Job Stress and Job Satisfaction Among Indonesian Lecturers: How Information Technology System May Define Them in the Era of Industrial Revolution 4.0

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Abstract—**Information technology is developing rapidly and has changed the way of life in all elements of society, including in tertiary organizations. This study aimed to determine the contribution of information technology systems in strengthening or weakening the relationship between organizational culture and the level of satisfaction and organizational structure and stress experienced by lecturers in Indonesia. In addition this study also examined the effect of information technology systems on stress and the effect of stress on job satisfaction. The population in this study were lecturers of state universities in Indonesia with a sample of 106 lecturers from ten universities spread across three clusters of Indonesia, Java and Bali, Sumatra and Sulawesi. The instrument was a Likert scale online questionnaire processed with the analysis tool WarpPLS 6.0. The findings of this study showed there was a contribution of information technology systems to the effect of organizational culture on job satisfaction. However, information technology systems failed to moderate the effect of organizational structure on stress levels. On the other hand, information technology systems had a direct and negative effect on stress and stress had a negative effect on job satisfaction. Some recommendations for increasing job satisfaction and reducing stress of lecturers in Indonesia are discussed in this study.**

Keywords: job stress, job satisfaction, organizational culture, organizational structure, information technology systems, lecturers, university

I. INTRODUCTION

Nowadays the world is facing a fourth industrial change known as the industrial revolution 4.0. The industrial revolution 4.0 has a profound effect on many aspects of human life, especially in terms of employment, where robots and machines will slowly but surely eliminate much of the work that was once done by humans. The takeover of tasks and human authority by robots and machines should have begun to be anticipated by the higher education sector as an agent of labor production. Higher education must adjust to the development of the industrial revolution 4.0 by presenting education 4.0. Education 4.0 is known as a higher form of blended learning [1]. The academic system in education 4.0 is intuitive, adaptive / personalized, knowledge-based, interactive and building social networks so that it provides better value for students and their own teachers. Education system 4.0 should be designed to accommodate several new skills such as non-linear thinking, social and intercultural skills, meta-knowledge, self-management and self-competence in response to industry needs 4.0 [2].

Education 4.0 is focused on meeting the needs of the community in innovative areas. In Indonesia, the application of education 4.0 is still not optimal. Education 4.0 responds to behavior change with certain characteristics of parallelism and connectivity [3]. Changes in the characteristics of education also have an impact on changes in education management. It is recommended for teaching activities using social media in large groups and in virtual environments with massive open online courses [4]. In addition the Edudemic website recommends 10 powerful tools for future education, namely: visual learning, evolved currencies, personalization, gamification, social media, game-based learning, connectedness, crowdsourcing-it is distributed problem-solving and production models which has solved the problem through the process of Project-Based Learning, Digital and Physical Merge [5]. In Indonesia, universities need to find methods to develop students' cognitive capacities, namely in terms of higher order mental skills, critical and systemic thinking. To be able to survive in the era of the industrial revolution 4.0, the Director General of Learning and Student Affairs encourages the development of digital learning processes. The policy formulated is reorienting the curriculum, encouraging online blended learning through the Indonesian Online Learning System (SPADA), encouraging universities to have special units for life-long learning services and grants and training for 400 universities in Indonesia [6].

The success of the 4.0 education system in tertiary institutions depends very much on the lecturer performance. No matter how sophisticated the education system is used, if it cannot be executed properly by the instructor, it will be in vain. Therefore, the study of teacher performance, in this case in tertiary institutions, is very important to be developed as a guideline in formulating what treatments are needed by lecturers in the era of education 4.0 so that they are able to achieve the desired level of performance. In fact, there are currently many techno stresses among college teachers. The development of information technology has the potential to cause technostress, namely the stress conditions faced by users as a result of the use of information systems in an organizational context [7]. Technostress manifests its effects in the form of increase on role overload, role conflict, fatigue and decrease on job satisfaction [7][8].

Colquitt et.al. formulate several factors that affect a person's performance, such as group mechanisms, organizational mechanisms, and individual competencies to individual mechanisms with many aspects in it. In relation to the use of information systems and technology in tertiary institutions in the era of industrial revolution 4.0, this research will focus on how information systems and technologies used in tertiary institutions play a role in shaping job satisfaction and, on the other hand, affecting lecturers' stress levels with a predictor of organizational culture and organizational structure.

II. LITERATURE REVIEW

A. Organizational Behavior Theory

Organizational mechanisms in a large organization affect employee satisfaction, stress, motivation, and performance. Organizational mechanism can be seen from the organizational structure and organizational culture. The integrative model of Colquitt, et.al states that employees do not work alone [9]. Instead they usually work in one or more work teams led by several formal leaders for something informal. Group mechanism can be seen from the characteristics of the team, team processes, leadership (power and influence), and leadership (style and behavior). This model also states a number of individual mechanisms that directly affect work performance and organizational commitment.
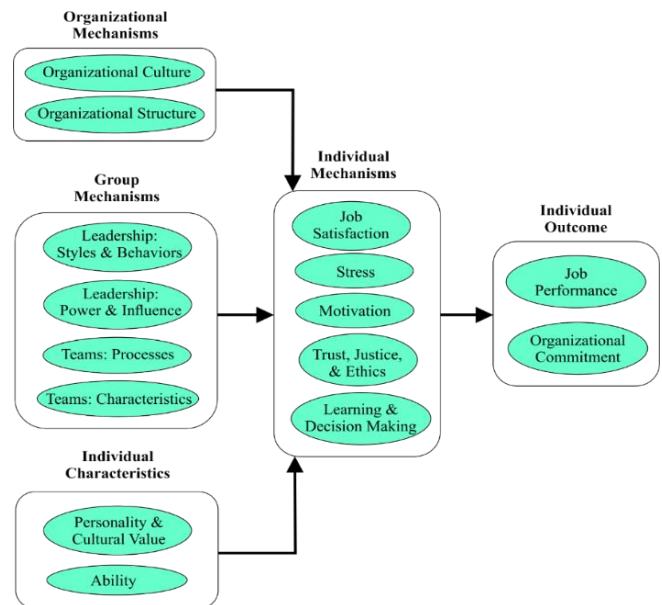

Fig. 1. Organizational Behavior Model Colquitt [9]

B. Job Satisfaction

Job satisfaction is 'a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences' (p. 1304) [10]. Job satisfaction is an important factor affecting lecturer performance. In tertiary institutions, lecturer performance plays an important role in the progress of the institution [11]. Lecturers are the main resource of higher education institutions, and their satisfaction with the work environment can improve the quality of teaching and research. Therefore, the needs of lecturers must be met to improve the work environment so that they are able to achieve excellent research and teaching performance [12]. This improvement in the work environment, according to the Organizational Behavior Model of Colquitt, et.al includes the improvement of organizational mechanisms, group mechanisms and individual mechanisms within the lecturers themselves.

C. Information Technology Systems

Information technology Systems have been explicitly developed in the literature related to participation [13]. Specifically, the benefits of information are expected to enable participation in work-related decision making when individuals who do work have information about tasks that are not available to supervisors [14] [15]. The logic of this Information technology Systems is sharing information between employees and supervisors (as in participation) or employees are given authority or decision-making authority (as in autonomy). When employees share information from superiors to subordinates, it will increase employee knowledge. This will have an impact on the work patterns carried out by employees where employees will know how and when to complete their assignments. Good Information technology Systems in an organization will increase

the effectiveness of work implementation and minimize the occurrence of misinformation. Indicators of Information technology Systems include software, hardware, databases, procedures, brain ware and networks [16].

Modifications of organizational behavior models were carried out in this study to further investigate the effect of organizational culture and organizational structure and culture by not including individual characteristic variables assuming that these variables were considered homogeneous because they had passed various tests during the lecturer recruitment process, while personality factors and values culture should not be a reason for poor performance in an organization. The logic used in the formulation of information technology system variables is whether the way of delivering information from the leadership to subordinates can strengthen the lecturer individual mechanism so that high performance can be achieved.

D. Organizational Culture

Culture is a set of values that are learned, convinced and have a standard of knowledge, morality, law, and attitudes conveyed by individuals, organizations, or society to behave in accordance with how basic habits demand it [17]. Meanwhile, [18] argued that organizational culture is a harmony of individual values and organizational values that significantly affect job satisfaction and employee performance. However, technological development has the potential to change organizational culture. The use of information technology facilitates the process of decentralizing the role of organizational members and increasing the perception that professionalism is not enough to protect one's position in the organization [19]. On the other hand, organizational culture has a significant effect on deviant behavior at work (workplace deviant behaviors).

The link between the development of information technology and job satisfaction is shown by the research results of [20] which stated that the frequency and time of technology use have an impact on user satisfaction in the context of Internet technology in Malaysia. Meanwhile, other studies have found that the frequency and time of technology use can predict user satisfaction [21,22,23]. Because the existence of information technology systems has quite an impact on organizational culture and job satisfaction, the effect of organizational culture on job satisfaction in the midst of rapid information system changes now needs to be reexamined as an effort to find the right approach to improve job satisfaction of lecturers in the era of the industrial revolution 4.0.

H1: Work culture affects job satisfaction
H2: Information technology systems moderate the effect of work culture on job satisfaction

E. Stress

Teacher stress is unpleasant feelings experienced by teachers as a result of their work [24]. Stress has an effect on a person's physical, emotional and psychological health. Several studies have consistently reported time pressure [25], [26], [27], high self-expectations [28], research demands and publications [29], [25], heavy and unrealistic workloads [29], [30], [27], [31], inadequate salary [25], as a source of stress among lecturers. The study of [32] at universities in Malaysia found there was a negative effect of stress on job satisfaction. In the context of different work environments, [33] found the same thing, namely stress had a negative effect on job satisfaction of telecommunications company workers in Pakistan. Furthermore, in relation to the use of technology, [34] stated that the three sectors of stress (techno-overload, techno-invasion and techno-uncertainty) were confirmed to have a negative and significant effect on job satisfaction.

H3: Stress affects job satisfaction

F. Organizational Structure

The organizational structure includes job specialization, chain of command, control range, centralization and formalization. Changes in information technology systems due to the rapid development of information systems bring changes to the organizational structure, including college organizations. [35] Conducted a study in Europe with data from 1993-2010 and found that job polarization had occurred during this period due to technological changes. The structure of employment in Western Europe has been polarized with an increase in the division of labor for high-paid professionals and managers as well as low-paid personal service workers and the fall in shares of manufacturing companies and routine office workers. In this case, lecturers are including professionals who are still needed in the midst of technological change. However, problems arise when lecturers are not technology literate while most of the work in tertiary institutions is now related to technology and information systems. In this case the stress level of lecturers is expected to increase along with their inability to keep up with developing technology.

The results of a survey conducted for the Association of University Teachers [36] in the United Kingdom found that 93% of its members (representing nearly 160,000 academic staff) suffered from work-related stress and 62% of it was sourced from 'excessive' tensions [37]. In Indonesia, [38] conveyed the results of her study that the phenomenon of Job Stress of female lecturers at one of the universities in Indonesia as a whole was included as a Very High level related to the multiple roles they faced. However, [39] also examined at one of the universities in Indonesia and found that the

level of job stress of lecturers was in the low category. The inconsistency of findings and the scope of findings that are too narrow with the rapid development of technology that affects the information technology system make this stress variable worth testing again.

H4: Organizational structure affects stress
H5: Information technology systems affect stress
H6: Information technology systems moderate the effect of organizational structures on stress

Based on the literature review and development of research hypotheses, the empirical model in this study can be observed in Figure 2.
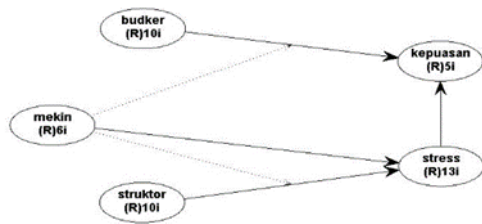

Fig. 2. Hypothesized Model

III. RESEARCH METHODOLOGY

This research is a quantitative research with path analysis model with WarpPLS 6.0 analysis tool. The population in this study were all permanent lecturers who actively worked in 10 universities in Indonesia totaling 11,256 lecturers. A sample of 106 lecturers was determined by using the stratified proportional random sampling technique based on the Slovin formula using cluster sampling in the first stage and simple random sampling in the second stage. The research area was divided into three clusters namely Java and Bali Clusters, Sumatra Island Clusters and Sulawesi Island Clusters. Data collection was performed by using a Likert scale online questionnaire.

IV. FINDINGS AND DISCUSSION

This study describes individually the variables used by referring to the distribution of data derived from respondents' answers through descriptive statistical analysis. Data in the form of average values are classified by three criteria, namely low, medium, and high.

TABLE I.   VARIABLE DESCRIPTION

No	Variable	Indicator	Mean	Category
1	Organizatio-nal structure	Job Specialization	2,12	Low
		Chain of command	2,12	Low
		Control Range	2,12	Low
		Centralization	17,00	Medium
		Formalization	2,52	Medium
2	Organizatio-nal culture	Creative Culture	22,53	Low
3	Information Technology Systems	Software	4,43	High
		Hardware	3,88	High
		Database	4,06	High
		Procedure	3,89	High
		Brain ware	3,77	High
		Network	3,76	High
4	Stress	stress due to work obstacles	9,60	Medium
		Stress due to Obstacles Apart from Work	7,63	Medium
		stress due to work challenges	9,58	Medium
		Stress due to Challenges apart from Work	8,79	Medium
5	Job satisfaction	Job satisfaction	12,59	Medium

The construct validity test and the reliability test were performed as an evaluation of the measurement model with PLS Warp 6.0 [40]. The test results showed the value of loading factors on each indicator, of these indicators, it can be declared to have met the criteria of convergent validity because the value of loading factors on variables of organizational structure, organizational culture, information technology systems, stress and job satisfaction >0.05. Meanwhile it was also strengthened at the AVE (Average Variance Extracted) value of more than 0.5, so that it also showed that of all the indicators could explain the construct variable was greater than 50%. All variables in this study also met the requirements on discriminant validity criteria shown by cross validation by the loading factor indicator against the variables greater than the scale of loading factor indicator for the other variables. The results of the construct reliability test also showed that the composite reliability value of each variable showed a value greater than the cut value of 0.7.

After the outer model test was fulfilled, the global fit test was then performed which consisted of the model fit and quality indices test. This test was conducted to determine the suitability of the inner model in empirical situations, so that the results of hypothesis testing were feasible to be interpreted. Based on the results of data processing, all indices tested in the fit and quality model test, namely the average path coefficient (APC); Average R-squared (ARS); Average adjusted R-squared (AARS); Average block VIF (AVIF); Average full collinearity VIF (AFVIF); Tenenhaus GoF (GoF); Sympson's paradox ratio (SPR); R-squared contribution ratio (RSCR); Statistical suppression ratio (SSR); Nonlinear bivariate causality direction ratio (NLBCDR) was above the cut value so that it can be used to test the hypothesis in this study. The results of hypothesis testing and path coefficients can be explained in the following Table 2.

TABLE II.   PATH COEFFICIENTS AND HYPOTHESIS TESTS

Hypothesis (Direction of Relationship)		Coefficient	P Value	Cut value	Criteria
H₁	Work culture→ job satisfaction	0.456	<0,001	0,05	accepted
H₂	information Technology Systems*work culture → job satisfaction	-0.244	0,007	0,05	accepted
H₃	Stress → job satisfaction	-0.263	0,004	0,05	accepted
H₄	Organizational structure→ stress	0.230	0,011	0,05	accepted
H₅	information Technology Systems→ stress	-0248	0,006	0,05	accepted
H₆	information Technology Systems* Organizational structure → stress	-0.135	<0,092	0,05	rejected

A. Work Culture Had a Positive Impact on Job Satisfaction

This finding is in accordance with Colquitt et al's Organizational Behavior Theory which states that organizational culture is able to affect individual mechanisms, in this case job satisfaction. The work culture in this study refers to the creative work culture. Individuals who are able to meet the demands of creativity in the work environment will achieve higher job satisfaction [41]. The need to think and behave creatively becomes more important now in the midst of technological development. Creativity can foster productive attitudes and develop individual capacity [42]. Based on the results of descriptive analysis it is known that creative culture among universities was still relatively low, this had an impact on job satisfaction that was less than optimal. Lecturers in Indonesia both only acted as a teacher, and those who occupied structural positions were still relatively slow in responding to new policies, while flexibility in changing bureaucratic procedures in response to changing conditions and time demands was also low, this had an impact on the work pile and delay in meeting targets so job satisfaction was only able to be in the low category.

The job satisfaction of lecturers based on the results of descriptive analysis was in the medium category with a score of 12.59, only a slight difference with the low category, namely 11.8. The lecturer satisfaction that was not optimal was affected by organizational structures that were less structured. When compared with other tertiary institutions in Southeast Asia, [43] stated that job satisfaction of lecturers in Malaysia was higher if universities implemented a transformational leadership style. Transformational leadership describes the process of building commitment to organizational goals and making followers (in this case; lecturers) more confident in achieving this goal [44]. In this leadership style, leaders use their personal values, vision, commitment to mission, and passion to energize and move others towards achieving organizational goals [45]. In other words, creative culture plays a large role in the power of transformational leadership.

B. Information Technology Systems Were Able to Weaken the Effect of Work Culture on Job

At present, organizations have increasingly utilized various information technologies to reduce boundaries, secure individual knowledge explicitly and quietly, facilitate information exchange and connect human capital regardless of geographically dispersed locations and cross-level unit structures [46]. But in this research the information technology system actually weakened the effect of creative work culture on job satisfaction. Mastery of the lecturers' information technology system whose indicators are of high category, in fact, can actually reduce the creativity of lecturers. The ease of accessing various scientific contents on the internet is the reason for the rise of acts of plagiarism among academics [47,48]. Invisibly, the use of technology for plagiarism practices can kill the creativity and critical thinking skills of lecturers.

C. Stress had a Negative Effect on Job Satisfaction

The results of the descriptive analysis indicated that the stress level of the lecturer was moderate. Stress in this study was divided into four types, stress due to work obstacles, stress due to obstacles apart from work, stress due to work challenges and stress due to challenges apart from work. Based on the results of descriptive percentages analysis, the highest cause of stress experienced by lecturers in Indonesia was stress due to obstacles in work with an average score of 9.6 followed by stress due to challenges in work with the same average and successively caused by challenges apart from work (8.79) and obstacles apart from work (7.6). This finding is in line with the results of [49] research on the causes of lecturer stress in Zimbabwe. Their findings revealed that the majority of lecturers experienced stress and fatigue, indicated by a 50% frequency. The most common stressors were increased workload, the need to reach targets or meet deadlines, and long working hours. The finding of the negative effect of stress on job satisfaction in this study is in line with the research of [32,33,34].

D. Organizational Structure had a Positive Impact on Stress

Based on the results of descriptive analysis, job specialization, chain of command, control range had a score of 2.12 and occupied low criteria. This means that lecturers in Indonesia still had various workloads, both academic and structural. There is no clear clarity to whom a task should be reported. This is because the lecturer is a professional occupation, where even though there are structural positions, each individual has the freedom to determine how they complete the assignments. Furthermore, respondents also believe the effectiveness of the leader's performance in controlling lecturer performance was still low. Less

optimal organizational structure was also contributed by the level of centralization of work which was still in the medium category. The characteristics of lecturer work, which were mostly tasks that must be done individually, made the level of centralization in the organization in a university study program weak. Even quality control according to respondents was still in the medium category. This very loose organizational structure gave a lot of freedom to lecturers so the stress level among lecturers in Indonesia was still in the medium category. In comparison, the number of professors who changes professions increases so that fewer individuals actually meet the qualifications to become a lecturer but do not take the opportunity [50]. This is because the stress level was high and job satisfaction of lecturers in Singapore was low.

E. Information Technology Systems had a Negative Effect on Stress

Employee stress and tension related to the development of information technology (IT) systems only assess in the context of (bad) interactions with IT employees and the extent to which certain properties of IT create hassles and stress for employees [51]. However, on the other hand, IT advancements are able to create more flexibility in the workplace. Currently lecturers do not have to always be on campus to meet directly in class with students because there is e-learning, faculty leaders do not have to go out of town for meetings because there is teleconference technology, and student assignments no longer need to be corrected manually because an online quiz. All information can be accessed even outside working hours. On this side, the better the information technology system which includes software development, hardware repair, online database compilation, procedure improvement, and competent brainware will actually help ease the work of lecturers so as to reduce stress due to work matters.

F. Information Technology Systems did not weaken the Effect of Organizational Structure on Stress

Hypothesis testing showed that information technology systems do not act as moderating variables on the effect of organizational structure and stress experienced by lecturers. Descriptive percentage results describe all indicators in the information technology system variables in the high category. In recent years, information technology has had a profound effect on the processes and practices carried out by Human Resources (HR). However, few studies have measured its effectiveness, and most of the existing studies have not yet assessed the extent to which this system allows organizations to achieve their goals. Studies conducted by [52] found that most members of organizations: (a) use one-way communication systems, (b) are impersonal and passive, (c) do not always allow for interpersonal interactions, and (d) often create artificial distances between individuals and organizations. In this condition, no matter how good the information technology system that is built in an organization will not be able to strengthen the effect of the organizational structure on the level of lecturers in Indonesia.

V. CONCLUSION

This study aimed to explore how information technology systems play a role in increasing job satisfaction and reducing stress on lecturers in Indonesia. Empirical results indicated that the information technology system in its application in tertiary institutions had two sides, positive and negative. The positive side of using information technology was the creation of a more flexible work environment, ease of coordination, and speed of accessing data. The negative side of the information technology system was the attitude of not wanting to learn which raised the potential for individuals to fail to understand so that it had the potential to hamper the whole system, technostress as a result of information flow that was unstoppable with the ease of internet access, to the temptation of plagiarism. Both sides must be understood by lecturers so that technological development in the era of the industrial revolution 4.0 can increase job satisfaction and reduce the stress of lecturers in Indonesia.

REFERENCES

[1] M. Ciolacu, and R. Beer, "Adaptive user interface for higher education based on web technology", In IEEE 22nd International Symposium for Design and Technology in Electronic Packaging (SIITME), pp. 300-303, October 2016.

[2] Bundesministerium für Bildung und Forschung (BMBF), "Digital World– The Information Society", [Online], Availabe:https://www.bmbf.de/en/the-information-society-2353.html (Accesssed on 24.09.2019)

[3] J. G. S Goldie., "Connectivism: A knowledge learning theory for the digital age?" in Medical Teacher, 38(10), 2016, 1064-1069. http://dx.doi.org/10.3109/0142159X.2016.1173661

[4] S. Jeschke, "Higher Education 4.0- Trends and Future Perspectives for Teaching and Learning" Virtuelle Lernwelten in der Universitat Frankfurt am Main, April 2014

[5] V. Nedeva, and S. Dineva, "New learning innovations with Web 4.0," The 7th International Conference on Virtual Learning ICVL 2012. Retrieved from: http://www.icvl.eu/2012/disc/icvl/documente/pdf/tech/ICVL_Technologies_paper11.pdf.

[6] I. Ahmad, "Proses pembelajaran digital dalam era revolusi industri 4.0," Direktur Jenderal Pembelajaran dan Kemahasiswaan, Kemenristek Dikti, 2018

[7] R. Ayyagari, V. Grover, and R. Purvis, "Technostress: technological antecedents and implications," MIS Quarterly, 35, 2011, pp.831–858.

[8] M. Tarafdar, Q. Tu, and T.S. Ragu-Nathan, "Impact of technostress on end-user satisfaction and performance," Journal of Management Information Systems, 27, 2010, pp.303–334.

[9] J. Colquitt, J. A. Lepine, M. J. Wesson, and Gellatly, I. R. "Organizational behavior: Improving performance and commitment in the workplace," New York, NY: McGraw-Hill Irwin, 2015.

[10] E.A. Locke, The nature and causes of job satisfaction. In M.D. Dunnette (Ed.), "Handbook of industrial and

organisational psychology" 1976, pp. 1297–1349, Chicago: Rand McNally.

[11] A. Sadeghi,, Zaidatol, L. P, Akmaliah, E. Habibah, and S. F. Foo, "Demographic analysis on academic staff's job satisfaction in Malaysian Research Universities" Pertanik Journal of Social Sciences & Humanities, 2012, pp. 1-20.

[12] S. H. Chen, C. C. Yang, J. Y. Shiau, and H. Wang, "The development of an employee satisfaction model for higher education", The TQM Magazine, 8(15), 2006, pp. 484-500.

[13] E. A. Locke, M. Alavi, and Wagner III, J. A. Participation in decision making: An information exchange perspective, 1998.

[14] E. A. Locke, and D. M. Schweiger, "Participation in decision-making: One more look" Research in organizational behavior, 1(10), 1979, pp. 265-339.

[15] K. I. Miller, and P. R. Monge, "Participation, satisfaction, and productivity: A meta-analytic review," Academy of management Journal, 29(4), 1986, pp.727-753.

[16] S. Azhar, "Sistem Informasi Manajemen," Lingga Jaya Bandung, 2004.

[17] P. S. Robbins, "Organization Behavior" (10th ed.), Benyamin Molan (Translated) Perilaku Organisasi, Gramedia. Jakarta, 2006.

[18] R. Kreitner, and A. Kinicki, "Organization Behavior", Boston Richard D. Irwin, Inc, 2000

[19] L. Ashburner, "Impact of Technological and Organisational Change" Personnel Review, 19(2), 1990, pp. 16–20. doi:10.1108/00483489010143285

[20] M. D. Norzaidi, and M. I. Salwani, "Evaluating technology resistance and technology satisfaction on students' performance," Campus-Wide Information Systems, 26(4), 2009, pp. 298–312.

[21] C. K. Hou, "Examining the effect of user satisfaction on system usage and individual performance with business intelligence systems: An empirical study of Taiwan's electronics industry" International Journal of Information Management, 32(6), 2012, pp.560–573.

[22] V. Khayun, and P. Ractham, "Measuring e-excise tax success factors: Applying the DeLone & McLean information systems success model" In Proceedings of the Annual Hawaii International Conference on System Sciences, 2011, pp. 1–10.

[23] M. Anandarajan, M. Igbaria, and U. P. Anakwe, "IT acceptance in a less-developed country: A motivational factor perspective," International Journal of Information Management, 22, 2002, pp.47–65.

[24] T. M. Colangelo, Teacher stress and burnout and the role of physical activity and parent involvement (Doctoral dissertation, Central Connecticut State University), 2004.

[25] A. G. Blix, R. J. Cruise, B. M. Mitchell, G.G. Blix, "Occupational stress among University Teachers," Journal of Educational Research, 36,1994, pp.157-169.

[26] L. L. Barnes, M. O. Agago, and W. T. Coombs, "Effects of job-related stress on faculty intention to leave academia," Research in higher education, 39(4), 1998, pp.457-469.

[27] S.O. Salami, "Management of stress among trainee-teachers through cognitive behaviour therapy," Personality Study and Group Behaviour, 26, 2006, pp.1-25.

[28] E. Smith, J. L. Anderson, and N. P. Lovrich, "The multiple sources of workplace stress among land-grant university faculty," Research in Higher Education, 36(3), 1995, pp.261-282.

[29] G. D. Goldenburg, and J. Waddell, "Occupational Stress and Coping strategies Among Female Baccalaureate Nursing Teacher," Journal of Advances in Nursing, 15, 1990, pp.531-543.

[30] A.H. Winefield, and R. Jarret, "Occupational stress in university staff," International Journal of Stress Management, 8, 2001, pp.285-298.

[31] S. O. Salami, "Job stress and burnout among lecturers: Personality and social support as moderators," Asian Social Science, 7(5), 2011, 110.

[32] N. Ahsan, Z. Abdullah, D. Y. G. Fie, and S. S. Alam, "A study of job stress on job satisfaction among university staff in Malaysia: Empirical study," European journal of social sciences, 8(1), 2009, 121-131.

[33] M. Mansoor, S. Fida, S. Nasir, and Z. Ahmad, "The impact of job stress on employee job satisfaction a study on telecommunication sector of Pakistan," Journal of Business Studies Quarterly, 2(3), 2011, p.50.

[34] A. Khan, H. Rehman, and D. S. U. Rehman, "An empirical analysis of correlation between technostress and job satisfaction: A case of KPK, Pakistan," Pakistan Journal of Information Management & Libraries (PJIM&L), 14, 2013.

[35] M. Goos, A. Manning, and A. Salomons, "Explaining job polarization: Routine-biased technological change and offshoring," American Economic Review, 104(8), 2014, pp. 2509-2526. doi:10.1257/aer.104.8.2509

[36] AUT. Survey of members. London: AUT, 2003.

[37] R. Smithers, "Third of academics want to quit," The Guardian, Available online at: http://education.guardian.co.uk/higher/ news/story/0, 9830, 911 076, 0.html. Accessed on 20 October 2019.

[38] S. Rosita, "Pengaruh konflik peran ganda dan stress kerja terhadap kinerja dosen wanita di Fakultas Ekonomi Universitas Jambi," Manajemen Bisnis, 2(2), 2014.

[39] M. A. Kusnadi, "Hubungan Antara Beban Kerja dan Self-Efficacy dengan Stres Kerja pada Dosen Universitas X" CALYPTRA, 3(1), 2014, pp.1-15.

[40] N. Kock, (2019). "From composites to factors: Bridging the gap between PLS and covariance-based structural equation modelling," Information Systems Journal, 29(3), 2019, pp.674-706.

[41] C. E. Shalley, L. L. Gilson, and T. C. Blum, "Matching Creativity Requirements and the Work Environment: Effects on Satisfaction and Intentions to Leave," Academy of Management Journal, 43(2), 2000, pp.215–223. doi:10.5465/1556378

[42] S. G. Olawale, E. O. Adeniyi, and O. I. Olubela, "Creativity fostering behaviour as an index of productivity and capacity building among lecturers in selected universities in Ogun and Oyo States," Educational Research and Reviews, 5(5), 2010, pp.257-262.

[43] A. Sadeghi, and Z. A. L. Pihie, "The role of transformational leadership style in enhancing lecturers' job satisfaction," International Journal of Business and Social Science, 4(8), 2013.

[44] G. Yukl, Leadership in organizations (6th ed.). NJ: Pearson Education, Inc, 2006.

[45] J. L. Pierce, and J. W. Newstorm, "Leaders & the leadership process: readings, self-assessment & applications (5th ed.)," New York: McGraw-Hill/Irwin, 2008.

[46] I. Park, M. Al-Ramahi, and J. Cho, "The Effect of Perceived IS Support for Creativity on Job Satisfaction: The Role of effective IS use in virtual workplaces" Proceeding. International Conference on Information Systems. https://aisel.aisnet.org/icis2015/proceedings/ HumanBehaviorIS/downloaded at 21st October 2019.

[47] P. C. Dias, and A. S. C. Bastos, "Plagiarism Phenomenon in European Countries: Results from GENIUS Project," Procedia - Social and Behavioral Sciences, 116, 2014, pp.2526-2531. doi:10.1016/j.sbspro.2014.01.605

[48] J. Sureda, R. Comas, and M. Morey, "Las causas del plagio académico entre el alumnado universitario según el professorado," Redalyc , 50, 2011, pp.197-220.

[49] S. Masuku, and S. Muchemwa, "Occupational stress among university lecturers: A case of Zimbabwe," US-China Education Review, 5(4), 2015, pp.258-266.

[50] E. P. Paul, and S. K. Phua, "Lecturers' job satisfaction in a public tertiary institution in Singapore: Ambivalent and non-ambivalent relationships between job satisfaction and demographic variables," Journal of Higher Education Policy and Management, 33(2), 2011, pp.141-151.

[51] A. Day, N. Scott, and Kevin E. Kelloway, "Information and communication technology: Implications for job stress and employee well-being," Research in Occupational Stress and Well-Being, 3, 2010, pp.17–350. doi:10.1108/s1479-3555(2010)0000008011

[52] D. L. Stone, D. L. Deadrick, K. M. Lukaszewski, and R. Johnson, "The influence of technology on the future of human resource management," Human Resource Management Review, 25(2), 2015, pp.216-231.