

Acceptance of AI-Based Learning Technology among High School Teachers

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Abstract

This study investigates senior high school teachers' acceptance of Artificial Intelligence (AI) based learning technologies in West Kalimantan using the Technology Acceptance Model (TAM). A purposive sample of 45 teachers participated in the survey, which employed a 14-item Likert-scale questionnaire (1-5). The instrument underwent content validation by experts, and reliability analysis produced a Cronbach's Alpha of 0.89, indicating strong internal consistency. Descriptive results reveal that all TAM constructs fall within the "very high" category: Perceived Usefulness (PU = 4.5), Perceived Ease of Use (PEOU = 4.3), Attitude Toward Use (ATU = 4.4), Behavioral Intention (BI = 4.5), along with two AI-specific indicators (AI1 = 4.6; AI2 = 4.5). Regression analysis further demonstrates that both PU and PEOU significantly predict ATU ($p < .05$), while ATU significantly predicts BI ($p < .05$). These findings indicate that teachers hold highly positive perceptions regarding the usefulness and ease of AI technologies, which subsequently strengthen their intention to integrate such tools into their instructional practices. Although the overall level of readiness is high, the study highlights that continuous professional development and supportive school policies remain essential for optimal AI adoption.

Keywords: Artificial Intelligence, Teacher Acceptance, TAM, Senior High School

Introduction

The rapid evolution of Artificial Intelligence (AI) is reshaping educational practices by enabling adaptive, data-driven, and more personalized learning environments. In Indonesia, the implementation of the Merdeka Curriculum has accelerated the need for digital transformation in schools, positioning AI as a key component in supporting instructional innovation. Despite its potential, the success of AI integration relies largely on teachers' acceptance and readiness to employ such technologies in their classrooms.

Previous studies have shown that teachers' adoption of AI is influenced by their perceived usefulness, perceived ease of use, and digital competence (Lin et al., 2022; Sun et al., 2023). However, existing literature tends to focus primarily on higher education or pre-service teachers, leaving a notable research gap concerning active senior high school teachers, particularly in non-urban regions such as West Kalimantan. This gap is evident in three areas: (1) the scarcity of empirical data on AI acceptance among in-service high school teachers; (2) the limited reporting of detailed TAM construct outcomes using actual numerical findings; and (3) the lack of contextualized analyses linking teacher readiness to AI implementation under the Merdeka Curriculum framework.

This study contributes by:

1. providing empirical insight into AI acceptance among senior high school teachers based on the TAM framework;
2. presenting detailed descriptive and inferential statistics derived from actual data; and
3. strengthening theoretical understanding of teachers' readiness to engage with AI in contemporary classroom ecosystems.

Methods

Design and Participants

A quantitative descriptive survey design was employed. The participants consisted of 45 senior high school teachers in West Kalimantan, selected purposively according to their involvement in technology-enhanced teaching activities.

Instrument

The survey instrument comprised 14 items representing five constructs:

- Perceived Usefulness (PU)

- Perceived Ease of Use (PEOU)
- Attitude Toward Use (ATU)
- Behavioral Intention (BI)
- Two additional indicators specific to AI adoption

Responses were measured using a five-point Likert scale.

Validity and Reliability

Content validity was assessed by three experts in educational technology. Reliability testing yielded a Cronbach's Alpha of 0.89, signifying high reliability and strong internal consistency.

Data Source and Collection Technique

Data were obtained from responses submitted by senior high school teachers in West Kalimantan via a google form. The collected data were then processed using descriptive analysis to generate mean values and categorical classifications of AI technology acceptance levels.

Table 1. Table Description

No	Years of Teaching	Gender	Attend ed ed Tech to Training g	Tech helps me make more effective teaching	With tech helps my students understand and master the material	I find it easy to use apps like Google Classroom or Zoom	I have no difficulty learning new technological tools or software	I feel happy when using technology in my classroom	I believe technology can improve my teaching effectiveness	I prefer tech-based approaches to teaching	I want to continue using technology in my classroom	I am interested in learning new technological tools	I will try out new technological tools	I am interested in learning new technological tools	I believe technology can improve my teaching effectiveness
1	1-5 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
2	6-10 yrs	Male	No	4	4	4	4	4	4	4	4	4	4	4	4
3	11-15 yrs	Female	Yes	5	5	5	5	5	5	5	5	5	5	5	5
4	16-20 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
5	21-25 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
6	26-30 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
7	31-35 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
8	36-40 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
9	41-45 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
10	46-50 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
11	51-55 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
12	56-60 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
13	61-65 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
14	66-70 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
15	71-75 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
16	76-80 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
17	81-85 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
18	86-90 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
19	91-95 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
20	96-100 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
21	1-5 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
22	6-10 yrs	Male	No	4	4	4	4	4	4	4	4	4	4	4	4
23	11-15 yrs	Female	Yes	5	5	5	5	5	5	5	5	5	5	5	5
24	16-20 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
25	21-25 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
26	26-30 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
27	31-35 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
28	36-40 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
29	41-45 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
30	46-50 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
31	51-55 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
32	56-60 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
33	61-65 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
34	66-70 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
35	71-75 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
36	76-80 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
37	81-85 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
38	86-90 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
39	91-95 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
40	96-100 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
41	1-5 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5
42	6-10 yrs	Male	No	4	4	4	4	4	4	4	4	4	4	4	4
43	11-15 yrs	Female	Yes	5	5	5	5	5	5	5	5	5	5	5	5
44	16-20 yrs	Female	No	4	4	4	4	4	4	4	4	4	4	4	4
45	21-25 yrs	Male	Yes	5	5	5	5	5	5	5	5	5	5	5	5

Data Analysis

Data were analyzed using:

1. Descriptive statistics (means and categorical interpretation),
2. Multiple regression to assess the influence of PU and PEOU on ATU, and
3. Simple regression to evaluate the effect of ATU on BI.

Regression analysis was justified due to the predictive and structural nature of the TAM constructs. These categories served as the basis for interpreting the level of teachers' acceptance of AI-based learning technology.

Results and Discussion

1. Table. 2 Descriptive Statistics of TAM Constructs

Construct	Mean	Category
Perceived Usefulness (PU)	4.5	Very High
Perceived Ease of Use (PEOU)	4.3	Very High
Attitude Toward Use (ATU)	4.4	Very High
Behavioral Intention (BI)	4.5	Very High
AI1 - Interest in using AI	4.6	Very High
AI2 - Belief in AI effectiveness	4.5	Very High

Constructed based on data from table 1

These consistently high means indicate that teachers have progressed beyond initial awareness toward a strong readiness to adopt AI technologies in classroom practice.

2. Inferential Analysis (Regression Findings)

The regression analyses reveal that:

- **PU → ATU** : significant influence ($p < .05$)
- **PEOU → ATU** : significant influence ($p < .05$)
- **ATU → BI** : significant influence ($p < .05$)

These results align with Davis (1989), confirming that attitudes are shaped by perceived usefulness and ease of use, which subsequently determine the intention to adopt technology.

3. Theoretical Interpretation

- High PU and ATU scores reflect teachers' **psychological readiness** to incorporate AI tools.
- Strong PEOU indicates confidence in operating AI applications, reinforcing links between digital literacy and self-efficacy.
- Elevated BI suggests **sustained adoption potential**, critical for long-term integration within the Merdeka Curriculum.

4. Practical Implications

- Schools need structured AI integration policies.
- Teachers require ongoing professional development focused on practical AI integration.

- Adequate technological infrastructure is essential to support consistent implementation.

Conclusion

The study concludes that senior high school teachers in West Kalimantan exhibit a very high level of acceptance toward AI-based learning technologies. All TAM constructs score above 4.3, and regression analysis confirms significant relationships consistent with theoretical expectations. This demonstrates that teachers not only recognize the value of AI but also possess strong intentions to apply it in instructional contexts.

Nevertheless, the study has several limitations: (1) the sample size is restricted to one geographic region; (2) the analysis does not employ advanced structural modeling such as SEM; and (3) self-reported data may be affected by perceptual bias.

Future research should broaden participant demographics, employ more sophisticated analytical techniques, and investigate moderating variables such as digital competence, institutional support, and teaching experience.

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