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# EFFECT OF TRAINING PROGRAMS ON TRAINEES' LEARNING



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### ABSTRACT

*Employees' learning is the primary driver of organizational sustainability. To achieve sustainability, organizations are required to invest in training for their employees' continuous learning. Evaluation of training programs is the heart of continuous improvement in employees' learning. This study investigates the effect of training programs on employees' learning, focusing on knowledge-based outcomes (KBO), skill-based outcomes (SBO), and affective outcomes (AO). Drawing upon Human Capital Theory (HCT) and the second level of the Kirkpatrick's training evaluation model, a pre-experimental research design and quantitative method were employed. Stratified random sampling technique is used to select a sample of 381 employees from eight Private Commercial Banks (PCBs) of four bank generations in Bangladesh who participated in pre-test and post-test assessments. Statistical techniques including comparison chart, normality tests (Shapiro-Wilk W Test and Skewness and Kurtosis Test), and paired t-test were utilized to analyze the data. Findings indicate significant improvements in KBO, SBO, and AO following training interventions, supported by statistical test conducted using MS Excel v.13. Later, findings from executing STATA v.12 also underscore the effect of training programs on upgrading employees' learning in the PCBs. Limitation includes the absence of a control group that hinders the influence of potential external factors on learning outcomes, which is a new avenue for future research.*

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## INTRODUCTION

The effective utilization of human capital becomes paramount for organizations to maintain a competitive edge and achieve sustainable growth. Recognizing the significance of knowledgeable and skilled employees, firms invest substantially in training programs aimed at enhancing the capabilities of their workforce (Blundell et al., 1999). Furthermore, the rapid pace of environmental change necessitates continuous learning and adaptation among employees to remain relevant and responsive to emerging challenges and opportunities (Hall & Moss, 1998). So, the importance of employees' learning emerges as the cornerstone of organizational development (Austin & Bartunek, 2003). The ability of organizations to nurture a learning culture not only enhances individual performance but also lays the foundation for business growth and innovation. Furthermore, the institutionalization of culture and system focused on development strengthens the link between employee learning and company's success (Gebhardt et al., 2006; Gephart et al., 1996).

Hence, training programs are integral components of organizational development strategies, serving as vehicles for knowledge transfer, skill enhancement, and performance improvement (Riege, 2005). In today's knowledge-based economy, service sector faces constant pressure to adapt to digital transformation, risk management, and quality management practices. As such, the ability of employees to acquire new competencies and skills through training programs is critical for organizational agility and competitiveness (Karman, 2019). Research has consistently shown that organizations with a strong learning culture outperform their competitors, demonstrating higher levels of innovation, productivity, and employee engagement (Ghasemzadeh et al., 2019). Updated and skilled employees are empowered to explore new ideas, challenge conventional thinking, and drive positive change (Alvesson & Sveningsson, 2015). Without measuring learning outcomes,

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it becomes difficult to ascertain whether training programs effectively boost employees' knowledge, skills, and abilities (KSA). Thus, the objective of this study is to evaluate the impact of training programs on updating employees' learning.

The study addresses a practical need by evaluating the effectiveness of training programs in improving learning outcomes. Learning outcomes describe what learners are expected to understand and exhibit at the end of their learning experience (McKimm & Swanwick, 2009). Thus, learning outcomes of training are considered the new style of qualification. Though trainees' expectations regarding the KSA they will acquire may be unrealistic due to high reality shock. The business firms are therefore provide better support to their employees' career advancement.

This research comprises six sections, including introduction. Moving forward, the literature review section synthesizes relevant theory and existing studies. After that, the materials and methods section details the research approach. Then, the results section presents key findings, followed by discussions section that interpret the study outcomes. Finally, the conclusions section summarizes the main findings, discusses their implications, and suggests avenues for future study.

## LITERATURE REVIEW

Learning as the second evaluation level of Kirkpatrick's model refers to the extent to which trainees acquire and enhance their Knowledge, skills, and abilities as a direct result of participating in a training program. The learning evaluation indicates how much the trainees improved their KSA. That means, assessing at this level can only ensure that the knowledge, skills, and abilities have been learned to perform at workplace (Gomez, 2003). At this level, evaluation is directed to differentiate between what trainees knew before training and what they learned after completing training. This level confirms that participants have not only attended the training but have also internalized the knowledge and skills they have gained. This internalization is essential for translating training into practical action and ultimately achieving the training program's objectives.

Human Capital Theory (HCT) is an economic and sociological theory that views education and training as investments in individuals, enhancing their KSA. This, in turn, enhances their productivity, potential earnings, and organizational success. Since Becker's path-breaking "human capital revolution" in 1962 (Bowman, 1966), HCT has changed the landscape of research in social science discipline (Sun & Wang, 2014). Human capital, widely used after Gary Becker won the Nobel prize, initiated "human capital theory". HCT stated that a different level of education and training contributes to a different level of wages and salaries, the more knowledge, skill, and ability, the more likely to get a better job (Becker, 1964). Human capital is defined as a set of knowledge, skills, and abilities that reside in the individual and that are used by him/her (Schultz, 1961). Trainees' learning consists of KSA improvement, as evaluated in the second level of the Kirkpatrick Model, can indeed be closely related to the HCT. The value of human capital theory is widely accepted in order to increase organizational performance, so an organization relies on employees' KSA as a key concept of value creation (Wuttaphan, 2017). Therefore, HCT provides a solid foundation for understanding how training contributes to trainees' learning outcomes in terms of knowledge, skills, and affective attributes.

In the second level of Kirkpatrick's training evaluation model, the effect of the training program was evaluated on participants' learning using pre-test and post-test (Heydari et al., 2019). Another study proved a significant improvement in relevant basic knowledge and cognitive skills by comparing the mean scores of pre and post MCQs tests (Abdulghani et al., 2014). For the quality evaluation of blended learning, pre-tests were taken and post-test together with scale surveys and questionnaires, as well the learning evaluation in this way has given an optimistic perspective (Misut et al., 2013). Overall, knowledge and skill acquisitions are affirmed between the pre-test and the post-test of training. Training is the strategy for helping the bank employees develop their personal and organizational knowledge, skills, and abilities (Roy & Pall, 2020).

Moreover, training studies aimed at improving all three kinds of knowledge (strategic, content or factual, and metacognitive). But in actual fact, it is easier to measure change in some domains than in others, as this study undertakes empirical investigation (Brown et al., 1981). A past study illustrated that participants learn concepts taught in the training sessions but are also prone to guessing more in the post-test assessment as compared to the pre-test assessment (Samuel et al., 2019). A method using pre- and post-course evaluations has been made into a simple and effective tool for gathering data and assessing learning outcomes (Sumner & Capano, 2010). Thus, the following null and alternative hypotheses were taken based on the above reviews.

**H<sub>01</sub>:** There is no significant difference between the pre and post training assessment at employees' learning level.

**H<sub>A1</sub>:** There is significant difference between the pre and post training assessment at employees' learning level.

## MATERIALS AND METHODS

### Study Design

This study follows a pre-experimental research design as well as employs a quantitative research method. The utilization of quantitative research provides a structured framework for systematic data collection and analysis. Additionally, the quantitative study method allowed for the application of statistical techniques to draw reliable conclusions.

### Sample Size

A study population refers to a specific set of individuals or entities sharing common characteristics (Sekaran & Bougie, 2014). A stratified random sampling (stage-1) technique was used to select the sampling frame from the population of this study. The sampling frame consisted of employees engaged in general banking functions of eight private commercial banks (PCBs) representing four generations of banks in Bangladesh. To determine the sample size, the formula for a finite population was employed to select the size of sample of 381 (Kothari, 2004).

**Measures**

Learning evaluation involves a two-step process, including a pre-test conducted one week before training and a post-test administered one week after completion (Warr et al., 1999). Three sub-dimensions like five items measure Knowledge-based Outcomes (KBO), five items evaluate Skill-based Outcomes (SBO), and three items assess Affective Outcomes (AO) are included in both pre and post survey. All 13 items in these three sub-dimensions have been founded on a study undertaken by Kraiger et al. (1993). The five-point Likert scale is used in this survey.

**Data Collection**

This study used again a stratified random sampling (stage-2) technique for the primary data collection from the selected sample. In addition, geographical diversity was incorporated in the sampling strategy. Data were collected through two questionnaire surveys conducted: one week before and one week after completing the training programs in four major cities in Bangladesh – Dhaka, Chattogram, Rajshahi, and Khulna. This geographical representation adds an extra layer of richness to the data.

**Data Analysis**

The analytical framework included the computation of descriptive statistics, such as mean scores for comparison charts of three sub-dimensions of learning outcomes, using MS Excel v.13. To fortify the validity of parametric test, normality checks, including the Shapiro-Wilk W Test and Skewness and Kurtosis Test, were conducted. Then, a paired t-test was employed to examine the statistical significance of pre-post differences in learning outcomes. STATA v. 12 was performed for both the normality tests and paired t-test. Finally, the findings are presented in tabular format.

**Ethical Considerations**

Participants received detailed information about the research, covering its title, purpose, and procedures, before providing consent. Confidentiality is maintained by keeping participants' names and positions undisclosed. The researcher prioritizes respondents' autonomy, allowing them to withdraw their opinions at any stage of the survey. Rigorous checks are in place for missing or incorrectly entered data after collection. Reporting of findings is conducted with utmost objectivity, ensuring the research maintains a high standard of ethical integrity.

**RESULTS**

**Item Wise Comparison**

Learning of trainees is measured in three ways such as knowledge based outcomes (KBO), skill based outcomes (SBO), and affective outcomes (AO).

Based on figure 1, the trainees’ perceptions of knowledge are assessed, taking into consideration the scores before and after the training program. The survey conducted that illustrates the required basic knowledge (KBO-1) has been increased (BT= around 2.7 and AT= around 3.6) to perform the task. The average score of slightly above 2.3 (BT) to just above 3.5 (AT) specified that trainees gathered more knowledge than before training in order to identify and solve problems (KBO-2) at daily jobs. As regards trainees exposed, the ways they incorporated new information into existing knowledge (KBO-3) are greater when intervention takes place (from mean score of around 2.2 to a slight above 3.5).

The trainees assert that they can judge more accurately (mean value increased from BT scores to AT scores by 1) with intervention to identify the difficulty of problems and identify the necessary steps to work them out (KBO-4). The overall mean scores of difference between before and after intervention are less than one and a half (approximate change value is 1.3), which makes sure they are more competent to sort out their own mistakes in accomplishing the assignment or tasks (KBO-5) after receiving training intervention.

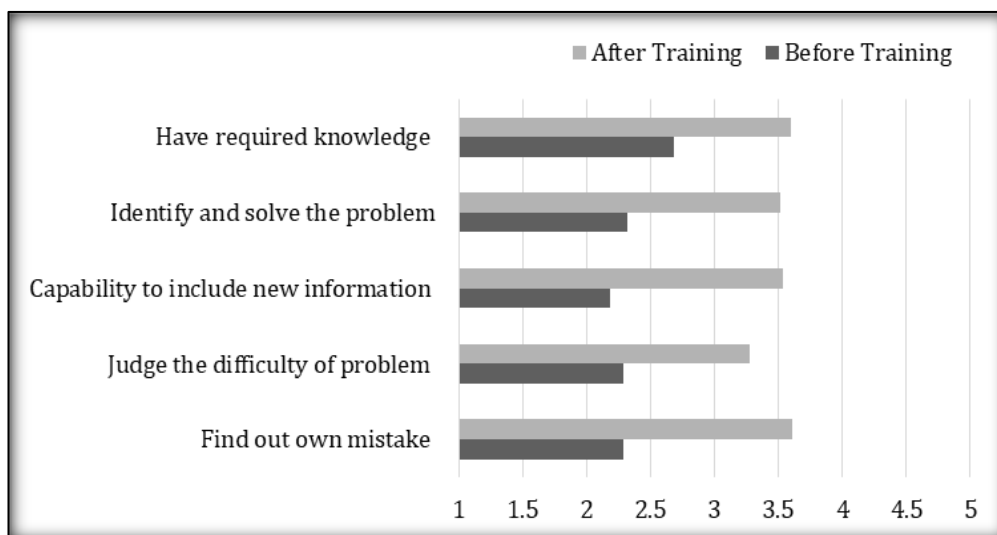


Figure 1. Trainees’ KBO before and after the training  
Source: Comparison outputs of MS Excel based on field survey, 2022

Similarly, the opinions of trainees' concerning skill improvement taken from the former view and post view of training have been presented in figure 2. The chart reported that, where the average score before training was 2.3 that has increased to 3.9 due to training, which means trainees do the current job with less error, faster, and flexibly (SBO-1) than the past. Comparing the skills application between two time streams, trainees are better able to apply the skills to new task settings (SBO-2) in the organization (the average value has risen from 2.2 to 3.7, approximately).

The views of trainees are different (the next average is bigger than the previous average) when the intervention is given so that they can successfully change the skills depending on the situation (SBO-3). The status of finishing the task without regular monitoring further affirms the notable comparative mean score (about 2.3-3.8 estimated) between the earlier and later part of intervention (SBO-4). Certainly, the comparison between the intervention and non-intervention cases clearly portrayed that trainees are more proficient at performing situational pressure or additional work with accuracy (SBO-5), but the improvement, as opposed to the other four, is lower in the skill-based outcomes phase.

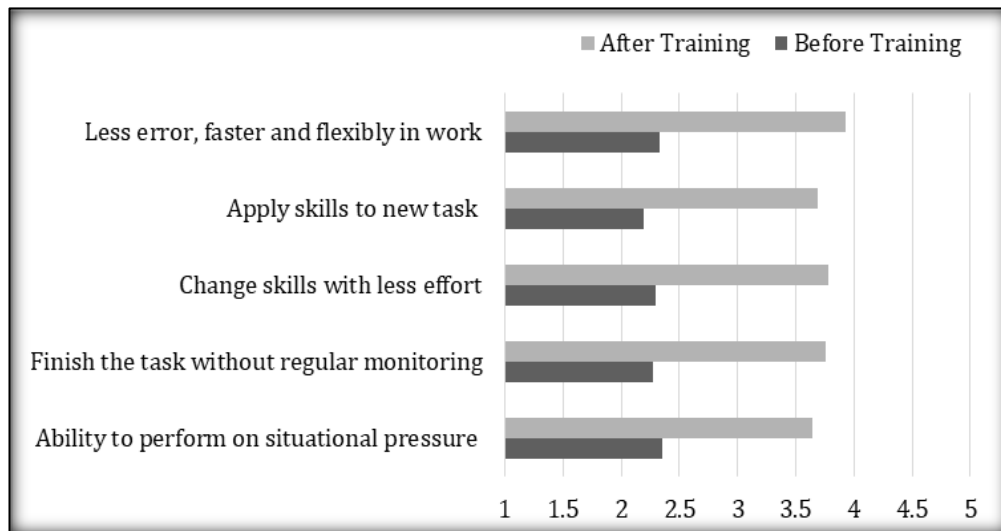


Figure 2. Trainees' SBO before and after the training  
Source: Comparison outputs of MS Excel based on field survey, 2022

Finally, three aspects of affective outcomes of learning are unveiled in figure 3. Looking at these aspects, employees change their minds rarely on a particular issue (AO-1) afterward the training. Because they have learned to respond in the way that controls their mood. A change in one part may create a change in other parts of the attitude. As follows, high mean value rationalizes that the opinions of employees are right when they discuss a specific issue with their colleagues (AO-2) whereas the mean value is lower in same state of affairs with no training intervention. According to the survey, it is ascertained that many issues come up when the trainees discuss a particular issue in question (AO-3). Because the mean score has advanced from almost 2.1 to 3.5 between pre- and post-training.

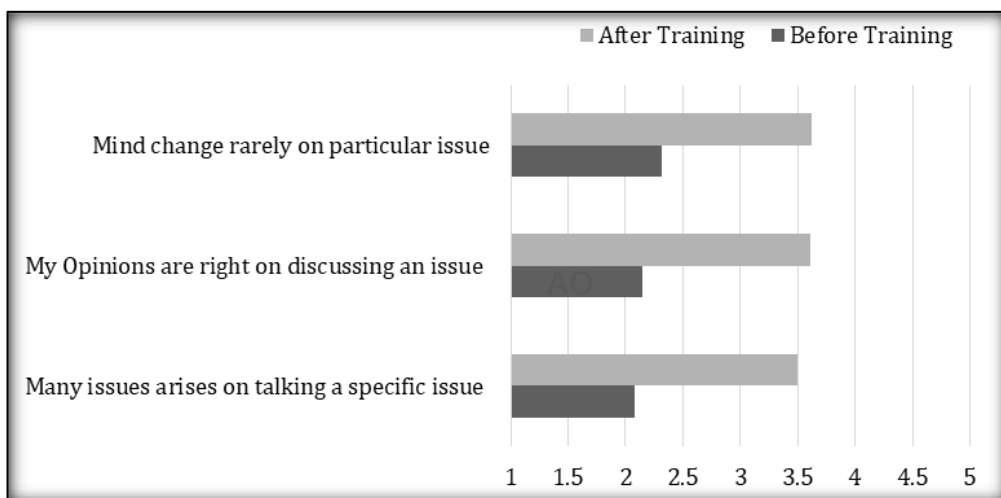


Figure 3. Trainees' AO before and after the training  
Source: Comparison outputs of MS Excel based on field survey, 2022

**Test of Normality**

Shapiro-Wilk W Test of Normality is given in table 1 where the Prob >z value listed in the output is the p-value. The W-value is 0.996 and z-value is 0.274 with the p-value greater than 0.05. Therefore, the W-value is almost one due to the high distribution normality of differences between pre- and post-scores of learning owing to training programs.

Table 1. Shapiro-Wilk Test of Normality for learning differences

Variable	Observations	W	V	Z	Prob>z
Difference (Learning)	381	0.996	1.122	0.274	0.392

Source: Normality outputs of STATA based on field survey, 2022

Table 2 below shows the results obtained after performing the Skewness test and Kurtosis test for data normality. The test exposes the number of observations, which are 381, and the probability of skewness, which is 0.294, referring to the fact that skewness is asymptotically normally distributed (p-value of skewness > 0.05). Similarly, Pr (Kurtosis) points out that kurtosis is also asymptotically distributed (p-value of kurtosis > 0.05). Finally, chi (2) is 0.279, which is directly above 0.05, establishing its level of significance at 5%. Consequently, according to the test result of normality, residuals of learning differences show a normal distribution.

Table 2. Skewness and Kurtosis Test of Normality for learning differences

Variable	Observations	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Difference (Learning)	381	0.294	0.230	2.550	0.279

Source: Normality outputs of STATA based on field survey, 2022.

**Hypothesis Test**

Table 3 discloses the outputs from the paired t-test. There is a mean difference between the pre-test and post-test of 1.333 (Mean) with a standard error of the mean of 0.032 (Std. Err.), a standard deviation of 0.630 (Std. Dev.), and 95% confidence intervals of 1.269 to 1.396. As well, the table is being presented with an obtained t-value (t) of 41.285, the degrees of freedom, which are 380, and the statistical significance (2-tailed p-value) of the paired t-test (Pr(|T| > |t|) under Ha: mean(diff) != 0), which is 0.000. As the p-value is less than 0.05 (i.e., p < .05), it can be inferred that there is a statistically significant difference between two scores of learning (pre-test and post-test). In other words, the difference between the two different period scores is not equal to zero, which supports the alternative hypothesis (H<sub>A1</sub>). Thus, positive changes occur at trainees' learning level after training.

Table 3. Paired t test for trainees' learning

Variable	Observations	Mean	Std. Err.	Std. Dev.	95% CI	
					Lower	Upper
Learning Post Test	381	3.620	0.032	0.619	3.558	3.683
Learning Pre Test	381	2.287	0.010	0.195	2.268	2.307
Difference	381	1.333	0.032	0.630	1.269	1.396
mean(diff) = mean(Learning Post Test - Learning Pre Test)				t = 41.285		
Ho: mean(diff) = 0				degrees of freedom = 380		
Ha: mean(diff) < 0		Ha: mean(diff) != 0		Ha: mean(diff) > 0		
Pr(T < t) = 1.000		Pr( T  >  t ) = 0.000		Pr(T > t) = 0.000		

Source: Test outputs of STATA based on field survey, 2022

**DISCUSSIONS**

The analysis reveals positive effect of the training programs on trainees' learning outcomes. A summary of the outcomes from the data analysis presented above under second level of the Kirkpatrick's model. The comparison chart, which assesses a comparison of each of the three sub-dimensions of trainees' learning evaluation. Here, the progress level appears the same in employees' capability to include new information and their ability to find their own mistakes. The next improvement is found in problem identification and solution, followed by advancement in judging the difficulty of the problem. However, the required knowledge of trainees is increased at work, but not in the way the other four improved. Again, employees feel that they are more able to do present tasks with less error, faster, and flexibly; to apply skills to new tasks; to change skills depending on the situation; and to work without regular supervision due to training. Improvement was found in employees' abilities to perform extra work or under situational pressure with accuracy, but it is a little less than the previous ones. The last sub-dimension provided evidence that learning also took place. Accordingly, the affective outcomes reveal a positive shift in trainees' emotional responses, as indicated by the stability in holding opinions, the increased ability to express right opinions in discussions, and to handle challenges during issue discussions. Although less change occurred in third sub dimension (AO) than the first two sub dimensions (KBO and SBO). After running the Paired t Test, it was proven that learning processes involved in training advance employees' ability to keep pace with the rate of changes, like organizational change. The outcomes align with earlier research, showcasing skill and ability improvement following training (Athar & Shah, 2015). Training initiatives notably enhance knowledge and develop skills of employees (Munoli, 2021). Another study validated the current findings that training programs boost employees' knowledge, skills, and intellectual capacities (Kumar & Siddika, 2017).

## CONCLUSIONS

The findings collectively suggest that the training program effectively escalates trainees' knowledge, skills, and abilities. The detailed item-wise comparison analysis provides valuable insights and highlights the impact of the training. The statistically significant results from the hypothesis test further strengthen the effectiveness of the training programs in positively influencing trainees' learning process. These results contribute to the growing body of evidence supporting the importance of targeted training interventions in organizational learning and development. This findings underscore the need of strategic investments in training programs. Training strategies should be adapted to match the needs of the modern workforce with a focus on continuous improvement. This not only ensures the development of hard skills of employees but also nurtures ongoing enhancements in soft skills of employees. However, the absence of a control group also poses challenges in isolating training effects from external factors which limits the generalizability of findings. To advance this research area, future studies could explore additional factors influencing the observed learning outcomes.

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