The Effect of Technostress on Technology-Based Learning on Academic Productivity with Job Outcome Students as Intervening Variables in Accounting Students

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Abstract. Related to the existence Covid 19 pandemic and it's done online learning to whole students at Medan State University, whose activities the learning of course just related with use various technologies. Height intensity use technology this, especially with regard to computers and smartphones then study this aim to see the impact of technostress on academic productivity student accounting. Study this is also in mediation with Job Outcomes Student variables and their relation against general Technostress and Productivity researched on various fields. Study this too want see how about Job Outcomes Student as Intervening Variables on Technostress relationship with Productivity Academic. Study this type of primary data obtained with a questionnaire. Respondent in study this naturally is S1 students in the Department UNIMED FE Accounting. Data analysis using Path Analysis using SPSS. Research results show that technostress shows a negative influence on academic productivity student. Whereas the effect of technostress on academic productivity who use the Job Outcome variable as an intervening variable show significant results and positive direction.

Keywords: Technostress · Productivity Academic · Job Burnout · Job Engagement · Job Outcome

1 Introduction

The phenomenon of corona virus pandemic has a significant impact both at the national and international levels. As of March 18, 2020, there were 276 State and Private Universities in Indonesia that implemented online lectures. At the international level, changes in the way of learning due to the spread of the Covid-19 virus are also taking place very quickly. Based on data from the United Nations Educational, Scientific and Cultural Organization (UNESCO) it was stated that, as of March 12, it was known that only 29 countries had implemented a policy of closing schools. On March 18, that number had grown to 112 countries. The eight new countries that started school holidays starting March 19 are Malaysia, Thailand, Germany, Austria, Mexico, South Africa, Yemen and Zambia. Of the 112 countries, 101 countries implement school holidays nationally.

Meanwhile, 11 other countries, including Indonesia, implement school holidays in certain areas. The impact, referring to UNESCO data, was experienced by at least 849.4 million students and university students. This number does not include students and students from 11 countries who have just implemented school holidays in certain areas.

The transition occurs to online learning and the transition to learning without their lecturers (e.g. in some classes students are only given worksheets). Then learning utilizes an online platform that has been introduced that can be used in the learning process, including the online learning application owned by UNIMED, namely SIPDA. Then, this transition also occurs by reducing social contact with peers and lecturers in the learning environment. Hold online meetings with people who may or may not have access to technology; who may or may not feel comfortable using technology that adapts to their expectations (i.e. allows students and faculty to be more flexible as they manage the demands of assignments and other roles while they work from home, well these behaviors must all be adopted quickly.

Online learning is one of the positive benefits of technological developments and an alternative to face-to-face lectures. However, due to the increasingly widespread use of technology in lectures, it is known that it can cause technostress among students. Technostress can generally be defined as the mental stress experienced by students due to the use of ICT in the workplace [1].

Stress caused by the inability to adapt to an environment full of technology, where this behavior can affect mental and behavior due to fatigue which has an impact on decreasing student academic achievement. In a recent study an online learning technology stress measurement scale was instrumented by Wang et al. [2].

Along with the increasing use of technology that is changing conventional education, technology-enhanced learning (TEL), which generally refers to all forms of technology-assisted learning, is now gaining momentum in higher education [3].

In a study at the strata 1 level of business courses, the results showed that elective course participants rated the online module significantly better than the compulsory course [4]. Technostress is known to have a negative effect on student productivity [5].

On the other hand, a study states that the use of mobile devices for academic purposes has no effect on technostress (Qi, 2019). One of the models for measuring Job Outcome (job outcomes/outcomes) that is commonly used is the Job Demand-Resource Model (JD-R Model), which models all job demands, job resources, and burnout in an overall Structural Equation Model [6]. Burnout is a negative job outcome caused by a response to chronic stressors at work [7, 8]. Meanwhile, Job Engagement is a positive Job Outcome, which is defined as a state of mind that is satisfied and agrees with the work [8–10].

The relationship between job outcome and technostress has been investigated for its impact in several studies. Techno-invasion and techno-insecurity are positively related to employee burnout [11].

Technostress-creating factors are generally associated with negative job outcomes [8]. In a recent study investigating the relationship of technostress among students in technology-based learning from a multidimensional person environment misfit, the three dimensions of technostress were positively related to job burnout, which negatively affected their performance in technology-based learning [12].

In addition, the relationship between job burnout and student productivity studied by longitudinal analysis shows that job burnout related to university and job burnout related to work is negatively related to student productivity [13]. Student burnout has a significant negative effect on academic achievement [14]. There has been increasing interest among researchers to understand the negative effects of technology, in the last two decades. Technostress or stress caused by technology is widely reported in the literature, among working professionals.

Although there has been an increasing proliferation of digital devices in academia, there is a dearth of research examining the prevalence of technostress and its effects among college students. The increasing use of technology in universities has forced students to complete all of their academic work, including assessments, using technology. Technology-enhanced learning applications such as learning management systems and digital exam tools require students to develop information and communication technology skills.

Based on the description above, the phenomenon of technostress deserves to be tested for its effect on student academic productivity, especially accounting majors. In addition, previous studies on Job Outcomes have shown the relationship between the two variables. It is hoped that this research can explain the mediating relationship between Job Outcome and its effect on the relationship between technostress and academic productivity of accounting students.

2   Literature Review

2.1   Technostress Phenomenon

STechnostress is a type of stress experienced by an individual due to the use of information and communication technology [15], defined as: "modern disease due to the inability to respond in a healthy manner to the adaptation of the latest computer technology" [16]; and as "an observable condition in a worker who is highly dependent on computers at work" [17]. There are three characteristics that can be linked between today's technology and the work environment, namely:

1) There is a high and increasing dependence on information and communication technology by managers and a constant introduction to the latest versions of hardware and software;
2) There is always an improvement in the quality of information and communication technology, so that sometimes there is a significant difference between the abilities needed to carry out tasks in the field of information and communication technology and the level of abilities possessed by managers and workers;
3) The existence of modern information and communication technology has changed the work environment and culture, although information and communication technology is designed to make work more flexible but also increases the need for remote supervision, multitasking, social isolation and work abstraction [18].

Technostress is important to understand because of the impact of information and communication technology that makes it easier for users to do repetitive/repetitive work

that occurs because technological advances increase the need for new ways of working, more time and technological capabilities, resulting in individuals feeling frustrated and difficult [16, 19]; while the high level of individual cognitive confidence in computer technology will reduce the level of technostress without fear of a larger workload and work insecurity caused by their lack of computer skills [20].

2.2   Academic Productivity

In the information systems discipline, productivity is often referred to as 'task productivity' and is defined as "the degree to which an application increases user output per unit time" [21]. [22] measure academic productivity using the average grade (GPA) of students. [23] conceptualize productivity as "an increase in efficiency and work output during working hours through mobile technology as perceived by staff members". [23] found the negative impact of five technostress creators on workplace productivity. [24] validated the inverse association of technostress of cellular communication on quality of life and employee productivity.

'Ubiquitous technostress' or stress caused by excessive use of cell phones at work has a negative effect on employee productivity. In the latest literature, [5] examine the impact of technostress on student academic productivity. Based on this research, students are known to experience a medium level of technostress and that technostress has a negative effect on students' academic productivity.

2.3   Job Outcome

In this study, job outcomes were measured by two variables, namely, job burnout and job/work engagement. [25, 26] state that Burnout and work engagement have a bipolar dimension, which is reflected in the Oldenburg Burnout Inventory (OLBI) which describes items positively and negatively so that both continuums can be measured [27] The two dimensions of OLBI in the form of (job) burnout and work/job engagement are Job Outcomes. Burnout is a negative job outcome resulting from a response to chronic stressors at work [7, 27].

Meanwhile, Job Engagement is a positive Job Outcome, which is defined as a state of mind that is satisfied and agrees with work [8, 10, 22]. According to [28] Job Burnout is characterized by a syndrome of emotional exhaustion, depersonalization and reduced personal achievement; this definition limits the syndrome that occurs in the service sector, compared to professionals working in the goods or information sector [27]. Against this definition, burnout was researched using the Maslach Burnout Inventory [11], and an instrument developed by considering non-social aspects, which is more generally called the Maslach Burnout Inventory-General Survey [29].

However, both instruments have a drawback in the form of items used in the sub-scale which are described in one direction, where all exhaustion and cynicism items are described negatively, while all professional-efficacy items are described positively [27]. Based on the psychometric view, items that are described in one direction as such are rated worse than a scale that uses both positive and negative descriptions [27]. An argument against this definition is by presenting a model that can model all job demands, job resources, and burnout in an overall Structural Equation Model (SEM) so that all

hypothesized relationships can be tested simultaneously, which is called the Job Demand Resource Model [6].

The main assumption in the Job Demand-Resource Model states that every job has risk factors related to work pressure, where these factors can be classified into two general categories, namely Job Demands and Job Resources [6].

Based on the description above, the authors present the following hypotheses:

H1: Technostress affects Student Academic Productivity.

H2a: Work engagement positively mediates the relationship between Technostress and Academic Productivity so that when high Technostress will affect Work engagement positively, Academic Productivity will be high.

H2b: Job Burnout negatively mediates the relationship between Technostress and Academic Productivity, so that when Technostress is high, it will result in higher Job Burnout and lower Academic Productivity.

3 Research Methods

Study this type of primary data obtained with a questionnaire. Respondents in study this naturally are students in the Faculty of Economics, State University of Medan. Data analysis using Path Analysis with using SPSS.

3.1 Research Model

Research Equation (Fig. 1):

1) $Y\_Prod\_Akd = a + X\_Tekhnostress.$
2) $Z\_Job\_Outcome = a + X\_Tekhnostress.$
3) $Y\_Prod\_Akd = a + X\_Tekhnostress + Z\_Job\_Outcome.$
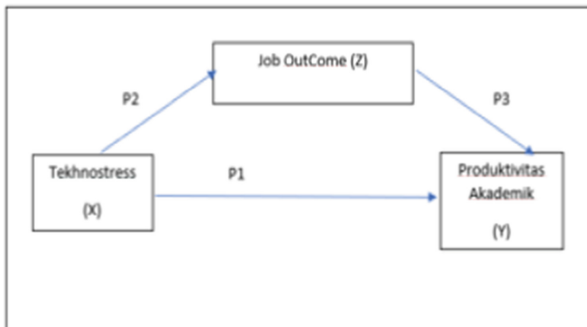

Fig. 1. Research Model

3.2 Research Variable

1) Independent Variables (X) are independent variables that affect or are the cause of changes or the emergence of the dependent (bound) variable. In this study, the Independent Variable was Technostress (X).
2) Dependent Variable (Y) is a variable that is influenced by the independent variable. In this study, the dependent variable is Academic Productivity (Y)
3) Intervening variable (Z) is a variable that influences either strengthens or weakens the relationship between the dependent variable and the independent variable. In this study, the mediating variable is Job Outcome (Z1).

4   Result and Discussion

From SPSS data processing with the path diagram of the influence between the research variables, the results of the model test are described in the results of data processing. This path diagram is to show that Job Outcome is a Mediation variable that affects Technostress and Student Academic Productivity [30] (Fig. 2).

The results of hypothesis testing to see the direct and indirect effects between research variables can be seen in the SPSS Output results with a significant level used so that the hypothesis can be accepted to use a minimum significance level of <0.05.

Output 1. Hypothesis test results show the effect of Technostress → Academic Productivity of students with a significance value of 0.000. The results of this output indicate that Technostress has a direct influence on academic productivity. That learning using technology will have a positive effect on student academic productivity.

The results of SPSS processing at Output 2 which examine the effect of Technosstress on Job Outcome, show that Technostress → Job Outcome is significantly significant with a significance value of 0.24.

Third, if students can carry out learning using technology with job engagement while studying from home, this can increase their productivity, on the contrary if they feel stressed, their academic productivity value will decrease. The results of this study, students show that learning by using technology that causes positive job outcomes (Job Engagement) will positively affect academic productivity, this is indicated by a significance value of 0.00 and indicates a positive direction.
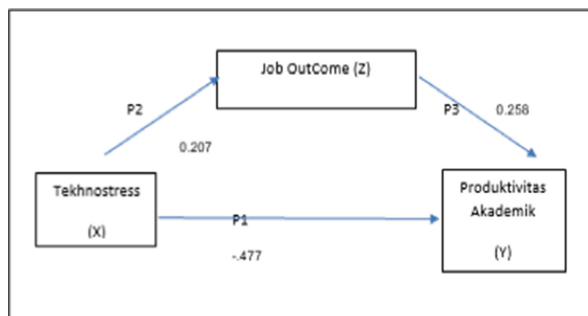

Fig. 2. Thinking Framework

The research findings also explain that technostress affects the productivity of learning with technology through students' work-life balance conditions (p-value < 0.003, coefficient -0.13). The greater the pressure faced by students due to the use of technology when learning with technology, the impact on their reduced productivity. This result is in line with [31] research in Italy which looked at stress behavior that comes from technostress. Stress that arises is due to aspects of techno-overload, techno-invasion, and techno-complexity.

Pandemic, has made students who carry out learning with technology have no time to improve their skills in using technology to work from home. Especially for students who do not know how to use the technology and it takes a long time to understand and be able to use technology.

The complexity of using this technology can create stress for students. Technostress experienced by students when learning with technology tends to reduce student work productivity who conduct online lectures [27]. Based on research findings, technostress affects the productivity of learning with technology through the work-life balance that students feel when working from home. In the condition of students working from the workplace, there is a relationship between stress conditions with work life balance and productivity (performance).

Students have a high responsibility and loyalty to learning and the company. On the other hand, respondents also make commitment to family important, by dividing their time in a balanced way between learning and family. Thus, work-life balance is one of the factors that students pay attention to in carrying out their learning. Techno-invasion is a form of technostress experienced by students when working from home, which has an impact on an imbalance in their learning-life.

Students experience heavy learning loads and schedules due to the invasion of the use of technology. This condition actually makes them have less time for family. They even have to work on vacations, because the use of technology allows them to work anytime and anywhere. As a result, their personal life is disturbed. During their learning with technology, students experience an imbalance in their work life. If when students work at work there is a clear limit on working hours for working in the office and there is a schedule for going home, then with technology learning the boundaries are not clear.

Students tend to work not in accordance with working hours, and can't even use their break hours. During learning with technology, students cannot set aside time for their families, even though they work more from home. They also cannot set aside time to hang out with friends and do other activities. For these two conditions, this is probably due to the PPKM condition, where community activities to carry out social interactions outside the home are limited. The condition of student work-life balance when working from home is the most decisive factor on work productivity, compared to stress due to the use of technology. High technostress will cause a decrease in work productivity if the student's work-life balance is disturbed.

Compared to students who come to the office, students who work from home are not only happier and less likely to quit, and they also tend to be more productive [32]. This happens because their work-life balance is better when working from home. As stated by [33], workers who study using ceteris paribus technology are more committed, enthusiastic and satisfied with their learning than their conventional working counterparts, but

they find it difficult to draw a line between home and work. The results showed that the work-life balance they experienced when learning with technology could improve student performance.

In addition, the conditions of learning with technology need self-development to use adequate facilities and use of technology so that learning can be carried out effectively. The use of laptops, personal computers, or mobile phones (HP) supported by a strong internet network is an absolute must-have facility for students who study using technology.

Without the support of adequate facilities, it seems to be able to reduce the morale of students working at home. Companies need to conduct training for students so that they are ready to learn using technology from home. Training is needed so that students can use communication technology media in carrying out learning with technology, so they can work productively.

5   Conclusions

In general, the learning productivity with the respondent's technology is in good condition. Learning with technology can cause them to work efficiently and with higher quality, because they are able to work according to their abilities and can achieve the work targets that have been set. The use of technology while working at home makes their workload bigger. There is more learning being done and they have very busy working hours. The balance of personal life and learning shows good results. Respondents have a high responsibility and loyalty to learning and the company. On the other hand, respondents also make commitment to family important by dividing their time in a balanced way between learning and family.

High stress levels due to the use of technology at work can cause productivity in learning conditions with technology to decrease. This high level of stress can also cause the balance of personal life and work life of students to decline. If their personal life and work life can be maintained or improved in balance, it is possible that their productivity can increase. High levels of stress due to the use of technology can cause the balance of personal life and work life of students while working from home to be decreased or disrupted.

In the end, this condition can reduce their work productivity. Learning with technology is part of the flexible working concept used by companies to improve the quality of student work life. In the end, a quality student learning life is expected to increase their productivity. The Covid-19 pandemic condition requires all teaching and learning processes to apply learning with technology, either all the time or several days a week. This research was carried out during the pandemic and students had to do online learning for three semesters.

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