



Measuring Acceptance Levels of Webcast-Based E-Learning to Improve Remote Learning Quality Using Technology Acceptance Model

Satmintareja^{1,3*} , Wahyul Amien Syafei² , and Aton Yulianto³ 

¹Master Student, Master of Information System, Postgraduate School, Diponegoro University, Semarang, 50242, Indonesia

²Electrical Engineering, Diponegoro University, Semarang, 50242, Indonesia

³National Research and Innovation Agency (BRIN), Jakarta, 10340, Indonesia

Abstract

This study aims to improve the quality of distance learning by developing webcast-based e-learning media and integrating it into an e-learning platform for functional job training purposes at the National Research and Innovation Agency, Indonesia. This study uses a Technology Acceptance Model (TAM) to assess and predict user perceptions of information systems using webcast platforms as an alternative to conventional applications. The research method was an online survey using Google Forms. Data collected from 136 respondents involved in practical job training were analyzed using structural equation modeling to test the technology acceptance model. The results showed that the proposed model effectively explained the variables associated with the adoption of web-based e-learning during the COVID-19 pandemic in Indonesia for participants engaged in functional job training. These findings suggest that users' perceptions of ease of use, usefulness, benefits, attitudes, intentions, and webcast usage significantly contribute to the acceptance and use of a more effective and efficient webcast-based e-learning platform.

Index Terms: COVID-19, E-Learning, Structural Equation Modeling, Technology Acceptance Model, Webcast

I. INTRODUCTION

The impact of the COVID-19 outbreak in Indonesia has resulted in the restriction of regular activities for both workers and students. The Indonesian government has enforced a ban on all outdoor gatherings to contain the spread of the virus. During the pandemic, the most effective approach to sustaining educational activities was the adoption of remote learning techniques facilitated by video conferencing tools [1,2]. To cope with the challenges posed by local shutdowns, educational institutions have recommended the utilization of distance learning technologies, including e-learning platforms integrated with teleconferencing applications such as video calling software, collaborative chat tools, and Google

Meet [3-5].

Rosenberg [6] stated that *e-learning* is being used extensively by educational institutions. Video-based multimedia can be used in e-learning as a distance learning medium to deliver and display educational materials. Learning the using video format is both efficient and convenient [7]. Numerous technologies can be applied to distance education to improve hands-on learning experiences. Educators must select the most suitable technology for promoting active learning [8].

The need for technology to achieve educational goals during the pandemic is crucial. Multiple studies have examined the employment of technology in education during the pandemic. Technology integration is a crucial element that influences academic achievement, particularly in the context


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*Corresponding Author Satmintareja (E-mail: Satmintareja.tugas@gmail.com)

Postgraduate School, Diponegoro University, Semarang, 50242, Indonesia. National Research and Innovation Agency (BRIN), Jakarta, 10340, Indonesia

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of the COVID-19 outbreak [9-11]. Barz and Bassett [12] stated that webcasts could be used as a medium for education, seminars, and online meetings with large numbers of participants. Webcasts have been established as an alternative medium for video conferencing applications. Students can benefit from the use of asynchronous webcasts, particularly in large classes, as it improves their learning comprehension. Webcast technology can also be incorporated into the current information systems. For the 14,000 members of Indonesia's National Research and Innovation Agency (BRIN), the integration of webcast-centered e-learning is an alternative to current e-learning platforms. This enhances the efficacy of remote training in functional job-related activities during the ongoing pandemic.

The researcher wanted to analyze self-efficacy and webcasts because both have a strong enough relationship to provide effective learning outcomes. Webcasts are used as a medium for learning with the help of self-efficacy, which helps show students' self-advantages. This study employs the Technology Acceptance Model (TAM) to assess and forecast the user adoption of an information system using a webcast platform instead of traditional video conferencing tools. The approach used for evaluation is structural equation modeling (SEM), which is used to measure and evaluate the proposed model. This investigation is significant as it aims to delve further into the elements that could impact the utilization of webcasts, thereby enhancing the overall learning experience. Researchers have found that research concepts that need to be discussed are still rare. Although webcasts have become one of the techniques used to conduct learning and make students better understand research material, Giannakos and Vlamos [13] conducted research that focuses on educational webcast acceptance involving experience and testing. The study revealed that perceived behavioral control and social norms influence behavioral intention through the experience gained by students. However, their study is quite dated, and more current research is required. The primary emphasis of this study is the innovation of employing webcasts to enhance educational experiences, specifically through the lenses of perceived ease of use, perceived utility, perceived usefulness, attitudes, intentions, and the utilization of webcasts. Given this perspective, the aim of this investigation was to measure the degree of acceptance of webcasts using TAM, with the aim of enhancing educational quality during a pandemic.

The initial purpose of the Technology Acceptance Model [14] was to examine the premise of the practical implementation of communication. This was taken from the Rational Action Theory (TRA), which defines how people react and feel when acting [15]. The TAM suggests that individuals' responses toward a new practical application are determined by their manner, of utilizing or opposing it. The concepts of perceived usefulness (PU) and perceived ease of use (PEOU)

influence this mindset, and impact students' inclination to utilize practical applications [16-18].

II. METHOD

A. Method

On study [19] found that the ease of use of video conferencing had a significant impact on PU, attitudes, and levels of learning. Furthermore, related to PEOU and behavioral volition, PU with video conferences predicted a motive to take video conferences directly and indirectly later. However, PU was unsuccessful in influencing video-conference class learning outcomes. Therefore, PU did not affect how well entrants reported their recent process in their teleconference courses, whereas it calculated oncoming applications. Therefore, to measure the level of PEOU, PU, attitudes, behavioral intentions, and learning outcomes, the creators of the proportionate survey study utilized the framework of the Technology Acceptance Model [20] in their design. This cross-sectional study was conducted over at a certain period of time. This collection relates to insights and behaviors regarding video conferencing devices assigned to assist distance education goals in functional job training activities at the National Research and Innovation Agency, Indonesia (BRIN).

B. Hypotheses

The model illustrated in Fig. 1 depicts the proposed structure. It has five variables and 10 components that support the following hypotheses:

- H1: The perception of a webcast's ease of use positively correlates with its PU.
- H2: PEOU positively affects attitudes toward operating webcast tools.
- H3: The perception of webcast tools' usefulness positively influences attitudes towards their use.
- H4: PU has a positive effect on users' attitudes towards webcast tools operation.
- H5: The perception of the ease of utilizing webcast tools positively influences behavioral cognition.
- H6: Attitudes have a positive effect on behavioral objectives when using the webcast tool.
- H7: The perception of usefulness exerts a favorable influence on the practical utilization of webcasts.
- H8: The instructional outcomes of webcast tools are positively affected by their PEOU.
- H9: The presence of an intention yields favorable impacts on the learning results documented through the implementation of webcast tools.
- H10: Favorable attitudes positively contribute to learning results documented through the use of webcast tools.

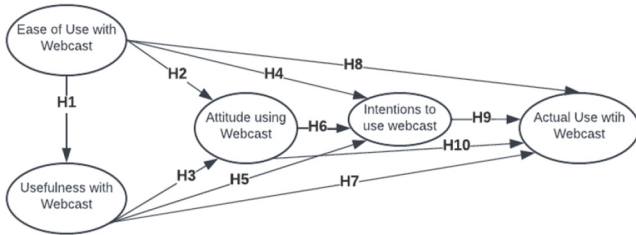


Fig. 1. The proposed framework consists of five variables and 10 hypotheses.

C. Sample Size

The research population comprised employees of the National Research and Innovation Agency of Indonesia (BRIN). According to the research conducted by [21], a research sample should consist of a minimum of five times the number of question indicators in the research questionnaire. Given that the survey utilized 19 indicators, the number of samples was $19 \times 5 = 95$, and the total number of participants in the research sample exceeded the lower limit of 136. Before data collection, we used a survey form, which is one of the most popular technology acceptance survey methods [22]. Using a quantitative approach, it is believed that a cross-sectional survey would ensure consistent, authentic, and generalizable results [23]. In addition, we also designed a Likert scale survey ranging from 1 to 5, which ranged from very contradictory to very satisfactory. This research questionnaire was administered online using Google Forms during the COVID-19 pandemic from November 1 to November 30, 2022.

First, there was a nominal scale in the survey form to gather baseline information related to demographic issues such as sex, education, and age. Table 1 shows the demographics of the respondents, with 80% male and 20% female. Then, for the level of education, most of the respondents are in undergraduate programs, with a percentage of 46%, and master programs, at 40%. Most respondent (54%), were age over 50 year. The second part of the survey form consisted of three indicators of diversion: TAM, PEOU, and PU, taken from the survey model of Davis [14] and behavioral attitude. The next quantity was the manner, which was internally formulated and designed for learning activities on the webcasts. To demonstrate the use of the webcast tool, we applied five modifications to the Academic Self-Efficacy Scale [24]. Five points were chosen because they were clearly related to the lessons that could be gained from using this video conference platform.

Furthermore, Kusumadewi et al. [25] conducted research using the TAM method, involving survey questions and a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). They used the TAM in the form of a questionnaire owing to the need to analyze the behavior of the subjects. In testing validity and reliability, every measure utilized in the study undergoes a thorough evaluation to examine the connec-

tion between the hypothesis and the variables under scrutiny. Oktofiyani and Anggraeni [26] support the use of survey instruments because measuring attitudes, opinions, and perceptions of an object requires the use of a questionnaire and a Likert scale to show the views of the subjects studied.

Table 1. Respondent Demographics

Gender		
Male	109	80%
Female	27	20%
Education		
High School	8	6%
Diploma Program	5	4%
Degree Program	63	46%
Master Program	55	40%
Doctoral Program	5	4%
Age		
between 20 and 30	17	13%
between 31 and 40	18	13%
between 41 and 50	28	21%
Above 50	73	54%

Table 2. Survey scales and items

Self-efficacy (ability to achieve goals) through the use of webcasts for distance learning
1. I believe I can take distance training (e-learning) using a webcast.
2. I will study well using a webcast.
3. I can well receive the information conveyed in the training by using the webcast.
4. I can easily understand the material presented using the webcast.
5. I can comprehend properly even if the resource person presents varied material using webcast.
Ease of use of in-class webcast tools (PEoU)
6. The webcast learning tool is very simple to operate.
7. Webcast learning means are simple to discover.
8. Interaction using webcast tools is vivid and practical.
Perceived usefulness with in-class webcast tools (PU)
9. I believe webcast learning media improve the quality of distance learning.
10. I believe the webcast learning media upgrade my educational action.
11. I believe the webcast instructing media upgrade cost and time ratio.
12. I believe the webcast learning media are useful and beneficial.
Attitude toward webcast tools in class (attitude)
13. I participated well in distance learning using webcasts in this training.
14. I enjoy attending distance learning webcasts.
15. I enjoy interacting effectively with fellow participants using webcasts.
16. I like joining group activities using webcasts in training.
17. I believe it is an important concept to do variation together in a course with webcasts.
Intention of using webcast learning tools in the classroom (Behavioral)
18. I have an intention to utilize the webcast tool often later on.
19. I will often apply this free webcast learning tool for classroom activities.

Fig. 2 shows the results of the SEM analysis used to test the technology acceptance model, AMOS version 26 was used to process the data in the context of using a webcast-based e-learning platform. Fig. 2 also shows the relationship between the variables involved, namely the independent variables consisting of PEOU and PU, and the dependent variables consisting of AT, BI, and AU, where e1 to e19 are variances. Fig. 2 provides a clear visual illustration of the conceptual framework and relationship between the variables tested in this study. SEM consists of measurement prototypes that link latent variables and sample variables connected by paths and can solve multi-regression problems and analyze the order among theoretically specified designs [27].

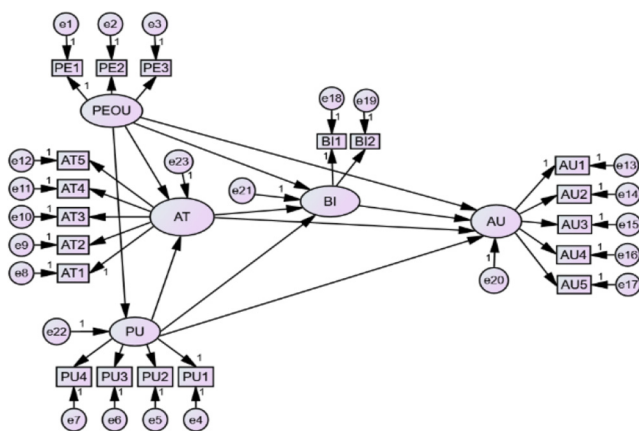


Fig. 2. Modelling the proposed framework to be tested using AMOS

III. RESULTS

A. Validity Test

A test was conducted to validate survey results. A survey was considered valid if its questions effectively represented the measured elements. Data were deemed valid when the factor loading value is greater than 0.5 [28]. The results of the validity test indicated that all question indicators representing the five variables were deemed valid, with values exceeding 0.5. AMOS version 26 was used to assess the validity of the instrument’s attributes. Table 3 shows the validity of the test results.

Table 3 shows the factor loading values acquired from each statement item pertaining to PEOU, PU, AT, AU, and BI. These variables exhibited a factor loading value greater than 0.5, indicating that all statements utilized in this study were valid.

B. Reliability Test

A reliability test showed that the instrument is reliable.

Table 3. Validity Test Results

Variable	Indicator	Factor Loading
PEOU	PE1	0.910
	PE2	0.909
	PE3	0.833
PU	PU1	0.838
	PU2	0.829
	PU3	0.844
	PU4	0.847
AT	AT1	0.880
	AT2	0.908
	AT3	0.864
	AT4	0.856
	AT5	0.807
AU	AU1	0.855
	AU2	0.826
	AU3	0.861
	AU4	0.904
	AU5	0.801
BI	BI1	0.844
	BI2	0.851

The reliability test used was (Construct Reliability). A variable was considered reliable if the CR score was > 0.7. Table 4 presents the reliability test results.

The reliability of the test results is confirmed when the VE (variance extracted) value exceeded 0.7 [28]. In this study, the CR value of each of the five research variables exceeds 0.7. With reference to the outcomes presented in Table 4, it can be deduced that all survey instruments were dependable for implementation in this study.

C. Structural Model Identification

Several methods of detecting the presence of an identification issue involve examining estimation results. SEM analysis is feasible only when the model identification outcomes indicate that the model is included in the over-identified classification. This was determined is made by observing the degree of freedom (df) of the model, as presented in Table 5.

The AMOS output results exhibited a DF value of 142. This indicates that the model falls within the over-identified category, because it has a positive df value. Consequently, the subsequent stages of data analysis were feasible.

D. Assessing the Goodness of Fit Criteria

The primary objective of SEM is to evaluate the goodness of fit and, determine the extent to which the hypothesized model aligns with the sample data. The result of the goodness-of-fit evaluations are presented in Table 6.

Table 4. Reliability Test Results

Variable	Indicator	Loading Factor	Loading Factor2	Measurement Error	CR	VE
PE	PE1	0.910	0.828	0.172	0.915	0.783
	PE2	0.909	0.826	0.174		
	PE3	0.833	0.694	0.306		
PU	PU1	0.838	0.702	0.298	0.905	0.705
	PU2	0.829	0.687	0.313		
	PU3	0.844	0.712	0.288		
	PU4	0.847	0.717	0.283		
AT	AT1	0.880	0.774	0.226	0.936	0.746
	AT2	0.908	0.824	0.176		
	AT3	0.864	0.746	0.254		
	AT4	0.856	0.733	0.267		
	AT5	0.807	0.651	0.349		
AU	AU1	0.855	0.731	0.269	0.929	0.723
	AU2	0.826	0.682	0.318		
	AU3	0.861	0.741	0.259		
	AU4	0.904	0.817	0.183		
	AU5	0.801	0.642	0.358		
BI	BI1	0.844	0.712	0.288	0.836	0.718
	BI2	0.851	0.724	0.276		

Table 5. Structural Model Identification

Number of distinct sample moments:	190
Number of distinct parameters to be estimated:	48
Degrees of freedom (190 - 48):	142

Table 6. Assessing Goodness of Fit

Goodness of fit index	Cut-off value	Research model	Model
Chi-square	Expected small	309,767	Fit
Significant probability	≥0.05	0.000	No Fit
RMSEA	≤0.08	0.094	No Fit
GFI	≥0.90	0.808	Marginal Fit
AGFI	≥0.90	0.743	Unwell
CMIN/DF	≤2.0	2.181	No Fit
TLI	≥0.90	0.918	Fit
CFI	≥0.90	0.932	Fit

Observing the outcomes illustrated in Table 4, it becomes apparent that the research model exhibits a good fit.

The CMIN/DF is a parsimonious fit index that assesses how well the model fits the data, considering the number of estimated coefficients. The CMIN/DF result of 2,181 in this study suggests that the research model is not a good fit.

The Goodness of Fit Index (GFI) reflects the general level of conformity of the model, derived from the squared discrepancy between the projected model and the real data. In this model, the GFI is 0.808. A value approaching the suggested level of 0.90 signifies a moderately fitting research model.

RMSEA served as an index to compensating for the chi-square value in a large sample. In this study, the RMSEA value was 0.094, which surpassed the suggested threshold of 0.08, indicating an inadequate fit for the research model.

The AGFI is adjusted for the ratio between the hypothesized degrees of freedom and the null model's degrees of freedom. In this model, AGFI was 0.743. A value lower than the suggested level of 0.90 suggests that the research model is not well-fitted.

The TLI is a conformity index that is less influenced by sample size. In this study, the TLI value was 0.918, which exceeds the suggested threshold of 0.90, indicating a good fit to the research model.

The CFI is relatively immune to sample size and model complexity. In this study, the CFI value was 0.932, surpassing the recommended threshold of 0.90, and suggesting a well-fitting research model.

E. Hypothesis Test

Hypothesis testing was performed to address the inquiries within this study and to assess the structural relationships within the model. The framework is accepted if the CR value is >1.96 or p-value <0.05. The analysis of the hypothesis data was confirmed by the application of standardized regression weight values, indicating the influence coefficients between the variables, as shown in Table 7.

Table 7 describes the relationships between the variables, such as:

Table 7. The State of Variables

	Hypothesis	Estimation	SE	CR	P	Status
H1	PEOU --> PU	0.689	0.078	8.782	0.000	received
H2	PEOU --> AT	0.389	0.091	4.280	0.000	received
H3	PU --> AT	0.642	0.104	6.183	0.000	received
H4	PEOU --> BI	0.297	0.129	2.307	0.021	received
H5	PU --> BI	0.452	0.157	2.876	0.004	received
H6	AT --> BI	0.089	0.160	0.557	0.578	rejected
H7	PU --> AU	0.044	0.155	0.280	0.779	rejected
H8	PEOU --> AU	0.304	0.117	2,594	0.009	received
H9	BI --> AU	0.360	0.136	2,648	0.008	received
H10	AT --> AU	0.298	0.139	2.144	0.032	received

- 1. Relationship between PEOU and PU.** The standardized regression weight coefficient for this parameter was 0.000 with a CR of 8.782, demonstrating a positive correlation between PEOU and PU. Testing the variable state gave a probabilistic importance of 0.000 ($p < 0.05$) therefore, the PEOU affected PU (H1 was accepted). This research was conducted in direct accordance with existing references, [3,19,29] although they did not use the same platform. This was also in accordance with the literature related to video conferencing media, especially for electronic instruction goals [30].
- 2. PEOU's relationship to AT.** The standardized regression weight coefficient for the parameter was 0.000 and the CR value was 4.280, signifying a positive relationship between PEOU and AT. Testing the state of the variables resulted in a probabilistic importance of 0.000 ($p < 0.05$). Therefore, PEOU affected AT (H2 was accepted). These results were consistent with those of previous studies [19,29].
- 3. Relationship between PU and AT.** The expected score parameter for the standardized regression weight coefficient was 0.000 with a CR value of 6.183, indicating a substantial correlation between PU and AT. Examination of the variable states yielded a probability significance of 0.000 ($p < 0.05$), confirming that PU impacts AT (H3 is accepted). These findings were consistent with those of previous studies [19,29,31]. This study proves that the simplicity and PU of functional job training activities affect attitudes towards distance learning through webcast.
- 4. PEOU's relationship with BI.** The anticipated value of the coefficient for the standardized regression weight was 0.021 with a CR value of 2.307, suggesting a noteworthy correlation between PEOU and BI. Testing of the variables showed a probabilistic importance of 0.021 ($p < 0.05$). Therefore, PEOU effected BI (H4 was accepted). Ease of using the webcast tool in the classroom (PEOU) positively influenced the intention to

apply the tool (BI). This finding is consistent with those of previous studies [19,32,33].

- 5. PU's relationship with BI.** The standardized regression weight coefficient for the parameter was 0.004 and the CR value was 2.876, highlighting a substantial correlation between PU and BI. Testing of the variables showed a probabilistic importance of 0.004 ($p < 0.05$). Therefore, PU affects BI (H5 is accepted). The perceived utility of webcast tools in the classroom (PU) positively influenced the intention to use the tool (BI) in the future.
- 6. AT's relationship with BI.** The standardized regression weight coefficient was 0.578 with a CR value of 0.557, indicating a positive correlation between AT and BI. Testing the variables produced a probabilistic importance of 0.578 ($p > 0.05$); therefore, AT had no effect on BI (H6 was rejected). The outputs of this study that correlated with attitudes were contrary to previous findings [34,35], where attitude was a prominent indicator of the acceptance of a technology.
- 7. PU's relationship with AU.** The calculated value of the standardized regression weight coefficient was 0.779, whereas the CR value was 0.280, suggesting a positive correlation between PU and AU. Examination of the variables proved a probabilistic importance of 0.779 ($p > 0.05$), indicating that PU had no effect on AU (H7 was rejected). The outcomes of this study contrast with previous research findings [16,36]. The increase in perceived benefits did not affect the perception of learning outcomes in the classroom regarding functional job training using webcasts.
- 8. PEOU's relationship to AU.** The standardized regression weight parameter was 0.009 and the CR value was 2.594, indicating a positive correlation between PEOU and AU. Testing the state of the variables showed a probabilistic importance of 0.009 ($p < 0.05$) and that PEOU had an effect on AU (H8 was accepted). These results are consistent with those of previous studies

[19]. In conclusion, the perception of the ease of using the developed webcast tools had a positive impact on learning outcomes.

9. **BI's relationship with AU.** The anticipated value for the standardized regression weight coefficient was 0.008, and the CR value was 2.648, indicating a positive relationship between BI and AU. Examining the variables proved a probabilistic importance of 0.008 ($p < 0.05$), indicating that BI affected AU (H9 was accepted). Behavioral intentions for the future use of webcast tools influenced learning outcomes in functional job training, in accordance with the existing TAM literature review [33].
10. **AT's relationship to AU.** The computed value for the standardized regression weight coefficient was 0.032 and the CR value was 2.144, indicating a positive relationship between AT and AU. Testing the state of the variables proved a probabilistic importance of 0.032 ($p < 0.05$); AT effected AU (H10 was accepted). Positive attitudes affect learning outcomes when webcast tools are used. This finding aligns with prior research, indicating that attitudes positively impact the adoption of video conferencing tools for e-learning purposes during the COVID-19 pandemic [37].

IV. DISCUSSION

The positive impact of the perceived ease of use (PEOU) on the perceived usefulness of webcast (PU) is crucial. Essentially, the ease of technology use in the learning process is important. If the use of technology for learning purposes is straightforward, students are likely to perceive it as useful. This behavior is commonly observed among students, as evidenced by the link between the ease of utilizing webcasts and the perceived utility of this medium [38]. PEOU is defined as an act in which the student believes that the technology will require less effort and no skills are needed. Every ease of use felt when using webcasts in learning provides behavior that show some usefulness for students. Previous research indicates that PU has a positive effect [39]. Based on these findings, H1 was supported by previous research, which states that there is an influence between these two variables.

The perception of ease of use (PEOU) positively influences attitudes (AT) towards the operation of webcast tools. Ease of use can also influence student behavior. The more user-friendly a webcast, the more positively students will be encouraged to behave. According to [19,29], PEOU has an influence on AT because in conducting learning, the use of webcasts such as Zoom meetings helps contribute to increasing attitudes toward communicating with students. Therefore, H2 was supported, as previous research corroborated

the influence of PEOU and AT. Perceived usefulness (PU) positively affects attitude (AT) and user behavior (BI). Perceived usefulness signifies the belief that technology use enhances task performance. In this context, emphasis is placed on students' attitudes and behaviors during communication [40]. [19] reinforce H3 and H5, affirming that perceived usefulness (PU) positively affect attitudes and behaviors in the online environment.

Perceived ease of use (PEOU) positively influences behavioral intention (BI) and actual webcasts usage (AU). The use of an easy-to-use webcast will inevitably result in conduct different from that of the students. Because it is simple to use, BIs may develop. The presented stimuli, such as PEOU, cause the learner to establish an intention to belong. In addition, PEOU in the webcast will affect actual use because if students have experience using webcasts easily, they will feel that there is actual use in the webcast [37]. According to [19], H4 and H8 are supported, asserting the positive impact of PEOU on both BI and AU, independently. Attitudes (AT) did not positively affect behavioral intentions (BI). This is so that student's attitudes will not act as catalysts to achieve their inner goals. Attitude is a behavior that develops from a habit. However, because no stimulus is provided, this cannot be a catalyst for unleashing the intention. Raza et al. [41] supports the rejection of H6 by stating that attitude can affect BI if used as a moderating variable, where there is one stimulus given.

Perceived usefulness (PU) did not have a positive effect on actual use of webcasts (AU). In this case, PU does not affect AU because the students have no interest in PU on the webcast. Although webcasts have good PU, students do not feel the presence of AU on the webcast. [42] argued that PU can affect AU if students intend to use it. Through intention-based use, students are satisfied with the use of webcasts through the AU. Therefore, H7 is rejected because there is no moderating variable. Behavioral intention (BI) positively affect learning outcomes reported through webcast tools (AU). Previous studies support this claim, suggesting that BI influences AU by motivating students to use webcasts for educational purposes. Raman et al. [43] emphasized that BI is an investment that can be made in students so that they can encourage the use of AU on webcasts. That is why H9 was approved.

Attitudes (AT) have a positive effect on learning outcomes, as reported for Webcast Tools (AU). Students' use of webcast technology can result in successful learning outcomes. To ensure that learning can occur and that more outcomes may be obtained, students must have a positive attitude. The use of webcasts during the epidemic had a significantly impacted learning outcomes. However, this is undoubtedly reinforced by students' attitudes that pupils exhibit. Webcasting cannot be used effectively without positive attitudes. According to [37], H10 is reinforced by emphasizing that the

actual use of the system can be influenced by student attitudes, provided that the attitude remains positive.

V. CONCLUSION

Measurement of the acceptance levels of webcast-based e-learning users using the TAM and SEM has been done. The test outcomes indicate that the ease of using webcasts for practical job training (PEOU) significantly impacted the perceived usefulness of utilizing webcasts (PU), and that perceived ease and usefulness greatly affected user attitudes towards webcasts (AT). The perceived ease and usability of webcasts greatly affect users' motives to apply webcasts (BI). However, users' attitudes towards webcasts (AT) failed to affect their intention to use webcasts (BI). Ease with user intentions and attitudes greatly affected the ability to achieve goals using webcasts (AU), but perceived usefulness (PU) did not affect the ability to achieve goals using webcasts in functional job training (AU).

This study differs from the previous studies in several ways. First, it focuses on the use of webcast platforms in the context of e-learning, whereas previous studies have focused on other technologies or applications (Zoom) in different contexts [19,29]. Second, this study used TAM and SEM AMOS to analyze the acceptance and use of webcast platforms, whereas previous studies [25,33] used different models or analysis methods. This study makes a new contribution to the understanding of factors influencing the acceptance and use of webcast platforms in the context of e-learning during the COVID-19 pandemic.

Future research should expand sample coverage and research context to make that the results more general and widely applicable. Further research should consider other factors that may influence the acceptance and use of webcast platforms in e-learning contexts, such as social, psychological, and environmental. In addition, research could consider using qualitative methods to gain a deeper understanding of users' experiences of webcast platforms for learning purposes. Future research can provide more comprehensive insights into the acceptance and use of webcast-based e-learning platforms. In addition, it was found that AT to BI and PU to AU were rejected, so future researchers could develop this research by re-analyzing the variables that were not accepted.

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Satmintareja

Satmintareja obtained a Bachelor's degree in Informatics Management from the Jakarta School of Informatics and Computer in 1999. Currently, he is pursuing a Master's degree at Diponegoro University, Semarang, Indonesia. His research interests include information systems.



Wahyul Amien Syafei

Wahyul Amien Syafei is a lecturer at the Diponegoro University in Semarang, Indonesia. He obtained his bachelor's degree from Diponegoro University in Semarang, Indonesia, completed his master's degree from the Institut Teknologi Sepuluh Nopember, Surabaya, and earned his doctorate from the Kyushu Institute of Technology in Japan. His expertise is in digital signal processing and next-generation wireless communication systems.



Aton Yulianto

Aton Yulianto is a researcher at the Agro-Industry Research Center of the Indonesian Agency for Research and Innovation (BRIN). He obtained his bachelor's degree from the Institut Teknologi Sepuluh Nopember in Surabaya, completed his master's degree from Yamagata University, Japan, and received his doctoral degree from the Bogor Agricultural Institute, Indonesia. He specializes in the management of agricultural industrial technology.