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Measuring Logbook Usage to Support Work From Home During Covid-19 Pandemic Using Technology Acceptance Model

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ABSTRACT

After Coronavirus have first detected in Indonesia, the Government issued a Large-Scale Social Restriction (PSBB) policy to reduce its spread. One of the PSBB policies is working from home (WFH). Directorate General of Taxes builds a Logbook to monitor employee activities such as reporting work, employee health, attendance, and location detection. This study measures the use of Logbooks to support WFH during the Covid-19 pandemic using an extension of the Technology Acceptance Model (TAM) by adding the variables of habit, perceived risk, performance measurement, and trust. Hypothesis testing using reliability test, validity test, Kolmogorov Smirnov test, t-test, and SEM test. Results of the research obtained that logbook could be accepted by employees to support WFH during the Covid-19 pandemic.
Keywords: Coronavirus, logbook, working from home, TAM

ABSTRAK

Setelah virus Corona terdeteksi pertama kali di Indonesia, Pemerintah mengeluarkan kebijakan Pembatasan Sosial Berskala Besar (PSBB) untuk mengurangi penyebarannya. Salah satu kebijakan PSBB adalah bekerja dari rumah (WFH). Direktorat Jenderal Pajak membangun Logbook untuk memantau aktifitas pegawai seperti melaporkan pekerjaan, kesehatan pegawai, absensi dan deteksi lokasi. Penelitian ini mengukur penggunaan Logbook untuk mendukung WFH selama pandemi Covid-19 menggunakan perpanjangan Technology Acceptance Model (TAM) dengan menambahkan variabel kebiasaan, risiko yang dirasakan, pengukuran kinerja, dan kepercayaan. Pengujian hipotesis menggunakan uji realibitias, uji validitas, uji kolmogorov smirnov, uji t dan uji SEM. Hasil penelitian diperoleh Logbook dapat diterima oleh pegawai untuk mendukung WFH selama pandemi Covid-19.
Kata Kunci : Virus corona, logbook, bekerja dari rumah, TAM

Introduction

Occurred in December 2019, Covid-19 virus patients were first detected in Wuhan, China [1]. Two cases of the COVID-19 virus were confirmed in Indonesia on March 2, 2020. After that, more cases were confirmed. The spread of this virus is an unprecedented event [2]. The government declared the Covid-19 virus as a special emergency for an endemic disaster. To break the chain of virus spread, they have made policies, namely wearing masks, washing hands, keeping distance, reducing mobility, and avoiding crowds [3]. Large-Scale Social Restrictions (PSBB) are restrictions on certain activities of residents in an area infected with COVID-19 by the government to prevent the spread of the virus [4]. However, the economy must continue to move forward so it is necessary to make efforts to mitigate and prepare the workplace as optimally as possible to adapt through changes in lifestyle in a pandemic situation (New Normal Arrangement) [5].

Government also pays attention to health and safety aspects for state civil servant (ASN) by implementing work from home but remaining productive and adaptive in the new normal arrangement and being able to monitor the health of its employees during the pandemic [6]. The role of the Directorate General of Taxes (DGT) to collect tax revenues and commit to archive targets [7]. Now, is a challenge it with implementation of work from home. The application system as a work tool that was previously only accessed at work, is now accessed at home. Monitoring work activities at home is a need for supervision [8].

DGT built Logbook to implement the new normal arrangement. This application is for recording employee activities during work from home, Health Self Assessment, attendance, and location detection. The main purpose of this research is to answer the question: "Does Logbook to support work from home at DGT?".

Technology Acceptance Model (TAM) to find a correlation between variables. This model had two variables, namely the independent variable which included Perceived Usefulness and Perceived Ease of Use, the dependent variable which included Attitude Towards Use. Perceived Usefulness is defined as the benefits that users get to improve

their performance. Perceived Ease of Use is defined as the ease that users get when using it. While Attitude Towards Use is the attitude and intention when users use it [9]. This research expands TAM by adding habits, perceived risk, performance measurement, and trust. Figure 1 shows the proposed research model using the hypotheses given.

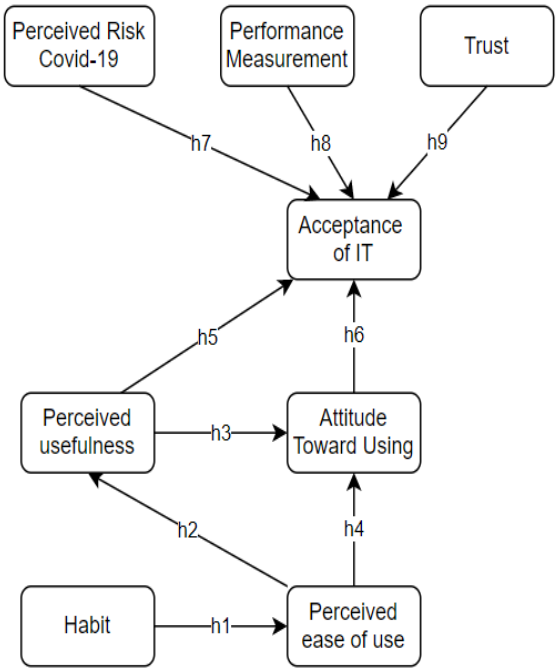

Figure 1 Proposed Research Model

This proposed research model from several hypotheses as follows:
h1: Habit (H) has a significant effect on Perceived Ease of Use (PU)
h2: Perceived Ease of Use (PEU) has a significant effect on Perceived usefulness (PU)
h3: Perceived Ease of Use (PEU) has a significant effect on Attitude Toward Using (ATU)
h4: Perceived Usefulness (PU) has a significant effect on Attitude Toward Using (ATU)
h5: Perceived Usefulness (PU) has a significant effect on Acceptance of IT (AIT)
h6: Attitude Toward Using (ATU) has a significant effect on Acceptance of IT (AIT)
h7: Perceived Risk Covid-19 (PR) has a significant effect on Acceptance of IT (AIT)
h8: Performance Measurement (PM) has a significant effect on Acceptance of IT (AIT)
h9: Trust (T) has a significant effect on Acceptance of IT (AIT)

Method

This research measured system acceptance using quantitative methods and distributed questionnaires to samples from populations. Samples are taken for efficiency and to know the results of research [10]. The stages of this are carried out using the process flow as shown in Figure 2.

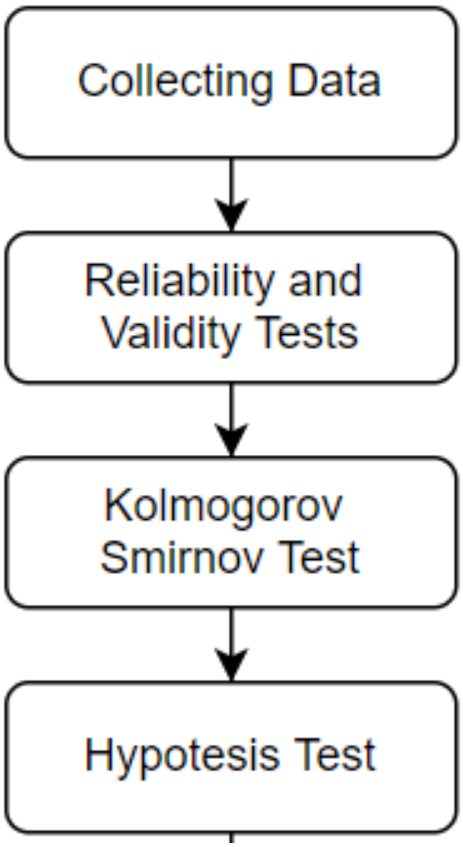

Figure 2 Proposed Research Model

The population in this research was 45,677 DGT employee [11]. With a 5% error rate, determining samples using the Slovin formula (1) resulted in 395 samples. Due to the constraints of the COVID-19 pandemic, data collection was conducted by distributing online questionnaires and obtaining 395 samples. Questions contain the definitions and indicators of each variable that are related to the purpose of this research. They are Habit, Perceived ease of use, Perceived usefulness, Attitude Toward Using, Acceptance of IT, Perceived Risk Covid-19, Performance Measurement, Trust. The questionnaire refers to a 5-point Likert scale (1: Strongly Disagree and 5: Strongly Agree).

$$n = \frac{N}{1+Ne^2} \quad (1)$$

Reliability and validity tests were used to check the reliability and validity of the data collected. Checking the consistency of the data is needed to measure the proper research construction. The method that is often used to calculate reliability is to use Cronbach's Alpha formula (2). Cronbach's is a function of the number of items in the test, the mean

covariance between pairs of items, and the variance of the total score. Validity to measure the probability that the data corresponds accurately to real using formula (3). The validity of a measurement tool is the degree to which the tool measures what it claims to measure [12].

$$\alpha_{st} = \frac{N.\bar{r}}{1+(N-1).\bar{r}} \quad (2)$$

$$r_{xy} = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}.\sqrt{N\sum Y^2 - (\sum Y)^2}} \quad (3)$$

For testing homogeneity and distribution used the Kolmogorov-Smirnov test formula (4). Analysis of this research data using Hypothesis and SEM tests. Hypothesis Tests are used to confirm whether or not a hypothesis is accepted [13]. Hypothesis Tests using t-test formula (5).

$$D = \max_{1<x<N} \left(F(Yi) - \frac{i-1}{N}, \frac{i-1}{N} - F(Yi)\right) \quad (4)$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}} \quad (5)$$

Result And Discussion

Data collection of 395 respondents in the form of an online survey distributed online on social networks. Table 1 describes a detailed overview of respondents based on demographic classification. The age range of most respondents is between 25-40 years. It consists of: 81.3% male and 18.7% female, with the last education diploma 28.0%, undergraduate 60.8%, and master's 10.9%.

Table 1. Demographics Respondents

Category		Freq	Percentage
Gender	Male	321	81.3%
	Female	74	18.7%
Age	<25	43	10.9%
	25 – 40	295	74.7%
	>40	57	14.4%
Education	High School	1	0.2%
	Diploma	136	28.0%
	Bachelor	295	60.8%
	Master	53	10.9%
Work experience	<5	50	12.7%
	5 – 10	89	22.5%
	11 – 20	219	55.4%
	>20	37	9.4%

Testing is to find out how valid the research variable items are used. The value of validity and reliability is influenced by the measured subject and object also the items variable itself. Reliability testing was tested with Cronbach's Alpha analysis which meant that it must have a minimum value of 0.50 to be accepted. Table 2 shows that the values obtained for the measurement model meet the requirements.

Table 2. Reliability Test of All Variable

Variable Item	Cronbach Alpha	Description
Habit	0.79496	Reliable
Perceived ease of use	0.78574	Reliable
Perceived Usefulness	0.86839	Reliable
Attitude Toward Using	0.56842	Reliable
Acceptance of IT	0.66525	Reliable
Perceived Risk	0.88781	Reliable
Performance Measurement	0.87294	Reliable
Trust	0.82393	Reliable

The results of the validity test are shown in table 3. This test is measured by comparing the R-statistics with a value greater than the R-table (0.1381), then the results are accepted. The validity and reliability tests show the results are accepted then it can be continued on the next test.

Table 3. Validity Test of Habit Variable

Variable Item		R-statistics	Description
Habit	H1	0.75	Valid
	H2	0.82	Valid
	H3	0.78	Valid
	H4	0.71	Valid
	H5	0.73	Valid
Perceived Ease of Use	PEU1	0.81	Valid
	PEU2	0.82	Valid
	PEU3	0.75	Valid
	PEU4	0.80	Valid
	PEU5	0.71	Valid
	PEU6	0.76	Valid
Perceived Usefulness	PU1	0.70	Valid
	PU2	0.75	Valid
	PU3	0.76	Valid
	PU4	0.77	Valid
	PU5	0.70	Valid
	PU6	0.45	Valid
Attitude Toward Using	ATU1	0.68	Valid
	ATU2	0.83	Valid
	ATU3	0.64	Valid
Acceptance of IT	AIT1	0.77	Valid
	AIT2	0.78	Valid
	AIT3	0.63	Valid
	AIT4	0.57	Valid
Perceived Risk	PR1	0.90	Valid
	PR2	0.84	Valid
	PR3	0.89	Valid
	PR4	0.83	Valid
Performance Measurement	PM1	0.91	Valid
	PM2	0.92	Valid
	PM3	0.91	Valid
	PM4	0.81	Valid
	PM5	0.50	Valid
Trust	T1	0.75	Valid
	T2	0.71	Valid
	T3	0.81	Valid

	T4	0.80	Valid
	T5	0.76	Valid

For testing normal distribution, the Kolmogorov Smirnov test was implemented. If the result with a value greater than 0.05 has a normal distribution, it is shown in table 4. All test results have normal distribution values.

Table 4. Kolmogorov Smirnov Test of Hypothesis

Hypothesis	Ks-statistic	Description
h1	0.85319	Normal
h2	0.46412	Normal
h3	0.99996	Normal
h4	0.99996	Normal
h5	0.96321	Normal
h6	0.95193	Normal
h7	0.38991	Normal
h8	0.76712	Normal
h9	0.75446	Normal

Results of hypothesis testing are shown in table 5. The first hypothesis (h1) states that the H variable has a significant effect on the PEU variable with the opposite effect. In the second hypothesis (h2), PEU has a significant effect on PU. Third hypothesis (h3), PEU has a significant effect on ATU. Fourth hypothesis (h4), PU has a significant effect on ATU. Fifth hypothesis (h5), PU has a significant effect on AIT. Sixth hypothesis (h6), ATU has a significant effect on AIT with the opposite effect. Seventh hypothesis (h7), PR has a significant effect on AIT with the opposite effect. Eighth hypothesis (h8), PM has a significant effect on AIT. Ninth hypothesis (h9), T has a significant effect on AIT.

Table 5. Hypothesis Test Result

Hypothesis	t-statistic	p-value	Description
h1	-26.16803	5.24e-105	Accepted
h2	8.15031	1.52e-15	Accepted
h3	98.35758	0.0	Accepted
h4	71.89821	4.45e-282	Accepted
h5	43.51918	2.38e-190	Accepted
h6	-40.45747	1.82e-191	Accepted
h7	-8.42997	2.52e-16	Accepted
h8	19.97101	1.35e-69	Accepted
h9	18.29761	2.91e-60	Accepted

Conclusion

Logbook can be considered a good application and accepted by users based on the extended TAM model. Respondents showed a significant influence on Habit, Perceived Ease of Use, Perceived Usefulness, Attitude Toward Using, Acceptance of IT, Perceived Risk, Performance Measure, and Trust. However, the influence of Attitude Toward Using and Perceived Risk as opposed to Acceptance of IT needs to be considered when using Logbooks.

With Logbook, it helps DGT in overcoming work from home problems through systems such as performance reporting, attendance, health self-assessment, and location detection. This research provides recommendations to DGT to continue to use Logbook as an interactive media to support work from home and to improve the influence of Attitude Toward Using and Perceived Risk.

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