Library Professional's Resistance to Innovation: An Empirical Examination of Technostress in Punjab's University Libraries

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Abstract

Resistance to technology leads to a response like direct rejection, postponement, or opposition. Technostress is a modern disorder of adaptation that highlights an individual's incompetency to handle new technologies in a dynamic environment of knowledge. This study explores the hypothesized relationship between the technostress and resistance to technology adoption among the Library and Information Science (LIS) professionals" working in the university libraries of Punjab Pakistan. The Survey research method was used to collect the data through a convenient sampling technique from the population. The data were analyzed using SPSS and Analysis of a Moment Structures (AMOS) to check the relation between the variables and testation of the hypothesis. The study enclosed with these findings. Technostress has a positive effect on the resistance to technology adoption in university libraries. These factors were found significant. The prevalence of technostress among male respondents was slightly higher. The intended research is beneficial for LIS professionals. It is recommended that short courses on stress management and technology handling be organized for LIS professionals. In Pakistan, this study was the first attempt that investigated the relationship between technostress and resistance to technology. This study is a part of a doctoral dissertation aimed to gain insight into the technostress, its effect, and possible ways to overwhelm the library professionals, especially the old age ones.

Disciplinary: Library Management and Information Science.

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1 Introduction

Information technology (IT) has revolutionized our daily lives like teaching, businesses, law, banks, medicine, police, airline systems, and homes. Libraries are an equally important measure of any society. It also needs development and growth in this technological revolution. Dahlbom (1996); IT emerged in the 1970s as an outcome of new products in the daily lives of people. Similarly, IT is embedded in things (e.g. Internet of Things (IoT)) and is used widely in every activity of life. Marcum (2016), Mulla (2006), Aslam (2018) stress that the influence of technology in library operations, services, and resources cannot be underestimated, and it is assumed that for the proper functioning and useful communication libraries will get dependent upon information technology in a year or so. Information is a basic need of life, and IT has brought significant variations in information generation, organization, process, storage, access, retrieval, and utilization (Husain & Nazim, 2015; Aslam, 2018). The conventional library practices (printed collection) were replaced with electronic resources. Besides, Zanin-Yost (2004) observed that users' faith in digital and electronic resources multiply day by day in response to variation in the process of information generation, storage, and retrieval process in academic libraries. The literature reveals that Pakistani libraries can access information technology, but many organizations do not achieve full benefit from technology because many personnel resists using them (Malik and Mahmood 2014; Khan et al. 2015; Tralagba & Akpan, 2019). The question arises that why academic librarians are not willing to adopt information technology.

The research purpose was to discover the consequences of technostress on the resistance to the adoption of technology in Pakistan's libraries. This exploration is an endeavor to fill up that gap and provides a more in-depth insight into the resistance in the adoption of technological applications in the Pakistani university libraries. This study will help library managers and decision-makers to overcome this stress.

2 Literature Review

The technostress has been studied as a significant construct in various studies. It is vital to have a general analysis of technostress and resistance to technology adoption (RT). Despite all the advantages of using the new technology, many practitioners and researchers confirmed in their research studies that resistance of individuals to information systems is a primary reason for the failure in the execution and adoption of novel technology. Further, Siegel (2008) demonstrated that technology resistance means unwillingness to take the initiative, idea, action, or different unpleasant circumstances. According to Mirkamali (2000), change cannot be implemented quickly and successfully. Lack of understanding, reluctance, and unpreparedness of the workers are the main reasons for the resistance when encountering changes.

The word resistance means "the refusal to accept or comply with something, the attempt to prevent something by action or argument" (Coetzee & Stanz, 2007). The integration of new technology causes fear and distress for many individuals, and it has been observed that resistance is a natural reaction to any change. Resistance is a complex phenomenon. The literature revealed that

the research on an individual's behavior is vital because their perception of innovative technology plays a noteworthy part in any resistance to innovation. An individual's resistance to innovation is significant due to its positive and negative consequences like success or failure (Yu et al., 2015; Mohtar & Abbas, 2015). Similarly, Tarafdar et al. (2007), Tralagba & Akpan (2019) discovered that personnel is facing technostress due to technology use in organizations.

Resistance to technology merely "refers to pushing the adoption decision to the future." Resistance refers to "protesting or searching for further information after the trial." Rejection refers to direct contradiction actively or passively (Mirella et al., 2009; Szmigin & Foxal, 1998; Ram, 1987).

A standard definition of resistance can be anticipated as "any behavior or reaction that a person shows when facing the changes, behavior or reaction that leads to termination or slowing down the process of changing." The literature revealed that stress is a supposed phenomenon related to anxiety and tension while using technology. Technostress is a modern disorder of adaptation that highlights an individual's lack of ability or incompetency to handle new technologies in a dynamic environment of knowledge (Brod, 1984). It is defined as a physiological and emotional reaction that results from the response to this perplexing environment (Greenberg, 2005). Similarly, in another study, Ahmad et al. (2012) investigated that technostress is a novel sort of stress that marks technology's impact. Furthermore, Tarafdar et al. (2007) defined technostress as a person's inability to cope with information and communication technologies (ICT).

The prevailing literature identifies a strong connection between technostress and resistance to the use of technological tools. Thatcher (2005) discovered that smartphones create technostress among users. Moreover, Sweeney and Summers (2002) explored how technology affected management related issues, personnel change, and stress source. It revealed that inadequate formal training and poor technical support are the main reasons for technostress in any organization.

Only a few studies were conducted on the relationship between the computer and demographic variables like age, gender, experience, and education. Most women are considerably less relaxed than men in coping with computers and technology (Qutab et al., 2014). Moreover, Ayyagari (2008) recognized a negative relationship between job satisfaction and technostress and further expounded that technology hesitation is a robust forecaster of job discontent among the workers. Similarly, Tarafdar et al. (2007) and Tralagba and Akpan (2019) exposed that personnel is facing technostress due to the use of technology in administrations.

Technostress is an important variable as it is a strong determinant of voluntary behavior (such as to adopt new technology tools or not). As mentioned above, literature exposed that technostress exists and has been measured physically in the context of e. learning and resistance to adoption of the digital libraries (Hayashi et al., 2020; Nov and Ye, 2009). This study aims to find the association between the technostress and resistance in adopting technology in the university libraries. Hence, it is assumed that:

Hypothesis: There is a significant association between technostress and resistance to technology adoption.

Grounded on the literature review, this research study is based upon the RAM'S (1987) model. This model pinpoints the importance of an individual's behavior, particularly in the viewpoint of resistance to innovation. This research aims to understand the association between resistance and technostress to the adoption of technology within the perspective of library professionals serving in the university libraries. This model is useful to evaluate the empirical data that has been collected through questionnaires. Technostress is treated as an independent variable in this model and technology resistance is taken as a dependent variable.

The use of technological tools in the libraries and information centers has brought a positive move (Ahmad, 2009). Contrarily, this positive move has been observed as stress or phobia among library professionals. This stress is known as technostress, due to the continuous use of information technologies in performing the library functions that were initially done manually.

The use of technology in the libraries creates stress among library professionals and negatively affects the organization (Ahmad. 2009; Tralagba & Akpan. 2019). This study determines the effect of technostress on resistance to technology adoption in the libraries by measuring their relationship.

The literature shows limited studies on the association between the technostress and resistance to technology adoption in Pakistan's university libraries. This research has also added to the body of knowledge and provided deep insight from the Pakistani perspective. This study's outcomes support the reduction of the resistance of library managers serving in university libraries in Pakistan.

3 Research Methodology

The primary data was collected through a survey comprising the questionnaire and the quantitative method was adopted to conduct the study. The respondents were LIS professionals having a master's degree or above in the subject of library & information science and working in the university libraries of Punjab, Pakistan. Respondents were offered a five-point Likert scale to measures their personal opinions. A questionnaire was designed to assemble data from the respondents using an online (Google Forms) survey tool. A sample of 150 LIS professionals was invited, through email, to participate in the study, of which 123 completed the survey. Initial data screening identified only 116 questionnaires were valid. The other seven questionnaires were rejected based on duplication, unanswered, incomplete, and multiple answers. Hence, the rate of survey response was 77%. SPSS®22 and Amos®21 were used to analyze the collected data.

4 Results

4.1 Demographic Findings

Table 1 depicts the breakdown of the demographic characteristics of the respondents in detail. Results show that 84 (72.4 %) were male, and most of them working in the public sector 81 (69.8%) universities of the Punjab, Pakistan. In terms of academic qualification, most of the

respondents have a master's degree in Library & Information Science 74 (63.8 %). Moreover, most LIS professionals, 44 (37.9 %), had 11-15 years of work experience.

Table 1: Demographic Profile of Respondents

Demography	Description	No.of Responses	%
University Type	Public	81	69.8
	Private	35	30.2
Gender	Male	84	72.4
	Female	32	27.6
Age	< 30 Year	28	24.1
	31-40 Year	36	29.3
	41-50 Year	15	32.8
	51-60 Year	6	13.8
Qualification	MLISc	74	63.8
	M Phil	41	35.3
	PhD	1	0.9
Professional Experience	< 5 Year	23	19.8
	6-10 Year	33	28.4
	11-15 Year	44	37.9
	16-20 Year	9	7.8
	> 20 Year	7	6.0

4.2 Construct Reliability

To check the reliability Cronbach's alpha of both constructs was calculated. Table 2 revealed that Cronbach's alpha coefficient for both constructs technostress (α = .847) resistance to technology adoption was (α = .796) surpassed the cut off value of 0.7. This study employed factor loading, composite reliability (CR), and average variance extracted (AVE). Hair et al. (2010) suggested the standardized factor loading should be 0.5 and preferably 0.7 or higher, While CR should not be less than 0.7, indicating that all the requirements are fully met.

Table 2: Constructs reliability, Cronbach's alpha, Composite reliability, and AV

Construct	Item	Loadings	Cronbach's alpha	Composite reliability	Average variance extracted
Technostress	TE1	0.796	0.847	0.858	0.749
	TE2	0.794			
	TE3	0.749			
	TE4	0.703			
	TE5	0.659			
	TE6	0.596			
Resistance to Technology Adoption	RT1	0.543	0.796	0.854	0.786
	RT2	0.635			
	RT3	0.831			
	RT4	0.637			
	RT5	0.734			
	RT6	0.923			
	RT7	0.808			
	RT8	0.66			
	RT9	0.541			

4.3 Assessment of Overall Model Fit

Structural equation modeling requires that the developed measurement model meet some fit criteria (Hair *et al.,* 2010). After examining individual construct, appropriate indices were used to measure the model fitness and as depicted in Table 3, all the fit criteria were fulfilled in the measurement model.

Table 3: Goodness Fit Model

Fit Indices	Standard	Test Result	Remarks
chi-square	< 5	1.962	Supported
Goodness-of-Fit Index	>.90	.910	Supported
Incremental Fit Index	>.90	.959	Supported
Tucker-Lewis Index	>.90	.946	Supported
Comparative Fit Index	>.90	.959	Supported
Root mean square error of approximation	< .08	.064	Supported

Amos subsequently provided estimated results of the hypothesis based on empirical data from the respondents. The association between the dependent and independent variables was observed and found that the path significant, with a strong positive association among the variables tested for the validation of the research hypothesis. The R^2 value for the association between predictor and outcome variable is 0.564, indicating that 56.4 percent of the variance in resistance to technological change is explained by technostress. The p-value of the tested hypothesis is less than 0.05, technostress (TE) has a significant association with RT at ($p > .05$, beta = -0.338). Therefore, the hypothesis is reinforced: technostress impacts the resistance to the adoption of technology in the university libraries, which is, according to the findings of Sweeney & Summers, (2002) explored how technology affected management issues, personnel change, stress source. Similarly, Tarafdar et al. (2007) discovered that workers face technostress while using technology in their workplace. The result of the study is also consistent with the previous research.

5 Conclusion

It is concluded from the findings of this study and review of literature that there exists a positive relationship between resistance to adoption of technology in the university libraries to technostress. The most significant reason for technostress was the use of new technological tools in the library, making the job harder, and handling technologies. In this study, it was discovered that the prevalence of technostress among male respondents working in the public sector university libraries was slightly high. Most of them worked in the public sector universities of Punjab, Pakistan.

In the vein of this research results, older people have more resistance. Most likely, the reason for this is that the respondents are senior LIS professionals working in Pakistan's public sector university libraries. The respondents who have apprehension or anxiety about the usage of computers and other technologies would more likely to resist. This will help the individuals be more conversant with using the relevant technology and predispose them to experience technostress. These will help to increase productivity and reduce stress.

6 Availability of Data and Material

Information can be made available by contacting the corresponding author.

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