

Effect of Mental Workload on Work Productivity of Internet Assurance Technician in Handling Customer Complaints

Lucitasari, D. R^{1*}, Berlianty, I¹, Fidiyanti, L. N¹

¹ Department of Industrial Engineering, Faculty of Industrial Engineering, Universitas Pembangunan Nasional Veteran Yogyakarta, Yogyakarta, 55283, Indonesia

*Corresponding author: dyah.rachmawati@upnyk.ac.id

Abstract

Internet high consumption in Indonesia with problem of the large number of incoming customer complaints. PT Telkom Indonesia as internet providers in Indonesia provide best service to its customers by deploying technicians to handle customer complaints, namely assurance technicians. PT Telkom Witel Kudus is one of the service branches in Kudus. High number of customer complaints reports and a disproportionate number of technicians. They must work quickly and precisely so have fairly solid job. From ergonomics point of view, humans have limitations not only in terms of physical but also in terms of mental. So need to research technician's mental workload. Work productivity related to output that able to produce. Low productivity will affect company's achievement. This study conducted on 16 assurance technicians. Purpose of this study to analyze assurance technician's mental workload in handling customer complaints and their effect on work productivity. This study uses the NASA-TLX method to calculate the mental workload and then uses multiple linear regression analysis to prove the influence of mental workload on work productivity and uses Structural Equation Modeling (SEM) with software SmartPLS to see the most influential indikator factors. Results showed that 7 technicians had very high mental workload and 9 technicians had high scores. There is influence from mental demand, physical demand, temporal demand, own performance, effort, and frustration on work productivity which is 74.6% while other 25.4% is influenced by other variables. Most influential factor is frustration variable with the X6.2 indikator technicians experiencing pressure caused by customer demands.

Keywords : Ergonomics, Mental Workload, NASA-TLX, Multiple Regression, SmartPLS

1. Introduction

The need for the internet is very necessary, especially when all activities during the pandemic are carried out online. Data from the survey results of the Indonesian Internet Service Providers Association (APJII) regarding the penetration of internet users in 2019-2020 (Q2), currently there are 196.1 million internet users in Indonesia or 73.7% of internet users of the entire Indonesian population. PT Telekomunikasi Indonesia as an internet service provider in Indonesia with indihome as one of the core products of the wifi service provider's business continues to strive to do its best to improve its quality and be able to compete with other providers. PT Telekomunikasi Indonesia witel Kudus is one of the branch service offices that covers the work area of Kudus City.

Assurance technicians have job descriptions to handle low to medium-scale complaint reports. Complaints of disturbances reported by consumers enter through the myindihome application, Telkom plaza, contact centre, and social media with friendly responses to very angry. Standard from the company requires that each technician handle 4 trouble tickets per day, but this cannot be done optimally by considering the type of damage, the distance from the customer range, and the limited working time, causing reports to be handled late or called dispatch. Based on data reports that entered in Kudus Witel in the Kudus City sector per March-April 2022 contained 4330 reports of disturbances, while the office only had 16 assurance technicians. There are 3086 cases can be resolved on time and 1244 dispatch cases.

From the worker's point of view, humans not only have limitations in terms of physical but also in terms of mental. Another situation requires technicians to continue working because it relates to the company's image and assessment. High number of customer complaints that are not proportional to the number of technicians and the high demands of work result in work pressure along with technician activities so that mental workload calculations are needed. Productivity has a relationship with the output that can be created from the resources used to produce goals. Work productivity affects the effectiveness and efficiency of worker's work, so that workers can be more productive in doing work in terms of quantity and quality. By calculating the amount of workload carried out, it is expected to know the condition of the workload per technician using the NASA-TLX (National Aeronautics and Space Administration Task Load Index) method. As a basis for improving the company, it is necessary to know the effect of mental workload on work productivity with multiple regression analysis and what factors most influence the ergonomics analysis of the mental workload of internet assurance technicians in handling customer complaints and their effect on work productivity using Structural Equation Modeling (SEM) method with SmartPLS.

2. Literature Review

Workload is a series of work including processes and activities that must be completed by workers within a specified period of time. If workers are not able to adjust and complete the work, then this will become a workload (Vanchapo, 2020). Workload is a burden borne by the body, both in terms of muscle mass needed to support work and external loads originating from the body to achieve a productive life (Tarwaka, 2004). workload can be described as the sum of several time intervals, namely the time workers spend working, the time used to work in the process including their idle time which has various purposes to find solutions between work time, customer dissatisfaction, job constraints, and work-life balance (J. Decerle et al., 2018). So the definition of workload is the workload that must be completed by workers to complete their work within a certain period of time, both individually and in groups.

Mental workload is defined as a condition of limitations experienced by workers when carrying out their duties related to workers mental resources, because the ability of workers to process information is very limited so that it affects the level of performance that can be achieved (Wignjosoebroto, 2003). Workload of several jobs or tasks received by workers simultaneously or in the near future is a factor that can result in higher workload levels (Puspitasari, 2009). Workload can be defined as a description of mental strength that is reflected in job performance caused by an environmental condition and the course of a particular job by considering the operator's ability to cope with these demands. Operational definition of work will continue to change and be tested but pay attention to the conditions of urgent need for the overall situation adapted to each field according to their convenience (Cain, 2007). Mental workload is the difference in mental performance demands of workers with the mental capacity of workers.

The NASA-TLX method was developed in 1981 by Sandra G. Hart based at the NASA Ames Research Center and Lowell E. Staveland based at San Jose State University. This method is general information that was developed based on the need for a subjective measurement that is simpler but more sensitive in measuring workload. This application has 6 criteria to measure mental workload, namely mental demand (MD), physical demand (PD), temporal demand (TD), performance (P), effort (E), and frustration (FR). NASA-TLX is appropriate for this because it has many advantages over other methods. NASA-TLX which has good validity and can be easily accepted by test subjects, has a broader application, does not require high testing costs, and can be used for basic and applied research.

Customer complaints are feedback relationships from customers and service employees as well as company performance that affects the company's reputation (Simon J. Bell, 2006). Customer complaints are usually caused by problems such as lack of responsibility, lack of service provided by company staff, product availability, company regulations, and product service improvement problems. According to Lovelock (2005) service failure is the customer's perception

that one or more aspects of service delivery do not meet expectations. Customer complaints are usually caused by problems such as lack of responsibility, lack of service provided by company staff, product availability, company regulations, and product service improvement problems. Customer complaints are related to the inability to achieve the expected performance with the performance of the goods or services achieved. If there is a match that can be achieved, there is a possibility that customer satisfaction will occur and there will be no complaints from customers. If the performance achieved is far from expectations, the customer will be disappointed, which raises brand loyalty problems and negative attitudes towards the business that lead to customer complaints (Filiz, 2018).

Work productivity contains three aspects in its meaning: the daily output of productive businesses, the level of management effectiveness in the use of production facilities, and the effective use of resources to complete work (Sutrisno, 2009). Based on Sutrisno (2009), to measure work productivity, several indicators are needed, namely ability, increasing the results obtained, morale, self-development, quality, and efficiency. Work productivity is crucial to achieving work goals that run effectively and efficiently (Sisca, 2020). Work productivity is a certain mental attitude and effort of a worker to maximize performance as much as possible by using the available resources at a certain time.

3. Methods

This research was conducted at PT Telekomunikasi Indonesia Witel Kudus. The objects studied were 16 assurance technicians in the Access Service Operation (ASO) division at PT Telekomunikasi Indonesia Witel Kudus, concentrating on the Kudus City sector. In this study, the method used is the NASA-TLX method to determine the interpretation of the technician's mental workload, multiple linear regression analysis to analyze its effect on work productivity and to find the most influential factor using the Structural Equation Modeling (SEM) method with SmartPLS.

4. Data Collection

The data was collected included the NASA-TLX mental load calculation questionnaire data and questionnaire data on the effect of mental workload on work productivity. Questionnaire data for calculating mental workload with the NASA-TLX method carried out by pairwise comparisons can be seen in Table 1:

Table 1. Pairwise comparison data

Respondent	Mental demand	Physical demand	Temporal demand	Own Performance	Effort	Frustration
A	1	2	2	3	4	3
B	0	3	5	2	2	3
C	2	3	4	5	1	0
D	2	2	5	3	3	0
E	0	3	3	3	3	3
F	0	3	5	1	3	3
G	2	1	4	0	3	5
H	1	2	3	3	5	1
I	1	3	3	3	4	1
J	2	3	1	4	4	1
K	2	2	4	1	1	5
L	3	5	3	2	2	0
M	4	3	4	1	2	1
N	2	3	4	1	3	2
O	4	3	5	0	1	2
P	4	1	4	0	2	4

The next questionnaire was obtained from the breakdown of the NASA-TLX questionnaire into several questions. The data shows the percentage of respondents' answers in answering the mental workload questionnaire questions can be seen in Table 2:

Table 2. Mental workload questionnaire data

No.	Questionnaire Question	STS		TS		RG		S		SS	
		F	%	F	%	F	%	F	%	F	%
X1											
1	X1.1	2	12.5	5	31.3	4	25.0	4	25.0	1	6.3
2	X1.2	1	6.25	11	68.75	1	6.25	3	18.75	0	0.0
X2											
1	X2.1	0	0.0	1	6.3	0	0.0	8	50.0	7	43.8
2	X2.2	0	0.0	7	43.8	2	12.5	7	43.8	0	0.0
X3											
1	X3.1	1	6.3	1	6.3	2	12.5	5	31.3	7	43.8
2	X3.2	0	0.0	1	6.3	0	0.0	1	62.5	5	31.3
X4											
1	X4.1	0	0.0	0	0.0	1	6.3	9	56.3	6	37.5
2	X4.2	0	0.0	0	0.0	4	25.0	1	68.8	1	6.3
X5											
1	X5.1	0	0.0	0	0.0	0	0.0	9	56.3	7	43.8
2	X5.2	1	6.3	0	0.0	0	0.0	8	50.0	7	43.8
X6											
1	X6.1	0	0.0	2	12.5	0	0.0	9	56.3	5	31.3
2	X6.2	2	12.5	1	6.3	2	12.5	5	31.3	6	37.5
3	X6.3	1	6.3	0	0.0	1	6.3	6	37.5	8	50.0
		8	50	29	181	1	106	9	588	6	375
Total						7		4		0	
Average		3.85		13.94		8.17		45.19		28.85	

The data was collected on the questionnaire indicators of work productivity. Several factors affect work productivity, namely ability, increasing the results obtained, morale, self-development, quality, and efficiency. Work productivity questionnaire data can be seen in Table 3:

Table 3. Mental workload questionnaire data

No.	Questionnaire Question	STS		TS		RG		S		SS	
		F	%	F	%	F	%	F	%	F	%
Y1											
1	Y1.1	0	0.0	0	0.0	2	12.5	10	62.5	4	25.0
2	Y1.2	0	0.0	0	0.0	3	18.8	9	56.3	4	25.0
3	Y1.3	0	0.0	0	0.0	3	18.8	8	50.0	5	31.3
Y2											
1	Y2.1	0	0.0	0	0.0	2	12.5	6	37.5	8	50.0
2	Y2.2	0	0.0	0	0.0	1	6.3	9	56.3	6	37.5
3	Y2.3	0	0.0	0	0.0	2	12.5	11	68.8	3	18.8
Y3											
1	Y3.1	0	0.0	2	12.5	5	31.3	8	50.0	1	6.3
2	Y3.2	0	0.0	0	0.0	2	12.5	10	62.5	4	25.0
3	Y3.3	0	0.0	1	6.3	1	6.3	13	81.3	1	6.3

No.	Questionnaire Question	STS		TS		RG		S		SS	
		F	%	F	%	F	%	F	%	F	%
Y4											
1	Y4.1	0	0.0	2	12.5	0	0.0	12	75.0	2	12.5
2	Y4.2	0	0.0	0	0.0	2	12.5	11	68.8	3	18.8
3	Y4.3	0	0.0	0	0.0	1	6.3	12	75.0	3	18.8
4	Y4.4	0	0.0	1	6.3	1	6.3	7	43.8	7	43.8
Y5											
1	Y5.1	1	6.3	0	0.0	2	12.5	8	50.0	5	31.3
2	Y5.2	0	0.0	1	6.3	2	12.5	7	43.8	6	37.5
3	Y5.3	1	6.3	1	6.3	2	12.5	7	43.8	5	31.3
4	Y5.4	0	0.0	0	0.0	0	0.0	7	43.8	9	56.3
Y6											
1	Y6.1	1	6.3	1	6.3	4	25.0	10	62.5	0	0.0
2	Y6.2	0	0.0	0	0.0	6	37.5	9	56.3	1	6.3
3	Y6.3	0	0.0	1	6.3	2	12.5	13	81.3	0	0.0
4	Y6.4	0	0.0	0	0.0	4	25.0	11	68.8	1	6.3
Total		3	19	8	50	27	169	127	794	43	269
Average		1.44		3.85		12.98		61.06		20.67	

5. Results and Discussion

5.1 Numerical Results

Calculating mental workload with NASA-TLX aims to determine each technician's mental workload. The data collected is based on a questionnaire filled out by 16 technicians. several steps to calculate mental workload with NASA-TLX are paired indicator comparison, paired indicator rating, indicator weighting, WWL determination, WWL average calculation, so that the result of interpretation of the assurance technician's mental workload score is obtained. Interpretation results are categorized into 5 categories from low to very high. The results of the interpretation of the technician's workload can be seen in Table 4:

Table 4. Result calculation of metal Workload with NASA-TLX

Respondent	MD	PD	TD	OP	EF	FR	Total	Mental Workload Value	Category
A	100	180	200	300	400	300	1480	98.7	Very high
B	0	300	400	200	180	300	1380	92.0	Very high
C	120	210	400	400	60	0	1190	79.3	High
D	140	120	450	210	240	0	1160	77.3	High
E	0	210	210	240	270	90	1020	68.0	High
F	0	120	350	70	240	240	1020	68.0	High
G	80	40	280	0	210	350	960	64.0	High
H	80	100	210	270	450	30	1140	76.0	High
I	80	240	270	210	280	70	1150	76.7	High
J	140	150	70	320	360	60	1100	73.3	High
K	160	100	280	80	80	350	1050	70.0	High
L	240	350	240	200	200	0	1230	82.0	Very high
M	360	270	360	90	180	80	1340	89.3	Very high
N	160	270	360	80	270	140	1280	85.3	Very high
O	320	240	450	0	80	180	1270	84.7	Very high
P	360	70	400	0	160	360	1350	90.0	Very high

This study found that 9 assurance technicians have a high mental workload while 7 have a very high mental workload category. The lowest mental workload value is 64 which is included in the high category and the highest mental workload value is 98.7 including the very high category. There are differences in the interpretation of the mental workload of technicians due to the different levels of work of each individual based on several variables. Independent variables used are based on 6 NASA-TLX variables. The cause of the high interpretation of mental workload is the difficulty of technicians in solving types of customer complaints, especially those with a high level of difficulty. Physical burden experienced by technicians to move from one customer location to another. Workload of the assurance technician is tight, where the customer demands that the disturbance he experiences must be resolved immediately, the technician feels he has to meet the target given by the company because it is related to the company's image so that the technician feels heavy in completing his work responsibilities. Technician's job requires great effort to put in mind and energy into completing the job due to demands from customers or superiors, causing high numbers. Huge customer demands put pressure on technicians, resulting in high frustration rates.

To get the results of the effect of mental workload on work productivity, the first step is to test the validity of the questionnaire items through validity testing with the SPSS tool. If the result of the calculated R value > R table, the questionnaire item can be declared valid. Then the reliability test is carried out by looking at the Cronbach's alpha value > 0.6, it can be stated that the data is reliable. Classical assumption test by performing normality test, multicollinearity test, and heteroscedasticity test. To test the research hypothesis using SPSS, several tests were carried out, namely the partial significance test or t-test to determine the effect of each independent variable on the dependent variable. Simultaneous significance test or F-test to determine the relationship of the independent variables to the dependent variable together. Determination test or R² test to measure how far the model's ability can explain the variation of the dependent variable. Shows the results of the partial significance test obtained by looking at the t value and the significance value of the calculation results. If the t-count value is greater than the t-table value, the result is that the H1 hypothesis is accepted and if the significance value shows the result is less than 0.05, it can be stated that the research shows significant results. The results showed that all independent variables, namely mental demand, physical demand, temporal demand, own performance, effort, and frustration, showed significant and influential results on work productivity variables can be seen on Table 5:

Table 5. Result of t-test using SPSS

Coefficients^a		
Model	T	Sig.
1 (Constant)	7,191	,000
<i>Mental demand</i>	2,287	,041
<i>Physical demand</i>	-3,707	,026
<i>Temporal demand</i>	2,984	,025
<i>Own performance</i>	3,885	,042
<i>Effort</i>	2,831	,029
<i>Frustration</i>	4,246	,011

a. Dependent Variabel: Work Productivity

The hypothesis is accepted by showing the results of the simultaneous significance test or F test by seeing if the F value is more than 0.05. The results show that the F value of 4.401 is greater than the calculated F value indicating that all independent variables have a simultaneous effect on the dependent variable. a significance value of 0.024 indicates that the result is smaller than 0.05 which means that the effect is jointly significant can be seen in Table 6:

Table 6. Result of F-test using SPSS

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	662,089	6	110,348	4,401	,024 ^b
	Residual	225,661	9	25,073		
	Total	887,750	15			

a. Dependent Variabel: Work Productivity

b. Predictors: (Constant), *Frustration*, *Physical demand*, *Temporal demand*, *Effort*, *Own performance*, *Mental demand*

Shows the results of the calculation of the coefficient of determination, the results obtained by looking at the value of R square that the independent variable has an effect of 0.746 which means that the magnitude of the influence of the independent variable on Employee Work Productivity is 74.6% while the remaining 25.4% is influenced by other variables outside of research can be seen in Table 7:

Table 7. Result of coefficient of determination (R^2) using SPSS

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	,864 ^a	,746	,576	5,00734	2,493	

a. Predictors: (Constant), *Frustration*, *Physical demand*, *Temporal demand*, *Effort*, *Own performance*, *Mental demand*

b. Dependent Variabel: Work Productivity

To find the effect of mental workload on work productivity, which was carried out using the multiple regression analysis methods, the results showed that based on the t-test conducted, it is known that the mental demand, temporal demand, own performance, effort, and frustration variables have a positive and significant effect, meaning that the higher the value of the variable, the more influential it is on the high value of the work productivity variable and it has a real effect. While the physical demand variable on the work productivity variable has a negative and significant effect, the high value of the physical demand variable affects the low value of the work productivity variable significantly. Six mental workload variables on work productivity influence the work productivity variable with a large effect of 74.6% while other variables outside the study influence the remaining 25.4%. This is in accordance with the hypothesis that mental workload affects the work productivity of internet assurance technicians in the Kudus city sector.

5.2 Graphical Results

To find the most influential factors using the SEM method with SmartPLS, several tests were carried out consisting of the outer model test to explain the relationship between the independent variables to the dependent variable, the inner model test to predict causal relationships between variables that cannot be measured directly, and hypothesis testing for assessing the evaluation of the parameters that show the effect on between variables.

In the outer model test, several stages are carried out, namely convergent validity to determine each indicator's validity. If the loading factor value is greater than 0.7, it can be said that the research model has a good measurement. The results of the study found that all indicator questionnaire items had a value greater than 0.7, it can be stated that all indicator questionnaire items were valid.

Next is the inner model test to find the discriminant validity, Cronbach alpha, composite reliability, and AVE values. From the calculation results, it is found that the value of Cronbach's alpha and composite reliability is more than 0.7 and the AVE number has a value of more than 0.5, so it can be stated that the six independent variables are reliable. In the inner model test, a

path diagram of the inner model is drawn to see how much influence the independent variable has on the dependent variable in each indicator. The path diagram of the inner model is the basis for explaining the most influential factors. Then in hypothesis testing, a study is declared to be influential if the t-statistic value is greater than 1.96 and the p-value is less than 0.05. The results show that the mental demand, temporal demand, and effort variables have a negative and insignificant effect. physical demand and own performance variables have a positive and insignificant effect, and the frustration variable has a positive and significant effect on work productivity. The path diagram of the inner model can be seen in Figure 1:

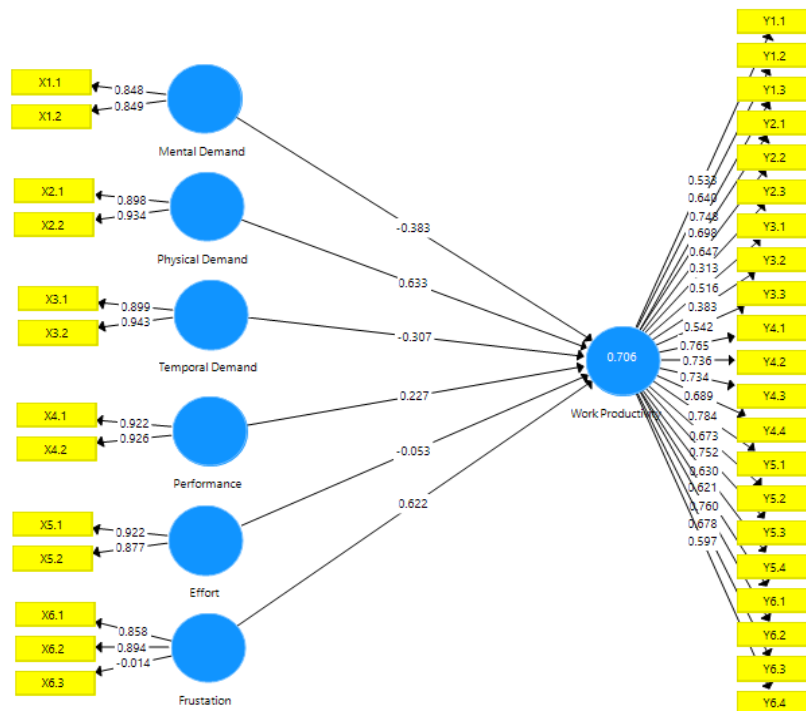


Figure 1. Path diagram inner model graph

The most influential indicator on each variable is obtained from the calculation results of the inner model, based on path diagram of the inner model seen from the value of the loading factor for the mental demand variable which has the largest loading factor value on the mental demand variable of 0.849, namely the X1.2 indicator with a statement that technicians find it difficult to resolve types of customer complaints. The physical demand variable is the X2.2 indicator with the largest loading factor value of 0.934, namely the technician feels tired of moving from one customer location to another customer location. Temporal variable demand the largest loading factor value of 0.943 is the X3.2 indicator, namely the technician feels the work he has demands accuracy and speed in working. Own performance variable has the largest loading factor value of 0.926, which is the X4.2 indicator with the information that technicians have been trying to achieve the company's target. Effort variable that has the largest loading factor value of 0.922 is the X5.1 indicator, namely the technician mobilizes his thoughts and energy to complete the job with the best results. The frustration variable as the most influential factor has the largest loading factor value of 0.894, namely the X6.2 indicator, the technician experiencing pressure caused by customer demands.

Meanwhile, the results of research using the Structural Equation Modeling (SEM) method with SmartPLS showed that mental demand, temporal demand, and effort had a negative and insignificant effect, physical demand and own performance had a positive and insignificant effect, frustration had a positive and significant effect on work productivity variables. Frustration

variable as the most influential indicator X6.2 with a description of the technician experiencing pressure caused by customer demands. There are differences in the results generated from the multiple regression analysis methods with calculations performed with SmartPLS this is because there are differences in the concept of the calculation process of each method. Multiple regression analysis uses input per variable to generate calculation results, while SmartPLS uses indicators to generate calculation results. Suggestions for further research can be added to other variables that affect work productivity in addition to mental workload and research on the role of ergonomics can be done to reduce the level of mental workload of assurance technicians and to maintain technician work productivity.

5.3 Proposed Improvements

The improvement proposed to overcome the problem that technicians find it difficult to solve the types of customer complaints is to conduct regular training to improve the competence of assurance technicians through improving the quality of human resources. to overcome the problem of technicians feeling tired of moving from one location to another is to make arrangements by considering the technicians who are closest to the location of customer disturbances. To overcome the problem, the technician feels that his job demands accuracy and speed in working and the technician feels that he is exerting his mind and energy to complete the job with the best results by providing refreshing for the technician through bonding together at any time. for problems technicians have been trying to achieve the company's target is to appreciate the technicians. To overcome the problem of technicians experiencing pressure caused by customer demands is to maintain the mood of technicians and apply smart and sincere working principles for them. To reduce the mental workload of internet assurance technicians, research on the role of ergonomics can be carried out to reduce the mental workload of technicians and to maintain technician productivity, supervision from management can be carried out so that technicians are more disciplined in carrying out and completing their duties.

5.4 Validation

Based on the results of the study it was found that the results were in accordance with the hypothesis. Internet assurance technician mental workload scores as many as 9 people have a high interpretation while 7 others have a very high interpretation. In accordance with the theory, if the value of mental workload is high, it can hamper work productivity. In accordance with the research on the effect of mental workload on work productivity using SPSS, it was found that mental demand, temporal demand, own performance, effort, and frustration had a positive and significant effect and physical demand had a negative and significant effect. With the value of an influential mental demand value of 2.287 with a significance value of 0.041, physical demand of -3.707 with a significance value of 0.026, temporal demand of 2.984 with a significance of 0.025, own performance of 3.885 with a significance of 0.042, effort of 2.831 with a significance of 0.029, frustration is 4.246 with a significance of 0.011. Meanwhile, the results of research using the Structural Equation Modeling (SEM) method with SmartPLS showed that mental demand, temporal demand, and effort had a negative and insignificant effect, physical demand and own performance had a positive and insignificant effect, and frustration had a positive and significant effect. on work productivity variables. Based on the calculation results, it was found that the X1 variable (Mental demand) has a loading factor value of -0.383, with a T-statistics value smaller than the critical value, namely $1.445 < 1.984$, and a significance value of $0.149 > 0.05$ indicating a negative and insignificant effect on the variable. Work productivity. The effect of X2 (Physical demand) on the Work Productivity variable has a loading factor value of 0.633, with a T-statistics value smaller than the critical value, namely $1.796 < 1.984$, and a significance value of $0.073 > 0.05$ positive and insignificant. The effect of the variable X3 (Temporal demand) on the Work Productivity variable has a loading factor value of -0.307, with a T-statistics value smaller than the critical value, namely $1.413 < 1.984$, and a significance value of $0.158 > 0.05$ is negative and

insignificant. The influence of the X4 variable (Own performance) on the Work Productivity variable has a loading factor value of 0.227, with a T-statistics value smaller than the critical value, namely $0.811 < 1.984$, and a significance value of $0.418 > 0.05$ so it can be concluded that the effect is positive and not significant. . Variable X5 (Effort) has a loading factor value of -0.053, with a T-statistics value smaller than the critical value $0.202 < 1.984$, and a significance value of $0.840 > 0.05$ negative and insignificant effect. Variable X6 (Frustration) has a loading factor value of 0.622, with a T-statistics value smaller than the critical value, namely $2.619 > 1.984$, and a significance value of $0.009 > 0.05$ that the effect is positive and significant.

6. Conclusion

Based on the research that has been done, there are several conclusions obtained. The workload value of assurance technicians at PT Telkom Witel Kudus shows the mental workload possessed by technicians based on the NASA-TLX method, as many as 9 people have high interpretations while 7 others have very high interpretations. Using multiple linear regression analysis there is an effect of mental workload on work productivity with mental demand, temporal demand, own performance, effort, and frustration having a positive and significant effect and physical demand having a negative and significant effect. Meanwhile, the results of research using the Structural Equation Modeling (SEM) method with SmartPLS showed that mental demand, temporal demand, and effort had a negative and insignificant effect, physical demand and own performance had a positive and insignificant effect, frustration had a positive and significant effect on work productivity variables. The most influential factor in analysing mental workload on work productivity is the frustration variable with the most influential indicator X6.2, technicians experiencing pressure caused by customer demands.

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Biography

Latifah Nur Fidiyanti is a fresh graduate from Industrial Engineering Universitas Pembangunan Nasional Veteran Yogyakarta. He just finished his education in August 2022. **Ir. Dyah Rachmawati Lucitasari, M.T. and Intan Berlianty, S.T., M.T.** are lecturers in the Department of Industrial Engineering, Faculty of Industrial Engineering, Universitas Pembangunan Nasional Veteran Yogyakarta. They currently actively teaching for the concentration of ergonomics.