Technology Management Competencies and Job Satisfaction of Pakistani University Librarians: An Empirical Assessment of Relationship

Asad Khan (Corresponding author)

Department of Library & Information Science, University of Peshawar, Pakistan

E-mail: lecturer999@yahoo.com

Mohamad Noorman Masrek

Accounting Research Institute, MARA University of Technology, Malaysia

40150 Shah Alam Selangor, Malaysia

E-mail: mnoormanm@gmail.com

Fuziah Mohd Nadzar

Faculty of Information Management, MARA University of Technology, Malaysia

40150 Shah Alam Selangor, Malaysia

E-mail: fuziahmn@salam.uitm.edu.my

Abstract

This research study examined the relationship of TMC with JS of Pakistani university librarians. A randomly selected sample of 225 Pakistani university librarians was used to test the relationship of four dimensions of TMC with general JS. Findings indicated a positive significant relationship of all variables of TMC with JS. Results further showed information assurance and security skills as the strongest predictor of JS while library content management system skills as the weakest contributor of JS. These results are consistent with the previous findings. TMC plays a significant role towards librarians' job performance and may be used to enhance their JS. This research broadens the scope of these two constructs

towards librarianship.

1. Introduction

In the modern age of technological and organizational innovations, effective performance demands workers to be competent, satisfied and committed. Previous research established that organizations always need competent and satisfied workers to achieve effective performance (Ahmad, Ahmad & Shah, 2010). Job satisfaction is an extensively researched topic because of its relationship with performance, i.e. a satisfied employee is a successful performer (Boyatzis, 1982). Hence, study assumes that job satisfaction (JS) of librarians performing in the selected universities of Pakistan may be a significant construct to produce successful performance.

Job satisfaction is an attitude of workers towards their job (Aydogdu & Asikgil, 2011). It signifies capabilities, diagnosis, skills (Hart, 2010) and workers' retort towards their job (Hoffmann, 1999). Further, like a satisfied worker, a competent employee is also must for organizations. According to Hoffmann (1999), scholars always conceptualized competencies in their own individual perspectives. For instance, Burgoyne (1993) posited that psychologists used competencies as the measurement of capabilities while HR managers called competencies as individuals' performance and as an instrument of strategic management. However, educationists defined competencies as work preparation and professional recognition. To circumvent any theoretical ambiguities, the present empirical study conceptualized competencies as interplay of knowledge, skills and attitude of an individual (Griffiths & King, 1985). This conceptualization of competencies was previously used by numerous researchers such as Testa (2001); Ahmad *et al.* (2010); FLICC (2011); Somvir (2012); Masrek *et al.* (2012), Khan, Rehman, and Rehman (2013); Neghabi & Rafiee (2013) and Khan, Masrek, and Nadzar (2014). The three basic components of competencies are further elaborated as; 1) knowledge is person range of information, 2) skill is the level to utilize the acquired knowledge and; 3) attitude is the job-related thoughts, feelings and motivation (Masrek et al. 2012).

Like other organizations, modern university librarianship in Pakistan also demands for competent, satisfied and committed workforce to manage the unhampered flow of information and give effective performance (Ameen, 2008a; 2008b; 2013; Mahmood, 2002; 2003; 2012; Ramzan, 2004; Ullah *et al.* 2010). Research established that contemporary technological innovations have drastically changed the fundamental ideologies. Modern university librarians are required to change their attitude and must utilize technological gadgets (Mahmood, 2003; Ramzan, 2004; Ullah *et al.* 2010). These librarians are expected to manage modern technological challenges as opportunities. Numerous professional competency models describe technological skills as must for librarians such as SLA (2003); ALA (2009) etc. According to FLICC (2011), technology management competencies (TMC) implies managing innovative products or processes from the outset to diffusion and then to implementation.

Numerous research findings confirmed the relationship among performance, satisfaction and technology. For example, Neghabi and Rafiee (2013) stated that the job performance of workers is always related to HRM and therefore should be linked with job satisfaction and

organizational commitment. According to Long (1993), technology is a predictor of work quality. Similarly, Danziger and Dunkel (2005) posited that technology is negatively associated with JS. Further, Attar and Sweis (2010) also confirmed the association of information technological skills with JS.

However, it is unknown whether such association of technological skills with JS is significant or not in the context of Pakistani university librarians. Also, research in Pakistani librarianship is limited to confirming the existence of the relationship between these two significant constructs. Accordingly, the present research study explores the association of TMC with JS of Pakistani university librarians. For this purpose the present study hypothesized the relationship of four variables of TMC with JS as shown the research of the study (*see* Figure 1).

2. Literature Review

2.1. *Job satisfaction*

Job satisfaction is a topic of great interest to researchers from diverse fields of knowledge. According to Somvir (2012), researchers are focusing on JS because it is associated with performance and commitment. A research investigation by Locke (1976) identified more than 4793 published research works on JS. Further, Ghazzawi (2008) located more than 12000 research studies on JS. One of the probable causes of this huge amount of research studies on JS may be its significant role towards performance (Bigliardi et al. 2012). Further, Mitchel and Larson (1987) elaborated that even though more than 3000 research investigations were carried out on JS but still job satisfaction lacks a comprehensive definition. Despite all the differences in the interpretation of JS, its significant role has never been underestimated in terms of effective performance and successful productivity. Highlighting the implications of workers' job satisfaction in the workplace, Bowra and Nasir (2014) stated that organizations should pay attention to workers' satisfaction, commitment and effectiveness. Their results further suggested a performance appraisal as a motivator for the enhancement of the workers' level of satisfaction and motivation. It is established that JS influences the performance of workers such as a happy worker is an effective performer (Neghabi & Rafiee, 2013).

Job satisfaction is an attitude of employees towards the job (Aydogdu & Asikgil, 2011). It indicates insight of potentials (Mitchel & Larson, 1987), emotional and mental responses towards the job (Hart, 2010). According to Locke (1976), JS is a positive emotional response when worker's skills and abilities are respected. The term JS has a lot of heterogeneity in its conceptualization, such as Ravari (2012) reported six different approaches regarding the understanding of JS among researchers. According to Lawler (1973, cited in Castillo & Cano, 2004), JS is one-dimensional term, implies that employee is either satisfied or unsatisfied. However, Smith, Kendall and Hulin (1969, cited in Saba, 2011) stated that JS is multi-faceted variable, implies employees' satisfaction is linked with different facets of work. Operationally defining JS as a multifaceted term, research literature reported the dominant facets of JS as promotion, supervision, work environment and remunerations (Ivancevich & Matteson, 1980; Block & Kelly, 2001; Testa, 2001). Further, Luthans (1998) categorized these facets as; 1) intrinsic JS- related with the type of work that make the job, for example skills, etc.; 2)

extrinsic JS- associated with work term and conditions, for example, salary etc. In terms of librarians, researchers studied JS as a general term or with respect to various facets (Spector, 1985).

2.2. Technology Management Competencies

Technology is an integral component of any organizations to produce, maintain and grow successful productivity. Despite financial constraints, organizations are spending a handsome amount of their budget on the acquisition and management of technological innovations (Farhanghi, Abbaspour & Ghassemi, 2012). However, advanced productivity is not only because of the utilization of technology, but is equally attributed to the way technology is integrated in the structure of organizations, including workers' skills, potentials, motivations and overall management (Gagnon & Dragon, 1998). The technology management skills, play an equal role in the successful productivity of an organization. According to Gera and Gu (2004), an organization with high level of technology and workers' skills give better performance. Further, defining the effect of technology on employees' performance, Dauda and Akingbade (2011) stated that organizational performance is being influenced by technology. As a result, organizations are coping, monitoring and managing technological changes. However, to get competitive advantages, the provision of a competent worker is mandatory. Unfortunately, organizations undermine the workers' overall perspective, including skills and therefore result in lower performance.

The FLICC (2011) competencies model operationally define TMC as assistive technology, enterprise information technology, information assurance and security (IAS), library and content management systems (LCMS), social media (SM), collaborative and mobile technologies. According to Arshad and Ameen (2010), IT proliferations may be regarded as the catalyst behind the growing information demands of library users. Their findings suggested that librarians should use both traditional and skills based library practices. Further, ILyas, Fiaz and Shoaib (2014) posited that technologies influenced job places and increased the significance of competent workers. According to Sridhar (1999), contemporary technological innovations changed the patterns of library services. Other organizations are adopting multiple methods to face these technological intrusions. However, librarians have no planning to acquire contemporary technological skills. Further, Methew and Baby (2012) criticized the librarians that are not providing computer based library services. They further reported that these librarians have no or less technological skills.

In terms of Pakistani academic librarians, research established that librarians' attitude towards the acquisition of technological skills is poor. The current level of their technological skills is not enough to handle technological innovations (Mahmood, 2003; Ameen, 2008a). According to Safahieh and Asemi (2010), librarians' technological skills are insufficient to perform effectively. According to Ullah *et al*. (2010), in Pakistan the current level of technological skills of medical librarians is poor. Their results further elaborated that Pakistani medical librarians have poor response to the adoption of technology. However, Agnihotri and Troutt (2010) posited that in terms of usability of technologies and work environment, the link of technology with performance is consistent. Exploring librarians' satisfaction with the current

competencies, Kaya (1995) reported that librarians performing in the universities have low satisfaction with their environment and their current skills.

2.3. The Relationship of TMC with JS

Despite the popularity of IT and JS, limited empirical evidence exists that establish the relationship of IT skills with JS exclusively in the context of Pakistani university librarians. However, the literature review on these two important constructs augmented our knowledge to hypothesize a relationship between them. Some previous research studies were identified that established the association of TMC with JS. For instance, Attar and Sweis (2010) established positive significant link of IT skills with JS. Likewise, Meyer (2006) identified a positive and significant relationship between IT skills and JS. According to Ryding (2010), technology is associated with satisfaction and is beneficial for firms.

The status of the relationship of technology with JS is also debatable. Some researchers reported a negative association of technology with JS while other stated a positive link. In other words, it is interpreted that technological skills may be the predictor of job satisfaction or dissatisfaction. However, irrespective of the nature of the relationship, the association between these two constructs always remained significant. According to Danziger and Dunkle (2005), technology is negatively associated with JS. However, Attar and Sweis (2010) confirmed the positive link of technological skills with JS. Further, Martinez (2008) identified that association of technological skills with JS is significant. Likewise, Somvir (2012) research findings confirmed a strong association of JS with librarians' job environment. Further, the results of study by Lim (2008) established a positive association of different facets of job with JS. Neghabi and Rafiee (2013) also reported positive association among HRM with JS, JP and OC. Further, results of Aracil and Velden (2008) reported that difference in current and needed competencies predict job dissatisfaction. Their findings further showed a positive relationship of job best fit with job satisfaction.

Exploring satisfaction of university cataloguers with their current cataloguing skills, Leyson and Boydston (2009) stated that low percentage of university cataloguers have satisfaction with cataloguing skills. According to Hart (2010), there is a state of inertia and hopelessness among librarians because of inappropriate job related skills and tools. According to Pan and Hovde (2010), professional development programs are needed for librarians to obtain the needed competencies that are essential for effective performance. Similarly, Block and Kelly (2001) recommended in-service training to acquire the needed competencies that may further reduce work related anxiety, enhance workers' current levels of competencies and may escalate job satisfaction. According to Faraji, Badraghe and Masoumi (2013), training in the needed skills may enhance the performance of workers.

The above literature review on TMC and JS suggested that librarians are needed to be competent in the utilization of technological gadgets. However, what is the effect of technological skills on job satisfaction of Pakistani university librarians is still unknown. As a response to this gap in the research literature of Pakistani librarianship, the present research study aims to examine the link of TMC with JS of librarians performing in selected universities of Pakistan. The findings of study will have significant implications for the

librarians in terms of effective performance and successful productivity.

2.4. Research Model and Hypotheses Development

Based on the above literature review, the present research study designed its own research conceptual framework (see Figure 1). This research model hypothesized a relationship between four variables of TMC with JS resulting in four research hypotheses. In the study model, job satisfaction is treated as dependent variable that captures Pakistani university librarians' satisfaction about their job. Previous research confirms the use of JS as dependent variable (Salisbury, 2002; Pronk *et al.* 2004; Kessler, 2007; Karim, 2010). Further, the study model has four independent variables, namely information technology (IT) skills, information assurance and security (IAS) skills, library content management system (LCMS) skills and social media skills (SM) as dimensions of TMC. These variables were chosen from FLICC (2011) competency model which is globally considered as a dominant competency model in librarianship (Masrek *et al.* 2012). The FLICC competencies model operationally defined these four variables as; 1) IT skills refers to technology that solve the issues and needs of users; 2) LCMS skills refer to creation, storage, modification, retrieval and display of data or contents, 3) IAS skills refers to activities that protect information and information systems for reliability and privacy and; 4) SM skills implies online media sharing characteristics like participation, community, openness, connectedness example are blogs, wikis, podcasts, forums, Face book, etc.
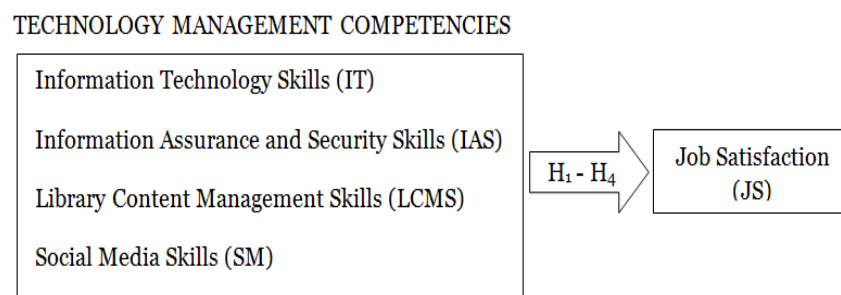

Figure 1. Research Model of the Study

As shown in the above research model of the study, this study has the following hypotheses.

H1: There is a significant and positive association between information technology skills and job satisfaction of librarians performing in the selected universities of Pakistan.

H2: There is a significant and positive association between information assurance and security skills and job satisfaction of librarians performing in the selected universities of Pakistan.

H3: There is a significant and positive association between library content management skills and job satisfaction of librarians performing in the selected universities of Pakistan.

H4: There is a significant and positive association between social media skills and job satisfaction of librarians performing in the selected universities of Pakistan.

3. Research Methodology

This research study was carried out in three phases namely; 1) questionnaire construction; 2) development and validation of measurement scales and; 3) data collection and testing of relationship. All these stages are discussed below.

3.1 Development of Measurement Scale

Because of lack of measurement scale on TMC, we developed our own questionnaire according to the strategy identical to other researchers (Salisbury *et al.* 2002; Karim, 2010). For developing the measurement scales, the FLICC (2011) competency model was utilized. The entire procedure generated four constructs. Each construct incorporates skill statements identified from the related literature. These skill statements were then compared with the skill statements narrated in the FLICC (2011). This procedure assisted in the elimination of vagueness regarding the conceptualization, contextual interpretation and clustering of constructs. It was equally significant in bringing homogeneity and coherence in items.

The Figure 2 is the schematic view of identification and selection mechanism of TMC as study constructs, moving horizontally. These steps start with the literature review and end as a single cluster. The content validation comprised of pretesting on seven Pakistani library experts. These library experts were invited to comment on the relevance and precision of items according to TMC situations in Pakistani university libraries. Based on their feedback, a list of items was designed for a large scale data collection. Five-point Likert scale was used to evaluate survey questions. Similarly, the general job satisfaction of Pakistani university librarians was measured through the Michigan Organizational Assessment Questionnaire (MOAQ). Literature review identified numerous research studied that used MOAQ for the measurement of general job satisfaction such as Karim (2009) etc. This scale maintains acceptable levels of reliability and validity that supports the previous research studies. MOAQ is extensively employed in different research situations indicating reliability from 0.77 to 0.87 (Karim, 2009). In the context of the present study, the three items were averaged to yield an overall job satisfaction score as .855. All the three items were evaluated on five-point Likert scale.
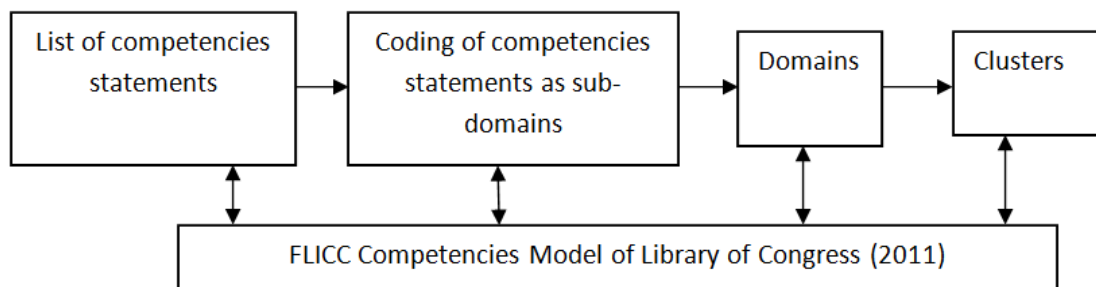

Figure 2. Techniques used for clustering of TMC skill statements

3.2. Development and Validation of the Study Constructs

For both TMC and JS, exploratory factor analysis (EFA) was used to develop the study

constructs. PAF with varimax rotation was used on three items measuring the overall job satisfaction of Pakistani university librarians. The KMO score (0.655) is larger than 0.6 (Field, 2009) and Bartlett's Test of Sphericity (Tabachnick & Fidell, 2013) is significant (x2 = 191.278, p < 0.00). This supported the factorability of correlation and established the sample adequacy for conducting exploratory factor analysis. The determinant score (.454) is higher than 0.00001, showing no multicollinearity (Nunnally, 1978). Observing the eigenvalues (equal to or greater than 1), PAF analysis extracted one factor explaining a total of 52.622% of variance for all items (see Table 1).

Similarly, PAF with varimax rotation was used on sixteen items measuring four dimensions of TMC identified as IT, IAS, LCM and SM. Before running the PAF, appropriateness of data was examined. The scrutiny of correlation coefficients provided several coefficients of 0.398 and beyond. The KMO score was 0.939 larger than 0.6 (Field, 2009) and Bartlett's Test of Sphericity (Tabachnick & Fidell, 2013) is significant (X2 = 2804.011, p < 0.00). This supported the factorability of correlation and established the sample adequacy for conducting exploratory factor analysis. The determinant score (7.58) is higher than 0.00001 showing no multicollinearity (Nunnally, 1978). According to eigenvalues (equal to or greater than 1), PAF analysis extracted four factors explained 59.92% of variance for the entire set of variables. However, one item did not meet the specified cutoff loading size of 0.45 and was dropped in factor analysis and therefore was expelled from advanced analyses (see Table 2).

Further, the Cronbach alpha coefficient was calculated for JS (see Table 1) and TMC (see Table 2) as an indicator of internal consistency and reliability. The reliability of four TMC constructs (IT, IAS LCMS and SM) and JS was calculated on a sample size of 225 Pakistani university librarians. The Cronbach's alpha score is between 0.818 and 0.719, which is greater than 0.7 (Nunnally, 1978).

Table 1. Factor Loading for JS

Items	Factor 1	Cronbach Alpha
Generally speaking, I am satisfied with my work	.837	
Generally, speaking, I hate my job	.762	.855
Generally speaking, I love to work here	.546	

Table 2. Factor Loading for TMC

Items	Factors				Cronbach Alpha
	1	**2**	**3**	**4**	
Able to use technology for access to information	.771				
Able to use social media in libraries	.753				
Can employ content management technologies	.749				.719
Know about rules of library content management	.732				
Capable to manage training in the utilization of SM		.729			
Build performance procedures for library technology		.720			
Able to integrate social media in library plan		.692			.754
Able to implement library's social media policies		.541			
Assess library applications to information assurance needs			.530		
Able to create & explain library's IT policies			.753		.818
Able to solve technological issues in libraries			.736		
Ability to develop library staff technology training			.700		
Knowledge of library's information security polices				.687	
Knowledge of hardware & software applications				.678	.778
Able to comply with the continuous monitoring rule				.627	
Knowledge of handling of information processes					

3.3. Sample and Data Collection

This study used questionnaire survey method to achieve the objectives of the study. All study participants were master degree holders in the LIS as a minimum qualification for participation in the survey. Random sampling techniques were used to draw a representative sample (n = 225) from the population (N = 540) of Pakistani university librarians. The Krejcie and Morgan (1970) sampling size and Raosoft online sample calculator (http://www.raosoft.com/samplesize.html?nosurvey) were used to confirm the sample size. Data was collected from Pakistani university librarians in the Khyber Pakhtunkhwa (KPK), Punjab and Islamabad. For maximum response rate, 300 questionnaires were distributed. Only 252 surveys were returned. Data screening yielded 227 questionnaires as final data set. The response rate was calculated as 84%.

4. Findings

4.1. Demographic Profile

Descriptive analysis was conducted to examine the background of research participants (see Table 3). Out of 227 respondents, 142 (63%) were male, while 85 (37.4%) were female librarians. The distribution of employment indicates 196(86%) librarians in public universities while 31(13.7%) librarians as respondents from private sector universities.

Respondent's age-wise distribution indicates 92(41%) respondents in the range of 21-29 years while 73(32%), 47(21%), and 15(7%) respondents in the range of 30-39 years, 40-49 years and above 49 years respectively. The distribution of respondents' qualification specifies 217(96%) respondents as master degree holders, 9(4%) and 1(0.4%) respondents as MPhil and PhD degree holders in library and information science respectively. Similarly, 173(76%) respondents had permanent jobs while 54(24%) respondents were serving on contract basis.

Table 3. Demographic Profile of the respondents

Variables	Categories	Frequency	%age
Age	21 – 29	92	40.5
	30 – 39	73	32.2
	40 – 49	47	20.7
	More than 49 years	15	6.6
Gender	Male	142	62.6
	Female	85	37.4
Experience	Up to 5 years	82	36.1
	6 – 10	57	25.1
	11 – 15	47	20.7
	16 – 20	25	11.0
	21 – 25	10	4.4
	More than 25 years	6	2.6
Type of university	Public	196	86.3
	Private	31	13.7
Total		227	100

4.2. Correlation Test

The correlation of TMC with JS was examined through Pearson's correlation test. Based on Cohen (1992) standards, the correlation of JS with four dimensions of TMC is significant and positive at 0.01 alpha-level. As all TMC are significantly and positively correlated with JS, indicating that those with TMC tend to have job satisfaction The strength of association ranges from 0.216 to 0.379 and no value is larger than 0.90. The results show correlation strength as medium (*see* Table 4).

Table 4. Mean, SD and Pearson Correlations of JS and TMC

	Variables	M	SD	1	2	3	4	5
1	Job satisfaction	3.91	0.49	1				
2	IT	3.23	0.69	.364**	1			
3	IS	3.18	0.74	.379**	.581**	1		
4	LCMS	3.13	0.79	.216**	.552**	.584**	1	
5	SM	3.19	0.76	.333**	.535**	.500**	.565**	1

**. Correlation is significant at the 0.01 level (2-tailed)

4.3. Multiple Regression Analysis

The results of multiple regression are shown in Tables 5 and 6. The multiple regression model with all four predictors produced $R^2 = 0.199$, $F_{(1,222)} = 13.806$, $p < .001$. The findings of enter method is significant at $F_{(1,222)} = 13.806$, indicating TMC predicted JS. As F value is greater than 4 and the value of significance is smaller than 0.05, thus it indicates the existence of a linear relationship of JS with four dimensions of TMC. The correlation coefficient (R = 0.446) indicated a moderate outcome of model on the prediction of JS. The $R^2 = 0.199$ shows that 20% of variance is shared by TMC with JS. However, adj. $R^2= 0.185$ reduced 1.4% of the variance. The effect of TMC in variance of JS ($\beta = 0.453$) is significant. Thus, it is established that TMC is significant as independent construct. The positive β value demonstrated that enhancement in TMC is essential for augmenting the JS. Based on the results of multiple regression all hypotheses (H1, H2, H3, and H4) are accepted. Since the beta values of each independent variable indicate the individual contribution of each variable, thus information assurance and security has the highest standardized beta value (0.260) followed by information technology (0.198), social media (0.181) and library content management system (.147). The regression equation used to predict JS is Y = a + b1x + b2x + b3x + b4x interpreted as Y = 2.828 + 0.141(IT) + 0.173(IAS) +.092(LCM) + 0.117(SM), where Y shows JS. Each TMC constructs composed of paired sample t-Test showed that each construct is significant. The results showed that the probability of beta score is equal to zero is predictable in population. The weighted beta scores established that all constructs added to the model predicting JS of university librarians in Pakistan.

Table 9. Overall Model Summary

Model	R	R^2	Adj. R^2	F	F change	Sig. F change	Sig.
1	.446	.199	.185	13.806	13.806	.000	.000

Table 10. Relationship of TMC with JS

Model/ Predictors	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	2.828	.160	.000	17.673	.000
Information technology	.141	.057	.198	2.454	.015
Information assurance & security	.173	.054	.260	3.218	.001
Library content mgt. system	.092	.051	.147	1.794	.014
Social media	.117	.050	.181	2.320	.021

a. Dependent variable: Job satisfaction, Predictors: (constants), TMC

5. Discussion

The results of study showed that all variables of TMC have relationship with JS leading to the acceptance of all hypotheses. Results established IAS as the strongest while LCMS as the weakest contributors of JS. Thus, Pakistani university librarians with TMC tend to be satisfied with their job. The results imply that these librarians are able in the utilization of technology applications in their libraries. They have job satisfaction because they are able to work out technological issues in their libraries, apply information security policies and best practices. They are able to comply with information continuous monitoring policies or able of management and diffusion of information. They are probably able to evaluate library particular functions to information assurance. They may understand of library content management system, its implementation and perhaps are able to utilize social media towards library services, products and staff training. They may know how to integrate applications of social media in the practices of university librarianship. Based on the results it may be asserted that the more the TMC of Pakistani university librarians is, the more will be their JS. The findings of this study supported the previous results such as Long (1993); Attar and Sweis (2010); Safahieh and Asemi (2010); Meyer (2006); and Ryding (2010). These studies reported a significant association of technological skills with JS. Previous research studies established that TMC has effect on JS such as Agnihotri and Troutt (2009) stated that use of technology and kind of work have positive link with JP where JS is the indicator of JP (Busch, Fallan and Peterson, 1998). Further, Attar and Sweis (2010) also established a positive link of IT skills with JS. Likewise, Martinez (2008) confirmed an association of technology skills with JS. Long (1993) also established that the use of technology in the workplace indicates the value of work. However, these results are inconsistent with the findings of Danziger and Dunkle (2005). Their results reported technological skills and its role as a non-predictor of employees' job satisfaction. Similarly, these findings are not supporting the results of Estabrook et al. (1990), establishing technological skills as predictors of job dissatisfaction.

6. Conclusion

The findings of study are significant in the sense that technological skills predicted JS of librarians performing in the selected universities of Pakistan. These librarians are needed to

acquire TMC that may enhance their JS leading them to effective performance and successful productivity. In the age of innovations the provision of TMC is must for librarian's professional survival and attainment of organizational objectives. It is established that competent and satisfied Pakistani university librarians will be committed and successful performers. It is suggested that university leadership in Pakistan should enhance TMC of their librarians to have satisfied and successful workforce. They should not ignore the significance of technology related skills that predicted JS of Pakistani university librarians. As previous research findings established that a satisfied worker is an effective performer, thus, enhancing the current TMC of Pakistani university librarians will prompt them to JS, effective performance and successful productivity.

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