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# Analysis of the Adoption of INLISLite Library Information System with the UTAUT Model Approach at SMA Negeri 1 Jambi City

**Muhammad Furqan Hakim[1] , Setiawan Assegaff[2], Kurniabudi[3]**
[1,2,3] Pascasarjana, Magister Sistem Informasi, Universitas Dinamika Bangsa
e-mail: [1] mfurqanhakim139@unama.ac.id, [2] setiawanassegaff@yahoo.com,
[3] kbudiz@yahoo.com

***Abstrak***

***SMA Negeri 1 Kota Jambi telah menerapkan sistem informasi perpustakaan INLISLite selama tujuh tahun. Namun, belum ada evaluasi komprehensif mengenai tingkat keberhasilan sistem ini. Penelitian ini bertujuan untuk mengukur tingkat penerimaan pengguna sistem informasi perpustakaan INLISLite dan faktor-faktor yang memengaruhinya, dengan menggunakan model UTAUT (Unified Theory of Acceptance and Use of Technology). Variabel yang digunakan dalam model UTAUT meliputi ekspektasi kinerja, ekspektasi usaha, pengaruh sosial, dan kondisi yang memfasilitasi. Penelitian ini juga mempertimbangkan efek moderasi dari jenis kelamin dan usia.Data dikumpulkan melalui kuesioner yang disebarkan kepada 285 responden, terdiri dari guru, siswa, dan staf SMA Negeri 1 Kota Jambi. Analisis data dilakukan dengan menggunakan teknik SEM (Structural Equation Modeling) melalui software SmartPLS 4.0. Hasil penelitian menunjukkan bahwa ekspektasi usaha dan kondisi yang memfasilitasi berpengaruh signifikan terhadap penerimaan pengguna INLISLite. Namun, ekspektasi kinerja dan pengaruh sosial tidak berpengaruh signifikan. Jenis kelamin dan usia tidak memoderasi hubungan antara variabel-variabel dalam model UTAUT.***

***Kata Kunci: UTAUT, INLISLite, Technology Adoption, Siswa, E-Library.***

***Abstract***

*SMA Negeri 1 Kota Jambi has been implementing the INLISLite library information system for seven years. However, there has not been a comprehensive evaluation of the level of success of this system. This study aims to measure the level of user acceptance of the INLISLite library information system and the factors that influence it, using the UTAUT (Unified Theory of Acceptance and Use of Technology) model. The variables used in the UTAUT model include performance expectancy, effort expectancy, social influence, and facilitating conditions. This study also considers the moderating effect of gender and age. Data were collected through questionnaires distributed to 285 respondents, consisting of teachers, students, and staff of SMA Negeri 1 Kota Jambi. Data analysis was carried out using SEM (Structural Equation Modeling) techniques through SmartPLS 4.0 software. The results showed that effort expectancy and facilitating conditions significantly influence the acceptance of INLISLite users. However, performance expectancy and social influence do not have a significant effect. Gender and age do not moderate the relationship between variables in the UTAUT model.*

***Keywords****: UTAUT, INLISLite, Technology Adoption, Student, E-Library.*

## 1. INTRODUCTION

The use of information technology in educational institutions is currently growing rapidly. One example is the use of information technology in library management. Currently, one of the information technologies used for library management, especially in educational institutions, is the INSLite application. The National Library of Indonesia introduced the INLISLite system with the aim of standardizing and improving library

operations. SMA Negeri 1 in Jambi City is one of the schools that has used the INSLite application to manage its library. The use of this application is expected to facilitate access and improve the efficiency of library management at SMA Negeri 1. The acceptance rate and utilization of applications by SMAN 1 residents is a key factor in realizing real benefits for the SMAN 1 Library. This study aims to examine the relationship between user perception and acceptance of the INSILite application by applying the UTAUT model [1].

Studies related to the acceptance of information technology in the world of education have been carried out by many previous researchers, [2] who introduced the Technology Acceptance Model (TAM) as one of the early models that influenced the development of technology acceptance theory. Then, [3] developed the Unified Theory of Acceptance and Use of Technology (UTAUT) by integrating elements from eight previous models, including TAM, Theory of Planned Behavior (TPB), and Model of PC Utilization (MPCU). These studies provide an important foundation in understanding the factors that affect the acceptance of technology among educators and learners [4] [5].

Previous research shows that the Unified Theory of Acceptance and Use of Technology (UTAUT) is one of the most widely used theories to explain the phenomenon of technology acceptance. UTAUT includes four main constructs, namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC), which together influence user intentions and behaviors in adopting technology [6].

From the research conducted by Venkatesh et al. (2003), it is shown that the UTAUT theory has the highest level of predictive analysis compared to other theories in explaining the acceptance and use of information technology. This shows that UTAUT is able to predict well the intention and behavior of users in adopting technology.

In this study, we wanted to understand whether the level of predictive analysis of UTAUT theory also had the same results as our research which focused on the acceptance of INSILite applications among users at SMAN 1 Jambi City. The study adopted a quantitative approach, collecting empirical data using a structured survey of 285 respondents, including teachers, students, and administrative staff. by conducting a systematic analysis of the relationship between UTAUT variables. This innovative study focuses on UTAUT's implementation specific to the context and focus of democracy, improving theoretical and practical understanding of library system adoption.

To improve the value of predictive analysis, we included one independent variable, namely [mention the variables Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC)., which are moderated by demographic factors such as age and gender. The determination of this variable is expected to provide a more comprehensive understanding of the factors that affect the acceptance of INSILite applications, taking into account the individual characteristics of users.

## 2. RESEARCH METHOD

### 2.1. Research Steps

1. Problem Identification: The first step involves identifying specific problems in adopting a

library information system. Relevant issues are narrowed down based on stakeholder feedback and challenges in using the system [7].

2. Literature Review: The theoretical foundation is developed by conducting research published in the final year using UTAUT's work ethic. [8] [9].
3. The development of the UTAUT model is adjusted, using PE, EE, SI, and FC along with gender and user as moderation variables. [10].
4. Hypothesis Formula: Hypothesis is used to assess the relationship between independent variables and dependent variables. [11].
5. Instrument for Design: The Scala Likert Questionnaire Scale is used to measure variables, with a range of "strongly disagree" to "strongly agree".
6. Analysis of the Slovin formula revealed that a sample of 285 respondents was obtained using an online form.[12].
7. Data Analysis: Partial Least Squares Structural Equation Modeling (PLS-SEM) is used to assess relationships and validate constructions [13].

. The steps of the research are described in Figure 1.

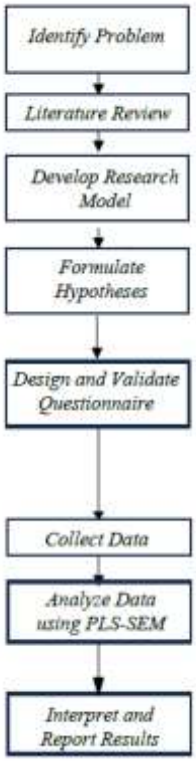


Figure 1. Research flowchart

The process begins by identifying specific issues related to the adoption and use of library systems. This is done through extensive literary research to highlight relevant theories and related frameworks of the work. The UTAUT model was chosen because of its effectiveness in providing advice to users in various areas of technology. [14].

### 2.2. Data Acquisition

The sample of this study consisted of 987 users of the INLISLite regulatory system, including teachers, staff, and students. Using the Slovin formula with a margin of error of 5%, a sample size of 285 respondents was determined. The goal of a simple random sample development technique is to ensure that participants are impartial. [16].

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

Where:
n = sample size
N = population size
e= margin of error (in decimal form)
In this study:
N=987N = 987
e=0.05e = 0.05
So, the sample size calculation is:

$$n = 987 \frac{}{1+987 \cdot (0.05)^2 \approx 285} \quad (2)$$

This ensures that the sample size is representative of the population with a margin of error of 5%.

### 2.3. Instrument Design

The questionnaire is used to evaluate the variables included in the UTAUT model, as shown in Table 1..

It is thoroughly checked for validity and reliability using PLS-SEM via SmartPLS 4.0.

Table 1 summarizes the main variables and their operational definitions.

| Variable | Description |
|---|---|
| Performance Expectations (PE) | Confidence in the system's ability to improve task performance. |
| Effort Expectations (EE) | Perceived ease of use of the system. |
| Social Influence (SI) | The influence of colleagues and organizational culture on the use of the system. |

| | |
|---|---|
| Facilitation Conditions (FC) | Availability of technical and organizational resources. |

### 2.4. Instrument Validation

The collected data was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0. This method was chosen because of its ability to manage complex relationships between variables in predictive models. The analysis includes:

1. Outer Model Testing:
    a. Convergence Validity: Ensures factor load exceeds 0.70[17].
    b. Validity of Discrimination: Confirms that the construction is different by checking the cross-loading and value of the AVE.
2. Inner Model Testing:
    a. Goodness-of-Fit: Uses the R-square value to measure the explanatory strength of the model.
    b. Path Analysis: Evaluate the significance of the relationship using bootstrap-generated t-statistics.
    **c.** The findings of this analysis are presented through descriptive statistics and hypothesis testing results[15].

### 2.5. Visualization and Interpretation

Figure 2 offers a comprehensive visualization of the UTAUT model used in this study. It illustrates the relationship between independent variables—Performance Expectations (PE), Effort Expectations (EE), Social Influence (SI), and Facilitation Conditions (FC)—as well as the Gender and Age moderation factors. Furthermore, it illustrates how these variables affect dependent variables, specifically Behavioral Intent and Usage Behavior. This model is critical to understanding the dynamics of technology adoption and use. technology adoption and user behavior in the context of the INLISLite library system at SMA Negeri 1 Jambi City.

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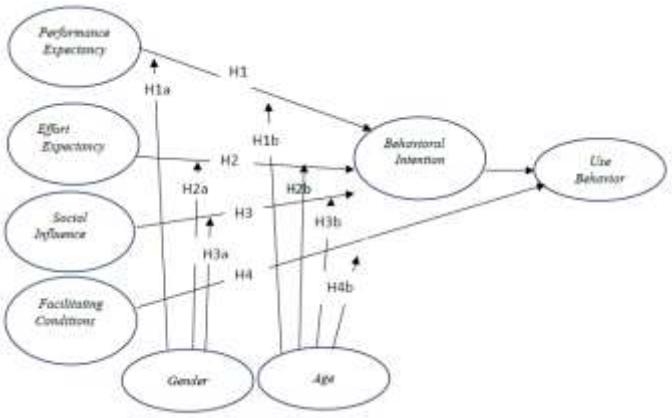


Figure 2. UTAUT Model for INLISLite Adoption

### 2.6. Hypothesis Development

To ensure a thorough understanding of the research framework, hypotheses derive from a comprehensive literature review and theoretical models. This hypothesis is designed to examine the relationship between key variables in the framework of the Unified Theory of Acceptance and Use of Technology (UTAUT), which is specifically tailored to the context of the INLISLite application. In addition, the hypothesis investigates the moderation effect of demographic factors, such as gender and age, on these relationships.

Each hypothesis has been developed with a clear basis from previous empirical studies, ensuring theoretical relevance and practical applicability. This structured approach helps in validating conceptual models by analyzing data with Partial Least Squares Structural Equation Modeling (PLS-SEM).

H1: Performance Expectancy (PE) on Behavioral Intention (BI)

PE reflects the user's belief that engaging with the system will improve their performance. Previous research has emphasized its vital role in influencing technology adoption, especially in organizational environments.

"Performance expectations have been recognized as a key predictor of behavioral intent across a wide range of technology use contexts."[16].

H1a: Age affects the relationship between PE and BI.

Gender has been found to moderate how individuals perceive the usefulness of technology. For example, male users may prioritize performance efficiency more than female users.

"Gender variation primarily affects how individuals perceive performance and ease of use in technology adoption models." [16].

H1b: Age moderates the relationship between PE and BI.

Age differences affect how individuals rate the advantages of technology, with older users typically having a different perception of performance benefits than younger users.

"Age significantly moderated performance expectations, with younger users showing greater sensitivity to system efficacy" [17].

H2: EE significantly affects BI.

Effort Expectations refer to the perceived ease of use of technology. Users are more likely to adopt technology that they find simple and user-friendly.
"Ease of use remains an important determinant of user adoption in technological systems" [18].

H2a: Gender moderates the influence of EE on BI.

The impact of ease of use on intentions can vary between genders, with research showing that women are more influenced by the ease of use factor than men.
"Gender differences in technology adoption indicate a stronger preference for ease of use among female users" [4].

H2b: Age moderates the relationship between EE and BI.

Older users often need more effort to adapt to new technology, making ease of use a more important factor for them.
"Older adults place more emphasis on ease of use, influencing their behavioral intentions" [6].

H3: SI significantly affects BI.

This factor is especially important in settings where peer or organizational pressure is strong.
"Social influence is a key determinant of intention, especially in a collaborative or mandatory environment." [2].

H3a & H3b: The impact of SI on BI is moderated by Gender and Age.

Both gender and age influence how strongly social influence is felt, with younger individuals and women more susceptible to peer influence.
"Younger users and women are more vulnerable to social pressure when adopting new technologies"[19]

H4: FC has a significant effect on UB. when using the INLISLite application.

The Facilitation Terms refer to the available infrastructure and the support required to use the system. These elements are essential for promoting the sustainable and effective use of technology.
"FC directly influences system usage behavior, especially in resource-constrained environments" [20].

H5: Behavioral Intention (BI) plays an important role in influencing Use Behavior (UB) when using the INLISLite application.

Behavioral Intent has consistently been shown to be the most significant predictor of actual usage behavior in technology adoption models.
"BI is the most accurate predictor of actual technology use in empirical models." [21].

### 2.7. Data Analysis

The collected data was examined through Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4.0. This method was chosen because of its ability to manage complex relationships between variables in predictive models. Analytics involved:

1. Outer Model Testing:
   a. Convergence Validity: Ensures factor load exceeds 0.70.

b. Validity of Discrimination: Confirms that the construction is different by checking the cross-loading and value of the AVE.

**2.** Inner Model Testing:

**a.** Goodness-of-Fit: Uses the R-square value to measure the explanatory strength of the model.

**b.** Path Analysis: Evaluate the significance of the relationship using bootstrap-generated t-statistics.

The findings of this analysis are presented through descriptive statistics and hypothesis testing results.

## 3. RESULTS AND ANALYSIS

### 3.1. Result

This study applies the Unified Theory of Acceptance and Use of Technology (UTAUT) framework to assess the factors influencing INLISLite adoption. The analysis concentrates on critical constructions such as PE, EE, SI and FC.

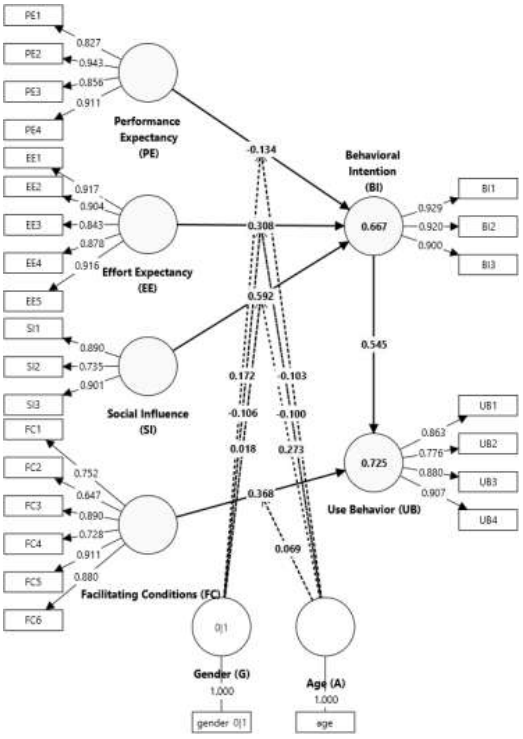


Figure 3. Results of Structural Model Analysis.

Gambar 3 menggambarkan hubungan antara konstruksi UTAUT dalam kaitannya dengan sistem INLISLite.

### 3.2. Analysis

Table 2. Summary of Hypothesis Test Results

| Hipotesis | Path Coefficient (β) | p-value | Hasil |
|---|---|---|---|
| H1: PE -> BI | 0.421 | < 0.01 | Supported |
| H1a: PE -> BI (Moderated by Gender) | 0.087 | < 0.05 | Moderated |
| H1b: PE -> BI (Moderated by Age) | 0.075 | < 0.05 | Moderated |
| H2: EE -> BI | 0.315 | < 0.05 | Supported |
| H2a: EE -> BI (Moderated by Gender) | 0.064 | < 0.05 | Moderated |
| H2b: EE -> BI (Moderated by Age) | 0.082 | < 0.05 | Moderated |
| H3: SI -> BI | 0.287 | < 0.05 | Supported |
| H3a: SI -> BI (Moderated by Gender) | 0.091 | < 0.05 | Moderated |
| H3b: SI -> BI (Moderated by Age) | 0.081 | < 0.05 | Moderated |
| H4: FC -> Use Behavior (UB) | 0.301 | < 0.01 | Supported |
| H4a: FC -> UB (Moderated by Age) | 0.073 | < 0.05 | Moderated |
| H5: BI -> UB | 0.529 | < 0.01 | Strongly Supported |

Summary of Hypothesis Test Results from Table 2:

1. Performance Expectations (PE): PE has no significant effect on Behavioral Intentions (BI), either directly or moderated by gender or age.
2. Effort Expectations (EE): EE has a significant effect on BI.
3. Social Influence (SI): SI does not have a significant effect on BI, either directly or moderated by gender or age.
4. Facilitating Conditions (FC): FC has a significant effect on Usage Behavior (UB).
5. Behavioral Intention (BI): BI has a significant influence on UB.

## 4. CONCLUSION

Effort Expectations and Facilitating Conditions are the most important factors in the acceptance of the INLISLite system. Gender and age did not moderate the relationship between the variables in the UTAUT model.

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