of training skilled labor in countries (Ghana and many African Countries) where VET in mainstream education is not well established (Aryeetey, Doh & Andoh, 2011).

Cohisn and Barnaart (2010) posit that Technical and Vocational Education is seen as the best avenue to eradicate poverty, especially in the developing countries. In this respect, multinational agencies including, The World Bank, United Nations Educational, Scientific and Cultural Organization (UNESCO) and ILO pulled resources together to push for the establishment of Technical and Vocational Education in those countries.

b) School-Based Jewelry Education in Ghana

Fening (2015) posits that jewelry is taught and learned at two levels of Ghana's educational system, these are Senior High School (SHS) and colleges or universities. Whereas the SHS level treats jewelry as a subject under Visual Art programme, those at the tertiary offer it as a programme. For example, AsanSka College of Design and Technology located in Accra runs a Bachelor of Arts in Jewelry Design Technology whiles KNUST in Kumasi offer both bachelor and Master degrees (BA and MFA in Jewelry and Metalsmithing programmes) respectfully. Others are Wa Polytechnic, and Takoradi Technical University are in the far advance process of introducing Jewelry.

Available information indicates that about twenty (20) SHS in Ghana offer Jewelry. Some of the SHS that offer Jewelry are, Achimota SHS, Kinbu

Secondary Technical, Mawuli Senior, Chemu SHS, Amasaman SHS, Diaspora Girls La-bone SHS and Prempeh Senior High (Fening).

c) Apprenticeship

Apprenticeship is a system of acquiring knowledge and occupational skills through a combination of practical work experiences and in some jurisdictions theoretical component under the mentorship of Master Craftsman (MC) either in the classroom or at home (Chankseliani & Relly 2015). An empirical study identified informal apprenticeship as a provider of skills to young people in African countries. Unfortunately, available information by Nübler, Hofmann, and Greiner (2009) indicates that training policies in many third world countries paid more attention to promoting the formal vocational education and training system at the expense of the apprenticeship system. Some of these countries virtually have no training policies that give credence to the indigenous system of acquiring acknowledge and skills is considered as a contributor to the growth of a country's economy. As a matter of urgency policy makers needs to redirect their attention towards the informal apprenticeship training system which has the prospects of increasing youth employability, the productivity of enterprises, decent work as well as foster local and economic development. The ILO has led the way by launching a work programme on apprenticeship systems to identifies informal apprenticeship as the surest mode of training people for the informal sector of some third world countries (Ahadzie 2003; Walther 2008; Palmer, 2009).

Nilsson (2010) asserts that apprenticeship whether formal, informal or non-formal is useful for the following reasons:

- i It is a means for promoting strong social integration.
- ii It is a production hub for training human resource with the needed, skills and knowledge for the continue running of the industries.
- iii It ensures regular a supply of skilled personnel for various trades.
- iv Young people who yearn for a career when they start entering the working world and sign on to an apprenticeship system tends to derive a lot of benefits. As they go through apprenticeship and can complete, s/he is can build the confidence needed to secure their future with a good standard of living because the training acquired in the crafts are the skills that deemed highly in demand.

d) Apprenticeship Training Process in Ghana

Relating apprenticeship training to other skills development system Anokye and Afrane (2014) stated that apprenticeship training is an art and depend on the level of expertise of the MC as well as the methodologies s/he uses to handover the knowledge and skills to the apprentice. In effect, the training that is

offered establishes the type of Master Craftsman s/he produces. The process of training apprenticeship has been described by Frazer (2006) as a four-phase process, and they involve; the introductory stage; tools, equipment and materials; manufacturing process; and business management skills.

e) *Comparative Research*

Smelser (2003) posits that scholars have acknowledged comparative study as a research method that involves the description and explanation of similarities and differences of cases or outcomes that exist between social units, mostly in the area of regions, nations, societies, education, and cultures. In a like manner, it encompasses the analysis and synthesis of the likenesses, differences, and designs that reflect through two or more cases with a mutual focus or goals. The comparative analysis which is also known as comparative studies includes analysis and synthesis of the commonalities, variances, and patterns across binary or more cases that are required to attain a single outcome (Enli 2010).

Pickvance (2005) is with the view that though giving the bare description of data in a chronologically manner certainly provides information on the cases that is understudy, referring to this as comparative will fall short of pointing the variances and resemblances out to the reader. Successful execution of comparative study demands that the specific components of each case have to be spelled out in details, its rationale for selection has to relate to the main research questions as well as linking it to what is under investigation (Smelser). These will help in creating the basis for the analytic framework that will facilitate the cross-case comparison.

As it is already stated, the two most expected outcomes of comparative analysis are focused on the explanation of both the differences and similarities that exist between cases in order to ascertain the understanding, clearing up and construing of diverse historical outcomes, so that their significance is processed for their use in present institutional arrangements (Kamarainen 2015). But Ragin (2000) argues that some comparativists do not necessarily have interest in the relations between variables that symbolize broad groupings of cases but rather place more premium on themselves, particularly the different historical experiences.

The known classification of comparative analysis into types is outlined in the work of Tilly (1984). These include; Individualizing, Universalizing, Variation-finding, and Encompassing.

III. MATERIALS AND METHOD

The researchers adopted elements of both qualitative and quantitative research approaches in the study. The use of this research approaches opened up

options of research designs for the study. Subsequently, descriptive and evaluation research designs were applied to address the concerns raised by the researchers in the study. A population of 300, comprising lecturers, student, master jewelers and apprentice jewelers were sampled through purposive, snowball and stratified sampling techniques from the Metals Product Design Section, KNUST in Kumasi and AsanSka College of Design and Technology in Accra to represent School-Based Jewelry Education. Again, the researchers also used some members of the Federation of Ghanaian Jewelers in Accra and Kumasi as the representation of Apprenticeship Jewelry Education in Ghana.

Data collection was done through the use of observation, interview, and questionnaire as tools. The two (observation and interviews) were used as to collect data because most of the respondents from the apprenticeship programme (both masters and apprentice jewelers) could not read and write effectively, and the number of lecturers involved was also not many. Secondly, these two data collection tools aided the researchers to check for nonverbal expression of feelings to determine what goes into teaching and learning of Jewelry in both formal and informal sector (DeWalt & DeWalt 2002). The researchers adopted *sequential* mixed analysis (Tashakkori & Teddlie 1998). In doing so, the qualitative data were analyzed to generate codes and themes with the aid of Hyper Research software. The qualitative data analysis was followed with quantitative data analysis with the assistance of SPSS (Onwuegbuzie 2003).

Because the number of students involved in the study was not too large to deal with, the researchers used descriptive statistics rather than inferential statistics to analyzed was the quantitative data. Descriptive statistics here refers to the use of some basic features of data in a study to describe the general tendencies such as percentage, mean, median and mode in the data (Trochim 2006). The researchers adopted Walk's (1998) comparative analysis theory to ensure the achievement of a sequential and scientific comparative analysis. According to Walk, for any study to be considered as a comparative study, the researchers must spell out the following principal elements:

a) *The Frame of Reference for the Study*

The characteristics of School-Based and Apprenticeship programmes of Jewelry Education in Ghana that were identified and described by the researchers created the basis that constituted the analytic framework for the cross-case comparison.

b) *Grounds for Comparative Analysis*

The basis for comparing Jewelry Education by school-based and apprenticeship programmes stemmed from the fact that they are the only institutions that one can be trained to become jeweler in Ghana. The cases (School-Based and Apprenticeship) used are terminal points of education Ghana. Meaning anyone who goes through education (formal and informal) to that level is expected to enter into the world of work.

c) *Thesis for the Comparative Analysis*

Based on the findings of the unique features of School-Based and Apprenticeship programmes of Jewelry Education in Ghana, the researchers established the eight specific subject areas (themes) as the theses. They include:

- Background of Jewelry Teachers and Learners
- Jewelry Learners' Enrolment Processes
- Subject Matter and Duration for Jewelry training
- Methods of Teaching and Learning of Jewelry
- Challenges that Confront Effective Teaching and Learning of Jewelry

d) *Organizational Scheme for the Comparison*

Among the two basic schemes which researchers can organize a comparative analysis are a point-by-point and a text-by-text of which the research found the former more appropriate for the study. By point-by-point scheme, the researchers alternated the discussion of the themes. Here the various subject areas as stated under thesis for the comparative analysis were deliberated on, and the same aspects in the Apprenticeship programme was also discussed. The use of point-by-point as against text-by-text is that the former allowed for the same subject matter of the two (cases) in the same paragraph, one point at a time. However, the use of point-by-point scheme made the presentation of issues a bit back and forth.

e) *The Linkage between School-Based and Apprenticeship programmes of Jewelry Education in Ghana*

A study of this nature became imperative to draw a link between the cases (School-based and Apprenticeship programmes of Jewelry Education). Failure to do that on the part of the researchers would have posed the challenge of coming up with logical and systematic variables that will create the needed similarities and differences contained in the cases which were studied.

The linkage of the two cases is that people who graduate from School-Based and Apprenticeship programmes of jewelry education (training) enter into the same jewelry industry (job market) and practice their profession as Jewelers for a living.

IV. RESULTS

a) *School-Based Jewelry Programme in Ghana*

Characteristics of Jewelry Teachers and Learners

The study revealed that teaching staff of MPD section is 6, comprising 5 Males and 1 Female. Five (5) of them hold the position of lecturers and a Senior Lecturer. Their academic qualifications include one Ph.D (African Art and Culture), one MPhil (Art Education), two MFA (Jewelry and Metalsmithing) and two MA (Art Education). Also, the number of years they have been teaching spanned between 10 to 17 years for three lecturers, and the other three have also taught between 5 to 9 years. Meanwhile, 50% of them have practiced as Jewelers for more than 20 years while the other 50% have also practiced Jewelry for about ten years.

On the hand, the characteristics (Table 1) of students were made up of 78 undergraduates comprising 84.6% males and 15.4% females of which 2.8% are aged 16-18 years, 42.1% falling within the ages of 19-21, while the majority (57.8%) of were aged 22 years and above. Table 2 shows the class levels distribution of gender and ages of the respondents. People choose career paths based on certain instincts. On that score, the researchers enquired from the students what propelled them to study jewelry. The results as shown in Figure 1 revealed that 30.8% of the respondents decided to study Jewelry because of the careers that is associated with it. Another 30.8% said their decision to pursue Jewelry is based on the fact that the programme provides a good foundation for further education.

Besides these two reasons, there were those (14.1%) who said their previous examination grades prevented them from pursuing their preferred programme; hence, they had no option than to opt for the Jewelry programme. Furthermore, 12.9% argued that their former teachers encouraged them to enroll to pursue jewelry. Notwithstanding 2.5% and 3.8% claimed that it was their parents and friends that advised them to pursue, whereas 5.1% did not respond.

b) *Enrolment Process*

The responses by all the lecturers show that to enroll on Jewelry programme, the prospective students must first meet the admission requirements set by KNUST. For example, a minimum of grade C6 in six (3 Core and 3 Elective) subjects from the West African Senior Secondary Certificate Examination (WASCE). After admitting the person s/he has to pursue one-year Department of Industrial Art Foundation course and hi/her average mark in IAM Metal Product Design I and II courses should be above 67%.

c) *Teaching and Learning Processes*

Four out of the six lecturers stated that they start teaching jewelry by first introducing the students to the

theoretical background of the intended jewelry project and the various techniques and tools require for its execution. The students are then asked to read on the topic to gather other people's views and perception about the project so that it will not be only student's view or the lecturer that they rely on to do the work. One lecturer (L3) said "the processes of teaching and learning of jewelry is a three-stage which include Design, Modelling and Fabrication procedure which require approval from the lecturer after every stage of the processes."

Five of the lecturers indicated that students' do between 3 and 5 practical works (jewelry items) in a semester. Also, one lecturer said his students do one major jewelry project work every semester. Notwithstanding, the researchers noticed that availability or otherwise of tools, equipment, and materials determine the number of jewelry items that the students produce within the semester. The study also recognized that due to the expensive nature of some of the materials for jewelry practical, the lecturers sometimes become a bit flexible in demanding certain materials from students. For instance, L5 professed that in times where there is a scarcity of a particular material, he allows the students to use alternative.

On the same issue the majority of the students agreed with their lecturers' assertion that they undertake between 3 and five jewelry items in a semester as Figure 2 shows.

d) *Challenges Confronting Effective Learning of Jewelry by Students of MPD Section*

The researcher enquired from the respondents if they have resources like jewelry books and facilities for learning jewelry. The results of the study show that only 7.7% of the respondents own Jewelry Textbook, but 80.8% do not have any jewelry books while 11.5% were unable to give responses. One useful resource required by students to learn Jewelry is the ability to get regular access to materials. The result shows that the university is supposed to give materials to students for their practical works but this is not done presently as 57 out of 78 respondents confirmed the assertions by the lecturers that students buy their own materials for teaching and learning jewelry practical, while 2 of out 78 respondents said it is the department that provides materials for their activities. Meanwhile, 19 out of the 78 respondents could not indicate the source.

The next problem that was brought forth by the students was the improvement of facilities for teaching and learning. According to 70% of the respondents, authorities should endeavor to provide the school with the state-of-the-art tools and equipment as well as materials for their training. Another challenge the researchers identified were lack of Field Trip and Industrial Attachment. The study shows that 65 (83.3%)

said they had not gone on any attachment while only 9 (11.5%) indicated that they had had some attachment and 4 (5.2%) had no response. Comparatively, 89% stipulated that they have not embarked on a field trip before with 6% declining any response. 5% responded in the affirmative, whereas

e) *Apprenticeship in Jewelry Programme in Ghana*

The features (Table 2) of the people who were interviewed by the researcher are described as 4 Master Jewelers and 15 apprentice jewelers. All the interviewees were males. The ages of the Master Jewelers were 61, 42, 35 and 34 years respectively. Each of the MJs has his own jewelry business that is registered. All the 4 Master Jewelers have accumulated a wealth of experience as practicing Jewelers. Table 4.8 shows the other characteristics of the interviewed master jewelers. Two (2) which is 50% of the MJs' had their jewelry training through apprenticeship programme while the other two had theirs through School-Based. The experiences gathered so far by the respondents as practicing jeweler range from 5 years to 27 years.

Collectively, all of them have trained 47 Jewelers and are currently having 24 apprentice jewelers. The characteristics of the apprentice jeweler are made of 15 males with their ages ranged between 21 and 27 years. The educational background of 7 AJs representing 46.6% had completed Junior High School. Again 26.7% signifying had completed either Senior High School or Technical School. Meanwhile, 13.3% were tertiary graduates with 13.4% not formally educated. At the time of the study, the apprentices had spent between 6 months and five years in their training.

f) *Enrolment and Induction of apprentice in Jewelry Apprenticeship Programme*

The study revealed that the process of enrolling people in the Jewelry Apprenticeship programme is categorized into two forms. These were traditional and non-formal methods. The first category involves is made of a relative, either an uncle's son or auntie's son or any other member of the MJ's family is brought to him for training. According to 3 of the MJ that were interviewed, almost 80% of all the people who have enrolled as apprentice jewelers in the past and currently are people who in one way or the other have a relationship with their family. Citing an example, MJ3 said:

If you are a carpenter by the roadside nobody will come until somebody who knows your character brings his/her son to stay with you because he is coming to copy everything about you but anything short of that the parents will not bring their son to you for training.

However, the other Master Jeweler said he enroll people through a non-formal method where the gardian of the prospective trainee fills and submits Jewelry Apprenticeship application form and then go

through an interview before s/he is enrolled. It emerged from the study that the process of enrolment in jewelry apprentice programme through the traditional method is not complete until the induction of the prospective apprentice takes place. The some of the activities that take place on the day of the induction ceremony are payment of fees and signing the apprenticeship agreement by the two parties (the Master Jeweler on one side and the parents and the prospective apprentice). The payment schedule of the fees is such that whatever the apprentice pays on the day of induction, doubled is paid during his/ her graduation. The items that the MJ demands from the prospective apprentice jeweler includes: Two bottles each of Whiskey and Schnapps, a Crate of Beer, 2 Fowls (a cock and a hen), a packet of cigarettes, and a specified amount of money. The amount of money paid is usually determined based on the family relation an apprentice has with the Master Jeweler.

Once the master accepts the apprentice, he provides him with accommodation, clothing, food and even pocket money. But as soon as the trainees learn and s/he can produce sellable jewellery, the MJ uses the proceeds to defray the deferred apprenticeship fees. Such apprentices are made to stay with their master for some time after their training.

g) *Method of Teaching and Learning in Jewelry Apprenticeship Programme*

The outcome of the study as three of the Master Jewelers indicated that teaching in Jewelry Apprenticeship programme is not structured. In describing the teaching process in jewelry apprenticeship in Ghana, MJ1 said "it is a seamless way of learning, there is no syllabus, there is no break, nothing, there is nothing like holidays. Anytime the workshop is opened the person is there until the period".

Again, the study was revealed that actual teaching of an apprentice jeweler does not begin immediately after the initiation ceremony, instead, he/she is made to go to work for three months without being taught how to use the tools and equipment. This period is considered as a probation period, is used to assess the apprentice's capabilities and readiness for learning. According to all the Master Jewelers, during the probation period, the Apprentice jeweler is made to watch his master whenever he is working (for example, milling wires, melting, pickling, and many more). He is also sometimes sent on errands.

The results of the study as indicated by 12 of the AJ interviewed show that during their probation period their masters exposed them to safety, handling of tools, equipment, and cleaning of the workshop. They were then allocated a workbench and made to start working with silver. The first practical jewelry item that

the apprentice jewelers said they learned was chain making.

h) *The Subject Matter and Duration of Jewelry Apprenticeship Programme*

It was identified by the researchers from the responses of all the Master Jewelers that demands of the jewellery market determine the content (things that they teach and learn) of the jewelry apprenticeship is usually by the. For example, MJ2 said when he is commissioned to produce Curb-chain then that type of item is what the apprentice will be learn at that moment.

Three of the MJs said that an apprentice jeweler requires four years on-the-job training to become a qualified Bench Jeweler, while one MJ said those who come to him for training spend three years. It also emerged from the observation that the actual time spent by an apprentice jeweler to undergo training depends on the effort of the apprentice. According to one apprentice jeweler he was billed to undergo the training for 3 years, but as at the time the researchers conducting the interview, he had spent four years and still does not know when he was going to graduate from his training.

Concerning the hours that an apprentice jeweler spends at the shop each day, 11 of the apprentices said they report to work by 7:00 am and closes at 6:00 pm from Monday to Friday, except on Saturday that they close at 12:00 pm.

i) *Challenges that affect Jewelry Apprenticeship Programme*

The responses from the 4 MJs and the 15 AJs highlighted two challenges which in a way, affect the apprenticeship in Jewelry programme in Ghana. The foremost among them was the lack of Jewelry Policy and regulator. Expressing his dismay about unavailability of policy and regulator for the Jewelry sector MJ1 who has been practicing jewelry for more than two and half decades opined that "the Government of Ghana hasn't gotten any fine policy so far as the jewelry industry is concerned, which makes the industry not regulated as it exists in other vocations". He cited an example of dressmakers and beauticians' associations that regulate and supervise the activities of their members in their business operations and apprenticeship programme.

The second problem that arose from the study that was expressed by all the 4 MJs and 10 AJs is access to materials. All the Master Jewelers indicated that if the MJ is unable to have access or buy materials at a reasonable price, then giving some to the apprentices for learning become very difficult. Eight of the Apprentice Jewelers supported this assertion.

V. DISCUSSIONS

a) *Background of Jewelry Teachers and Learners*

The demographic feature of lecturers of jewelry programme suggests that their professional competencies as teachers and jewelers place them in a position that makes them capable of teaching students to become jewelers. Comparatively, the experiences that the Master Jewelers have gathered as practicing jewelers and trainers can also march up to that of lecturers when it comes to transfer skills of jewelry making to people. Because both lecturers and Master Jewelers are in the Establishment Stage of their careers in jewelry as Super, Savickas, and Super (1996) state. According to them when an individual practice in a field of his/her specialty from a period of 6 to 10 years, such a person is said to be in his/her Career Establishment Stage (CER).

The trainees of jewelry on the other hand also have some common characteristics. For instance, the estimated mean age of the student happened is 21.6 years which is in line with that of the Apprentice Jewelers which was found to be 21 years. Kanfer and Ackerman (2004) have it that the ages of trainees have effects on the factors that motivate them to pursue a programme that results in better learning outcomes. The findings of the study where the majority of the students and the apprentice indicated that they decided to study Jewelry because of the careers it brings, reflect Kanfer and Ackerman's opinion. The assertion of the students may be true to some extent.

As for the apprentice the career path is limited to jewelry while that of the students go beyond jewelry. This confirms an observation by Koni, Zainal, and Ibrahim (2012). To them, it is not always that students who enroll in university programmes have the penchant for acquiring a degree in their area of study. The views expressed by Koni et. all (2012), may account for many School-Based Jewelry graduates not practicing as jewelers after their training. It also supports the point made by Ramirez and Dizon (2014) that some students who enter Higher Education sometimes pursue programmes that is different from the kind of vocation they practice in the future.

b) *Jewelry Learners' Enrolment Processes*

Enrolment of students on the Jewelry programme in Ghana requires the prospective students to meet certain academic requirements and does not need to be a relation to the Lecturers. Conversely, the widely used process of enrolling into jewelry education through the apprenticeship programme referred to by the researchers as Only Relation Enrolment Method (OREM). The process used in enrolling apprentice jewelers replicates and supports a similar claim by Palmer's (2009) study. The researchers however, reject the claim by Kotoku (2009) that the jewelry trade is

sacred and therefore its operating system and information are not allowed to be shared with outsiders which is the basis for accepting only family members as apprentice jewelers. The researchers are of the view that the Master Jewelers deliberately do that to keep others away from the jewelry trade to keep the fortunes within the family.

c) *Subject Matter and Duration for Jewelry Training*

The school-based training has a well-structured system of what is to be taught and learned which is known as curriculum. Callahan (2000) was of the view that the heart of any educational activity is the curriculum and instruction that accompanies it. These two resources make it possible for instructors and learners foreknow what they are to do to become jewelers after school. The observation of the researchers reflects Mouzakitisa (2010), who states that curriculum in vocational programme (such as Jewelry) is the passageway that leads to the training of professional knowledge and skills that enable the drift from concept (theory) to hands-on. When the curriculum of the school-based jewelry education was examined, the researchers noticed that the jewelry curricula have the ability to generate all the six outcomes expected that exist in every vocational education programme; namely routine expertise, resourcefulness, functional literacy, craftsmanship, business-like attitudes and skills (Lucas & Claxton 2010). However, the contents of the courses are overloaded.

Distinctively, the results of the study reveal that the subject matter (content) of Jewelry Apprenticeship programme is not structured because it lacks clarity and defined methodologies. In other words, the process of teaching apprentice jewelers does not include curriculum that requires a conscious way of taking the apprentice to the classroom for him learn how to make jewelry. At best the Jewelry Apprenticeship programme can be described as a seamless way of teaching and learning of Jewelry where there is no syllabus and no timetable that guide it.

Meanwhile, the expected outcome for Jewelry education by apprenticeship is the same as that of vocational education except of functional literacy. Students have four years to complete jewelry education once s/he passes all his exams. On the other hand, the duration for training as a Jeweler through apprenticeship is between three and four years, but the actual time spent by apprentice jeweler to graduate depends on his effort and how quickly he learns.

Lack of specific structure for the content of the jewelry apprenticeship causes gaps within the flow of the training process. But if what the MJs teaches is organized well then, the apprentice will be made to progress in his learning by going through simple jewelry making techniques at the initial stages while s/he

undertakes more in-depth and broader aspects of the discipline as he advances in training.

d) *Methods of Teaching and Learning of Jewelry*

For a student to go through jewelry training to become a practicing jeweler, the person has to go through rigorous hands-on training throughout the person's entire period of training. As the study revealed, teaching and learning methods used by lecturers and students conformed to the tried and tested vocational pedagogy which blend hands-on or first-hand learning with in-depth reflection, teamwork, and feedback in a situation where teacher and the content of what he/she teaches has a strong affiliation. The lecturers adopt direct teaching methods which are particularly in helping students to acquire skills. This method of teaching has a well-structured approach that includes the teacher instigating direct interactions usually with the whole class but sometimes with an individual or a small group of students. Other methods that the lecturers use include Lecturing, Modeling, Demonstration, Mastery learning, Simulation and Coaching (Faraday, Overton & Cooper, 2011).

Students pursuing jewelry in school engaged in an active learning process, enquiry learning and exploration. Every jewelry item that the students learn has to go through three stages. The first among them is designing (concept development), the second is modeling and final is a fabrication. Students also use interactive experimentations, simulations and role play methods. Disharmonious to the School-Based Jewelry programme is the methods used by Master Jewelers to teach apprentice jewelers which largely depend on the skillfulness of the MJ and the efficiency of the facilities and techniques that he uses to transfer the skills. The finding clearly supports the study of Anokye and Afrane (2014) that state, apprenticeship training is an art that depends on the level of expertise of the MJ and the methodologies he/she uses to handover the knowledge and skills to the apprentice, which at the end establish the type of Craftsman he/she produces.

The learning process also involves a lot of repetition of the same job several times, a process known as Observational Learning. The learning processes in an apprenticeship in jewelry is likened to Bandura's (1977) Social Theory of learning where all the four components (attentional, retention, reproduction and motivation) are present. As the study shown, the apprentice jeweler begins his Jewelry learning by watching and paying attention to what the master does. His next step in the learning process is to make sure he retains the procedures and methods employed by his master. He then puts into practice by reproducing what he saw his master do. When he is able to make the item with little instruction from his master, he gets the opportunity to watch more activities that the MJ does

which motivates him to reproduce more of the jewelry made by the MJ.

Once more, the School-Based Jewelry has high lecturer to student ratio (average of 1:27), while that of Master Apprenticeship is low (1:5). In situation where there is a high trainer to trainee ratio it becomes difficult for trainers to monitor trainees' behavior as well as maintaining high learners' attention rate.

e) *Challenges that Confront Effective Teaching and Learning of Jewelry*

The finding of the study that indicates the lack of jewelry policy and regulators in the Jewelry Apprenticeship programmes is a contributing factor of some Master and Apprentice Jewelers exploiting the apprenticeship system. This finding confirms to a similar claim made by Palmer (2009), who states that lack of a regulatory framework for apprenticeship training in Ghana usually leads to the exploitation of the apprenticeship by Master Craftsmen and apprentices. In the same manner, Anokye and Afrane (2014) also opine that some MC deliberately refuse to teach the apprentices what they are supposed to know for them to become effective Master Craftsmen. However, the researchers disagree with Kotoku's (2009) claim that the lack of regulator in Jewelry Apprenticeship results in some apprentice stealing the gold of their masters to do their jobs to supplement their earnings. Because during the induction of the apprentice jeweler the curses that the master calls upon to befall the apprentice if he should steal from the master put fears in the apprentice to even dare. So, if any apprentice Jeweler takes pilfers from his master that may be the character of that person but not because the system does not have policy or regulator.

On the contrary, policy regulation is not an issue to the school-based programme as the findings shows. Unfortunately, school-based jewelry education also has its own constrains. Among them is getting materials and facilities for teaching and learning. The mode of organizing resources for students to undertake Jewelry practical replicates and lend further support to Opoku-Asare, Agbenatoo and deGraft-Johnson (2014) who state:

When it comes to materials for students to use in undertaking GKA practical levying the students and using the monies to purchase the required items every term. In this case, only students who pay are given the items they need for practical assignments for the term. (p.125)

The implication of students acquiring their materials for practical lessons translates into a low number of jewelry items that the students produce in a semester.

Industrial attachment and Field trips are valuable educational exercises that help to strengthen

the understanding of concepts that are taught and learned in school. However, the findings of the study that revealed the majority of the students (85% and 89%) have neither been on an attachment nor a field trip. This finding goes contrarily to what has been stated in their curriculum. According to the narrations, the MPD section organizes field trip/educational trips for students from which they present reports for assessments. Meanwhile, Hurwitz and Day (2001) are with the view that field trips for art students usually helps them to experience an original work of art of a high quality that could serve as a form of reference for understanding what the slides or prints they see in school represent. On the contrary, fieldtrips and attachments are not a requirement in Apprenticeship Jewelry Education in Ghana. The challenge with the Jewelry Apprenticeship programme is a policy that regulates the training.

VI. CONCLUSIONS

The study conducted a Comparative Analysis where the similarities and differences between the School-Based and Apprenticeship programmes of Jewelry Education in Ghana were established. Based on the findings obtained the researchers conclude that: The school-based jewelry education in Ghana has a structured system which makes teaching and learning sequential. Starting from enrolment, prospective students have to meet minimum requirement based on their results of West Africa Senior High Certificate Examination (WASSCE). This process gives the opportunity for everyone who meets the requirements without any restrictions to the prospective jewelry students. However, jewelry training through the apprenticeship programme does not have organized scheme for training apprentice jewelers instead what they learn is driven by contracts that the master jeweler receives, making training non-sequential. Also, enrolment is largely based on the family relationship that the prospective apprentice jeweler has with the Master Jeweler, which makes the enrolment process very restrictive.

The school-based system usually lacks relevant teaching and learning facilities and materials. This result in concentrating on theory instead of practical. But the apprentice jewelers do not have issues with facilities and material as the master them, making their entire training practical-based. There is high lecturer/student ratio (average of 1:27) in the school-based system, whereas those in the apprenticeship system have low trainer/trainee ratio (1:5). The performance of learners in the school-based system can be tracked because, it has well-structured criteria for assessment, which is not the case with Jewelry Apprenticeship. Apprentice jewelers spend less time working since they go on errands for the Master Jeweler, seniors and sometimes the wife of their master.

The comparative analysis of School-Based and Apprenticeship of programmes Jewelry Education in Ghana has brought up the good practices in their training system. The researchers recommend that models for jewelry education should be developed by in cooperating in each programme good practices each system of jewelry education. Further research in comparing and contrasting teachers and learners of other skills-oriented in Ghana so that those who learn vocation through school and those who learn same through apprenticeship can end up in the same industry which will boost employment and economic development of Ghana.

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Table 1: Characteristics of Students

Respondents (Students' Level)	Gender		Age (years)		
	Male	Female	16-18	19-21	Above 22
2 nd Year	22	8	2	11	17
3 rd Year	14	3	-	13	4
4 th Year	30	1	-	9	22
Total	66	12	2	33	43

Table 2: Background information of Master Jewelers

Respondents	Education Level	Age	Mode of Training	Years of Practicing Jewelry	Jewelers Trained	Apprentice
MJ1	BA Art	61	School-Based	27	36	8
MJ2	HND Jewelry	35	School-based	8	3	4
MJ3	JSS	34	Apprenticeship	13	6	5
MJ4	SSS	42	Apprenticeship	5	2	7

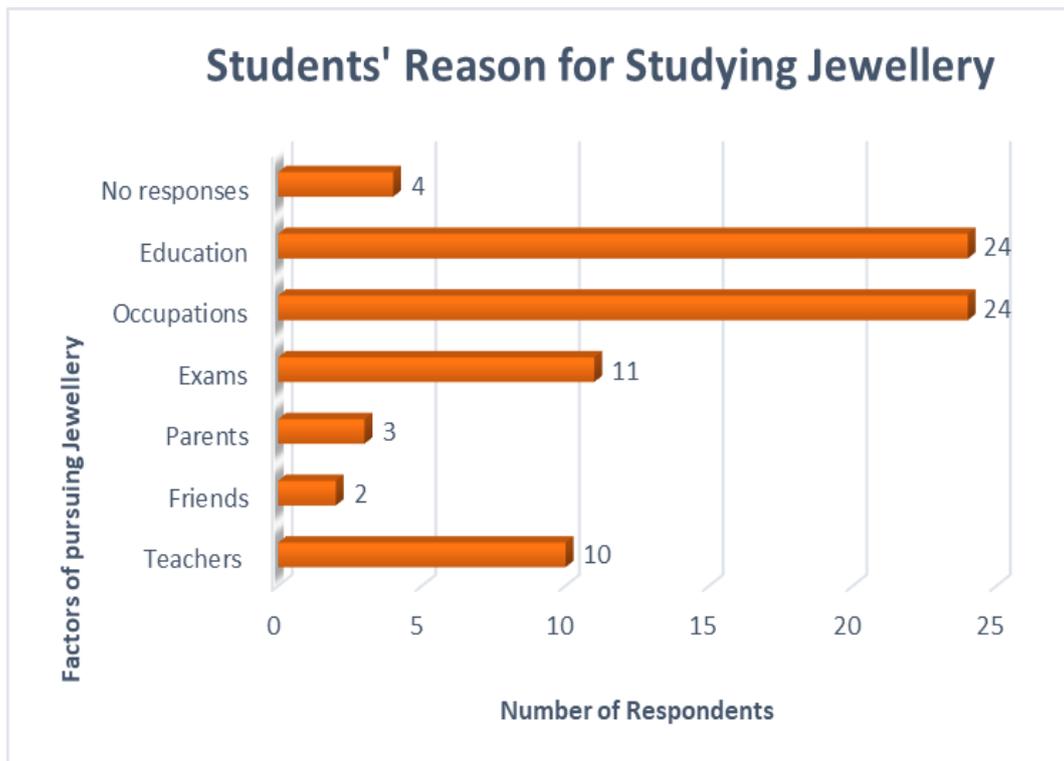


Figure 1: Factors that influence students' pursuit of Jewelry.

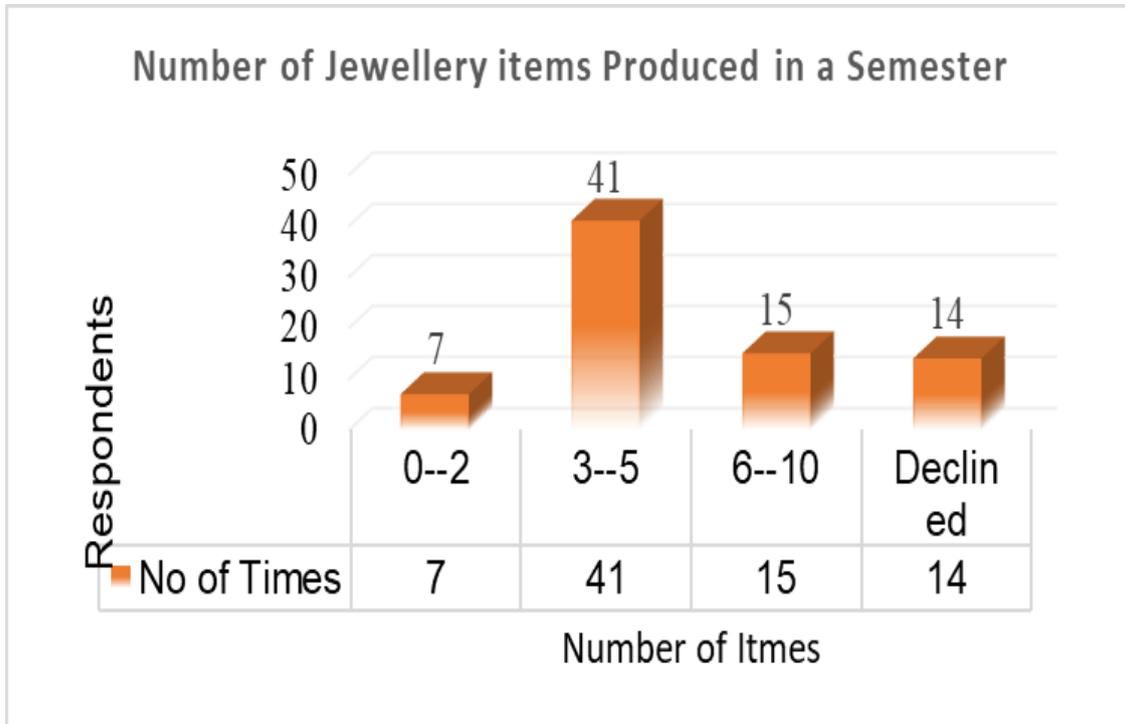


Figure 2: Student's view on number of practical they do at MPD section.