



Analysis of Learning Facilities and Employees Performance in Leather Industry of Bangladesh

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Abstract

Bangladesh, being a populous country, possesses substantial potential in the leather manufacturing sector. The availability of raw materials, such as the hides of dairy creatures like buffalo and cow, is abundant in the national market due to cultural preferences. Additionally, Bangladesh benefits from cost-effective labour further bolstering its advantage in leather production. However, a significant amount of rawhide is wasted annually, and the export demand for leather products and footwear tends to be decreasing due to unskilled finishing of the products. To ensure sustainable growth of this sector, there is a need to improve the skills of the workforce. Many researchers observed that education and training are crucial factors in enhancing employees' performance. Therefore, this study primarily focuses on the learning facilities in the leather producing units of Bangladesh and their potential impact on learning and employees' performance. For this study, primary data have been collected from 170 employees of various leather factories operating in Dhaka, Gazipur, and Rajshahi through a structured questionnaire using a multistage random sampling method. In analysing the data, this study employs content analysis technique focusing on the curricula of relevant educational institutions for assessing existing components, identifying gaps, and proposing areas for improvement. The study also performed a Chi-square test to examine whether there is significant association between the curriculum based education and the performance of the employees. The results indicate substantial lacks in the curricula for educational and learning facilities related to the leather industry in Bangladesh. The results of the Chi-square test indicate that education and training significantly enhance employees' performance. Consequently, it can be concluded

that policymakers should prioritize improving learning facilities to enhance this sector.

Keywords: Leather, Employees' Performance, Curricula, Chi-square, Bangladesh.

I. Introduction

Bangladesh stands as one of the South Asia's densely populated and emerging nations having experienced remarkable economic growth during the last two decades. As one of the fastest-growing economies, Bangladesh has maintained an average GDP growth rate of approximately 6 percent per annum during this period (Khondker et al., 2015). The country's global representation is prominently led by its Ready-Made Garments (RMG) sector, which stands as a key ambassador in international markets (EPB 2023). Though Ready-Made Garment (RMG) is dominant exporting sector of Bangladesh, the leather industry serves as a crucial contributor to exports, employment, economic expansion, and overall societal well-being of the people Bangladesh (Arbeid, 2017). Bangladeshi leather is renowned internationally for its exceptional quality. Bangladesh's geographical location, characterized by abundant water resources and a tropical climate, provides favorable conditions for livestock rearing (Rakib et al. 2020). This has resulted in a steady supply of high-quality raw materials, such as cowhide and goat skins, essential for the production of superior leather goods. Approximately 56% of the leather originates from cows, 30% from goats, and the remainder from buffalo in Bangladesh (Rakib et al. 2020). According to (ADB, 2018) Bangladesh's leather industry comprises 240 tanneries, 3,500 micro, small, and medium enterprises (MSMEs), 2,500 footwear manufacturing units, and 90 large firms, and this sector directly employs approximately 200,000 individuals, while an additional 850,000 people are indirectly associated with it.



Bangladesh is exporting leather as well as leather goods to 53 countries in the world. Main points of exportation end are Germany, France, Spain, Italy, Brazil, Russia, Japan, China, South Korea, Singapore, Netherlands, and Taiwan (Paul et al, 2013). Notable international brands like Nike, Puma, CK, H&M, Hugo Boss, Armani, Timberland, and others source leather from Bangladesh. Domestic consumption accounts for only 15%-18% of the total leather supplies with a significant 76% of tanneries focused on exports. The exported products include shoes, bags, wallets, belts, and finished leather (Bliss et al. 2017).

While the leather industry is a combination of three distinct sectors, the primary contributing segment is leather footwear, accounting for over 50% of the sector's international exports with a value of \$756.18 million (EPB, 2023). Recently, various challenges such as political instability, global market recession, and relocation of the factories from Hazaribag to Savar Tannery Park have exacerbated the overall situation of the leather industry compared to the past (Humayra et al., 2023). According to the Export Promotion Bureau (EPB) in 2023, the sector has experienced a negative overall growth of -1.73% compared to fiscal year 2021-22.

Many researchers have indicated that the progress of the leather industry is closely tied to the performance of its workforce, given the labour-intensive nature of the sector. Various factors influence the performance of workforce, with education being a significant one (Shohel et al. 2016), (Kaveri et al., 2013). In Bangladesh, there are two types of education facilities associated with the leather industry- formal and non-formal. Formal education involves graduating in subjects related to leather education, while non-formal education comprises training programs for various aspects of leather-related works (Paul et al. 2013). The Institute of Leather Engineering and Technology (ILET) at Dhaka University stands as the sole educational institution in the country focusing on human capital development and innovative knowledge in this field (H.L. Paul et al. 2013). Recently, the Department of Leather Engineering at Khulna University of Engineering and Technology (KUET) has also introduced an integrated degree program for the undergraduates. Moreover, there are also some training institutes like BTA, COEL, LFMEAB, SEIP under BTEB and TVET. These non-formal institutes offer some short and medium terms training programs for different levels of employees (Shohel et al., 2016).

Education is one of the key factors for the enhancement of performance of the human resource linked to leather industry. There are many types of education like formal, non-formal, informal etc. Moletsane et.al. (1977) stated formal education as a systematic educational approach of learning. Formal education is an education that is organized, institutionalized and structured form of learning in any institution in which explicit skills are developed by learners from educator and books. Kamuri (2021) proposed that boosting participants' competency in the industry involves training initiatives and the implementation of policies to enhance competitiveness. Again, Alam et al. (2008) emphasized that education is the process through which a society intentionally shares its knowledge, benefits, and values from one group to another. Non-formal education (NFE) can assist as an automobile to modernize the industry. Islam et al. (2007) concluded that Non-formal education (NFE) inspires participants to accept contemporary, efficient and effective methods of production in the leather industry. With the help of these knowledge and skills the specialized workers can rise their expertise and working capitals.

As many researchers identified that education is the key indicator of improving human resource development in leather industry, it is important to assess the formal and non-formal education facilities within the leather sector in Bangladesh. This study sheds some lights on this particular issue.

II. Methodology

This study employed both qualitative and quantitative research designs to examine the formal and non-formal education facilities in the leather industry of Bangladesh and assesses whether education has a significant impact on improving employees' performance. Data have been collected from both primary and secondary sources. Primary data have been collected from various locations, including the Savar Tannery Park, Dhaka, Gazipur, and Rajshahi, employing a multistage random sampling method from 170 employees engaged in the tannery, footwear, and leather goods industry. Secondary data has been collected from various sources like University of Dhaka, Khulna University of Engineering and Technology (KUET), and some other sources.

As this study tries to analyse the education facilities of leather industry so it used content analysis technique with the guideline of Nannes and Burnetts (2003) model towards investigating what the curriculum has, what it has not and what ought



to be there. Again, for understanding whether there has any significant impact of education on employees' performance this study formulated two hypotheses: H_1 = employees' performance and education type are independent, and H_2 = employees' performance and training are independent. To test these hypotheses this study used Chi-square test. The formula of Chi-square test is,

$$\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where,

χ^2 = Chi-square test statistic.

O_{ij} = Observed frequency in cell i and j of the contingency table.

E_{ij} = Expected frequency in cell i and j of the contingency table.

The Chi-square test statistic follows a Chi-square distribution with degrees of freedom equal to $(r-1) \times (c-1)$, where r is the number of rows and c is the number of columns in the contingency table.

III. Result Discussion

3.1 Formal Education in Leather Sector

Institute of Leather Engineering and Technology (ILET), Dhaka University is a combination of three departments- Leather Engineering, Footwear Engineering and Leather Goods Engineering. Department of Leather Engineering under Khulna University of Engineering Technology (KUET) offers an integrated course. Similarities and dissimilarities within three departments of ILET as well as between KUET and DU related to leather curriculum have been discussed in this section. According to Ninnes and Burnetts (2003) model, we analyzed what the curriculum has, what it lacks and what should be included. All departments in the Institute of Leather Engineering and Technology offers total eight semesters with each semester's duration of six calendar months.

It is seen that in the first year there are thirteen courses. Eight theory courses and five practical courses i.e., 38% practical classes in this year. In the second year, theory as well as practical courses are same as first year. In the third-year, theory courses are same as first and second year with six courses of practical which is 43% of theory courses and finally, in the fourth year theory and practical courses are equal. There are 50% theory and rest 50% are practical courses. In the advance stage practical courses are more than the earlier years. ILET have organized labs for the

practical of necessary courses and also as per the demand.

3.2 Similar and Dissimilar Courses of (LE, FE, and LPE)

In actual fact, these courses are very fundamental for the leather engineering, footwear engineering, and leather goods engineering departments. But in the advanced level like third year and final year of graduation, the institute offers some special courses as per the nature of the departments. In the third year, dyeing and finishing and microbiology and biotechnology in leather course have to be studied by the students of the department of Leather Engineering. On the other hand, leather technology along with its practical course as well as computer aided design and pattern making courses are offered for the students of footwear engineering and leather products engineering departments. In the fourth year, Design and Pattern Making along with its practical is important course in the leather engineering and leather product engineering but in the footwear department footwear design and pattern making course is important. Besides, Environmental Science and pollution control courses are offered for the student of leather engineering and leather products engineering whereas footwear departments students have to study Polymer Science and Engineering. Leather-Products Technology course is for the department of LE and LPE, on the other hand, leather technology along with its practical is important for footwear department. But Production Planning and quality control as well as entrepreneurship and business development course are compulsory for all the department and finally project work, industrial training is obligatory for all students.

Like ILET of Dhaka University, LE, KUET also offers four-years graduation program consisting of eight semesters. In the initial stage, students have to study inorganic chemistry, basic electrical engineering with its sessional. Economics, sociology, mathematics and leather manufacturing technology, engineering drawing, computer fundamentals and programming with all courses sessional. Besides these, organic chemistry, English skills practice and computer programming are also discussed in this year. In this year, theoretical and sessional courses are almost same i.e. 48% sessional and 52% theoretical courses.



3.3 Similarities and Dissimilarities between ILET, DU and LE, KUET

Institute of Leather Engineering and Technology of Dhaka University and Leather Engineering department of Khulna University of Engineering Technology are dedicated to create skilled human resources in the area of leather sector. ILET consist of three departments and each department have the capacity of sixty students' enrollment per year. On the other hand, LE of KUET enroll only 40 students per year. Theoretical courses and practical or sessional courses are more or less the same. But KUET offers some engineering subjects like EEE, basic mechanical engineering, etc. Hence, KUET is a specialized university of science and technology and have only one department of leather sector it wants to offer an integrated course. Another new dimension of KUET is the course on accounting and industrial law which is common in the ILET of DU as well.

3.4 Gaps in the Formal Education on Leather

It is observed in the above two universities curriculums, there are some gaps compared to our nearest country India. India is one of the leading leather manufacturer countries and their education system is more sophisticated than ours. Exotic leather manufacturing methods, thermodynamics and plant layout and project formulation of tannery is absent in our syllabi of undergraduates. Again, safety and occupational health hazard of leather industry, industrial psychology and organizational behavior related courses are also absent. Now-a-days, fashion designing is very important for innovation of new fashionable products in the world market. Though computer aided designing course is available but a pure fashion design course ought to be introduced to meet up the world demand. Finally, advanced bio-technology and principles of leather finishing course should be initiated in our undergraduate curricula.

3.5 Non-Formal Education (NFE) in Leather Sector

Non-formal education can inspire to accept modern, effective and efficient methods of production. Basic as well as upright literacy and simple technical sketch are conceivable by NFE curricula for the worker of leather sector. With the help of these knowledge and skills human resources can develop their occupied capital can expand business (Tahir, Gidado, 1988). There are

four types of trainings prevailing at present for the Leather and Footwear sector workers. Training refers to organizational skill development program for a certain time and for a certain group of people.

In our country, some technical trainings are provided for various entry level workers of leather sector. The organization's Skills for Employment Investment Program (SEIP) supported by the ministry of finance usually arranges and provides this type of training for two months. These trainings contain cutting, settings, sewing, lasting, assembling and operations for entry level workers. Besides these, training for sewing and lasting is providing for advance level operators. By using Computer Aided Design (CAD) and Computer Aided Maintenance (CAM) for leather goods, footwear design, development and maintenance training of sewing machine is also provided by the organizations.

Another service provider of training in the leather sector is Centre of Excellence for Leather Skill Bangladesh Ltd (COEL). This organization provides different types of trainings. Industry led Apprenticeship program, NTVQF Machine Operations (Footwear) Level 1, another service provider of training in the leather sector provides Soft Skills Training, Design and Pattern Making, Compliance Audit and Consultancy etc.

East-West University, the only private University in Bangladesh is providing under SEIP project for graduate Diploma of Footwear Management and Leather. This program is for new graduates or executives who are doing in the field of leather and footwear sector. Some management techniques and other facilities by expert of this sector provides these sorts of training.

Bangladesh Tanners Association (BTA) is a service provider for the leather processing worker. Leather Sector Business Promotion Council (BSBPC) with the help of the ministry of commerce organize the training on "Proper rawhide collection, uses and its marketing". This type of training is for rawhide collector, and early processing workers. Another step of this organization is "Forward and Backward Linkage" and "Good Manufacturing Practice" for shoe making workers. Ministry of Social Welfare also arrange a training for the marginalized human resource of shoe making or Cobblers on the basics of their work and by this training gives some amount of money so that they can change their wellbeing.



IV. Results of Chi- Square Test

4.1 Association between Education Type and Employees' Performance

Employees in the leather industry pursued two types of educational paths, formal and non-formal education. Formal education refers to individuals who have graduated from disciplines related to the leather industry, such as leather engineering or footwear engineering. On the other hand, non-formal education includes those who have not been graduated from subjects specifically related to the leather industry, encompassing

individuals with general education backgrounds. In this section, this study wanted to see whether there is any significant association between educational type and employee performance. To do this a Chi-square test has been conducted where the null hypothesis (H_0) assumes no significant association between educational type and employee's performance. The result of this Chi-Square test is given below:

Table 1: Association between Employees' Performance and Education Type

	Formal Education	Non-Formal Education	Total	Result
High Performance	33	76	109	$\chi^2_{0.05,1} = 3.84$
Low Performance	32	29	61	$\chi^2_{cal} = 8.16$
Total	65	105	170	

Source: Field Survey, 2023

In the above chi-square test, the objective was to assess the presence of a significant association between employees' performance and education type. With 1 degree of freedom and a 5 percent significance level, the critical value obtained from the chi-square table is 3.84. However, the calculated chi-square value in this investigation is approximately 8.16. By comparing the calculated value with the critical value, it is evident that 8.16 significantly exceeds 3.84. This substantial

difference leads to the rejection of the null hypothesis, which confirm that there is a significant association between education type and employee's performance. Consequently, the study indicates that individuals who were graduated from leather industry-related disciplines exhibit better performance compared to those who have pursued non-formal education.

4.2 Association between Training and Employees' Performance

The study assumes that training plays a crucial role in enhancing employee performance. However, it was observed that a considerable number of respondents did not receive any training in the

leather industry. To empirically explore whether there is a significant relationship between training and employee performance, a Chi-Square test was conducted. The null hypothesis (H_0) posits that there is no significant association between training and employee performance. The test results are presented below:

Table 2: Association between Employees' Performance and Training

	Trained	Non- Trained	Total	Result
High Performance	87	45	132	$\chi^2_{0.05,1} = 3.84$
Low Performance	13	25	38	$\chi^2_{cal} = 12.23$
Total	100	70	170	

Source: Field Survey, 2023



In the above chi-square test, the aim was to evaluate whether there exists a noteworthy association between employee performance and training. With 1 degree of freedom and a 5 percent significance level, the critical value derived from the chi-square table is 3.84. However, the calculated chi-square value in this study approximates 12.23. Upon comparison of the calculated value with the critical value, it is evident

V. Conclusion

Bangladesh is a developing country full of hope and expectation. Leather is one of the most important export-oriented products in Bangladesh. In recent times there has been a downfall in this sector due to various reasons. One of the most important reasons is the unskilled labour force. It found that the skills of labourers can be enhanced through proper education and training. Therefore, this study mainly focuses on learning facilities related to the leather industry. This study mainly uses content analysis techniques for understanding the learning facilities and it also uses the chi-square test to understand whether education and training have any significant impact on enhancing their performance. According to the result, it is found that there is a lack of training and education facilities though these have a significant impact on enhancing their performance. Therefore, to improve this sector government and policymakers should focus on quality education and training for the employee.

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