A study on effect of technological shift on employee in Higher education sector

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Abstract. Today we are living in a technical era and practically we are breathing technology or becoming more technology driven. The adoption of technology brings about a change in the workplace that impacts the employee's working conditions. This change will have an impact on the employee's behaviour, performance, and interpersonal relationships with co-workers and family members, both positively and negatively. Eventually education sector is also moving towards virtual platform. Since it's impossible to physically be present all of the time and not everyone wants to go and learn, everyone today wants constantly learn new things and stay current. Today's education is significantly influenced by technology. Teaching online creates challenges for educators who were primarily prepared for in-person education. Though education through virtual mode are making everyone's life easier but this online education has also hampers many people's job. This research mainly focus on effect of technological shift on employee in Higher education sector. Also, to analyse the factors affecting higher education sector employees due to technological shift w.r.t demographics. Data is collected through questionnaires method from 57 employees in education sector.

Keywords: Technical era, technology, behaviour, interpersonal, education.

1 Introduction

[3] defines technology as "the collection of techniques, skills, methods, and processes used in the production of goods or services or in the accomplishment of objectives, such as scientific investigation."

In the field of education, it is "the use of machines and educational equipment of different sorts (e.g., Language laboratories, tape recorders, video, etc.) to assist teachers and learners," [11]. Each industry now considers using technology to be a must, and the education industry is no exception. Since everything has gone digital, no industry can avoid adopting new technology, and doing so is necessary for such a sector to gain an advantage in the global market [4]. The use of technology brings about a change in the workplace that impacts the employee's working conditions, which can have both positive and bad effects on employee behaviour, performance, and their interpersonal relationships with family members and co-

workers [2]. People have been confined due to the global health emergency, which has also led to the closing of facilities and the conversion of in-person instruction to online instruction. Faced with these facts, teachers have had to adapt at a dizzying pace not only to new methodological approaches, but also to their own confinement, presenting high levels of stress [7]. In-school help and support are also critical. Working online means teachers have 'to adapt to new pedagogical concepts and modes of delivery of teaching for which they have not been trained' [15]. Establishing and maintaining a 'presence' online as described by [16] can be difficult. Many pupils won't have had the chance to interact with classmates or develop connections that would have happened normally in a classroom because of the lockdown. The socialisation online necessitates much more feedback and engagement between teachers and students. It is especially significant when students are worried by a global crisis [8]. Being part of a community of learners helps to reduce stress and feelings of loneliness. Teachers must know how and when to use technology which, when used appropriately, is an important tool in the classroom [1]. Success depends on teachers' technological proficiency and their ability to modify the breadth and depth of the programme [20]. Today's education is significantly influenced by technology. Schools are expected to use technology to enhance the education of their students yet challenges to its use have been identified [10]. The first are external factors, such as the availability of resources, training, and assistance, as well as equipment. Without computers and fast internet connections, teachers and students cannot use online classes. The second category consists of characteristics that are exclusive to instructors, such as their skills, knowledge, and attitudes toward employing technology. If teachers haven't had enough technology training, they lack the necessary abilities. Any of these "first and second order hurdles," as [12] refers to them, can thwart attempts at integrating technology. Effective strategies are needed to handle both. The National Literacy Trust [16] discovered that while most teachers favoured adopting technology, the main obstacle was a lack of training. Nearly a quarter (23.3%) lacked any training in the use of technology in teaching literacy. Research shows that training is essential if teachers are going to integrate technology successfully [15]. However, mentioning how pervasive technology is in the realm of education shouldn't be limited to mentioning its advantages. Technology is more than just utilising the newest tools and applications while being enthusiastic about doing so [9]. Technology is more complicated than that. Therefore, any discussions about tech that do not include its possible dangers or estimate the challenges it might pose to schooling would be flawed and lacking. According to Flanagan [10], any inquiry about the effect of classroom technology should "include positive and negative effects on student achievement and the various types of technology that can increase or decrease a student's ability to do work in the classroom."

2 Literature Review

[13] In an article written by MacIntyre PD, the sorts of stress that language teachers encounter worldwide as a result of online instruction were discussed by 16 authors, along with their coping mechanisms. Based on a survey of 600 teachers, the authors have discovered that

happier instructors are those who deal with stress positively as opposed to those who try to avoid it. Positive psychological outcomes (well-being, health, happiness, resilience, and growth under trauma) were favourably connected with approach coping and negatively correlated with avoidance coping, according to correlations. The author underscores that teaching is a stressful job and complete dependence on online platform for teaching has made it more stressful.

[6] By using online tools and media as people move their teaching process to remote learning, technology also supports teachers' wages and other forms of personal training. Teachers need to have excellent digital and technological skills in order to turn the educational system into a wholly new digitalization environment and technology-based schooling. Other on-going studies in many countries yield insight into how online and distant learning techniques using digitization and technology can help developed and developing countries manage their responsive measures during the pandemic situation.

[10] Other studies have shown that teachers engage in continuous professional development throughout the academic year and exhibit skills in specific domains of digital teaching competence, such as security and communication, though there is still a deficiency in the creation of digital content. Teaching reported a statistically significantly higher need for training.

[7] According to this study, the teacher's own view of the necessity for training in the use of new technologies should be taken into account.

[8] This research reveals that 37.0% and 50.0%, respectively, felt high and medium needs, according to the data. The survey also revealed that respondents who claimed having little knowledge of digitalization were poor in competence. There have been numerous surveys done highlighting the benefits of employing technology in the classroom. It is a standard practise all across the world to incorporate technology into schooling. In today's world, the quantity of technology being employed in education is used to measure the efficacy of educational systems.

[5] This study aimed to describe the connection between technological stress and crew productivity and look at how role overload and equity sensitivity interact in this relationship. The study inspected three factors of techno-stress i.e. techno-complexity, techno-uncertainty and techno-overload, and inaugurated their negative relationship between productivity and techno-overload.

[17] explored the influences of leadership and work stress on employee behaviour, and the moderating effects of transactional and transformational leadership on the relationship between work stress and employee negative behaviour. The findings indicated a link between employee bad behaviour and work-related stress. Transformational leadership has negative impacts on work stress and employee behaviour, whereas transactional leadership has positive influences.

[14] In a research report, it is stated that instructors experience diverse work stress that differs from different cultures. The article's author noted at the outset that one of the most frustrating professions is teaching. It's important to stay current on both the material and the shifting goals of the pupils. The needs of both the top pupils and the slow learners must be met by a

teacher. Teachers have an even greater duty when teaching kids who are physically or cognitively challenged. Both the nature of the work and the students' behaviour contribute to this stress. Teachers in educational institutions have high levels of professional stress due to both teaching students and managing administrative duties, which has a number of negative effects on both physical and mental health. The capacity for proactive stress management enhances loyalty to the organisation and lowers teacher attrition. The teacher's stress can be significantly reduced by having self-efficacy beliefs. Therefore, before novice instructors are given the responsibility of teaching in the classroom, sufficient training and mentoring must be provided. So as to maintain classroom management and encourage better student learning, such training should include cover how to interact with kids in the classroom. According to this study, younger generation teachers experience higher stress than older generation teachers do. Older instructors are more equipped to adapt to the shifting demands of the classroom.

[20] The goal of the study was to find out what teachers thought about how using digital tools in writing instruction affected students in middle and high school. A sample of 2,462 teachers from the United States and Puerto Rico participated in the survey. The study's objective was to gather information regarding student writing performance after using digital technologies to teach writing. The data collected showed startling information regarding kids' writing abilities. In fact, according to 68% of the teachers who responded to the survey, students use digital tools to cut corners rather than put in any effort when writing, 67% of the teachers say their students struggle to read and understand complex texts, and 46% of the teachers say that using digital tools causes students to write hastily and carelessly. The study also points out that students tend to use more and more abbreviations in their writings, following the way they write when communicating electronically.

[18] This research studied how middle level managers' personal and professional life were affected by technology. The study's findings showed that the respondents weren't negatively impacted by technology. Technology allows for agility and ease of task completion. The author suggested the department to provide guidance to the managers in overcoming the challenges of emerging technologies and to have a balanced work and personal life.

[19] This paper examined how businesses may make better use of web-based tools for human resources. They combined and expanded a variety of academic concepts of technology acceptance to produce a subjective framework of Employee Self-Service (ESS) utilisation of technologies. They suggested individual, technological, and organisational aspects pertinent to individual intents to adopt ESS technology based on this approach.

3 Objective of study

The main motive of this study is to explore the factors affecting higher education sector employees due to technological shift in their regular working environment. Also, to analyse the factors affecting higher education sector employees due to technological shift w.r.t demographics.

4 Data Analysis and Interpretation

4.1 Exploring factors using Exploratory Factor Analysis

Table 1 KMO STATISTICS

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.736
Sig.	<.001

The adequacy of the sample is measured by KMO in SPSS, shown in Table 1. The sampling is adequate or sufficient if the value of Kaiser Meyer Olkin (KMO) is larger than 0.5 Field (2000), according to Pallant (2013) the value of KMO is 0.6 and above. Kaiser (1974) recommends a bare minimum of 0.5 and the value between 0.5 and 0.7 are mediocre, value between 0.7 and 0.8 are good, value between 0.8 and 0.9 are great and value between 0.9 and above are superb (Hutcheson & Sofroniou, 1999).

Bartlett's Test compares an observed correlation matrix to the identity matrix. Essentially it checks to see if there is a certain redundancy between the variables that we can summarize with a few numbers of factors.

H0 - The variables are orthogonal, i.e., not correlated.

H1 - The variables are not orthogonal, i.e., they are correlated.

Table 2 Total Variance Explained by the factors

Component	Total	% Of Variance	Cumulative %
1	3.664	25.661	25.661
2	2.118	18.464	44.125
3	1.727	18.457	62.582
4	.906	-	-
5	.760	-	-
6	.727	-	-
7	.540	-	-
8	.515	-	-
9	.374	-	-
10	.307	-	-
11	.193	-	-
12	.170	-	-

For total variance explained rotation sums of squared loadings should have the value of 60% or more. From the table 2 it was found that all the variables together are making 3 factors and only those factors have been considered whose ideal value is more than 1.

('-' This sign represents the value less than 0.05.)

Table 3 Varimax with Kaiser Normalization

Factors	1	2	3
Techno - Stress on Employee [What is your impression about Work from Home (WFH)?]	.890	-	-
Techno - Stress on Employee [How satisfied are you in your Work from Home (WFH) setup compared to being in workplace?]	.852	-	-
Techno - Stress on Employee [Have you established a decent routine?]	.753	-	-
Techno - Stress on Employee [Do you have healthy work-life balance while working from home?]	.727	-	-
Are you able to devote enough time to your family during WFH?	-	-	-
How did you get an opportunity to improve your skills?	-	.801	-
Do you feel recognized for your work during WFH?	-	.752	-
To what extent do you feel connected to your organization?	-	.641	-
How do you connect with your head/team?	-	.553	-
Influence of technology on employee behaviour and their performance [Can technology be used for the improvement of Education System?]	-	-	.891
Influence of technology on employee behaviour and their performance (Is technical support required to understand the technology?]	-	-	.869
Influence of technology on employee behaviour and their performance [Has use of technology reduced the workload?]	-	-	.687

From the table 3 it has been observed that all components are contributing more than 50% but expect are you able to devote enough time to your family during WFH.

('-' This sign represents the value less than 0.05.)

4.2 Analyse the factors affecting higher education sector employees due to technological shift w.r.t demographics.

4.2.1 Analysing Gender with factors Techno-Stress, Performance and Recognition and Interpersonal Skills- Independent Samples Test

The following null hypothesis has been framed to analyse gender with Techno-Stress, Performance and Recognition and Interpersonal Skills.

H0: There is no significant difference between gender and the factors affecting employee in education sector.

Table 4 Description of Gender

Factors	Gender	N	Mean
Techno – Stress	Male	19	.0895454
	Female	36	-.0472601
Recognition and Interpersonal – Skills	Male	19	.0606235
	Female	36	-.0319957
Performance	Male	19	-.0748819
	Female	36	.0395210

Table 4 indicates the descriptive about the responses collected via questionnaire. It shows count Gender wise and mean w.r.t extracted factor. Here in the above table male and female are denoted as Male =1 and Female = 2

Table 5 T Statistics

Factors	t-value
Techno – Stress	.479
Recognition and Interpersonal - Skills	.324
Performance	.400

Null Hypothesis is accepted as (t-value) is greater than 0.05. Therefore, there is no significant difference in Gender and other exploratory factors to examine the impact of technological shift on employee in education sector.

4.2.2 Analysing Age group with factors Techno-Stress, Performance and Recognition and Interpersonal Skills- One way Anova

The following null hypothesis has been framed to analyse experience level with Techno Stress, Performance and Recognition and Interpersonal Skills.

H0: There is no significant difference between experience level and the factors affecting employee in education sector

Table 6 Age-group Descriptive

Factor	Age Group	Mean
Techno – Stress	18-25	22
	26-35	22
	36-50	9
	Above 50	2
	Total	55
Recognition and Interpersonal – Skills	18-25	22
	26-35	22
	36-50	9
	Above 50	2
	Total	55
Performance	18-25	22
	26-35	22
	36-50	9
	Above 50	2
	Total	55

Table 6 indicates the descriptive about the responses collected via questionnaire. It shows count Age-group wise and mean w.r.t extracted factors.

Table 7 Anova Statistics

Factor	Sig.
Techno – Stress	.679
Recognition and Interpersonal –Skills	.023
Performance	.547

Null Hypothesis is accepted as Significant value (p-value) is greater than 0.05, as shown in table 7. Therefore, there is no significant difference in age and other factors (Techno-Stress and Performance) to examine the impact of technological shift on employee in education sector.

5 Conclusion

The study shows exploratory factors and factors w.r.t demographics influenced by technological shift. To explore the factors affecting higher education sector employee due to technological shift in their regular working environment basically, three main variables Techno-Stress, recognition and interpersonal skills and performance are taken as independent variable to check the influence of technology on employee in education sector. In first stage, technological shift is taken as independent variable and Techno-Stress, recognition and interpersonal skills and performance are taken as dependent variables and it has been observed that technological shift has insignificant impact on Techno-Stress, recognition and interpersonal skills and performance. So, we can say that with the shift in technology employees of education sector needs more of training for employee skills and knowledge about that specific technology. Gender, age, and level of experience are used as independent variables, while technological shift is used as the dependent variable in the second stage of the analysis to determine how factors impacting higher education sector employees due to technology shift relate to demographics. Gender and age were shown to be null hypotheses and to have no discernible effect on employees in the education sector.

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