Comparative Study of Fashion Production Units in Ghanaian Polytechnics

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Abstract
Technological and vocational Education has emerged as one of the most capable Human Resource Improvement Strategies that African countries need to conform, in order to train and update their technical labour force for speedy industrialization and national development. The impact of Technical and Vocational Education and the way skills training and competences are learnt in developing countries can improve polytechnic education of which Fashion is one. The Ghanaian Polytechnics have mostly since their inception relied heavily on industries outside the school environment to give their students hands-on-training in industrial practices related to their various programmes. Students studying fashion design and textiles also face similar challenges. This study therefore focuses on comparative study of production units in Polytechnics that offer fashion design and textile courses by examining the need to compare production units in Polytechnics and the role production units play especially in fashion education. The study also seeks to identify best practices in the fashion industry that could be replicated in a production unit for effective fashion education in Ghanaian Polytechnics. The study seeks to compare equipments available in production units in fashion design and textile department in Accra, Ho, Kumasi and Takoradi Polytechnics. The simple random sampling technique was used to sample views from the respondents and as data collection instrument a structured questionnaire was administered to one hundred and forty seven respondents (147). Out of the one hundred and forty seven respondents, twenty eight (28) were interviewed. The interpretation of the data reveals that most Polytechnics offering fashion education have production units. From the responses it can be concluded that the machines in the institutions production units if maintained and used properly will improve polytechnic education and also bridge the gap between Polytechnics and industries. Since the institutions will produce competent and skilled graduates, garment manufacturing industries will have confidence in the polytechnic’s graduates and willingly employ them. Based on the study certain recommendations have been made.

Keywords: Clothing, fashion, garment, manufacturing, production management.

1. Introduction
The Polytechnics are technological institutions providing career-focused, skill based learning and so is projected to work with industry to produce skilled manpower based on existing and potential needs of industry (Obeng-Apori, 2005). However, the cost of setting up fashion production unit and equipping it to the standards of industry is a major problem most polytechnics face. To bridge this gap linking polytechnics and industries there is the need to have constant supply of resources to help maintain the various production units. Education and the need to achieve our goals as good designers from industries compel polytechnics to initiate measures to overcome this difficulty. This concept should help students in acquiring competences the industry really expects from them as professionals after they graduate. It should also augment the role of industry for student’s industrial attachment exposure similar to those practiced in the industries.

With the bachelor of technology in textiles, students are suppose to undertake industrial attachment and taught as a course requirement for graduation. Due to the limited number of existing fashion industries, not all students get placement for industrial exposure. Over the years industrial practices are undertaken only in industry and our institutions lack industrial set-ups to observe the practices. Because of this there is a wide gap between what exist in our institutions and what the industries expect.

This situation can be rectified by critically examining the need to set up production units in various polytechnics. The recent introduction of Competency-Based Teaching and Learning in Fashion education currently being piloted in Accra Polytechnic with the Fashion Design and Textiles Department makes the need for a fashion production unit even more imperative because the programme require that students are encouraged to be more practically oriented and acquire skills and competencies at their own pace. According to the Oxford Advanced Learners Dictionary production is the process of growing or making food, goods or materials especially in large quantities. The Webster’s Student Dictionary (1974) also stipulates that production is the process or the making of goods available for human wants to Carr and Latham (1998) production cannot take place unless the resources are available. These resources and are things like factories, building, machines, railways, farmland, rivers, climate, mines, shops and human skills among others. According to him, these resources are used to produce
goods and services to satisfy human wants, therefore the researchers are of the view that if the needed machines to work with are inadequate and lacking the production unit cannot function effectively. Specifically the study seeks to compare the various machines available in the production units in the various schools under study and how best the units can function according to the standards and specifications of industry.

2. Methodology
2.1 Research Design
The study is a comparative study of production units in four (4) Ghanaian polytechnics studying fashion design and textiles. The study aims at comparing the fashion production units under study, thus Accra, Ho, Kumasi and Takoradi. The study aims at comparing the types of machines in each of the units and the benefit students get from the unit. For the purpose of this study a survey research which is the most common type of descriptive research was used to ascertain this data. (Best 1981)

2.2 Research Setting
There are ten polytechnics in Ghana, out of the ten, five of the polytechnics have departments offering fashion design and textiles studies. The target population were four of the polytechnics namely Accra Polytechnic in the Greater Accra region, Kumasi Polytechnic in the Ashanti region, Ho Polytechnic in the Volta region and Takoradi Polytechnic in the western region. According to Ndagi (1997) the group to which the researcher intends to generalize his/her findings is referred to as the target population.

2.3 Population of the Study
The researchers focused on four of the Polytechnics for the study, these are the Department of Fashion Design and Textiles Studies in Accra, Kumasi, Ho, and Takoradi Polytechnics. A population is a group of potential participants to whom one wants to generalize the results of one’s study. (Neil 2003) Nkpa (1997) also asserts that a population consists of all elements in a well-defined collection of a set of values”. For instance all the lecturers in Accra polytechnic make up the population of lecturers in Accra polytechnic. For the purpose of this study the population of study constitutes lecturers, technicians and students in the department of fashion design and textiles studies.

2.4 Sampling and Sample Size
A simple random sample was used in selecting respondents. Random sampling is obtained when every individual in the population has equal chances of being selected, and the selection of one person does not interfere with the selection chances of any other person. This process is considered to be bias free because no factor is present that can affect selection. The random process leaves subject selection entirely to chance (Baumgartner et al, 2002) From the four (4) polytechnics under study, the researcher used fifty-two (52) respondents from Accra, thirty six (36) from Ho, thirty-five (35) from Takoradi and twenty-four (24) from Kumasi. All the respondents were from the fashion design and textiles studies department making the total sampling size one hundred and forty-seven (147).

2.5 Instrumentation for Data Collection
A data collection instrument is any paper and pencil test to measure or physical performance test used to collect information on the variable under study (William, 2001). Questionnaire and interview guide were used for data collection instruments to analyze and interpret data gathered. A total number of one hundred and nineteen (119) questionnaires were prepared and administered to the students while the remaining twenty eight (28) consisted of interview guide which was used to sample views from the lecturers and technicians.

2.6 Questionnaire and Interview Guide
a. Questionnaire
Baumgartner et al (2002) described a questionnaire as a printed list of questions given to respondents to answer. The researcher made use of both the closed and open ended type of questionnaire. For the closed type, respondents had to choose from the responses given by ticking appropriate answers, and for the open type respondents write short responses where necessary. One hundred and nineteen (119) questionnaires were prepared and administered to the students.

b. Interview Guide
Nkpa (1997) defines an interview as a face-to-face meeting between a researcher and a respondent and it could be structured or unstructured. All the respondents interviewed were lecturers and technicians from Accra, Kumasi, Ho and Takoradi Polytechnics, and the number of respondents interviewed was twenty-eight (28). Seven (7) from each polytechnic, out of the seven (7) were four (4) lecturers and three (3) technicians. The structured interview is one in which the interviewer asks the respondents an established set of questions. Each interview involves exactly the same questions asked the same way. This type of interview comes close to being the oral administration of questionnaires. Similar items used for the questionnaires were used for the interview guide. The interview guide was designed for the respondents because they have little time to spare.
2.7 Validation of the Instruments
The initial draft of the instrument was subjected to a critical scrutiny by the research team and some expects from the field of study. The essence of validating the instrument was to ensure that it would elicit the information it was designed for (Best 1981). The relevance of the items to the purpose of the study were checked, clearly stated and confirmed to be capable of eliciting for the right responses from the respondents. Based on the agreement, some of the items in the questionnaire were modified and others added.

2.8 Reliability of the Instruments
To determine the reliability of the instrument, they were tried and tested using few randomly picked students from the department of fashion design and textiles studies from the Accra Polytechnic.

2.9 Administration of Data Collection Instruments
The researchers handled every aspect of the administration of data collection. The researchers distributed the questionnaires for the students from the Accra, Kumasi, Ho and Takoradi polytechnics and conducted interviews for the lecturers and technicians from the four polytechnics. The questionnaires were filled by the respondents and collected on the same day that they were administered.

2.10 Procedures for Processing and Analyzing Data
Data was coded and entered into the computer, and Statistical Package for Social Sciences (SPSS) was used to analyze the data. Data was presented in tables.

2.11 Discussions and Analysis
The research under study is a comparative study of fashion production units in Ghanaian polytechnics. Included in the study are whether fashion production units exist and whether it is necessary in Ghanaian polytechnics and to compare the units.

Table 1 indicates findings on gender. It can clearly be seen that in the department of fashion design and textiles studies, out of the one hundred and forty-seven (147) respondents, one hundred and one (101) respondents who answered the items were females representing approximately 69% while the number of male respondents were forty six (46) representing 31%. The table above indicates that the number of female students outweigh the men. It can therefore be noted that the number of female students in fashion education are more than the men. This indicates that more females enroll in fashion education than males. The researcher also realized from the findings that females interested in designing clothes are more than men, it also implies that the number of female graduates in fashion education will always be more than the men.

Table 2 depicts the results of the findings on locations of the polytechnics and the number of respondents used. It can clearly be seen that in the fashion design and textiles studies department, the number of student respondents were one hundred and forty-seven. At Accra Polytechnic fifty-two (52) students representing 35% responded to the questionnaires. From Ho Polytechnic thirty-six students (36) representing 25% responded. From Takoradi Polytechnic, thirty-five (35) students representing approximately 24% responded and from Kumasi Polytechnic twenty-four (24) respondents representing 16% responded. The study findings indicates that even though other polytechnics study fashion design the researcher used Accra, Ho, Kumasi, and Takoradi.

The findings in table 3 indicate the existence of production units in the fashion departments in the Polytechnics. Out of the one hundred and forty-seven (147) respondents, one hundred and thirty-seven (137) representing 93% said that there was a production unit in their school whiles ten (10) representing 7% stated that there was no production unit. This implies that majority of the respondents indicated that production units existed in their institutions. From the researchers observation it was noted that all the four (4) institutions in the study have production units, it can therefore be concluded that the ten (10) respondents representing 7% who were of the fact that there was no production unit in their department were ignorant of what the researcher termed as a production unit. This is so because the researcher personally observed that all the institutions under study have production units.

In table 4, the respondents indicated the benefits derived from the schools production unit. Out of the total number of respondents numbering one hundred and forty-seven (147), seventy-five (75) of the respondents representing 51% indicated that the production units do enable them acquire competences. Sixty-eight (68) of the respondents representing 46% said that the production units help them to improve their sewing skills whiles four (4) of the respondents representing approximately 3% indicated that the production unit was good for idea sharing. It was observed that the benefits derived from the production unit include idea sharing, acquiring competences and improving skills of students, technicians and lecturers. This is so because in fashion design the more practice improves ones skills and competencies.

In table 5, respondents indicated why production units should be set up in polytechnics. Majority of the respondents numbering sixty-seven (67) representing approximately 46% indicated that the setting up of production units will bridge the gap between the Industries and the Polytechnics. Thirty-four (34) of the respondents representing 23% stated that the production units will generate income for the department. Twenty-eight (28) of the respondents representing 19% said that the setting up of production unit will improve fashion education while eighteen (18) of the respondents representing 12% said it will improve skills of students in the
department. From the research team’s point of view, production units will bridge the wide gap between the industries and the polytechnics especially those offering fashion education and this will help products from the institution get employment after graduating. It will also help students’ setup small scale industries to generate income and to also train and employ others who need to acquire skills in garment manufacture.

In table 6 respondents expressed their views on the role of production units play in fashion education. Sixty-five (65) of the respondents representing 44% stated that the production units will improve fashion skills. Forty-seven (47) of the respondents representing 32% said that production units will improve industrial practices while thirty (30) of the respondents representing 20% stated that in fashion education production units will improve competences. Five (5) of the respondents said they did not support any of the responses and they constitute 3% of the total respondents. The researcher viewpoint production units play an important role in fashion education; this is because the unit helps students improve the skills and competences and also progress industrial practices. It will improve student’s capability to endure the pressure in industry and aid them start their own businesses after graduating.

The findings in table 7 identified the types of machines available in the schools production units. Out of the one hundred and forty-seven (147) respondents who responded to the items eighty-nine (89) representing approximately 61% said their school had industrial sewing machines, out of the eighty-nine (89), twenty-seven(27) representing 18.4% were from Ho polytechnic, twenty-five (25) representing 18.4% were from Accra polytechnic, twenty (20) representing 13.6% stated they were from Kumasi polytechnic, while seventeen (17) representing 11.5% stated that they were from Takoradi polytechnic. Thirty-five (35) representing approximately 24% said they had domestic sewing machines. Out of the thirty-five (35), ten (10) representing 6.8% were from the Accra, Kumasi and Takoradi respectively while Ho polytechnic was represented with five (5) respondents representing 3.4%. Twenty-three (23) of the respondents representing approximately 16% who responded to the item stated that they had both the domestic and the industrial sewing machines in their schools production unit. Seven (7) representing 4.7% were from Accra polytechnic. Six (6) representing 4.1% were from Ho, while Kumasi and Takoradi had five (5) respondents respectively representing 3.4%. The research indicated that majority of the respondents stated that the production units had industrial sewing machines this indication is good because most industries have that kind of machine and this will make the student use to what pertains in an industrial setup.

In table 8 respondents were asked to specify the type of sewing machines used in the production units in their departments. Out of the number of respondents used in the study eighty-seven (87) representing 59% indicated that they had straight stitching sewing machine, thirty-nine (39) representing approximately 26% stated that they have over lock machine, seventeen (17) representing approximately 12% indicated that they have embroidery machine and four (4) representing approximately 3% indicated that they have straight cutting machine. From the researchers viewpoint in every production unit straight stitching sewing machine is equipment which plays an important role in production. Without the other machines production can still progress since the straight stitching sewing machine can be used to create stitches can perform neatening and other decorative functions. With the use of the straight cutting machine, a scissors can perform its function.

In table 9, a comparative study was conducted to compare the equipments available in the production units and their quantities in the four polytechnics (Ho, Accra, Kumasi, and Takoradi) in Ghana offering fashion design and textiles. With the straight stitch sewing machine, Ho polytechnic fashion unit had sixty-two (62) machines, Accra polytechnic fifty-nine (59), Takoradi fifty-one (51) while Kumasi had forty-six (48) which was the least. With the Over lock machine, Ho, Accra, and had two (2) whiles Takoradi one (1). In the case of Buttonhole machine all units had one each. With Pressing Irons Ho had six (6) followed by Accra and Takoradi with four (4) whiles Kumasi had three (3). In the case of Embroidery machine, Kumasi had (3) whiles Ho, Accra, and Takoradi had two (2) respectively. Accra had six (6) Straight Cutting machines followed by Ho with two (2) whiles Takoradi and Kumasi had one (1) respectively. From the researcher’s viewpoint straight stitching machine is very important in sewing. All the production unit had this type of machines, with Ho polytechnic having as many as sixty-two(62), Accra polytechnic having fifty-nine (59), Takoradi had forty-eight (48) Kumasi polytechnic having forty-eight (48) which was the least. This is good since it will speed up production in the various units.

3.0 Discussions

Demographic Data A

The researchers surveyed 147 respondents in the Fashion Design Departments of four Polytechnics namely: Accra Polytechnic, Kumasi Polytechnic, Ho Polytechnic and Takoradi Polytechnic. In the survey, majority of the respondents were from Accra 35.4% of the total respondents, 24.5% from Ho Polytechnic, 23.8% from Takoradi Polytechnic and 16.3% of the surveyed respondents from Kumasi Polytechnic which form the least of the respondents in the four selected Polytechnics. Also 69.4% of the respondents were students who pursued HND, followed by B.TECH 18.4%, while Advance Fashion and Part-Time courses took the least position 12.2%.
About 31.3% of the total respondents in terms of gender were males, while Females were majority 68.7%. About 68.7% of the total respondents were in the Fashion Department, compared to 31.3% in Textiles Department. Again, about 44.9% of the respondents were within the age group of 26-35 years, followed by the age group within 15-25 years 32.7% and the least of which were within the age group of 41-50 years 10.2%.

**Demographic Data B**

Out of the one hundred and forty-seven (147) surveyed, twenty-eight (28) respondents were Technicians and Lecturers in the Fashion Design and Textile Departments of the four Polytechnics in Ghana. In the survey, majority of the respondents were from Accra Polytechnic 35.7% of the total respondents, 32.1% of the total respondents were from Ho Polytechnic, 17.9% were Tutors from Takoradi Polytechnic and 14.3% of the surveyed respondents were Lecturers and Technicians from Kumasi Polytechnic which form the least of the respondents in the four selected Polytechnics in Ghana. Also 71.4% of the Lecturers and Technicians were females, compared to 28.6% being males. Again, the half of the Technicians and Lecturers that responded to the questionnaires were within the age group of 36-45 (50%), while the other half of the respondents had age groups of 26-35 years and 46-55 years were 25.0% each. About 85.7% of the respondents were in the department of Fashion and 14.3% of the respondents were in the department of Textile. About 46.4% of the total respondents formed the majority in terms of academic qualification, which were masters holders, compared to the lowest of 10.7%, being Higher National Diploma holders in the various fields as technicians.

**Factors Important to Compare the Production Units in the Polytechnics in Ghana**

The factors that influenced the respondents in the Polytechnics have showed that most of the lecturers had Masters degree as their highest education from all four(4) polytechnics under study. Again out of the total respondents, Masters degree holders were 46.7% indicated that the benefits that were derived from the production unit in a department is improving skills and competencies of both lecturers and students in the fashion and textiles programme.

The factors that influenced the respondents in the comparative analysis of the production units of the Polytechnics in Ghana showed that 61.9% of the respondents being females, formed the majority, compared to 38.1% males in the Textile Department. Again, in a similar context, 85.1% of the Female respondents were in the Fashion department formed the majority while 14.9% of the male respondents were in the Textile Department. This means majority of the total respondents were Fashion department 70.1%, compared to 29.9% of which were in the Textile Department. It also showed that efficiency of machine is a major challenge that faces most of the respondents. For the choice of machine in the production unit 61.7%, and this followed closely by the styles of machines in the production unit, with brand of machines being least influential factors within which a machine are used in the production unit. Also majority of the total respondents numbering one hundred and forty-three (143) representing 70.6% has showed that it is necessary to establish the production unit in the Polytechnics compared to four (4) of the respondents who were not in agreement that a fashion production unit should be established. About one hundred and thirty-two (132) of the total respondents stated that their department could not produce for export, of which Fashion formed the majority.

### 3.1 Summary of Major Findings

The thesis was a comparative study of garment production units in polytechnics in Ghana and also enquired whether production units exist in institutions in Ghana studying fashion. The overall impact of the study used four institutions studying fashion design and textiles, thus Accra, Ho, Kumasi and Takoradi polytechnics. One hundred and forty-seven (147) respondents were used for the study. These comprised of one hundred and nineteen (119) students from the four polytechnics and twenty-eight (28) lecturers and technicians. The study findings revealed that majority of the respondents were in favor of the existence of production units in their institution, since it will help improve skills and to acquire competences while in school. Most of the respondents were also of the view that with the existence of production units the gap between the polytechnics and the garment manufacturing and textile industries would be bridged. This goes to attest the fact that, if production units are maintained in the polytechnics it will go a long way to improve polytechnic education and also middle level manpower for the development of the country. This is because most of the graduates will be self employed and will also be ready to employ the youth to help reduce unemployment. The results indicated that with the straight stitching sewing machine, Ho Polytechnic fashion unit had sixty-two (62) machines, Accra Polytechnic fifty-nine (59), Takoradi fifty-one (51) while Kumasi had forty-eight (48) which was the least. With the Over lock machine, Ho, Accra, and Kumasi had two (2) whiles Takoradi one (1). In the case of Buttonhole machine all units had one each. With Pressing Iron, Ho had six (6) followed by Accra and Takoradi with four (4) whiles Kumasi had three (3). In the case of Embroidery machine, Kumasi had (3) whiles Ho, Accra, and Takoradi had two (2) respectively. Accra had six (6) Straight Cutting machines followed by Ho with two (2) whiles Takoradi and Kumasi had one (1) respectively. This indicates that the straight stitching machine is vital in garment manufacturing. The entire production unit had this type of machines, with Ho polytechnic having as many as sixty-two (62), Accra Polytechnic fifty-nine (59), Takoradi and Kumasi Polytechnic forty-eight (48) which was the least. This is good since it will speed up production in the various units.
3.2 Implications of the Study
The findings of the study have implications for lecturers, technicians in fashion education and students studying fashion design and textiles studies since competences and skills in industrial practice require that they go beyond cognitive acquisition for industrial competences and will involve demonstration of the ability to perform the skills in garment manufacture and production planning.

The study also has intention for the Ministry of Education and all Stakeholders. All polytechnics need facilities for effective skill acquisition; funds should therefore be sought for setting up industrial production units in all polytechnics for effective catering, furniture, fashion design and textiles education.

The findings of the study have implications for all polytechnics to set up production units for all practical oriented courses since the production units will bridge the gap between institutions and industries.

4.0 Conclusion
Moreover, the figures and vivid information have provided an overall summary of the impact of production units in fashion and textiles students offering polytechnic education. While the information specified here did not provide statistical accuracy in relationship to the sample of respondents. All of the information gathered has relevance to the subject herein which is how students, technicians and lecturers feel about the success and effectiveness of the production units, and the changes it has brought in their skills and competencies.

The study findings established challenges in fashion education in the Polytechnic with regards to industrial exposure and training students to maintain standards using industrial approaches and sustaining best industrial practices.

The study draws responses as to how to address these challenges reaffirming the importance of fashion production units in the Polytechnic. The study would be very useful in further research work in improving fashion education in the Ghanaian Polytechnic.

Recommendations
Production units should be setup in all departments in the polytechnics offering practical oriented programs, like fashion, textiles, catering and furniture.

Students should be educated on the need to be skillful and also the need to acquire competences in their area of specialization and how to use the industrial sewing machines, so that they get used to what pertains in industry.

Students should be made aware of the importance of specification and standards and be educated on how the different industrial machines operates and functions.

In the absence of such production units there is the need to organize field trips to industries so that students have a feel of what awaits them.

<table>
<thead>
<tr>
<th>Tab 1: Gender of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Total</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Tab 2: Locations of Polytechnics and number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location of polytechnics</strong></td>
</tr>
<tr>
<td>Takoradi</td>
</tr>
<tr>
<td>Accra</td>
</tr>
<tr>
<td>Ho</td>
</tr>
<tr>
<td>Kumasi</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tab 3: The Existence of Production Units in Polytechnics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responses</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Tab 7: Machines Available in the School Production Unit

<table>
<thead>
<tr>
<th>Machines available in the unit</th>
<th>Frequency(Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accra</td>
</tr>
<tr>
<td>Domestic sewing machine</td>
<td>10 (6.8)</td>
</tr>
<tr>
<td>Industrial sewing machine</td>
<td>25 (17)</td>
</tr>
<tr>
<td>Domestics &amp; industrial sewing machines</td>
<td>7 (4.7)</td>
</tr>
<tr>
<td>Total</td>
<td>42 (28.5)</td>
</tr>
</tbody>
</table>

Tab 8: Factors that Influence the Choice of Machines in the Production Unit

<table>
<thead>
<tr>
<th>Choice of Machines</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>efficiency of machine</td>
<td>105</td>
<td>71.4</td>
</tr>
<tr>
<td>style of machine</td>
<td>29</td>
<td>19.7</td>
</tr>
<tr>
<td>brand of machines</td>
<td>9</td>
<td>6.1</td>
</tr>
<tr>
<td>No idea</td>
<td>4</td>
<td>2.7</td>
</tr>
<tr>
<td>Total</td>
<td>147</td>
<td>100</td>
</tr>
</tbody>
</table>

Tab 9: Comparative Study of Machines in the Production Units

<table>
<thead>
<tr>
<th>TYPES OF MACHINES AND QUANTITY AVAILABLE</th>
<th>HO</th>
<th>ACCRA</th>
<th>KUMASI</th>
<th>TAKORADI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight stitch sewing machine</td>
<td>62</td>
<td>59</td>
<td>48</td>
<td>51</td>
</tr>
<tr>
<td>Over lock machine</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Buttonhole machine</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pressing irons</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Embroidery machine</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Straight Cutting machine</td>
<td>2</td>
<td>6</td>
<td>1</td>
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5.0 References
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