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Impact of Office Automation on Employee Amotivation: The Case of Punjab Civil Secretariat

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The objective of this study is to investigate the impact of office automation systems on amotivation of employees through technostress by employing self-determination theory (SDT). Punjab Civil Secretariat employees were taken as the population for the research study. Data of 348 employees was collected through simple random sampling. Data were analyzed using correlation and multiple regression analysis. The results showed that office automation has a significant influence on technostress which further leads to amotivation in employees. Past research shows that the implementations of office automation systems are intended to influence employee motivation and organizational performance. Implementation of technology may result in competitive advantage, but implementation of technology is not enough to get the desired benefits unless technostress caused by technology implementation systems is managed properly. The current research has significant implications for researchers and policymakers by introducing a framework to study amotivation in government employees that can be linked to the implementation of office automation in public sector organizations.

Keyword: Office automation, employee amotivation, technostress, public sector employees.

INTRODUCTION

Public sectors organizations are adopting and adapting the technological advancements which are being used in the private sector organizations. In most cases, it brings about quick transformation in public sector organizations. Due to the technological advancements, public sector employees are facing enormous pressures. These pressures include dealing with technological advancements, complexity in public networks and increased demands of citizens in service delivery (Castells, 1999). This phenomenon demands to respond to the work related individual needs such as improvement in skills, capabilities and higher performance to achieve productivity targets (Thornley, Jefferys, & Appay, 2010). Adaptation of "Information & Communication Technology" (ICT) is significant to survive in today's competitive environment for organizations. Organizations seek to adopt efficient systems and how to integrate it with their operations. Organizations are striving to implement ICT systems to cope with the dynamic environment in Pakistan. The corporate private sector has largely implemented these systems, but the public sector is still at earlier stages of ICT system implementations.

Employee motivation is one of the key factors for bringing about success in implementation of any ICT system. Any system which generates feelings of helplessness among employees will lead to amotivation. Employees who feel stress are unable to control the outcomes of their work and attribute their failure to external forces beyond their control (Abramson, Seligman, & Teasdale, 1978). Such situations in organizations lead towards system failures. This requires studying how office automation systems impact on employee amotivation because substantial investments are required to implement office and these systems in public sector organization.

LITERATURE REVIEW

Office automation system is one of the technological advancements in public sector organizations. Implementation of such system is aimed to improve the output and productivity of the organizations by enhancing the efficiency and effectiveness of professionals and managers, using information technology as a key support function (Fairhead, 1990). However, evaluation of the stated goals of adopted such system has become difficult for organizations due to intangible nature of satisfaction and rationalization regarding acceptability of the system from end users (Smith & Carayon, 1995). An efficiently designed and implemented system of office automation may not be successful due to non-acceptance by the employees, which is attributed as operational stress generated by the system (Charette, 2005). In this context, effectiveness of office automation system is being questioned as new technologically-oriented roles impose additional burden and requires rapid change in working conditions (Willcocks & Mason, 1987). This added burden on employees results in technostress (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008). Technostress is a feeling of anxiety among employees and beyond certain level it has negatively impact on behaviors, attitudes, thoughts, and health of employees (Kupersmith, 1992). There exists a strong relationship between factors that determine technostress, technostress inhibitors and consequences of technostress (Jena, 2015). It is also considered a problem of adaptation because it is the result of the inability of an employee to manage and to get used to office automation systems (Ragu-Nathan et al., 2008). Performance of the employees is directly and indirectly affected by the factors that create technostress and inhibit technostress (Fuglseth & Sørebø, 2014). Technostress resulting from these factors may lead towards dissatisfaction with job, which in turn may attenuate the motivation level of employees (Ayyagari, Grover, & Purvis, 2011; Brod, 1984; Fairbrother & Warn, 2003). This is because of fact that there exists a relation between job performance and

motivation of employees (Alonso & Lewis, 2001; Leisink & Steijn, 2009). Thus, technology alone is not sufficient to increase job satisfaction and job performance. It may engender technostress instead and negatively influence performance. Managing technostress may itself be an important item of change management agenda as newer technologies are implemented in organizations.

Productivity and job performance are linked with motivation of employees. Motivation plays an important role in determining human particular action. It is also referred to catalyst force that help to start and keep employees at their work in an organization (Herzberg, 2017; Porter, Bigley, & Steers, 2003). The "contemporary theories of motivation" emphasized the significance of psychological and emotional values of employees attribute to end goals (Kasser & Ryan, 1996), employees' expectations to attain goals (Eccles & Wigfield, 2002) and the mechanisms that helps to keep employees moving continuously towards their selected goals (Dweck, 2013). According to the contemporary theories, accomplishment of different but equally valued and significant goals should have same quality of output and motivation towards its achievement. But in contemporary work on human behavior and motivation, the same was found to be case-sensitive with respect to types of goals. In line of the goal-directed behavior, self determination theory (SDT) differentiated goal content and regulatory processes for the pursuit of goals (Deci & Ryan, 2000). SDT being premised upon the fulfillment of inner psychological needs for pursuance and attainment of goals integrated the goal contents differentiation with the regulatory processes with focus on addressing the specific needs influencing goals pursuit. The specific three psychological needs required for goals pursuit are need for competence, relatedness and autonomy identified by SDT. A subset theory within SDT is cognitive evaluation theory (CET) which examined the relationship between the stated specific needs and intrinsic motivation (Lepper & Greene, 2015). CET established the support of the stated three specific needs for producing variability in intrinsic motivation. SDT also presented the constructs of internalization and integration, wherein the former refers to the acceptance of a regulation by the people and the latter refers to the transformation of the accepted regulation into the people's sense of self. SDT can also be explained using a continuum different types of motivation with regulatory styles, perceived locus of causality and relevant regulatory processes (Deci & Ryan, 2000). The continuum is presented below:

Table 1: The self-determination continuum

Behavior	Nonself-determined ◄——————————► Self-determined					
Type of motivation	Amotivation	Extrinsic motivation				Intrinsic Motivation
Type of Regulation	Non-regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
Locus of Causality	Impersonal	External	Somewhat External	Somewhat Internal	internal	Internal

(**Source:** Adopted from (Deci & Ryan, 2000)

The above table shows amotivation, a state with lack of intention to act. According to SDT, this state is the result of the absence of satisfaction of the three specific needs of competence, relatedness and autonomy (Deci & Ryan, 2000). The continuum comprising intrinsic motivation and amotivation is covered with extrinsic motivation entailing behaviors that are least autonomous and are externally regulated. The state of intrinsic motivation at the extreme right is achieved due to transformation of externally regulated behavior into internally regulated behavior upon satisfaction of the specific innate psychological needs.

The success of implemented office automation or ICT systems is dependent upon end user and stakeholder requirements. On the other hand, there is discrepancy in the content of goals and the regulatory process through which goals are pursued (Kumar & Kumar, 2011). For example, goal to develop a resource planning software and related hardware infrastructure for an enterprise are equally valued having same expectancy level of attainment but differ in terms of performance and affective experience parameters. Besides technological developments and implementation being case-sensitive, another area of concern is the socio-technical goal-oriented approach for technology development and its implementation, which is pre-dominantly focusing upon determined goals rather than user needs. Hence application of traditional non need based goal-oriented motivation theories may assist successful technology development but may not address successful technology implementation. Thus, this paper is concerned with understanding amotivation in presence of IT implementation through Self Determination Theory.

Impact of Office Automation on Employees

In literature, office automation system are viewed as to enrich and facilitate jobs and enhance satisfaction (Millman & Hartwick, 1987), as well as it also create stress among employees of an organization (Dolan & Tziner, 1988). Stress is a dynamic condition which hinders to accept opportunities and it acts as a barrier for an outcome which is perceived to be uncertain (Robbins & Coulter, 2007). Stress is a major problem in implementation of office automation (Brillhart, 2004). It is also considered a "state of arousal observed in certain employees who are heavily dependent on computers in their work" (Arnetz & Wiholm, 1997). Arousal is considered a hypothetical construct representing the "level of central nervous system activity along a behavioral continuum ranging from sleep to alertness" (Stokes & Kite, 2001) and there would be a decrease in performance based on little or too much arousal (Prunier, Christman, & Jasper, 2018; Whitfield & Cachia, 2018).

Different causes of work stress include different intrinsic factors of job, role of an individual in organization, organizational structure and climate, nature of relationships at work and career growth and development for employees (Hoboubi, Choobineh, Ghanavati, Keshavarzi, & Hosseini, 2017; Skaalvik & Skaalvik, 2017). Literature describes the implementation of ICT systems in organizations as an intrinsic factor that may results in technostress (Long, 2018). Technostress is a form of stress which is outcome of the inability to comply with ICT systems (Mahaptra & Pati, 2018). Technostress can be emerged due to different factors such as inability to interact and cope with ICT systems, workload overload and new technology act as threat to job security (Hwang & Cha, 2018; Ye, 2018). Presence of technostress among employees may affect their job performance is inversely related to motivation (Effiyanti & Sagala, 2018; Ioannou, 2018). Technostress also decreases productivity and increasing role stress (Marchiori, Mainardes, & Rodrigues,

2018; Sarabadani, Carter, & Compeau, 2018; Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2007).

H_1: Office automation has significant influence on technostress.

In literature, technostress is correlated with de-motivation, dissatisfaction about work, work overload and information fatigue (Okonoda et al., 2017; Tarafdar, Pullins, & Ragu-Nathan, 2015). However, the literature has neglected competence, autonomy, and relatedness as correlates to technostress. This results in lack of discussion on the continuum of the SDT. The continuum of SDT comprised of amotivation, extrinsic motivation and intrinsic motivation. Self-determination theory has identified three types of motivation. The framework of technostress and motivation types in self-determination theory has yet not been studied widely. Technostress results from ICT systems needs to be investigated in order to get the stated benefits of ICT systems. It is proposed that due to the interaction with office automation systems and lack of certain competencies will result in amotivation among employees. Office automation system as a form of new technology may results in generating technostress (Long, 2018) and it negatively effects motivation of the employees (Anandarajan, Igbaria, & Anakwe, 2002).

H_2: Technostress has significant influence on amotivation.

Self Determination Theory

Self determination describes the phenomenon of motivation. More specifically, SDT helps to understand human motivation to intrinsic psychological and emotional needs for 'autonomy, competence and relatedness' (Deci & Ryan, 2000; Gagné & Deci, 2005). According to SDT, the concept of need also related to other need theories states that need act as a catalyst for psychological growth, well-being and integrity. This means that goal attainment is differently linked to the regulatory process (Standage, Duda, & Ntoumanis, 2003). Hence, well being and effective functioning have associations to the human behavior and mental health quality of an individual. In fact, different goal contents (outcomes) and different regulatory processes are linked with the level of satisfaction of the said need. While, SDT consider both goal contents and regulatory process for the accomplishment of the desired results. Self determination theory describes the relation of specific achievement and the level of satisfaction with the desired outcomes. According to self determination theory, competence boosts human activity and it is necessary to be fulfilled for psychological health of employees (Deci & Ryan, 2000). Self determination theory also explains the intrinsic need for relatedness and autonomy. In self determination theory, relatedness means the feeling to get connected with others for love and care. Autonomy is explained by self determination theory as an 'experience of integration and freedom' and it is an essential aspect of healthy human functioning (Bouffard, 2017; Deci & Ryan, 2000).

Literature reports the relationship of amotivation with job involvement, job satisfaction and job performance (Breaugh, Ritz, & Alfes, 2018; Tietjen & Myers, 1998). But there is no evidence that how these concepts are related with technological developments. Following SDT, we argue that elements of competence, relatedness and autonomy are vital for the success of any ICT system. ICT system which is designed and implemented without considering the stated parameters would not produce the desired results and would be considers partial and incomplete (Olson & Lucas, 1982). We propose that, while interacting with office automation tools as a form of technological change, a lack of competence, relatedness and autonomy will lead to amotivation among employees. Office automation as a form of new technology is an intrinsic factor that results in generating technostress (Long, 2018) and it is inversely related to motivation (Anandarajan, Igbaria, & Anakwe, 2002). Technostress as a mediator is used in various studies previously (Mahapatra & Pati, 2018; Saganuwan, Ismail, & Ahmad, 2013; Yasir, Batool, Khan, Imran, & Qureshi, 2016) but technostress in the relationship of office automation and amotivation has not been studied yet. As office automation can create technostress that will lead to amotivation among employees, it is hypothesized that technostress will mediate the relationship of office automation and amotivation.

H_3: Office automation has significant influence on amotivation.

H_4: Technostress significantly mediates the relationship of office automation and amotivation.

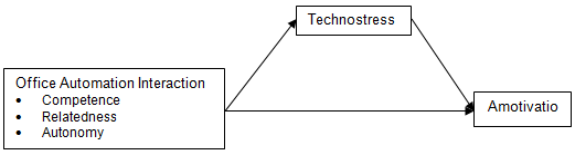

Figure 1: Conceptual Model

METHODOLOGY

Government employees working in Civil Secretariat under grade 11-16 BPS was the population of this study. Due to time and financial constraints it was not possible to collect data from all employees. Services and General Administration Department has 42 departments in Punjab Civil Secretariat with total number of employees 1240 in 11-16 BPS grade. 40% sample from each department was collected through simple random sampling. Primary data was collected through closed ended questionnaire. Dichotomous scale was used to measure office automation and it contained 10 statements. 5 point Likert scale of Ragu-Nathan et al., (2007) was used to measure technostress. 7 point Likert scale of Tremblay et al., (2009) was used to measure technostress. The tool of data collection was validated through pilot testing by distributing 25 questionnaires among the employees. Questionnaires were self administered. 496 questionnaires were distributed among the employees. 375 questionnaires were returned and among those 27 questionnaires were discarded due to substantial missing data. Finally, data of 348 employees were retained as usable data. SPSS 20 was used to analyze the data. The Cronbach's alpha (reliability) of office automation (consisting of 10 questions), technostress (consisting of 21 questions) and amotivation (consisting of 3 questions) was 0.745, 0.865 and 0.776 respectively and the average reliability of the questionnaire was 0.795.

Data Analysis

The following table shows descriptive statistics. The collected data consists of 70% male and 30% female employees. Office automation and technostress are significantly correlated as $r = .760$, $p < .01$. Office automation

and amotivation are significantly correlated as r = .561, p < .01. Amotivation and technostress is significantly correlated as r = .733, p < .01. Office automation and technostress are significantly correlated as r = .760, p < .01.

Table 2: Descriptive statistics (N = 348)

Variables	Freq (%)	Mean	Std. D	Min	Max	Technostress	Amotivation	Office Automation
Gender								
Male	70							
Female	30							
Age		40.07	.710	22	58			
Education								
Graduation	55							
Master	31							
M. Phil	14							
Experience								
=<5	23							
6-10	53							
11-15	20							
>16	4							
Staff								
BPS 11	46							
BPS 14	29							
BPS 16	25							
Technostress		3.818	833			(.865)		
Amotivation		3.830	.727			.733**	(.776)	
Office Automation						.760**	.561**	(.745)

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

Predicting Amotivation

The relationship of office automation and amotivation was analyzed using multiple linear regression and results are given in table 3. Results show that office automation has statistically significant relationship with amotivation. Overall model explains 56.1% (F=167.193, p < .001) of variance in amotivation. The R^2 and adjusted R^2 have very negligible difference.

Table 3: Regression Analysis of office automation & amotivation

Independent Variables	B	(SE)	β
Gender	-.012	.059	-.006
Age	.045	.035	.044
Education	.054	.025	.064*
Experience	-.026	.029	-.030
Clerical Staff	-.028	.027	-.031
Office Automation	.730	.023	.858***
R^2	.561		
Adjusted R^2	.557		
F (Significance)	167.193 (.000)		
df	6/341		

Note: Gender, age, education, experience & clerical staff are control variables.
*p < 0.05.
**p < 0.01.
***p < 0.001.

Mediating effect of technostress on amotivation

Four steps approach (Baron & Kenny, 1986) were used to determine the role of technostress as mediator. Office automation has significant impact on amotivation as (β = .858, p < 0.001). Office automation and technostress has significant relationship as (β = .760, p < 0.001). Office automation and amotivation has significant relation in the presence of mediator as (β = .718, p < 0.001). β value office automation decreases from .858 to .718 due to inclusion of technostress in the regression model. This shows that technostress partially mediated the relationship of office automation and amotivation and results are shown in table 4. Significance of mediation was determined using Sobel test of mediation. The results of Sobel test z = 4.381, p< 0.05 showed that strength of association between office automation and amotivation is significantly reduced after the inclusion of technostress as mediator. It means that the mediating variable technostress significantly mediates the relationship of office automation and amotivation. Technostress mediated 16.4% of the relation of office automation and amotivation.

Table 4: Mediation analysis (N=348)

Independent Variables	Step 1			Step 2			Steps 3 & 4		
	B	(SE)	β	B	(SE)	β	B	(SE)	β
Gender	-.012	.059	-.006	-.040	.087	-.017	-.006	.058	-.003
Age	.045	.035	.044	-.047	.051	-.040	.053	.034	.052
Education	.054	.025	.064*	.034	.037	.035	.049	.025	.057
Experience	-.026	.029	-.030	-.015	.042	-.015	-.023	.028	-.027
Clerical Staff	-.028	.027	-.031	-.037	.040	-.035	-.022	.026	-.025
Office automation	.730	.023	.858***	.741	.034	.760***	.610	.035	.718***
Technostress							.161	.036	.184***
R^2	.746			.583			.760		
Adjusted R^2	.742			.575			.756		
F (Significance)	167.193 (.000)			79.386 (.000)			154.210 (.000)		
Df	6/341			6/341			7/340		

Note: In step 2, dependent variable is technostress. In step 1, 3 & 4 dependent variable is amotivation. Gender, age, education, experience & clerical staff are control variables.
*p < 0.05.
**p < 0.01.
***p < 0.001.

DISCUSSION & RESULTS

Development in technology has resulted into essential changes in the working conditions for employees by improving efficiency and productivity of their work. But this change in working conditions has also developed competition among employees within and outside of organizations. This sense of competition has developed certain level of pressure on employees to perform more efficiently as a result of this technological change and advancements in organizations. The main objective of introduction and implementation of office automation systems in public sector is to improve the performance of the organization by increasing the efficiency and effectiveness of employees (Fairhead, 1990; Long, 2018). But a well-designed and efficiently implemented system may not generate the stated results due to end user rejection. The universal justification for the success of such systems is also become difficult due to diverse nature of employees, their competencies and user experience with technological advancements at different levels (Charette, 2005).

This study shows that implementation of office automation system caused amotivation among employees. Implementation of office automation has also produced technostress in employees. These findings are consistent with literature the (Hwang & Cha, 2018; Ragu-Nathan et al., 2008; Ye, 2018) i.e. office automation leads to technostress among employees. The presence of technostress among employees shows lack of competence and skills required to use the new implemneted ICT systems. Furthermore, amotivation is the result of technostress in employees. This shows that technology alone cannot enhance performnce and productivity of employees. The ICT systems which are developed to improve the out put of employees it may leads to generate technostress other behavoral issues in emolyees. Thereore, the introduction of new systems may adversly effct the performance of the organization instead of enhanceent in the productivity and this may be the main factor that can afect the

success of the office automation system in organizations (Brillhart, 2004).

It is also important to investigate the phenomenon of technostress among employees and how it can be reduced while introducing office automation. In the presence of technostress, it would be difficult for organizations to achieve desired results of office automation. The dynamic and competitive environment requires organizations to continuously introduce ICT systems for efficient use of resources. Absence of office automation system in government organizations will directly affect the public because public departments are required to resolve public issues effectively and efficiently. If employees are under pressure or they are not motivated, then this condition will affect their performance. In contrast if employees are motivated then they will be able to perform better. Motivation plays an important role while dealing with productivity and job performance. Motivation also plays a catalyzing role which help to start and keep employees at their work in organizations (Pang & Lu, 2018). On the other hand, implementation of office automation systems without proper training and skills required to use such system will result into technostress among employees. The presence of technostress may restrain employees to learn new skills and competencies. Therefore, it is necessary for organizations to synchronize the implementation of such systems with training of the employees to achieve stated results. One possible reason for emergence of technostress is the learning behavior of employees. Learning of the employees should be synchronized with the introduction and implementation of ICT systems. Communication gap during the process of implementing office automation in organizations can also lead to this situation. Therefore, it is difficult to state a single factor which leads to technostress and amotivation. These findings have significant implications for researchers, policy makers and other public institutions regarding implementation of ICT systems in public sector organizations.

Table 5: Results of the study

Sr. No.	Statements	Results
H_1	Office automation has significant influence on technostress.	Supported
H_2	Technostress has significant influence on amotivation.	Supported
H_3	Office automation has significant influence on amotivation.	Supported
H_4	Technostress significantly mediates the relationship between office automation and amotivation	Supported

Recommendations

This research study proposed followings recommendations:

1. The introduction of ICT system in public sector organizations should be synchronized with certain competencies related training of the employees.
2. Public sector organizations need adopt the culture of learning organizations for purpose of introduction and implementation of office automation or ICT systems to achieve stated benefits and outcomes.
3. Organizations need to evaluate performance of their employees regularly in order to avoid amotivation.

Directions for Future Research

This research study has examined the impact of ICT systems on amotivation of employees. The findings show that implementation of office automation produces technostress in employees which further lead towards amotivation. There may be different factors like, communication gap, different learning patterns among employees, lack of certain competencies and feedback which has produced technostress. Future research is needed to explore how office automation produced technostress in employees and how-to technostress can be reduced while implementing ICT systems in government institutions.

REFERENCES

Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, *87*(1), 49–74. https://doi.org/10.1037/0021-843X.87.1.49

Alonso, P., & Lewis, G. B. (2001). Public service motivation and job performance: Evidence from the federal sector. *The American Review of Public Administration*, *31*(4), 363–380.

Anandarajan, M., Igbaria, M., & Anakwe, U. P. (2002). IT acceptance in a less-developed country: a motivational factor perspective. *International Journal of Information Management*, *22*(1), 47–65.

Arnetz, B. B., & Wiholm, C. (1997). Technological stress: Psychophysiological symptoms in modern offices. *Journal of Psychosomatic Research*, *43*(1), 35–42.

Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: technological antecedents and implications. *MIS Quarterly*, *35*(4), 831–858.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173.

Bouffard, L. (2017). Ryan, RM et Deci, EL (2017). Self-determination theory. Basic psychological needs in motivation, development and wellness. New York, NY: Guilford Press. *Revue Québécoise de Psychologie*, *38*(3), 231–234.

Breaugh, J., Ritz, A., & Alfes, K. (2018). Work motivation and public service motivation: disentangling varieties of motivation and job satisfaction. *Public Management Review*, *20*(10), 1423–1443.

Brillhart, P. E. (2004). Technostress in the workplace: Managing stress in the electronic workplace. *Journal of American Academy of Business*, *5*(1/2), 302–307.

Brod, C. (1984). *Technostress: The human cost of the computer revolution*. Addison Wesley Publishing Company.

Castells, M. (1999). *Information technology, globalization and social development* (Vol. 114). United Nations Research Institute for Social Development Geneva.

Charette, R. N. (2005). Why software fails [software failure]. *Ieee Spectrum*, *42*(9), 42–49.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268.

Dweck, C. S. (2013). *Self-theories: Their role in motivation, personality, and development*. Psychology press.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, *53*(1), 109–132.

Effiyanti, T., & Sagala, G. H. (2018). Technostress among teachers: a confirmation of its stressors and antecedent. *International Journal of Education Economics and Development*, *9*(2), 134–148.

Fairbrother, K., & Warn, J. (2003). Workplace dimensions, stress and job satisfaction. *Journal of Managerial Psychology*, *18*(1), 8–21.

Fairhead, N. (1990). How to get value from your office systems. *Office & Information Management International*, (January), 10–14.

Fuglseth, A. M., & Sørebø, Ø. (2014). The effects of technostress within the context of employee use of ICT. *Computers in Human Behavior*, *40*, 161–170.

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, *26*(4), 331–362.

Herzberg, F. (2017). *Motivation to work*. Routledge.

Hoboubi, N., Choobineh, A., Ghanavati, F. K., Keshavarzi, S., & Hosseini, A. A. (2017). The impact of job stress and job satisfaction on workforce productivity in an Iranian petrochemical industry. *Safety and Health at Work*, *8*(1), 67–71.

Hwang, I., & Cha, O. (2018). Examining technostress creators and role stress as potential threats to employees' information security compliance. *Computers in Human Behavior*, *81*, 282–293.

Ioannou, A. (2018). *Examining the role of mindfulness in mitigating technostress and its negative consequences* (PhD Thesis). Brunel University London.

Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin*, *22*(3), 280–287.

Kumar, S. A., & Kumar, T. A. (2011). Study the impact of requirements management characteristics in global software development projects: an ontology-based approach. *International Journal of Software Engineering & Applications*, *2*(4), 107.

Kupersmith, J. (1992). Technostress and the reference librarian. *Reference Services Review*, *20*(2), 7–50.

Leisink, P., & Steijn, B. (2009). Public service motivation and job performance of public sector employees in the Netherlands. *International Review of Administrative Sciences*, *75*(1), 35–52.

Lepper, M. R., & Greene, D. (2015). *The hidden costs of reward: New perspectives on the psychology of human motivation*. Psychology Press.

Long, R. J. (2018). *New office information technology: Human and managerial implications*. Routledge.

Mahapatra, M., & Pati, S. P. (2018). Technostress Creators and Burnout: A Job Demands-Resources Perspective. In *Proceedings of the 2018 ACM SIGMIS Conference on Computers and People Research* (pp. 70–77). ACM.

Mahaptra, M., & Pati, S. P. (2018). *Can meaningful work mitigate the impact of techno stress creators? Evidence from India*.

Marchiori, D. M., Mainardes, E. W., & Rodrigues, R. G. (2018). Do Individual Characteristics Influence the Types of Technostress Reported by Workers? *International Journal of Human–Computer Interaction*, 1–13.

Millman, Z., & Hartwick, J. (1987). The impact of automated office systems on middle managers and their work. *MIS Quarterly*, 479–491.

Okonoda, K. M., Tagurum, Y. O., Imo, C. O., Nwachukwu, V. A., Okoli, E. S., & James, B. O. (2017). Prevalence and correlates of technostress among academic staff at the University of Jos, Nigeria. *Journal Of Medical Science and Clinical Research*, *5*(3), 18616–18624.

Olson, M. H., & Lucas, H. C. (1982). The impact of office automation on the organization: some implications for research and practice. *Communications of the ACM*, *25*(11), 838–847.

Pang, K., & Lu, C.-S. (2018). Organizational motivation, employee job satisfaction and organizational performance: An empirical study of container shipping companies in Taiwan. *Maritime Business Review*.

Porter, L. W., Bigley, G. A., & Steers, R. M. (2003). Motivation and work behavior.

Prunier, S., Christman, S., & Jasper, J. (2018). The effects of varying levels of hemispheric activation on episodic memory. *Laterality: Asymmetries of Body, Brain and Cognition*, *23*(4), 409–421.

Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008). The consequences of technostress for end users in organizations: Conceptual development and empirical validation. *Information Systems Research*, *19*(4), 417–433.

Robbins, S. P., & Coulter, M. (2007). Principles of management. *Translated by Seyyed Mohammad Arabi and Mohammed Ali Hamid Rafiee and Behrouz Asrari Ershad, Fourth Edition, Tehran: Office of Cultural Studies*.

Saganuwan, M. U., Ismail, W. K. W., & Ahmad, U. N. U. (2013). Technostress: mediating accounting information system performance. *Information Management and Business Review*, *5*(6), 270–277.

Sarabadani, J., Carter, M., & Compeau, D. (2018). 10 Years of Research on Technostress Creators and Inhibitors: Synthesis and Critique.

Skaalvik, E. M., & Skaalvik, S. (2017). Still motivated to teach. A study of school context variables, stress and job satisfaction among teachers in senior high school. *Social Psychology of Education*, *20*(1), 15–37.

Smith, M. J., & Carayon, P. (1995). New technology, automation, and work organization: Stress problems and improved technology implementation strategies. *International Journal of Human Factors in Manufacturing*, *5*(1), 99–116.

Standage, M., Duda, J. L., & Ntoumanis, N. (2003). A model of contextual motivation in physical education: Using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of Educational Psychology*, *95*(1), 97.

Stokes, A. F., & Kite, K. (2001). On grasping a nettle and becoming emotional. *Stress, Workload, and Fatigue. Mahwah, NJ: L. Erlbaum*, 162–181.

Tarafdar, M., Pullins, E. B., & Ragu-Nathan, T. S. (2015). Technostress: negative effect on performance and possible mitigations. *Information Systems Journal*, *25*(2), 103–132.

Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., & Ragu-Nathan, T. S. (2007). The impact of technostress on role stress and productivity. *Journal of Management Information Systems*, *24*(1), 301–328.

Thornley, C., Jefferys, S., & Appay, B. (2010). *Globalization and precarious forms of production and employment: Challenges for workers and unions*. Edward Elgar Publishing.

Tietjen, M. A., & Myers, R. M. (1998). Motivation and job satisfaction. *Management Decision*, *36*(4), 226–231.

Tremblay, M. A., Blanchard, C. M., Taylor, S., Pelletier, L. G., & Villeneuve, M. (2009). Work Extrinsic and Intrinsic Motivation Scale: Its value for organizational psychology research. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, *41*(4), 213.

Whitfield, M., & Cachia, M. (2018). How does workplace stress affect job performance? An employee's perspective. *New Vistas*, *3*(2), 28–33.

Willcocks, L. P., & Mason, D. (1987). *Computerising work: people, systems design and workplace relations*. Paradigm.

Yasir, M., Batool, S., Khan, F., Imran, A., & Qureshi, M. I. (2016). Social Media, Technostress and Workplace Deviance: An Evidence from The Software Houses in Pakistan. *Abasyn Journal of Social Sciences*, 559–571.

Ye, Q. (2018). Extending research on technostress: exploring the moderating effects of techno-savvy and the proactive personality on the relationship between technostress and job satisfaction and stress.