

## Technology acceptance of digital multimodal platforms for English learning among Indonesian vocational high school students

Deo Kharisma Andriyanto<sup>1</sup> and Zuliati Rohmah<sup>2\*</sup>

<sup>1</sup>Department of English Literature, Faculty of Letters, Universitas Negeri Malang, East Java, Indonesia

<sup>2</sup>Department of Language Education, Faculty of Cultural Studies, Universitas Brawijaya, East Java, Indonesia

### ABSTRACT

In a rapidly changing educational landscape, this research investigates the factors that influence vocational high school students' acceptance of digital multimodal platforms for learning English. The study is motivated by BPS-Statistics Indonesia data showing a high unemployment rate among vocational high school graduates (8.63%) compared to graduates from other educational paths. This study aimed to identify factors influencing students' acceptance of digital multimodal learning, which is essential for developing globally relevant skills. Utilizing the Technology Acceptance Model (TAM), a quantitative approach was employed, involving a Likert scale questionnaire administered to 198 students from diverse majors. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings revealed that Facilitating Conditions significantly influenced Perceived Usefulness ( $\beta=0.174$ ,  $p=0.031$ ) and perceived ease of use ( $\beta=0.705$ ,  $p<0.001$ ). Perceived ease of use significantly predicted behavioral intention ( $\beta=0.220$ ,  $p=0.013$ ), whereas perceived usefulness did not significantly influence Behavioral Intention ( $\beta=0.027$ ,  $p=0.756$ ). Practically, the findings suggest that vocational schools should prioritize user-friendly digital platforms and strengthen technological support systems. Theoretically, the study extends TAM in vocational education by showing that perceived ease of use predicts behavioral intention more strongly than perceived usefulness. The findings further indicate that accessible digital multimodal platforms can support English language learning by facilitating interactive, multimodal, and student-centered learning experiences.

**Keywords:** Digital multimodal platform; technology acceptance model; vocational high school

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### INTRODUCTION

An innovative Vocational High School has demonstrated strong responsiveness to the demands of a rapidly changing world. To modernize English language learning, Vocational high schools can adopt innovative approaches, such as digital multimodal learning activities that seamlessly integrate various elements, including text, images, audio, and interactivity (Lestari, 2022; Muawanah et al., 2024). This creates a dynamic, engaging environment and helps students develop digital literacy, a crucial competence in the current

information era. For instance, in English language learning, students can create multimedia presentations, honing their language skills while developing their visual design and presentation skills. This approach promotes a holistic learning experience that utilizes multiple modalities to enhance students' communication skills and creativity (Al-Khresheh, 2024; Aqad et al., 2021; Hossain, 2024; Nobaew, 2020; Yu & Zadorozhnyy, 2022).

The success of digital multimodal learning hinges on one crucial factor: students' acceptance of

\*Corresponding author  
Email: [zuliatirohmah@ub.ac.id](mailto:zuliatirohmah@ub.ac.id)

digital multimodal platforms. To understand this dynamic, this study applies the Technology Acceptance Model (TAM), which highlights perceived usefulness and perceived ease of use as key determinants of technology adoption (Hong et al., 2021; Lee et al., 2025; Mustafa & Garcia, 2021; Vanduhe et al., 2020; Zhang & Zhang, 2022). Using TAM, this study examines how vocational high school students perceive and use digital multimodal platforms for English learning and how these perceptions shape their behavioral intention.

This approach matters because it can tangibly affect student learning outcomes. Prior studies show that students who participate in TAM-guided digital multimodal learning show significant improvements in English comprehension (Fan, 2023; Huang et al., 2025; Huang et al., 2024; Masterson, 2020; Wang et al., 2023). This model is not just a theoretical concept but an effective tool for understanding and enhancing technology use in English language learning. Thus, vocational high schools serve as models for other schools seeking to implement technology to enrich and modernize education. This approach solidifies the vocational high school's role as a pioneer in shaping students who are not only proficient in their technical fields but also ready to face global challenges in the digital era.

Globally, vocational education is increasingly expected to develop students' digital literacy, communication competence, and workplace readiness. International organizations and recent educational reforms emphasize that vocational graduates need not only technical expertise but also the ability to engage effectively with digital technologies in professional contexts (Diao et al., 2025; Swaramarinda et al., 2025). As digital transformation continues to reshape the labor market worldwide, understanding how vocational high school learners accept and utilize technology-supported learning environments has become an important international concern. Therefore, understanding technology acceptance among vocational learners contributes to a broader international discussion on workforce preparation in the digital era. Yet, research on such integration in vocational education contexts remains scarce. Most existing studies focus on general education or university students (Fan, 2023; Huang et al., 2024; Masterson, 2020; Stewart, 2023; Wang et al., 2023). Although vocational high school graduates are prepared to enter the workforce after graduation, their unemployment rate (8.63%; BPS-Statistics Indonesia, 2025) is higher than that of general senior high school graduates. Learning foreign languages, especially English, through technology use is needed to improve students' skills (Arslan, 2025; Hasumi & Chiu, 2024; Zou et al., 2025) so they can better compete with general school graduates. Therefore, research on the use of digital multimodal platforms in vocational high schools is needed.

Furthermore, although TAM has been widely applied to technology integration, few studies have used it to examine vocational high school students' acceptance of digital multimodal platforms in English language learning (Andriyanto & Rohmah, 2023; Huang et al., 2024; Liu et al., 2025; Wang et al., 2025); the current study uses TAM as the model to investigate problems in the use of technology in vocational schools. More specifically, previous studies have primarily examined technology acceptance among university students or general secondary school learners, often focusing on single digital tools or online learning systems. Limited attention has been given to vocational high school students' acceptance of digital multimodal platforms that combine text, audio, visual, and interactive elements in English language learning. In addition, the role of facilitating conditions in shaping both perceived usefulness and perceived ease of use within vocational high school settings remains underexplored. We use TAM because it can help explain which factors influence the use of digital multimodal platforms for learning English. In addition, we can evaluate which factors are lacking so we can improve vocational students' use of digital multimodal platforms for learning English.

Finally, since previous studies have mainly used a simple qualitative or quantitative approach to understand the use of technology in the classrooms (Dai & Wang, 2024; Fidelia & Rohmah, 2023; Scheel et al., 2022; Tang & Liao, 2025), the present study employs a quantitative approach to carry out a complex analysis using the PLS-SEM (Partial Least Squares Structural Equation Modeling) statistical model to investigate five variables involved in the students' use of technology. Despite the growing body of research on technology acceptance, several gaps remain. First, most TAM studies have focused on university students and general secondary education, while vocational high school students remain underrepresented. Second, few studies have examined acceptance of digital platforms specifically designed for English language learning. Third, research has insufficiently explored how facilitating conditions interact with perceived usefulness and perceived ease of use in vocational education contexts. Addressing these gaps is important because vocational education increasingly emphasizes digital literacy, communication competence, and workforce readiness in response to global technological developments. Hence, the research questions formulated in this study are:

1. Is the proposed model valid and reliable for determining the factors affecting vocational students' behavioral intention to use digital multimodal platforms for learning English?
2. Are there significant relationships among variables in the proposed model?

**Information and Communication Technology (ICT)**

Digital multimodal platforms have significantly transformed education, reshaped traditional teaching methods, and created dynamic learning environments (Rajarapollu et al., 2022; Toma et al., 2023). Integrating ICT tools has enhanced teaching strategies and fostered 21st-century skill development, underscoring the need to teach digital skills. As technology evolves, its role in language education has grown, enabling learning experiences that combine multiple modes of representation, including text, audio, visual, and interactive elements (Liesa-Orús et al., 2020; Muawanah et al., 2024).

Digital multimodal platforms are technology-enhanced learning environments that integrate multiple communication modes to support learning activities (Liu et al., 2025; Shi, 2025). Unlike conventional digital tools that rely on text-based content, these platforms let learners engage with information through visual, auditory, textual, and interactive modes at the same time. Examples include Canva, Quizizz, Kahoot, Wordwall, QuizWhizzer, Nearpod, and Genially, which let learners interact with content in more engaging, meaningful ways.

Previous studies consistently suggest that multimodal learning environments can enhance learner engagement, comprehension, communication skills, and digital literacy. By presenting information through multiple representations, digital multimodal platforms support diverse learning preferences and encourage active participation in learning activities. In English language learning, these platforms let students interact with language input through various modalities, creating a richer learning experience that may improve both language development and learner motivation. Consequently, digital multimodal platforms have become increasingly relevant in vocational education, where students are expected to develop both language proficiency and the digital competencies required in the workplace.

### **Vocational High School Students' Use of Technology**

Integrating technology into teaching and learning has become increasingly crucial in educational settings. Research consistently shows that technology-enhanced learning environments can improve student engagement, motivation, and learning outcomes compared with traditional instruction that relies on conventional teaching methods (Hillmayr et al., 2020; Rao et al., 2021; Wekerle et al., 2022). These benefits are particularly relevant in vocational education, where students are expected to acquire both academic knowledge and practical skills that align with workplace demands.

For vocational high school students, technology serves not only as a learning tool but also as a means of developing competencies needed

in increasingly digitalized professional environments. As globalization increases the importance of English communication in many sectors, vocational students need learning experiences that support both language development and workplace readiness (Koenig et al., 2020; Sharma et al., 2022). Digital technologies can facilitate this process by providing interactive, flexible, and learner-centered opportunities for English language learning.

Existing studies indicate that vocational students generally demonstrate positive attitudes toward educational technologies when such tools are perceived as relevant to their learning needs and future careers. However, despite the growing integration of technology in vocational education, limited research has examined how vocational students perceive and accept digital multimodal platforms specifically for English language learning. This gap highlights the need to better understand the factors that influence technology acceptance in vocational contexts.

### **Technology Acceptance Model**

Understanding why learners adopt or reject educational technologies has become an important area of educational research. The TAM, originally proposed by Davis, is one of the most widely used frameworks for explaining users' acceptance of technology. TAM suggests that individuals' intentions to use technology are primarily influenced by their perceptions of its usefulness and ease of use, which in turn shape their attitudes and behavioral intentions toward technology adoption (Kong et al., 2020; Liao et al., 2022; Tao et al., 2020).

Because of its strong theoretical foundation and predictive power, TAM has been widely applied to studies investigating technology integration in educational settings, including English language learning (Abuhassna et al., 2023; Lazar et al., 2020; Sulistiyo et al., 2022). Previous research generally supports relationships among perceived usefulness, perceived ease of use, attitude, and behavioral intention, suggesting that students are more likely to adopt educational technologies when they perceive them as beneficial and easy to use.

In addition to the TAM construct, facilitating conditions have frequently been incorporated into technology acceptance studies to capture the influence of external factors such as technological infrastructure, access to devices, and institutional support; these conditions may affect learners' perceptions of both usefulness and ease of use, particularly in educational environments where technology integration depends on the availability of adequate resources. Although TAM has been extensively applied in higher education and general school contexts, its application in vocational high school settings remains relatively limited.

Furthermore, few studies have examined how facilitating conditions, perceived usefulness, perceived ease of use, attitude, and behavioral intention jointly influence the use of digital multimodal platforms for English language learning. Therefore, TAM provides an appropriate framework

for examining vocational students' acceptance of digital multimodal platforms and identifying factors that influence their intention to use these technologies. Table 1 details the terms used for these variables.

**Table 1**  
*Concepts of variables*

| Variable                    | Concept                                                                                                                                                                                                 |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Facilitating Condition (FC) | The extent to which vocational high school students believe facilities (internet access, devices, or technical support) exist to support the use of a digital multimodal platform for learning English. |
| Perceived ease of use (PEU) | The extent to which vocational high school students believe that using a digital multimodal platform is straightforward, uncomplicated, and user-friendly.                                              |
| Perceived usefulness (PU)   | The extent to which vocational high school students believe that using a digital multimodal platform will enhance their effectiveness or benefit their learning experiences.                            |
| Attitudes (AT)              | Vocational high school students' general feelings about using a digital multimodal platform as an educational tool.                                                                                     |
| Behavioral Intention (BI)   | Vocational high school students' willingness and plan to engage in specific actions related to digital multimodal platform use in education.                                                            |

## METHOD

### Conceptual Model and Hypothesis

This study employed a quantitative cross-sectional survey design to investigate vocational high school students' acceptance of digital multimodal platforms for English language learning. The collected data were analyzed using SmartPLS. First, the measurement model assessed loadings, reliability, discriminant validity, and convergent validity. Subsequently, the structural model examined correlations among variables, using path coefficients, t-values, and p-values to confirm significance. SmartPLS enables researchers to conduct extensive investigations and gain a comprehensive understanding of the factors influencing vocational high school students' adoption of digital multimodal learning. This study developed the hypotheses based on the previous studies by Lin and Yu (2023), Mukminin et al. (2023), Rejón-Guardia et al. (2020), Sukendro et al. (2020), Teo et al. (2019), and Vanduhe et al. (2020) as follows:

- H1. FC has a positive and significant effect on PU
- H2. FC has a strong, positive, and significant effect on PEU
- H3. PEU has a strong, positive, and significant effect on PU
- H4. PEU has a strong, positive, and significant effect on AT
- H5. PU has a positive and significant effect on BI
- H6. PU has a positive effect on AT
- H7. PU has a positive and significant effect on BI
- H8. AT has a strong, positive, and significant effect on BI

### Research Setting and Participants

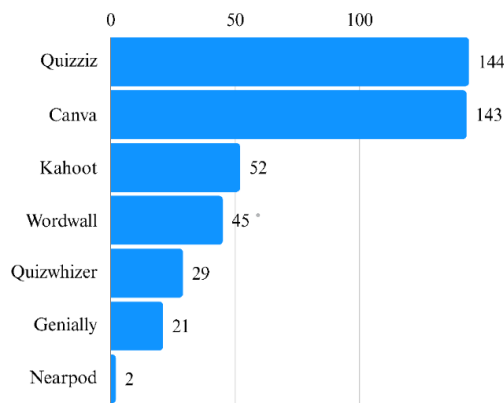
The study was conducted at a vocational high school in East Java, Indonesia, involving students from Grades 10 and 11. The school was selected because it had actively integrated digital multimodal platforms in English language learning activities. The sample included 198 students (179 female and 19 male), mirroring the school's gender distribution (Table 2).

**Table 2**  
*Demographic Information (n=198)*

|        | Information          | n   | %     |
|--------|----------------------|-----|-------|
| Gender | Female               | 179 | 90.4% |
|        | Male                 | 19  | 9.6%  |
| Class  | 10                   | 92  | 46.5% |
|        | 11                   | 106 | 53.5% |
| Major  | Nursing              | 95  | 48.0% |
|        | Culinary             | 12  | 6.1%  |
|        | Tourism Service Unit | 10  | 5.1%  |
|        | Hospitality          | 33  | 16.7% |
|        | Social Work          | 44  | 22.2% |
|        | English Language     | 4   | 2.0%  |

Participants came from various vocational programs, reflecting the school's diverse academic backgrounds. This approach aimed to offer a comprehensive understanding of students' perceptions of digital multimodal learning across different disciplines (see Table 2). A purposive sampling technique was employed. Participants were selected because they had prior experience using digital multimodal platforms such as Canva, Quizizz, Kahoot, Wordwall, Quizwhizzer, Nearpod, and Genially in their English language learning activities (Figure 1).

**Figure 1**  
*Digital Multimodal Platform*



A four-point Likert scale was used to eliminate neutral response options and encourage respondents to indicate agreement or disagreement, reducing central tendency bias. Before data collection, participants were informed about the research and how the researchers would collect and analyze the data.

#### Data Collection and Analysis

The data collection process began with the formulation of relevant research questions. The researchers adapted questionnaire items from validated TAM instruments used in previous studies (Mukminin et al., 2023; Vanduhe et al., 2020; Venkatesh et al., 2012). The questionnaire consisted of items measuring facilitating conditions (FC), Perceived Usefulness (PU), Perceived Ease of Use (PEU), Attitude (AT), and Behavioral Intention (BI). We adapted all items from previously validated TAM instruments and modified them to reflect the context of digital multimodal platforms in English language learning. The questionnaire was reviewed by two experts in English language

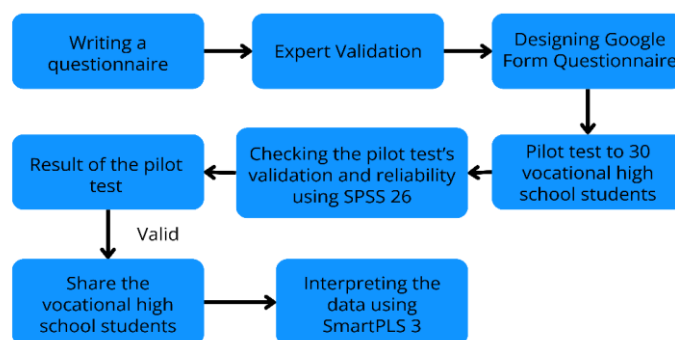
education and educational technology. Their feedback focused on item clarity, content relevance, and contextual suitability for vocational high school students.

After expert validation, the questionnaire was formatted as a Google Form to facilitate distribution and data collection. Before the main survey, a pilot test involving 30 students was conducted to identify any issues or ambiguities in the questionnaire and to confirm that respondents understood the questions correctly. Data collected during the pilot test were analyzed using SPSS 26 to assess the questionnaire's validity and reliability. Validity analysis indicated that all questions were valid, with scores ranging from 0.718 to 0.910 for PU, 0.898 to 0.912 for PEU, 0.667 to 0.907 for FC, 0.654 to 0.933 for AT, and 0.885 to 0.914 for BI. Cronbach's alpha confirmed that all values exceeded 0.700, indicating high instrument reliability (Hair et al., 2019). After confirming validity and reliability, the finalized questionnaire was distributed to students for the main survey. The measurement model was evaluated using indicator loading, Cronbach's alpha, composite reliability, average variance extracted (AVE), and discriminant validity. Next, the structural model was assessed using collinearity testing (VIF), effect size ( $f^2$ ), and bootstrapping to examine the significance of the hypothesized relationships.

Once the data were collected, the final step was to analyze them using an appropriate analytical tool. In this case, SmartPLS 3 was used to analyze the structural model and the relationships among complex variables in the study, such as the influence between the variables measured in the survey. Figure 2 shows the data analysis procedures.

**Figure 2**

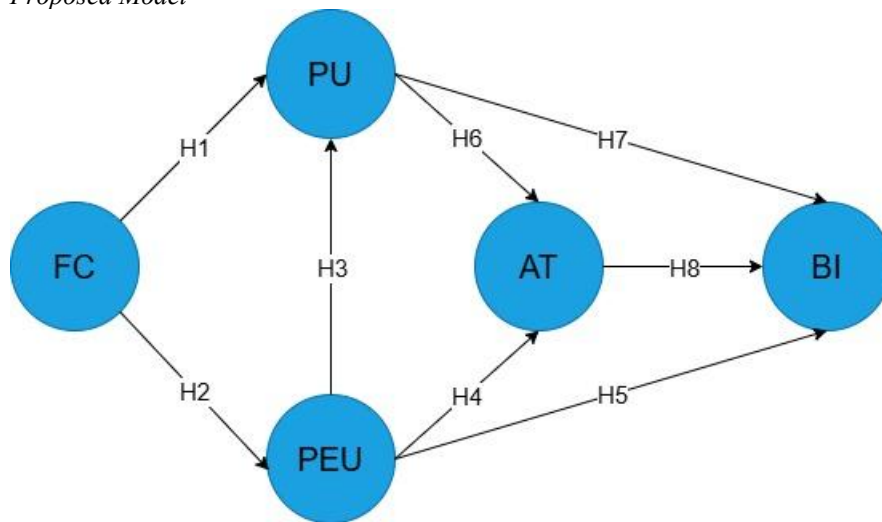
*Data Analysis Procedures*



PLS-SEM was selected because this study aimed to predict students' behavioral intention and examine multiple relationships among latent constructs simultaneously. According to Hair et al. (2019), PLS-SEM is particularly suitable for prediction research involving complex models and moderate sample sizes, making it appropriate for

this study. TAM was selected using the proposed model as shown in Figure 3. To minimize potential response bias, participants were informed that their responses would remain anonymous and confidential and would be used solely for research purposes. Participation was voluntary, and no identifying information was collected.

**Figure 3**  
*Proposed Model*



## FINDINGS

### Measurement Model

Ensuring the validity and reliability of measurement methods is crucial. This study evaluates indicator loading, internal consistency reliability (ICR), and both convergent and discriminant validity. Indicators with loading values below 0.600 were excluded (Hair et al., 2019). The valid loading values are shown in Table 3 and Figure 4. After evaluating ICR, 24 indicators were retained. Adequate ICR values, measured by Cronbach's alpha, Rho-A, and composite reliability, should be above 0.700 (Hair et al., 2019). Alpha values ranged

from 0.717 to 0.908, Rho-A from 0.779 to 0.915, and composite reliability from 0.840 to 0.927, as detailed in Table 3.

### Convergent Validity

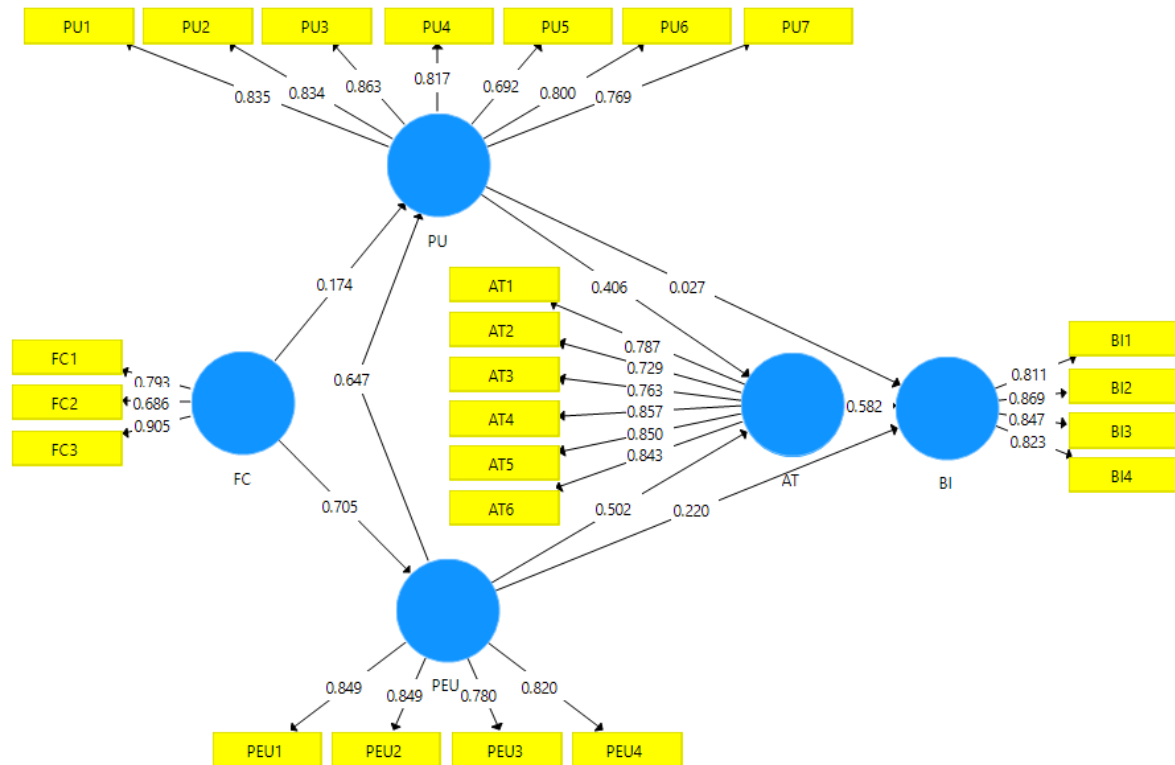
According to Hair et al. (2022), convergent validity refers to the extent to which a scale aligns with other variables. In this study, we used Average Variance Extracted (AVE) to assess convergent validity, aiming for a threshold of 0.500 or higher, calculated using SmartPLS. All variables exceeded this threshold: AT (0.650), BI (0.702), FC (0.640), PEU (0.681), and PU (0.645), as shown in Table 3.

**Table 3**

*Loadings, Cronbach's Alpha, Rho-A, CR, and Average Variance Extracted (AVE)*

| Indicator | Items | Loading | Alpha | rho A | CR    | AVE   |
|-----------|-------|---------|-------|-------|-------|-------|
| AT        | AT1   | 0.788   | 0.892 | 0.895 | 0.918 | 0.650 |
|           | AT2   | 0.729   |       |       |       |       |
|           | AT3   | 0.763   |       |       |       |       |
|           | AT4   | 0.857   |       |       |       |       |
|           | AT5   | 0.850   |       |       |       |       |
|           | AT6   | 0.843   |       |       |       |       |
| BI        | BI1   | 0.815   | 0.859 | 0.864 | 0.904 | 0.702 |
|           | BI2   | 0.868   |       |       |       |       |
|           | BI3   | 0.845   |       |       |       |       |
|           | BI4   | 0.821   |       |       |       |       |
| FC        | FC1   | 0.793   | 0.717 | 0.779 | 0.840 | 0.640 |
|           | FC2   | 0.686   |       |       |       |       |
|           | FC3   | 0.905   |       |       |       |       |
| PEU       | PEU1  | 0.851   | 0.843 | 0.843 | 0.895 | 0.681 |
|           | PEU2  | 0.850   |       |       |       |       |
|           | PEU3  | 0.778   |       |       |       |       |
|           | PEU4  | 0.818   |       |       |       |       |
| PU        | PU1   | 0.835   | 0.908 | 0.915 | 0.927 | 0.645 |
|           | PU2   | 0.833   |       |       |       |       |
|           | PU3   | 0.862   |       |       |       |       |
|           | PU4   | 0.818   |       |       |       |       |
|           | PU5   | 0.693   |       |       |       |       |
|           | PU6   | 0.801   |       |       |       |       |
|           | PU7   | 0.768   |       |       |       |       |

**Figure 4**  
Measurement Model



#### Discriminant Validity

Discriminant validity assesses how distinct a variable is from other variables (Hair et al., 2022). A cross-loading analysis was conducted to ensure that

each variable's loading values were higher than its cross-loading on other variables (Hair et al., 2019). These loading values are highlighted in Table 4.

**Table 4**  
Cross Loading

|      | AT           | BI           | FC           | PEU          | PU           |
|------|--------------|--------------|--------------|--------------|--------------|
| AT1  | <b>0.787</b> | 0.563        | 0.558        | 0.575        | 0.609        |
| AT2  | <b>0.729</b> | 0.574        | 0.588        | 0.664        | 0.628        |
| AT3  | <b>0.763</b> | 0.569        | 0.537        | 0.665        | 0.647        |
| AT4  | <b>0.857</b> | 0.661        | 0.691        | 0.719        | 0.690        |
| AT5  | <b>0.850</b> | 0.652        | 0.598        | 0.665        | 0.650        |
| AT6  | <b>0.843</b> | 0.748        | 0.636        | 0.649        | 0.612        |
| BI1  | 0.733        | <b>0.811</b> | 0.607        | 0.598        | 0.606        |
| BI2  | 0.685        | <b>0.869</b> | 0.565        | 0.676        | 0.587        |
| BI3  | 0.597        | <b>0.847</b> | 0.487        | 0.551        | 0.465        |
| BI4  | 0.585        | <b>0.823</b> | 0.423        | 0.557        | 0.528        |
| FC1  | 0.561        | 0.520        | <b>0.793</b> | 0.520        | 0.455        |
| FC2  | 0.502        | 0.354        | <b>0.686</b> | 0.428        | 0.388        |
| FC3  | 0.708        | 0.600        | <b>0.905</b> | 0.701        | 0.631        |
| PEU1 | 0.642        | 0.548        | 0.583        | <b>0.849</b> | 0.636        |
| PEU2 | 0.675        | 0.583        | 0.606        | <b>0.849</b> | 0.661        |
| PEU3 | 0.707        | 0.618        | 0.581        | <b>0.780</b> | 0.609        |
| PEU4 | 0.661        | 0.608        | 0.554        | <b>0.820</b> | 0.631        |
| PU1  | 0.692        | 0.560        | 0.532        | 0.659        | <b>0.835</b> |
| PU2  | 0.682        | 0.546        | 0.459        | 0.614        | <b>0.834</b> |
| PU3  | 0.688        | 0.620        | 0.586        | 0.702        | <b>0.863</b> |
| PU4  | 0.662        | 0.541        | 0.494        | 0.677        | <b>0.817</b> |
| PU5  | 0.462        | 0.364        | 0.370        | 0.453        | <b>0.692</b> |
| PU6  | 0.663        | 0.499        | 0.575        | 0.613        | <b>0.800</b> |
| PU7  | 0.567        | 0.526        | 0.499        | 0.571        | <b>0.769</b> |

### Structural Model

Evaluating the structural model involves several steps (Hair et al., 2019). Before analyzing the model relationships, the predictor set must be examined for potential collinearity issues. Collinearity becomes a problem when the Variance Inflation Factor (VIF) exceeds 5.00 (Hair et al., 2019). Our SmartPLS analysis indicated that collinearity was not an issue, with all VIF values below the threshold (see Table 5). The VIF values for variable relationships are: FC to PU (1.989), FC to PEU (1.000), PEU to PU (1.989), PEU to AT (2.455), PEU to BI (3.394), PU to AT (2.455), PU to BI (3.068), and AT to BI (3.719).

To assess relationships between endogenous and exogenous constructs, the dataset was analyzed using bootstrapping with 500 subsamples to estimate path coefficients. Hypotheses were tested at a 5% significance level, as depicted in Figure 5, Figure 6, and Table 5. Hypothesis H1 confirmed a significant relationship between FC and PU ( $\beta = 0.174$ ,  $t = 2.166$ ,  $p = 0.031$ ), with a small effect size ( $f^2 = 0.039$ ). Strong evidence also supported Hypothesis H2, indicating that FC significantly predicts PEU ( $\beta = 0.705$ ,  $t = 15.458$ ,  $p < 0.001$ ), with a large effect size ( $f^2 = 0.989$ ). Hypothesis H3, which states that PEU affects PU, was also supported ( $\beta = 0.647$ ,  $t = 9.088$ ,  $p < 0.001$ ), demonstrating a large effect size ( $f^2 = 0.537$ ).

**Figure 5**  
Path Coefficient ( $\beta$ )

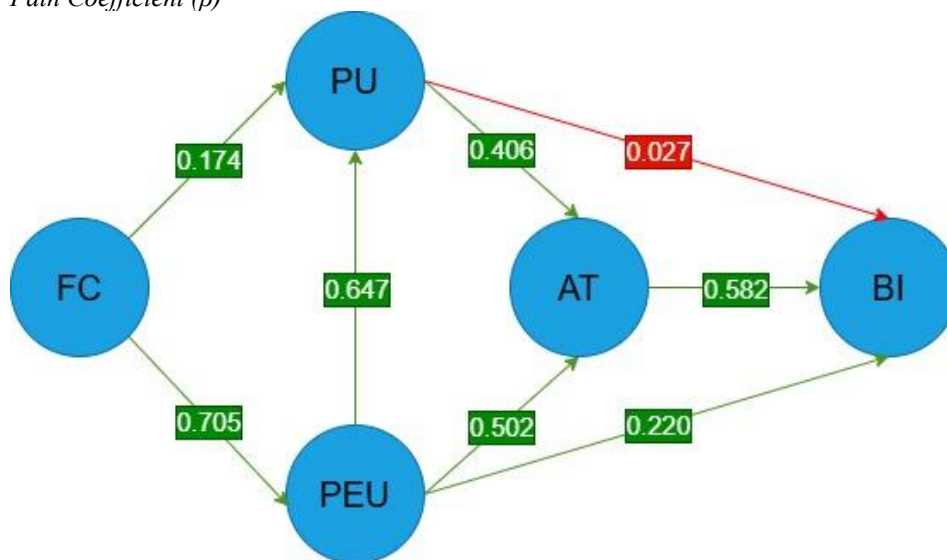


**Table 5**  
Structural Model

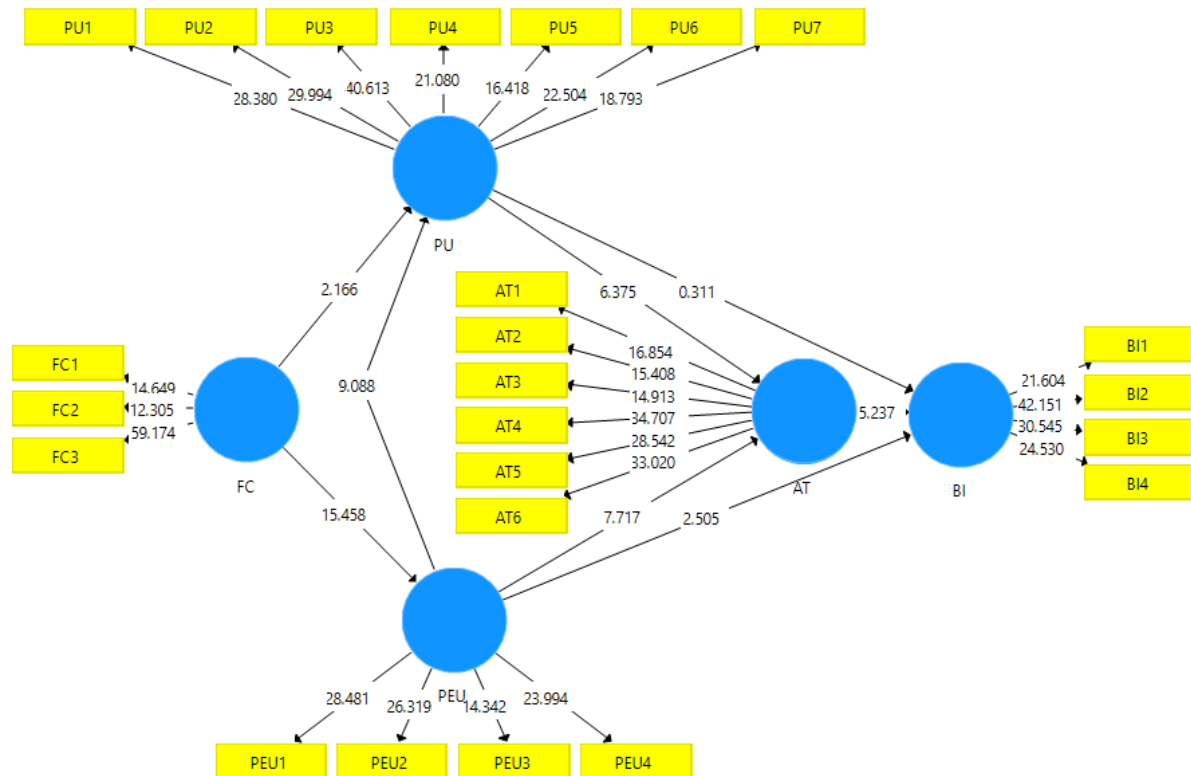
| H  | Coefficient | VIF   | $\beta$ | $f^2$ | T Statistics | P Values | Sig.            |
|----|-------------|-------|---------|-------|--------------|----------|-----------------|
| H1 | FC → PU     | 1.989 | 0.174   | 0.039 | 2.166        | 0.031    | Significant     |
| H2 | FC → PEU    | 1.000 | 0.705   | 0.989 | 15.458       | 0.000    | Significant     |
| H3 | PEU → PU    | 1.989 | 0.647   | 0.537 | 9.088        | 0.000    | Significant     |
| H4 | PEU → AT    | 2.455 | 0.502   | 0.383 | 7.717        | 0.000    | Significant     |
| H5 | PEU → BI    | 3.394 | 0.220   | 0.039 | 2.505        | 0.013    | Significant     |
| H6 | PU → AT     | 2.455 | 0.406   | 0.249 | 6.375        | 0.000    | Significant     |
| H7 | PU → BI     | 3.068 | 0.027   | 0.001 | 0.311        | 0.756    | Not Significant |
| H8 | AT → BI     | 3.719 | 0.582   | 0.246 | 5.237        | 0.000    | Significant     |

Additionally, Hypothesis H4 was validated as PEU had a significant positive influence on AT ( $\beta = 0.502$ ,  $t = 7.717$ ,  $p < 0.001$ ), with a large effect size ( $f^2 = 0.383$ ). Hypothesis H5, proposing the influence of PEU on BI, was confirmed ( $\beta = 0.220$ ,  $t = 2.505$ ,  $p = 0.013$ ), showing a small effect size ( $f^2 = 0.039$ ). Hypothesis H6 showed that PU significantly predicted AT ( $\beta = 0.406$ ,  $t = 6.375$ ,  $p < 0.001$ ), with a medium effect size ( $f^2 = 0.249$ ). However, Hypothesis H7, which predicted that PU predicts BI, was not supported ( $\beta = 0.027$ ,  $t = 0.311$ ,  $p = 0.756$ ), and the relationship had a negligible

effect size ( $f^2 = 0.001$ ). Finally, Hypothesis H8 was validated, indicating a significant relationship between AT and BI ( $\beta = 0.582$ ,  $t = 5.237$ ,  $p < 0.001$ ), with a medium effect size ( $f^2 = 0.246$ ).

Based on the effect size guidelines proposed by Hair et al. (2019),  $f^2$  values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively, whereas values below 0.02 indicate negligible effects. The effect size results suggest that the model's structural relationships varied in magnitude, ranging from negligible to large effects.

**Figure 6**  
Structural model, *t* value



## DISCUSSIONS

This research explores incorporating digital multimodal platforms into English language learning, focusing on how external and internal factors affect students' intentions to use these platforms. External factors, identified as FC, significantly influence PU and perceived ease of use (PEU). Hypothesis H1 revealed a significant positive relationship between FC and PU ( $\beta = 0.174$ ,  $t = 2.166$ ,  $p = .031$ ), indicating that the availability of technological resources and institutional support contributes to students' perceptions of the usefulness of digital multimodal platforms for English language learning. Although the relationship between FC and PU was statistically significant, the effect size was small ( $f^2 = 0.039$ ), indicating that facilitating conditions contribute to students' perceptions of usefulness, but other factors may also play important roles in shaping these perceptions. This finding suggests that reliable internet connectivity, appropriate digital devices, and adequate learning support can boost students' confidence in using digital multimodal platforms and help them recognize these technologies' educational value. This result aligns with prior studies by Mukminin et al. (2023) and Sukendro et al. (2020), which also reported significant positive relationships between FC and PU. The consistency of these findings suggests that access to

technological resources and support remains an important factor influencing students' perceptions of educational technologies across different learning contexts.

In English language learning, adequate facilitating conditions enable students to access a wider range of digital learning resources, including instructional videos, interactive exercises, online assessments, and authentic English materials. When these resources are available and supported by appropriate infrastructure, students are more likely to perceive digital multimodal platforms as valuable tools for accomplishing learning tasks and supporting classroom activities. For vocational students, access to digital multimodal platforms may increase exposure to workplace-related English materials, such as customer service scenarios, tourism communication, healthcare interactions, and professional presentations.

Hypothesis H2 showed a significant positive relationship between facilitating conditions and perceived ease of use ( $\beta = 0.705$ ,  $t = 15.458$ ,  $p < .001$ ), indicating that adequate technological resources and institutional support substantially shape students' perceptions of digital multimodal platforms as easy to use for English language learning. Students interact with digital learning platforms more effectively because stable internet connectivity, appropriate digital devices, and

sufficient technical support reduce barriers to technology use. The very large effect size ( $f^2 = 0.989$ ) shows that facilitating conditions are the most influential factor shaping students' perceptions of ease of use in the proposed model. These findings align with previous studies by Mukminin et al. (2023) and Sukendro et al. (2020), which also reported a significant relationship between facilitating conditions and perceived ease of use, with path coefficients of 0.608 and 0.605, respectively. The consistency of these findings suggests that facilitating conditions remain a critical determinant of students' perceptions of technology usability across different educational contexts.

From an English language perspective, easy-to-use digital multimodal platforms let students focus more on learning activities rather than technical difficulties. Adequate internet connectivity, appropriate devices, and technical support reduce operational difficulties, allowing students to focus on learning activities rather than technological challenges. Vocational students often need practical, workplace-oriented language skills. Adequate technological support may reduce operational difficulties and help them complete learning tasks efficiently. Therefore, supportive facilitating conditions also create favorable conditions for meaningful English language learning.

Hypothesis H3 established a strong relationship between Perceived Ease of Use (PEU) and Perceived Usefulness (PU) ( $\beta = 0.647$ ;  $t = 9.088$ ;  $p < .001$ ), indicating that vocational high school students are more likely to perceive digital multimodal platforms as useful when they are easy to use. This ease of use includes factors such as accessibility to learning materials, flexibility in learning activities, and interactive features that support student engagement. The large effect size ( $f^2 = 0.537$ ) further demonstrates that perceived ease of use is one of the most influential factors shaping students' perceptions of usefulness within the proposed model. These findings are consistent with previous studies conducted by Lin and Yu (2023), Mukminin et al. (2023), Rejón-Guardia et al. (2020), Sukendro et al. (2020), and Vanduhe et al. (2020); all of them reported that ease of use plays a crucial role in determining the perceived value of educational technologies.

These findings suggest that vocational students may prioritize practicality, efficiency, and ease of interaction when evaluating educational technologies. When digital multimodal platforms are intuitive and accessible, students can focus more on learning activities rather than on technical challenges. As a result, they are more likely to recognize these platforms' educational value in supporting independent learning, assignment completion, and classroom participation. Because vocational education emphasizes practical skill

development, students may see digital multimodal platforms as more useful when they can be easily integrated into classroom activities and independent learning tasks. Therefore, the findings provide additional evidence that usability plays an important role in shaping students' perceptions of the value of digital multimodal platforms within vocational English language learning contexts.

Hypotheses H4 and H6 reveal that both PEU and PU significantly influence students' attitudes (AT) towards digital multimodal platforms for English learning in vocational high schools. The results showed a significant positive relationship for H4 ( $\beta = 0.502$ ;  $t = 7.717$ ;  $p < .001$ ) and H6 ( $\beta = 0.406$ ;  $t = 6.375$ ;  $p < 0.001$ ), indicating that students tend to develop more positive attitudes when digital multimodal platforms are perceived as easy to use and useful for learning. The effect size analysis demonstrated that PEU had a large effect on attitude ( $f^2 = 0.383$ ), whereas PU showed a medium effect ( $f^2 = 0.249$ ). These findings suggest that ease of use plays a slightly stronger role than usefulness in shaping students' attitudes towards digital multimodal platforms. This finding aligns with previous studies by Lin and Yu (2023), Mukminin et al. (2023), Rejón-Guardia et al. (2020), Sukendro et al. (2020), and Vanduhe et al. (2020), which also reported significant positive relationships between these constructs. However, this contrasts with Sukendro et al. (2020), who reported a non-significant relationship between perceived usefulness and attitude ( $\beta = 0.077$ ,  $p = 0.710$ ), suggesting that contextual differences may influence students' evaluations of educational technologies.

Positive attitudes may emerge when students experience digital multimodal platforms as both accessible and beneficial for learning. In an English language classroom, interactive features such as quizzes, collaborative activities, and multimedia presentations can create more engaging learning experiences, which may increase students' motivation and enjoyment during learning activities. For vocational students who often associate English learning with workplace communication and future career opportunities, digital multimodal platforms can make learning activities more relevant to their professional aspirations. When students perceive these platforms as useful and easy to use, they are more likely to develop favorable attitudes toward technology-based English learning. These findings suggest that positive attitudes also emerge from learning experiences that are engaging, relevant, and supportive of their language-learning needs.

Hypotheses H5 and H7 examined the influence of PEU and PU on BI's use of digital multimodal platforms for learning English. The results revealed that PEU has a significant positive effect on BI ( $\beta = 0.220$ ;  $t = 2.505$ ;  $p = 0.013$ ), whereas PU did not significantly influence BI ( $\beta = 0.027$ ;  $t = 0.311$ ;  $p = 0.756$ ). These findings indicate that vocational

students are more likely to continue using digital multimodal platforms when they perceive them as easy to use rather than merely useful. Although the relationship between PEU and BI was statistically significant, the effect size was small ( $f^2 = 0.039$ ), suggesting that ease of use contributes modestly to students' behavioral intentions. In contrast, the negligible effect size for H7 ( $f^2 = 0.001$ ) reinforces the limited role of perceived usefulness in predicting students' intention to use digital multimodal platforms. This finding suggests a departure from conventional TAM patterns, where perceived usefulness is often considered a direct predictor of behavioral intention. One possible explanation is that vocational students may place greater importance on ease of interaction, accessibility, and user-friendly design when deciding whether to adopt educational technologies.

These findings partially support previous TAM studies. The significant relationship between PEU and BI aligns with Mukminin et al. (2023) but differs from Rejón-Guardia et al. (2020) and Teo et al. (2019), which reported no significant relationship between these variables. Regarding H7, the present study aligns with Lin and Yu (2023), who found no significant relationship between PU and BI, but contrasts with Sukendro et al. (2020), who reported a significant positive relationship. These inconsistencies suggest that perceived usefulness's influence on behavioral intention may vary across educational contexts. Given the practical and task-oriented nature of vocational education, students may prefer technologies that can be easily incorporated into their daily learning routines with minimal effort. Simple-to-operate digital multimodal platforms may encourage more sustained engagement with English learning activities both inside and outside the classroom. Although students may recognize the educational benefits of these platforms, such benefits alone may not be sufficient to motivate continued use. This finding suggests that usability and accessibility may matter more than functional benefits in shaping vocational students' intention to adopt digital multimodal platforms for English language learning.

Hypothesis H8 confirmed a significant, positive relationship between AT and BI ( $\beta = 0.582$ ;  $t = 5.237$ ;  $p < 0.001$ ), indicating that positive student attitudes toward digital multimodal platforms significantly influence their intention to use them. The medium effect size ( $f^2 = 0.246$ ) further suggests that attitude plays a substantial role in shaping students' intentions to adopt digital multimodal platforms. This finding highlights the importance of creating a positive learning experience when introducing educational technologies. Students who perceive digital multimodal platforms as enjoyable, relevant, and supportive of their learning needs are more likely to remain engaged with these tools in future learning activities.

From English language learning perspective, students who develop positive perceptions and meaningful learning experience with digital multimodal platforms are more likely to continue using these technologies in future English learning activities. These positive experiences may foster sustained engagement with technological learning environments and increase students' willingness to adopt similar digital learning approaches in future academic and professional contexts. These findings align with previous studies by Lin and Yu (2023), Mukminin et al. (2023), Sukendro et al. (2020), and Vanduhe et al. (2020), all of which reported significant positive relationships between attitudes and behavioral intention. The consistency of these findings suggests that attitude remains a key determinant of students' willingness to adopt educational technologies across different learning contexts.

Lastly, these findings are consistent with several TAM-based studies conducted in Southeast Asia. Mukminin et al. (2023) found that perceived ease of use significantly influenced students' technology adoption of social media in Indonesia. Similar findings have also been reported in Singapore and Malaysia, where studies identified usability and accessibility as key determinants of educational technology acceptance for ChatGPT and an Arabic interactive module (Noor et al., 2026; Rajab et al., 2025). Collectively, these findings suggest that students in developing educational contexts may place greater emphasis on ease of interaction and accessibility than on perceived usefulness when deciding whether to adopt digital technologies. In vocational English language learning, this highlights the importance of selecting digital multimodal platforms that are intuitive, accessible, and easily to be integrated into students' learning routines.

## CONCLUSION

In conclusion, this research provides a comprehensive understanding of the factors influencing Indonesian vocational high school students' acceptance of digital multimodal platforms for English language learning through the lens of the Technology Acceptance Model (TAM). For the first research question, the measurement model showed satisfactory validity and reliability, confirming that the proposed model is appropriate for investigating vocational students' acceptance of digital multimodal platforms. For the second research question, seven of the eight proposed hypotheses were supported, indicating significant relationships among most TAM constructs, except between perceived usefulness and behavioral intention.

The findings revealed that facilitating conditions significantly influenced both perceived usefulness and perceived ease of use, highlighting

the importance of access to technological resources and supportive learning environments in fostering technology acceptance. In addition, perceived usefulness and perceived ease of use were found to positively shape students' attitudes toward the use of digital multimodal platforms, while attitude significantly predicted behavioral intention. These findings underscore the importance of creating learning experiences that encourage positive perceptions and attitudes toward educational technologies in vocational English classrooms.

One notable finding was that perceived usefulness did not significantly predict behavioral intention, whereas perceived ease of use did. This suggests that vocational students may emphasize the usability and accessibility of digital multimodal platforms more than their perceived functional benefits when deciding whether to adopt educational technologies. The findings indicate that technologies that are easy to navigate and integrate into students' learning routines are more likely to be accepted and continuously used in English language learning contexts.

### **Practical Implications**

This study's findings offer several practical implications for vocational schools, English teachers, and curriculum developers. Since facilitating conditions and perceived ease of use were found to influence students' acceptance of digital multimodal platforms significantly, schools should ensure adequate technological infrastructure and access to digital resources. Educators should select user-friendly, accessible platforms that minimize technical barriers and let students focus on language-learning activities. Integrating intuitive, multimodal digital platforms may also promote more interactive, engaging, and student-centered English learning experiences that support language skill development through multiple modes of communication.

### **Theoretical Implications**

This study contributes to the growing body of research on TAM by extending its application to vocational English education. The findings confirm the importance of facilitating conditions and perceived ease of use in shaping students' attitudes and behavioral intentions toward digital multimodal platforms. More importantly, the non-significant relationship between perceived usefulness and behavioral intention suggests that TAM may operate differently in vocational learning environments. In this context, students appear to emphasize the usability and accessibility of educational technologies more than their perceived functional benefits. Therefore, the study provides empirical evidence that contextual factors should be considered when applying TAM to vocational and language learning settings.

### **Limitation and Future Research**

Despite its contributions, this study has several limitations. First, the sample was predominantly female and represented only selected vocational fields, which may limit the generalizability of the findings to students from other vocational disciplines and demographic backgrounds. Male students, who were underrepresented in this study, may have different perspectives on accepting digital multimodal platforms. Second, because the study relied on self-reported questionnaire data, it may be susceptible to social desirability bias and subjective interpretation, despite assurances of anonymity and confidentiality.

Future research should include participants from a wider range of vocational specializations and more balanced demographic groups to provide a more comprehensive understanding of technology acceptance in vocational education. Comparative studies across different vocational contexts may also reveal variations in students' perceptions and intentions toward digital multimodal platforms. In addition, mixed-method approaches that combine surveys with interviews or classroom observations could provide richer insights into students' experiences and the factors that shape their acceptance of digital multimodal platforms in English language learning.

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### **CONTRIBUTION OF THE AUTHORS**

First Author contributed to the study's conceptualization and methodological design, carried out the empirical data analysis, and finalizing the text. Second Author contributed to the conceptualization and structural outlining of the article, provided critical review and revisions, and secured funding for the publication.

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