

# Self-Directed Learning for Technology Advancement by Bank Employees: A Study in Bank of Maharashtra at Kolkata Region of West Bengal

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## Abstract

*Learning by job engaged individual is mostly dependent on self-motivation. An Individual when he understand or realises his obsolescence at his workspace due to his skill levels, knowledge, and attitude (SKA), then he/she self to lean to equip and adapt to secure his /her jobs and positions. Self-directed learning happens due to constant changes in the job environment and technology. Today, banks and financial institutions are under constant pressure change due to changes in technology. The employees of banks must equip themselves according to the force of technology changes. Though any bank by their human resource processes trains their employees, there exist techno-savvy employees who always attempt to learn through their self-direction to remain up to date. Against this backdrop, self-directed learning for technology advancement in any bank can be an interesting issue. The paper attempts to explore the principal factor for which employee engages themselves in self-directed learning at the Bank of Maharashtra in the Kolkata Region of West Bengal India. With the help of factor analysis, the principal factors are identified and examined the relevancy of the factors in the context of self-directed learning among the employees of Maharashtra Bank.*

*The study delineates the factors as the determinants of 8 groups of factors. Out of which training engagement and adaptability, technology learning, culture and environment emerge as the central factors.*

**Key Words:** *Self-Motivation, Career Skills, Technologies, Adaptability, Career Motivation, Learning*

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Date of Submission: 09-09-2023

Date of Acceptance: 22-09-2023

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## I. INTRODUCTION

Self-directed learning is a learning method in which a person actively participates in the learning process by choosing what needs to be learned, how it will be learned, and how he/she will monitor his/her development. Greater independence and adaptability, higher motivation, and the capacity to customise the learning experience to a person's own needs and interests are some advantages of self-directed learning. Though it may not be appropriate for all learners or all learning environments, self-directed learning also calls for a high degree of self-discipline, self-motivation, and self-evaluation. But in addition to having access to the right learning tools and assistance, self-directed learning also calls for a high degree of self-discipline and self-motivation. If self-directed learning is something bank workers are contemplating, they should be ready to be actively involved in their learning and to ask for help when they need it.

Being technologically savvy is crucial in the quick-paced world of today. People who are not flexible may find it difficult to stay up with innovations and trends as technology is continuously expanding and changing. In the present labour market, skill development is essential since businesses want workers with a diverse set of talents that apply to their sector. People may raise their worth in the workforce and advance their career chances by being open to acquiring new skills and adjusting to new technology. Employers place a high priority on adaptive abilities including flexibility, critical thinking, and problem-solving. These abilities enable people to deal with change and uncertainty and to take advantage of fresh possibilities and challenges. In general, I think that success in today's environment requires a mix of technological adaptation, skill learning, and adaptable talents. People will be better positioned to succeed in their jobs and thrive in a continuously

changing environment if they are open to learning, adaptable in their thinking, and capable of embracing new technology and trends.

Discretionary effort is the extra effort that employee decides to do at work above and beyond what is necessary to fulfil their job duties. It is the additional effort a worker willingly decides to put out in pursuit of realising both their personal and the organization's goals. Discretionary effort may take many different forms, including working longer hours, accepting more jobs and responsibilities, looking for chances to learn and grow, and figuring out methods to enhance working practices and procedures. Job satisfaction, engagement, and a sense of purpose and meaning in one's work are some of the variables that influence it. Encouragement of worker's discretionary effort may be very advantageous for the company. Employees who are prepared to go above and beyond the call of duty are frequently more productive, creative, and engaged, and they may help to enhance company results like higher revenue and customer happiness. Organisations may build a productive work environment that promotes employee engagement and motivation to inspire discretionary effort on the part of their staff. This might involve giving employees the chance to learn and grow, honouring their accomplishments, and fostering an environment of openness, trust, and communication. Overall, discretionary effort is a crucial component of worker performance, and businesses that encourage it are more likely to succeed in attaining their goals and objectives.

### **Self-Directed Learning by Bank Employees**

When trying to advance their knowledge and abilities, bank personnel may find self-directed learning to be a helpful strategy. Bank workers may assess their learning requirements, create their learning objectives, and decide how to attain those goals by taking ownership of their learning. Bank personnel who wish to advance their knowledge and abilities to improve their performance on the job may find that self-directed learning is a beneficial strategy. By taking charge of their education, bank workers may focus on topics that are most pertinent to their job duties and career objectives, adjusting their learning experiences to suit their unique needs and interests. This may result in higher levels of engagement and motivation, as well as better work output and efficiency. Self-directed learning may also assist bank personnel in staying current with market trends and advancements, which is crucial in a business that is undergoing fast change like banking. Additionally, it can assist staff members in gaining the expertise they need to improve their careers at the bank or explore new prospects in the sector.

### **Self-Directed Learning of Technology Advancements by Bank Employees**

Self-learning of technology advancements by bank workers refers to the additional effort that employees choose to make in acquiring knowledge of and acclimating to new technologies above the bare minimum necessary to fulfil their job tasks. This extra effort is crucial to ensuring that workers can use and benefit from new technology in their jobs, thereby enhancing the bank's business outcomes. The banking industry's continually changing requirements and advancements in technology keep their staff at pace for self-development. To provide customers with effective and trustworthy services as digital banking and financial technology become more extensively utilised, employees must be able to adapt to new tools and software. Overall, adapting to technology is an essential part of contemporary banking, and this demands continual investment in training and development initiatives to assist bank staff members in their attempts to keep up with changes in the sector. The culture of continuous learning and self-improvement that banks may promote among their staff members would inspire them to take the initiative to master new software and technologies. Banks that place a high priority on staff technology adaptation are more likely to succeed in adapting to the changing demands of their clients and keeping a competitive edge in the market. Regular performance evaluations, feedback, and recognition programmes that honour staff members who have shown a dedication to developing their abilities and embracing new technology can help this.

There are several ways to encourage self-learning among bank staff when it comes to embracing new technologies. One strategy is to provide staff members with regular opportunities for training and development so they may pick up new skills and learn new technology. Continuous coaching and assistance may be added to this to help staff members use new technologies efficiently and integrate them into their regular jobs. A different strategy is to establish a culture of ongoing learning and development, where staff members are urged to look for new learning opportunities and take charge of their professional growth. This may be backed up by rewarding staff members who show a dedication to learning and technological adaptation. Finally, it's critical to foster a collaborative and friendly work atmosphere where staff members feel free to share ideas, ask questions, and request assistance when necessary. Employees may feel less hesitant or anxious as a result of adjusting to new technology, which will eventually make it simpler for them to adopt and utilise new tools.

Banks may need to offer tools and assistance, such as access to learning materials, coaching and mentorship, and chances for feedback and reflection, to enable self-directed learning among staff. Additionally, banks might need to foster a culture that appreciates and promotes lifelong learning. To assist bank employees in

adjusting to technology, banks frequently provide training and development programmes that focus on new technologies and applications. Seminars, online courses, and on-the-job training sessions are just a few of the delivery methods for these training programmes. The training should be tailored to each staff member's specific requirements to effectively assist their learning and technology acculturation.

In general, it is critical to promote self-learning among bank employees in the context of technological adaptation to make sure that workers are given the skills and knowledge necessary to properly use new technologies in their jobs. Banks may make sure that their staff members are prepared to handle the difficulties of a fast-changing technology world by establishing a culture of continual learning and growth. Last but not least, it's critical to foster a supportive and cooperative workplace where staff members feel free to share ideas, ask questions, and request assistance when necessary. Employees may sense less apprehension or confusion as a result, which will eventually make it simpler for them to adopt and efficiently use new tools.

## **II. RESEARCH GAP**

From the review of the literature, it was found that self-directed learning is a voluntary effort given by bank employees. Several studies were made on employee engagement from the organization's perspective but not from the employee's perspective. Most of these studies were conducted on technology adoption in the banking industry but not much study has been made on technology adaptation by bank employees. While the above studies examined adaptation at the organizational or group level of analysis, the current study focuses on individual-level adaptation of technology advancements. So, there is a gap in the literature in terms of the relationship between self-directed learning and the adaptation of technology advancements by bank employees. In light of these, the present study is undertaken to find out self-directed learning made by bank employees in adapting to the technology advancements. This exploration of the research gap helped to set up the theoretical framework.

Self-directed learning refers to individuals taking initiative and responsibility for their own learning and skill development. In the context of technology adaptation, it involves employees proactively seeking out opportunities to learn and acquire the necessary knowledge and skills to effectively utilize new technologies in their work.

The research gap lies in the lack of investigation into how employees of the Bank of Maharashtra engage in self-directed learning when adapting to technology advancements. Understanding the extent to which employees take ownership of their learning, the strategies they employ, and the barriers they face can provide valuable insights for organizations in promoting and supporting self-directed learning initiatives.

Examining self-directed learning in the context of technology adaptation can uncover factors such as employee motivation, learning preferences, self-efficacy beliefs, and the impact of organizational support on their learning efforts. It can also shed light on the role of informal learning, such as self-guided exploration and peer learning, in enhancing technology adaptation.

To address this research gap, studies could employ qualitative research methods such as interviews or focus groups to gain in-depth insights into employee's self-directed learning experiences. Surveys or questionnaires could also be utilized to gather quantitative data on employee's self-directed learning behaviours and their perceived effectiveness in technology adaptation.

By exploring the role of self-directed learning in technology adaptation, organizations can develop targeted strategies and interventions to foster a culture of continuous learning and self-improvement. They can identify areas where employees may need additional support or resources and design training programs that empower employees to take ownership of their learning journey.

In summary, the research gap regarding self-directed learning in the context of technology adaptation among employees of the Bank of Maharashtra presents an opportunity for future research to delve deeper into employees' learning experiences, strategies, and the impact of self-directed learning on their ability to adapt to technology advancements effectively.

## **OBJECTIVES OF THE STUDY**

The objective of identifying self-directed learning made by employees of the Bank of Maharashtra adapting to technology advancements represents a potential research gap within the given study. While the study focused on factors influencing technology adaptation and discretionary efforts, it did not explicitly explore the role of self-directed learning in the process.

## **THEORETICAL FRAMEWORK**

The theoretical framework formed after studying the existing theories, concepts and definitions is used to find a solution to the existing gap. Previous research indicates that management action to trigger the urge for self-directed learning created Job-Related factors. The technical training and information systems research

contributed to form the Training factors. The personal factors were found in the organisational behaviour literature and motivational models. Self-directed learning is finally deduced from personal factors.

### **JOB-RELATED FACTORS**

Job-related factors are decisions taken by the management to build a work environment that will facilitate its employees and give them ample returns. The management designs the method of working and also the amount of work to be given at a time. In the workplace, an employee comes across various factors resulted due to the system imposed by the management which influences his/her approach towards his work. In a banking scenario, the employee experiences five such factors namely ergonomics, workload, autonomy, feedback and variety.

#### **i. Ergonomics:**

Ergonomics refers to designing and shaping a job in such a manner as to strike a fit between the job and the job holder. In other words, jobs are designed in such a way as to match job requirements with worker's physical abilities to perform a job effectively.

#### **ii. Workload:**

The workload is an essential aspect to consider when discussing factors that influence the discretionary efforts of bank employees towards technology adaptation. While the given study did not explicitly address workload as a variable, it is an important factor to consider in the context of technology adoption and its impact on employee performance. A heavy workload can have both positive and negative implications for technology adaptation. On one hand, employees with high workloads may feel overwhelmed and may struggle to find the time and mental capacity to learn and incorporate new technologies into their routines. On the other hand, a manageable workload that allows employees to dedicate time to learning and adopting new technologies can facilitate their discretionary efforts.

#### **iii. Autonomy:**

Autonomy means freedom to control one's actions/responses to the environment. Research studies report that jobs that give autonomy to workers also increase their sense of responsibility and self-esteem. On the contrary, absence or lack of autonomy can cause workers apathy to jobs and, in turn, low and poor performance.

#### **iv. Feedback:**

Job design should be determined in such a way that workers receive meaningful feedback about what they did. Feedback helps workers improve their performance. Meaningful feedback helps the employee to understand the areas of improvement and their level of efficiency in that area. Praising a good job done by the employee tends to uplift their spirits.

#### **v. Variety:**

Lack of variety causes boredom which, in turn, leads to fatigue. Fatigue causes mistakes and accidents. But, by incorporating elements of variety in the job, boredom, fatigue and mistakes can be avoided and the job can be done more effectively and efficiently.

The above job-related factors contribute to the job design process. The ergonomics, workload, autonomy, feedback and variety are the variables that are calculated while designing a job. The job design should be performed in such a way that it should facilitate the employees as well as complete the assigned job effectively.

### **PROCESS 1: JOB DESIGN**

Job design is the process of organizing work to overcome job dissatisfaction arising from repetitive tasks in a mechanised setting. Job design aims at raising productivity levels. It focuses on non-monetary rewards such as recognition of personal achievement. Job design deals with the allocation of tasks. Thus, it creates a structure. This structure varies from industry to industry. A job design arrangement includes job enlargement, job enrichment and job rotation techniques.

Technology is a part of every job role. Thus, the job design process is tangled with technology. And with up-gradation, technology transition has become a major concern. Making new software systems fit into the existing system is a gruesome task. Not only the system needs to be updated but also the employees need to be trained gradually to adapt to the new working methods.

### **TRAINING FACTORS**

Training factors consist of the variables that are needed to make an employee job-compliant. The first stage is to select the appropriate trainee. The second stage is to decide on the things or skills they need to learn to perform their job. The third is the success rate of the training method. The fourth is the involvement of employees in a lifelong training process in the actual work environment because a single set of syllabi and teaching are inefficient unless real-life problems are faced during the job.

#### **i. Trainee Selection**

It determines the size, location and characteristics of the target population, as well as their current level of experience and expertise with the topic. Trainees are selected according to their educational qualifications which determine their suitability for the job. The skills required for the post are judged and compared with

each trainee's profile. This variable makes certain that trainees meet course prerequisites, and identify any technology needs or requirements. Trainees enjoy and respond positively to material that is presented creatively and enjoyably.

**ii. Course Content**

Course content deals with the amount of research and the expertise needed to develop and teach relevant, timely and up-to-date content, as well as the length of time that the content will maintain its relevance. Other factors affecting course content are both the total number of trainees and the optimal number that can be taught at one time. The best learning method for the material being taught also influences the course's content. It estimates the number of instructors needed and their training protocol. The course needs instructors who are competent and compatible with their audiences, and who can add inspiration and laughter to the course's syllabus. It has to deal with all costs of the training for facilities, materials, instructors, travel, meals, software, and presentation equipment.

**iii. Feasibility**

Ideally, successful training should be periodically repeated for a new crop of trainees. Success can usually be measured by identifying measurable outcomes and then conducting the appropriate measurements. These measurements can be developed in-house or obtained externally. For instance, a real estate agency might conduct license training for its new sales representatives. The best measure of the course's effectiveness is the number of trainees who passed the licensing exam.

**iv. On-the-Job Training**

On-the-job training is a hands-on method of teaching the skills and knowledge needed for employees to perform a specific job within the workplace. Employees learn in an environment where they need to practice the knowledge and skills obtained during their training. It uses the existing workplace tools, machines, documents, equipment, and knowledge to teach an employee to effectively do their job. Superiors with altruistic behaviours act as mentors and coach their subordinates in skill improvement and usage of the resources at the workplace.

The above training factors contribute to the technical training process. The trainee selection, course content, feasibility and on-the-job training are the variables that are calculated while designing a job. The job design should be performed in such a way that it should facilitate the employees as well as complete the assigned job effectively.

**PROCESS 2: TECHNICAL TRAINING**

Organizations nowadays are fully dependent on information technology for their business operations. They prefer to hire staff who are well-equipped with technical knowledge that is needed in their operations (Clark, 2011). Because training a person with a prior technical base is easier than training a person with little or no technical know-how. Technical knowledge doesn't mean high-end knowledge of computer programs. It can also describe mere knowledge of computer operations i.e., the proficiency to work with a computer in a day-to-day life. The count of these workers with technical backgrounds is increasing day by day. But the workforce also consists of people who are not from a technical background. Training these people needs a bit more than the average effort imparted. Peer support tends to be a major facilitator in this scenario.

Organizations can choose the type of engagement they would like to offer, and the extent to which they go beyond the minimum effort required. Employees too can decide whether or not their job continues to interest them sufficiently to stay in it and develop it. Some employees rarely move beyond a transactional relationship, but many require something more from their jobs a sense of self-worth and of being valued, and an opportunity to succeed and progress. Those aspects of a job that engage a particular employee may vary over his or her working lifetime, in line with changing circumstances and interests. Thus, the process of Job Design and Technical Training influences the personal factors of an employee.

**PERSONAL FACTORS**

Personal factors are driven by perception. An employee's perception related to work creates a belief system in them, which either encourages or discourages them from performing in their job.

**i. Perceived Equity**

Individuals enter a job with specific qualifications, training, skills and experience. When employees feel that they are not treated or rewarded accordingly, they may take specific actions which could include, psychological distancing from the job, reducing work effort, and even leaving the firm. According to Braun, when time availability is low, perceived equity decreases. Under such conditions, employees are unlikely to take on additional work, whether mandated by management or not. If an organization is not offering a fair pay package, then it won't attract a better workforce who are proficient with technology and the existing workforce will also not be motivated enough to adapt with gradual technology up-gradation. Resource independence decreases perceived equity (Braun et. al, 2008).

**ii. Career Stage**

Designing jobs comprises many factors. While designing a job, the career stage of employees should be kept in mind. A career is the sequence of evolution of a person's experiences regarding work in a period (Solowiej, 2014). According to Solowiej (2014), the term 'career' is inherited from *carrus* in Latin, meaning a chariot. In the modern day, a career is referred to as a sequence of positions held by individuals over a certain period during their professional journey. Recently career has been depicted as experiences rather than a succession of jobs. Traditional career theories focus on laddering up the job positions in terms of increased responsibility and salary with little importance towards their personal goals. In protean and boundaries career theories the individual is central to their own interests and career development. Within an organisation, employees' progress based on their prior qualifications, as well as, may learn on the job and acquire the necessary skills and experience to progress to a higher position. According to the Traditional perspective, a career takes place over a long period, mostly within a single organisation. As stated by various authors career progression is related to age and maturity over the lifespan. A protean career refers to a career which focuses on personal values. It is based upon individually defined goals, driven by intrinsic success. Intrinsic success indicates personal accomplishment, feelings of pride, achievement, enjoyment, satisfaction and happiness.

**iii. Perceived Usefulness of Technology in Career Development**

Working with computer software is the key to performing every job these days. These software systems also get updated frequently to resolve problems and implement new ideas in work. Thus, there appears a constant need among today's workforce to adapt to the technology gradually. A job holder might require technology proficiency. Thus, learning software systems required to run the organizations might help them in their career ladder. As an employee climbs up the career ladder, he/she is loaded up with additional responsibilities and to take care of these responsibilities they need additional expertise. Often training is imparted after promotion in a pre-conceived training event. But learning is not an event, it is a gradual process of inculcating habits and adding skills to one's inventory. If employees believe that using a specific application system will increase their job performance within an organizational context, they will try to learn it. Job relevance is an individual's perception of whether the software system applies to his or her job or not (Venkatesh and Davis, 2000). The skilled workforce continues to grow in industries most dependent on safety, knowledge, and service, just like the banking industry.

**iv. Perceived Ease of Use of Technology**

While learning new software there come several challenges amongst the employees. These challenges differ amongst employees in different career stages. The employee who is from an IT background finds it easier to learn the software than the one who is not. Even if training is imparted, this training is not enough to make them adapt to the software as adaptation is a process of learning gradually. It is a habit that a person develops over time. There comes a part which regards the employee's willingness to learn. If an employee feels there is not enough time to complete their existing duties, they won't be willing to spend more time learning some software which is not essential in performing their daily duties. Perceived Ease of Use refers to the employee's perception of effortless learning of the target software system (Venkatesh and Davis, 2000).

The personal factors aid in forming the personality traits of an individual that make them more prone to self-directed learning. If workers perform tasks as efficiently as possible, not only does the organization benefit from lower costs and greater output per worker, but workers also are less fatigued. This involves two aspects; one is organizational training and the other is the conviction of self-development of employees.

**SELF-DIRECTED LEARNING OF TECHNOLOGY ADVANCEMENTS**

The organization classifies the workforce based on their skills and then train them to perform their job according to their skills and the company requirements. But the wish to learn amongst employees takes a major role and is an important aspect. Only focusing on efficiency will create monotonous jobs. Workers performing these jobs often are unhappy with repetitive tasks. Hence, organizations combine elements in the job that portray them as more goal-oriented and useful in career development. So, that the employees are willing to learn the methods to perform the job in a structured manner.

This research is regarding the self-directed learning of technology advancements by bank employees. In recent years, application software has taken the responsibility of completing most of the daily tasks on a personal level as well as on a management level. Learning computers and their functionalities to perform tasks has become much easier as computers are introduced to people from a very early age and knowing about the computer has become a habit or a generalised thing amongst the workforce (Bradlow et al, 2002). The banking work environment consists of employees from various age groups. For some employees, the computer was introduced at school or college, for others it was introduced at work. The effort and content to learn about computers varies amongst these groups. Self-directed learning requires voluntary effort and conscious attention

from the learner to learn something. It is a lifespan process, beginning in early childhood and extending to old age. It includes undertaking training or self-education in a work-related area. In the case of banks, it means the computer proficiency of employees and their adaptation to software changes. And the adaptation process eases out when the workforce perceives the software as easy to use.

### III. METHODOLOGY OF THE STUDY

The study adopted an exploratory design of the study in Maharashtra Bank located in the Kolkata Region. Primary data were collected by administering the self-designed questionnaire, distributed among the employees engaged in the regular role as the employee of Maharashtra Bank. A total of 268 respondents who responded through the questionnaire were fed into SPSS for exploratory factor analysis.

#### STATISTICAL ANALYSIS

All analyses were performed using SPSS (IBM Corp, 2016) statistical software packages. The factor analysis in SPSS revealed various aspects of the research. The results of the statistical analysis indicate that the data collected for the research on self-directed learning of technology advancements by bank employees is suitable for factor analysis.

The study included a sample of 321 employees. Participant's demographic information, including age, gender, and work experience, was collected. Data were collected using a structured questionnaire assessing job satisfaction on a 5-point Likert scale. Data on the highest attained educational level was collected and showed that the majority of the sample had attended at least 3 years of higher education. The inter-item correlation was relatively high for all items ranging between 0.524 and 0.849. In addition to this, Cronbach's alpha was calculated and found to be 0.947, indicating very good internal consistency. The items were checked for skewness and kurtosis and the values for skewness and kurtosis were deemed to be within the range for maximum likelihood estimation.

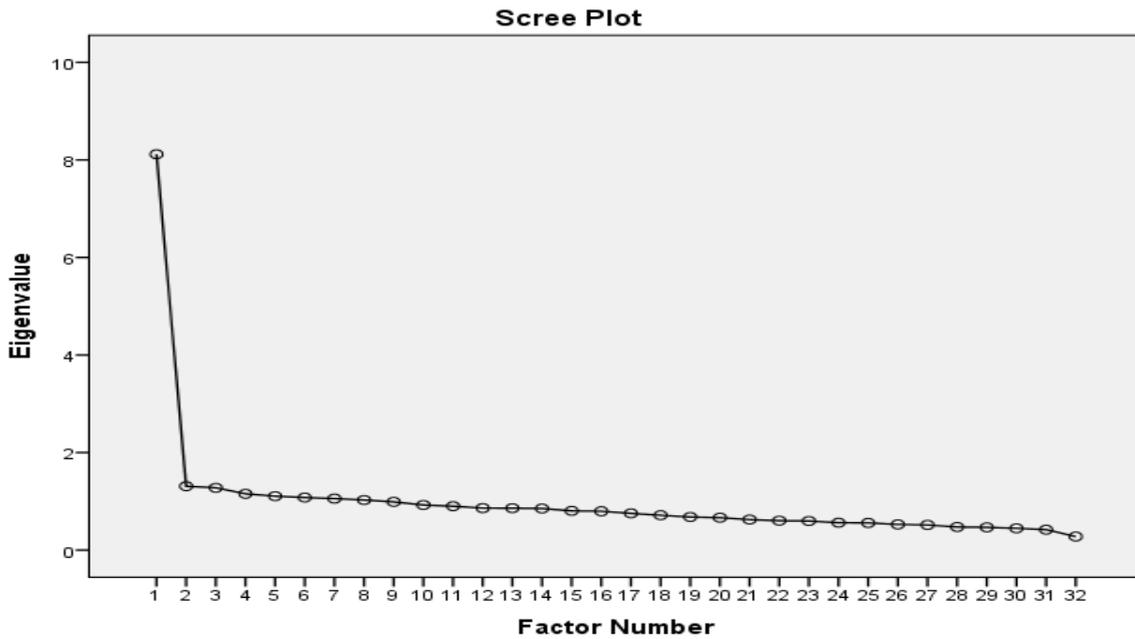
The Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity were used to ensure that the data was sufficient for doing factor analysis (Dziuban and Shirkey, 1974). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.908) and Bartlett's Test of Sphericity ( $p < 0.001$ ) confirm the adequacy of the data for factor analysis. The test being significant means the correlation matrix is not an identity matrix. Further, a non-negative determinant variable solidifies that the dimension which is derived after factor analysis is reliable.

#### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.908
Bartlett's Test of Sphericity	Approx. Chi-Square
	2443.335
	df
	496
	Sig.
	.000

#### Exploratory Factor Analysis

Exploratory factor analysis (EFA) was performed with varimax rotation with Kaiser normalization using maximum likelihood extraction and eigenvalues  $> 1$ . Thus, the factor with an eigenvalue of more than 1 is accepted and eight factors are extracted. These eight factors accounted for 35.784% of the total variance explained. However, the scree plot indicated a more appropriate retention of eight factors to achieve a simple structure.



Further analysis involved a goodness-of-fit test using the chi-square test, which resulted in a non-significant p-value of 0.888. This indicates that the model fits the data well. Overall, the results of the factor analysis provide insights into the underlying dimensions of self-directed learning of technology advancements among bank employees. The factors extracted can be further analyzed and interpreted to understand the specific aspects related to employee’s perception and adoption of technology in the banking sector.

**Goodness-of-fit Test**

Chi-Square	df	Sig.
240.250	268	.888

Given the scree plot results and for better interpretability, we performed Varimax rotation on the eight retained factors. The rotated factor matrix shows the loadings of each item on the eight factors after rotation. The items are labelled as Q1, Q2, Q3, and so on.

Items	Rotated Factor Matrix							
	1	2	3	4	5	6	7	8
Q1				0.283				
Q2						0.297		
Q3	0.251				0.274			
Q4					0.251			
Q5		0.365						
Q6				0.334				
Q7	0.361							
Q8	0.413						0.392	
Q9						0.916		
Q10			0.661					
Q11			0.375					
Q12	0.572				0.39			
Q13			0.348				0.366	
Q14	0.865							
Q15					0.62			
Q16	0.571							
Q17							0.512	
Q18	0.441							
Q19					0.326			

Q20				0.334				
Q21		0.263						0.787
Q22				0.39				
Q23		0.367	0.332					
Q24								0.648
Q25				0.535				0.558
Q26				0.344				
Q27			0.305					0.631
Q28					0.456			
Q29	0.44	0.601						
Q30			0.31					
Q31		0.375		0.313				
Q32		0.489						

The factor loadings indicate the strength and direction of the relationship between each item and the corresponding factor. The factors were named based on the pattern of item loadings.

**Factor 1: Training Engagement and Adaptability**

This factor captures the employee’s attitude and actions towards training and their adaptability to new technologies and competencies. Variables loading highly on this factor: Q7 - I have the freedom of executing the tasks assigned to me at my own pace (0.261), Q8 - I am comfortable with the training slot assigned to me (0.413), Q14 - I employ time in learning the software systems my superior cadre uses in performing their daily duties (0.265), Q16 - Training opportunities are posted and employees select the training they want (0.571), Q18 - Each employee is assessed in a formal and structured way against a list of competencies, and a competency development plan for that employee is prepared (0.441).

The "Training Engagement and Adaptability" factor represents the employee’s active involvement in training activities, their openness to learning new technologies, and their willingness to develop the competencies needed for their roles within the organization.

**Factor 2: Technology Learning Environment**

This factor captures the aspects related to employee autonomy, feasibility of training, feedback, and opportunities for self-development and on-the-job training regarding new/upgraded technologies in banking. Variables loading highly on this factor: Q5 - My job position allows me to use extra effort to learn new/upgraded technologies of banking (0.365), Q23 - The duration of training is suitable enough (0.367), Q29 - I don't get positive feedback when I complete a task with perfection (0.601), Q31 - I am aware of the menu items in the software which are required to perform duties other than my assigned duties (0.375), Q32 - Teaching other employees improves my software knowledge (0.489).

The "Technology Learning Environment" factor represents the organizational and situational factors that impact employees' opportunities and motivation to learn and adapt to new technologies in the banking sector.

**Factor 3: Supportive Feedback and Peer Learning**

This factor captures the aspects related to feedback from superiors, feedback after task completion, and involvement in peer learning processes for enhancing technological skills. Variables loading highly on this factor: Q10 - My superior gives me positive feedback on efforts made for enhancing technological skills (0.661), Q11 - I often get feedback after task completion (0.375), Q27 - We are involved in the peer learning process to know more about software systems (0.305), Q30 - I am well versed with the software system my juniors work on (0.31).

The "Supportive Feedback and Peer Learning" factor represents the organizational support in terms of feedback from superiors and peers' involvement in learning processes, which collectively contribute to enhancing technological skills and fostering a learning culture within the workplace.

**Factor 4: Work Environment and Task Variety**

This factor captures the aspects related to the job being below one's level of expertise, autonomy in task selection and execution, course content, training centre location, on-the-job training support, and task variety. Variables loading highly on this factor: Q1 - I am assigned a job which is below my level of expertise (0.283),

Q6 - I have the freedom to choose a specific set of tasks (Cash Handling/DD issue/FD issue/A/c Opening etc.) to perform on the day (0.334), Q20 - The faculty uses techniques to make the class interesting (0.234), Q22 - I am comfortable with the training centre location (0.39), Q25 - My superiors and seniors help me in understanding tasks that I feel tough to perform in the computer system (0.535), Q26 - I have to switch between various tasks (Cash Handling/DD issue/FD issue/A/c opening etc.) on a working day (0.344). The "Work Environment and Task Variety" factor represents the overall work environment, including factors related to job alignment with expertise, autonomy, course content engagement, training centre location, on-the-job training support, and task variety.

#### **Factor 5: Learning Challenges and Support**

This factor captures the aspects related to time pressure, informal training assessment, feedback, role change, course content understandability, and knowledge gaps in the current software used in day-to-day duties. Variables loading highly on this factor: Q3 - I feel that the time pressure of tasks makes me reluctant to spare additional time in learning technology (0.274), Q4 - Supervisors or managers assess each employee in a fairly informal way concerning what learning is needed and organize training as the opportunities arise (0.251), Q12 - I always get negative feedback whenever I do not complete a task with perfection (0.29), Q15 - I feel change of roles in banking system helps in learning new software (0.62), Q19 - The training is made easily understandable to the employees (0.326), Q28 - I lack adequate knowledge of the software being currently used in my day to day duties (0.456).

The "Learning Challenges and Support" factor represents the challenges employees face in learning due to time pressure and negative feedback, as well as the support they receive through informal training assessment, role changes, understandable course content, and the identification of knowledge gaps for self-development.

#### **Factor 6: Learning Autonomy and Task Assignment**

This factor captures the aspects related to employee's ability to identify their own learning needs, select appropriate training, negotiate with their supervisor, and the way tasks are assigned to employees with designated priority levels. Variables loading highly on this factor: Q2 - Employees identify their own learning needs, and appropriate training, and negotiate this with their supervisor (0.297), Q9 - The tasks are assigned to me by a superior and their priority level is designated (0.916).

The "Learning Autonomy and Task Assignment" factor represents the level of independence and control employees have in managing their learning and development process. It also captures the organizational structure regarding task assignment, indicating whether tasks are explicitly designated by superiors with priorities specified. This factor highlights the balance between employee autonomy in learning decisions and the role of supervisors in task assignment and prioritization within the organization.

#### **Factor 7: Variety of Experiences and Training Nomination**

This factor captures the aspects related to employees having to switch between different departments, experiencing variety in their work, and the way training opportunities are nominated by supervisors or managers. Variables loading highly on this factor: Q13 - I have to switch between departments like General Banking, Loan and Foreign Exchange (0.366), Q17 - Training opportunities are posted and supervisors or managers nominate the employees who should attend (0.512)

The "Variety of Experiences and Training Nomination" factor represents the exposure employees have to various departments and roles within the organization, contributing to their diverse experiences and skill sets. It also captures the involvement of supervisors or managers in nominating employees for training programs, which can influence the learning and development opportunities provided to individuals within the organization. This factor emphasizes the importance of both variety in work experiences and the guidance provided by supervisors in the learning process.

#### **Factor 8: Training Effectiveness and Supportive Organizational Culture**

This factor captures the aspects related to the sufficiency of course content in understanding banking practices and the promotion of new employee orientation through existing employees beyond routine induction training. Variables loading highly on this factor: Q21 - The content taught is enough to understand banking practices (0.287), Q24 - My organizational culture promotes orientation of new employees by the existing ones beyond the routine induction training (0.648).

The "Training Effectiveness and Supportive Organizational Culture" factor represents the combination of well-designed course content that effectively imparts knowledge of banking practices, along with an organizational

culture that encourages peer support and mentorship during the onboarding process. This factor highlights the importance of comprehensive training and a positive work environment that fosters employee growth and integration. This factor highlights the importance of both formal training content and the informal learning and support that occurs through on-the-job interactions. It underscores the significance of a holistic training approach that combines formal training programs with ongoing support and mentorship during employee's work experiences.

#### **Cross Loading of Variables on Multiple Factors**

A few items demonstrated cross-loadings on two factors. For instance, item 3 had a moderate loading on Factor 2 (0.274) and a weaker loading on Factor 1 (0.251). This suggests that the item may measure aspects related to both 'Technology Learning Environment' and 'Training Engagement and Adaptability'. Item 8 had a moderate loading on Factor 1 (0.413) and a weaker loading on Factor 7 (0.392). This suggests that the item may measure aspects related to both the 'Technology Learning Environment' and 'Variety of Experiences and Training Nomination'. Item 12 had a moderate loading on Factor 5 (0.290) and a weaker loading on Factor 1 (0.272). The cross-loading of item 12 suggests that the item may capture aspects related to both 'Learning Challenges and Support' and 'Training Engagement and Adaptability'. Employee's perception of receiving constructive feedback could be influenced by their interactions with both supervisors and colleagues in the workplace. Item 13 had a moderate loading on Factor 7 (0.366) and a weaker loading on Factor 3 (0.348). While the item primarily aligns with Factor 7, it also reflects a weaker association with Factor 3. This could indicate that the item captures aspects related to both 'Variety of Experiences and Training Nomination' and 'Supportive Feedback and Peer Learning'. Item 21 had a moderate loading on Factor 8 (0.287) and a weaker loading on Factor 2 (0.263). Thus, item 21 may measure aspects related to both 'Training Effectiveness and Supportive Organizational Culture' and 'Technology Learning Environment'. Item 23 had a moderate loading on Factor 2 (0.367) i.e. 'Technology Learning Environment' and a weaker loading on Factor 3 (0.332) i.e. 'Supportive Feedback and Peer Learning'. Item 25 related to On-the-Job Training had a moderate loading on Factor 4 (0.535) i.e. 'Work Environment and Task Variety' and a weaker loading on Factor 8 (0.258) i.e. 'Training Effectiveness and Supportive Organizational Culture'. Further, item 27 had a moderate loading on Factor 3 (0.305) and a weaker loading on Factor 8 (0.261). Item 29 related to Feedback shows a factor loading of 0.601 on Factor 2 and a factor loading of 0.34 on Factor 1. Item 31 had a moderate loading on Factor 2 (0.375) and a weaker loading on Factor 4 (0.313).

The exploratory factor analysis (EFA) extracted eight factors representing different aspects related to employees' perception and adoption of technology in the banking sector. The model demonstrated a good fit to the data, highlighting specific dimensions of self-directed learning of technology among bank employees.

#### **IV. CONCLUSION**

This research focused on the self-directed learning of technology advancements among bank employees, with a specific emphasis on their perception and adaptation to software changes. The statistical analysis, including factor analysis, provided valuable insights into the underlying dimensions of this phenomenon. The findings revealed that employees in the banking sector exhibit varying levels of self-directed learning when it comes to technology adaptation. Factors such as age, educational background, and prior exposure to computers play a role in shaping employee's willingness to learn and incorporate new technologies into their work routines.

The factor analysis identified eight key factors related to self-directed learning of technology advancements. These factors represent different aspects of employee's attitudes, behaviours, and beliefs regarding technology adaptation in the banking sector. Factors such as ease of use, goal orientation, and career development emerged as important contributors to employee's willingness to learn and embrace new technologies.

The results also highlighted the importance of organizational efforts in creating an environment that encourages self-directed learning. By combining job elements that are seen as goal-oriented and career-enhancing, organizations can motivate employees to actively engage in learning and adapting to technological advancements. This, in turn, can lead to increased job satisfaction, improved productivity, and enhanced organizational effectiveness.

Overall, this research contributes to our understanding of the factors that influence employee's discretionary effort and self-directed learning in the context of technology adaptation in the banking sector. The insights gained from this study can inform organizations, particularly banks like the Bank of Maharashtra, in designing effective strategies to foster a culture of continuous learning and technological innovation among their workforce. By recognizing and addressing the diverse needs and perceptions of employees, organizations can

successfully navigate the ever-changing landscape of technology advancements and maintain a competitive edge in the banking industry.

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