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THE MODERATING EFFECT OF PERSONAL INNOVATIVENESS ON CURIOSITY AND PERCEIVED VALUE IN THE USE OF AUGMENTED REALITY TO ENHANCE LEARNING PROCESS: AN EXTENDED TECHNOLOGY ACCEPTANCE MODEL (E-TAM) PERSPECTIVE

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ABSTRACT
Although various studies have attempted to investigate the use of Augmented Reality (AR) to enhance learning processes, very few are conducted to understand whether it can also ignite the cognitive function. Therefore, study aims to examine personal innovativeness factor as a moderating effect on the relation between the AR and the curiosity and perceived value as the foundation to enhance learning processes by students. This research employes a quantitative method harnessing the Extended Technology Acceptance Model (E-TAM), with adding major and gender as control variables. Data were gathered using purposive sampling with 183 respondents, and analyzed using the PLS-SEM method. The results indicate that albeit personal innovativeness has no significant moderating effect to the relationships, the perceived ease of use, perceived usefulness, perceived of usability and flow experience of AR significantly influence the immersion AR (R^2=71.1%), which subsequently impacts curiosity (R^2=40.9%) and perceived value (R^2=54.9%), Further analysis also revealed differences in curiosity and perceived value based on gender and major. These findings provide new insights into the factors that influence the effectiveness of AR implementation in education.

I. INTRODUCTION

Education can be understood as a continuous process aimed at improving the quality of human resources in society. In Indonesia, there are several educational levels, such as Elementary School, Junior High School, and Senior High School [1]. The current technological advancements have been utilized in the field of education, where teachers and lecturers integrate technological tools into the learning process. This use of technology helps facilitate teaching and learning, as well as enhance the effectiveness of the teaching-learning process [2].

The increasingly sophisticated technological development has become an essential tool to achieve more effective and efficient educational goals [3]. The Faculty of Teacher Training and Education at UNIPA (FKIP UNIPA) is one of the higher education institutions in Indonesia with the vision of "Making FKIP UNIPA a provider of higher education that produces educators with science and technology expertise, entrepreneurial spirit, and environmental conservation." This vision emphasizes that graduates from FKIP are expected to become educators who improve the quality of education in Indonesia, especially in the eastern regions.

The Basic Physics course at FKIP UNIPA studies complex natural phenomena and requires high-level thinking skills [4]. However, conventional teaching methods such as presentations and two-dimensional images make it difficult for students to understand abstract scientific concepts like eclipses or atomic structures. This can lower their comprehension, making it necessary to use more realistic and engaging teaching media, especially in Basic Physics and other science subjects [5]. With technological advancements, educators can leverage alternative media that are more effective in helping students understand the material. One such technology is Augmented Reality

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(AR), which blends virtual objects with the real world (Dalimunthe & Simanjuntak, 2023). AR helps visualize abstract concepts and object structures, thereby enhancing students' understanding of the material being taught [6].

Augmented Reality (AR)-based learning media is not only educational but also entertaining, creating an immersive experience for users, thereby increasing their engagement and satisfaction. The use of AR can provide perceived value to users. This study aims to identify the factors that influence curiosity and perceived value of AR-based learning media, which are expected to enhance the teaching and learning process. The model used in this research is the Extended Technology Acceptance Model (ETAM), an extension of the Technology Acceptance Model (TAM) introduced by Davis (1989). TAM explains individual acceptance of technology through two main factors: perceived usefulness and perceived ease of use [7]. In E-TAM, additional variables such as perceived usability and flow experience are included to deepen the understanding of technology adoption [8].

Several previous studies will be referenced in this research. The study by [9] aimed to measure effort expectancy, habits, price value, hedonic motivation, and social influence on the intention to use paylater, with trust as a moderating variable. [10] research measured the effect of e-learning adoption on students' learning interest, mediated by learning motivation during the new normal era. [11] study explored factors influencing behavioral intention toward using Flazz BCA prepaid cards, including personal innovativeness and compatibility. Additionally, [12] research, involving 200 design students, discussed the use of virtual reality (VR) technology as a learning medium.

While previous studies primarily focused on technological factors such as effort expectancy, habits, motivation, and innovation in technology adoption, this research expands on these by combining the Extended TAM method to examine curiosity and perceived value in the use of AR as a learning medium. Personal innovativeness is also added as a moderating variable, which has been rarely studied before, to explore its moderating effect on the relationship between AR use and user perception in enhancing the learning experience. Personal innovativeness refers to an individual's willingness to try new technologies and apply technological innovations. This research seeks to determine how this variable moderates the relationship between curiosity and perceived value from using AR. Additionally, control variables such as major and gender are included to understand differences in AR acceptance among various groups and its effectiveness in improving the teaching and learning process. This study extends the understanding of the factors that influence AR adoption in education.

II. Research Methodologhy

This study employs a quantitative research approach. The quantitative method is a research approach that uses numerical data and statistics to measure, analyze, and explain the phenomena or variables being studied.

A. Hypothesis Development

The research framework employs the extended TAM model with variables such as perceived usefulness, perceived ease of use, perceived usability, and flow experience. The AR immersion variable is used as a mediator between the independent and dependent variables. Curiosity and perceived value are used as dependent variables to measure curiosity and perceived value. Personal innovativeness serves as the moderating variable, and control

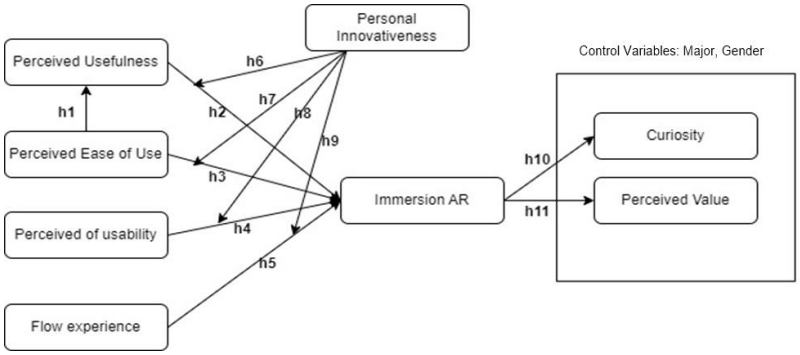

Fig. 1. Research Model

variables such as major and gender were also added.

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Based on the conceptual framework above, each variable is interconnected. Perceived ease of use has a positive

impact on perceived usefulness and AR immersion. Therefore, hypotheses one and three in this study are:
H1: Perceived ease of use significantly affects perceived usefulness.
H3: Perceived ease of use significantly affects AR immersion.

According to [12] perceived usefulness explains that the perceived benefits can lead a person to feel that they will experience improvement, which has a positive impact on AR immersion. Therefore, the second hypothesis is:
H2: Perceived usefulness significantly affects AR immersion.

According to [12] perceived usability explains that a person believes that the product meets their needs, which positively impacts AR immersion. Therefore, the fourth hypothesis is:
H4: Perceived usability significantly affects AR immersion.

According to [12] flow experience refers to the state where a person enjoys the activity they are engaged in, making time feel like it passes quickly and creating a positive relationship with AR immersion. Therefore, the fifth hypothesis is:
H5: Flow experience significantly affects AR immersion.

According to [13] personal innovativeness refers to an individual's tendency to adopt new ideas or products and is positively related to cognitive absorption, making users feel immersed. This can positively impact perceived usefulness, perceived ease of use, perceived usability, and flow experience. Therefore, hypotheses six, seven, eight, and nine are:
H6: Personal innovativeness significantly affects perceived usefulness.
H7: Personal innovativeness significantly affects perceived ease of use.
H8: Personal innovativeness significantly affects perceived usability.
H9: Personal innovativeness significantly affects flow experience.

According to [12] AR immersion is the user's deep engagement with the environment, positively affecting curiosity and perceived value. Therefore, the tenth and eleventh hypotheses are:
H10: AR immersion significantly affects curiosity.
H11: AR immersion significantly affects perceived value.

B. Data Collection

The population in this study consists of FKIP UNIPA students. The sample includes FKIP UNIPA students who are currently enrolled in or have completed the basic physics course, totaling 195 students. The sample was determined using non-probability sampling, with participants selected from a pool of respondents who were willing to provide data and were geographically close to the researcher [14]. This study employs PLS-SEM, where the sample size must be 10 times the number of arrows pointing to a construct [15]. Since there are 11 arrows in this study, the minimum required sample size is 110.
Data collection was conducted by distributing a questionnaire (via Google Forms) directly to FKIP UNIPA students after they had used the AR learning media. The questionnaire included respondent demographics, instructions for completion, and a series of questions representing each variable in this study [16].

III. RESULTS AND DISCUSSION

The research and data collection process was conducted over a total of four months, from June to October 2023, at FKIP UNIPA, with a total of 183 valid respondents. The demographic information collected included gender, age, highest level of education, and academic major. The explanation is provided in the table I :

TABLE I
DESCRIPTION OF RESPONDENT DEMOGRAPHICS

Category	Item	Amount	Percentage
Gender	Gender	59	32%
	Female	125	68%
Age	Under 21 years	68	36%
	21 to 25 years	111	61%
	Above 25 years	5	3%
Last Education	High School	143	79%
	Vocational School	33	18%
	Diploma	6	3%

Study Program	Mathematics Education	50	27%
	Chemistry Education	5	3%
	Physics Education	6	3%
	Biology Education	27	15%
	English Education	51	28%
	Indonesian Language Education	45	24%

A. Outer Model

In this study, three criteria were used to assess the outer model: convergent validity, discriminant validity, and composite reliability [17]. The Convergent Validity test can be performed by examining the loading factor (outer loading) and average variance extracted (AVE). The loading factor (LF) test is used in the convergent validity assessment. An indicator is considered to meet good convergent validity with a standard outer loading value of > 0.7 [18].

AVE is a standard value that each variable should have of > 0.5 to satisfy convergent validity [19]. Reliability testing was conducted using two methods: Cronbach's alpha (CA) and composite reliability (CR). A construct is considered reliable if the CA and CR values are above 0.70 [20]. In this study, the confirmatory analysis of the variables is presented in Table II :

TABLE II
CONFIRMATORY VARIABLE RESULTS

Construct	Statement Item	Code	LF
Perceived Usefulness *(PU)* [13] CA, CR, AVE = 0.682 , 0.689, 0.612	I find it easier to understand the material when I study it in AR format.	PU1	0.826
	Studying with material in AR format makes me more diligent in my studies.	PU2	0.791
	For me, material in AR format can enhance the teaching and learning process in lectures.	PU3	0.728
Perceived Ease of Use (PEOU) [13] CA, CR, AVE = 0.751, 0.753, 0.668	For me, material in AR format can enhance the teaching and learning process in lectures.	PEOU1	0.814
	I feel skilled at using AR while studying.	PEOU2	0.843
	I find AR easy to use in learning activities.	PEOU3	0.794
Perceived of Usability (POU) [12] CA, CR, AVE = 0.735, 0.751, 0.653	I find AR easy to use in learning activities.	POU1	0.844
	AR technology allows me to learn in my own way.	POU2	0.735
	This AR technology provides me with new learning tools to use in class.	POU3	0.841
Flow Experience (FE) [12] CA, CR, AVE = 0.743, 0.744, 0.661	I feel happy when studying with material in AR format.	FE1	0.824
	I really enjoy learning with material in AR format.	FE2	0.810
	I feel I can concentrate fully while learning with AR technology..	FE3	0.804
Personal Innovativeness (PI) [13] CA, CR, AVE = 0.705, 0.705, 0.628	When I hear about learning media in AR format, I am interested in trying it.	PI1	0.804
	I have no hesitation in using learning media in AR format.	PI2	0.797
	I like to try studying each subject in AR format.	PI3	0.777
Immersion AR (IM) [12] CA, CR, AVE = 0.756, 0.768, 0.673	Learning using AR is more engaging and motivates me to study harder.	IM1	0.840
	I find it easy to understand the material when studying in AR format.	IM2	0.864
	I feel that learning with AR can help me concentrate.	IM3	0.752
Curiosity (CUR) [13] CA, CR, AVE = 0.776, 0.788, 0.689	I become more curious when I see material in AR format.	CUR1	0.801
	I feel curious when using AR for learning.	CUR2	0.846
	I get a clearer picture of the material when studying in AR format.	CUR3	0.843
Perceived Value (PV) [12] CA, CR, AVE = 0.865, 0.870, 0.787	AR technology greatly helps me learn better compared to 2D material.	PV1	0.873
	I understand the material presented with AR technology better than with 2D material.	PV2	0.899
	I feel more creative when studying with AR material compared to studying with 2D material.	PV3	0.889

In this study, the discriminant validity test was performed using the Fornell-Larcker test. The Discriminant Validity assessment examines the results of the Fornell-Larcker criterion, where the AVE value is greater than the highest squared correlation with other constructs [21]. The Fornell-Larcker test results in this study show good values and can be seen in table III :

TABLE III
DISCRIMINANT VALIDITY

	CUR	FE	IM	PEOU	PI	POU	PU	PV
CUR	O.830							
FE	0,638	0,813						
IM	0,639	0,708	0,820					
PEOU	0,645	0,676	0,769	0,817				
PI	0,742	0,709	0,715	0,706	0,793			
POU	0,654	0,709	0,757	0,764	0,778	0,808		
PU	0,664	0,655	0,683	0,681	0,679	0,677	0,783	
PV	0,666	0,614	0,741	0,732	0,724	0,692	0,662	0,887

B. Inner Model

Furthermore, the inner model analysis can be seen from several indicators. This test analyzes the relationship between one variable and another [7], including R-Square and Variance Inflation Factor (VIF) to test the hypotheses. Linearity testing is conducted using VIF statistics, which should be > 0.2 and < 5. A low or nonexistent correlation between independent variables can indicate multicollinearity among constructs [22]. The coefficient of determination (R-Square) is used to determine the extent of the influence of independent variables on dependent variables [23]. An R-Square value of 0.67 indicates a strong model, a value of 0.33 indicates a moderate model, and a value of 0.19 indicates a weak model [24].

TABLE IV
R-SQUARE TEST RESULT

Variable	R-square	Category
CUR	0.409	Moderate
IM	0.711	Strong
PU	0.464	Moderate
PV	0.549	Moderate

Based on Table IV, the R^2 value for the curiosity variable is 0.409, indicating that the immersion AR variable influences the curiosity variable by 40.9% and has a moderate predictive power. The R^2 value for the immersion variable is 0.711, meaning that the perceived usefulness, perceived ease of use, perceived usability, and flow experience variables influence the immersion variable by 71.1%, showing strong predictive power. The R^2 value for the perceived usefulness variable is 0.464, which indicates that the perceived ease of use variable influences the perceived usefulness variable by 46.4% and has moderate predictive power. Finally, the R^2 value for the perceived value variable is 0.549, meaning that the immersion AR variable influences the perceived value variable by 54.9% and has moderate predictive power.

The R^2 value of 0.409 for the curiosity variable indicates that Immersion AR influences curiosity by 40.9%. This means that the more engaged a person is in the AR experience, the greater their desire to explore further information, which can be utilized in an educational context to enhance learning motivation.

The R^2 value of 0.711 for the immersion variable indicates that factors such as perceived usefulness, perceived ease of use, perceived usability, and flow experience significantly contribute to the level of engagement in AR. This strong predictive power suggests that the easier and more useful the AR technology is perceived to be, the higher the level of user engagement will be.

Next, the R^2 value of 0.464 for the perceived usefulness variable indicates that perceived ease of use influences perceived usefulness by 46.4%. This suggests that ease of use is an important factor in determining how beneficial the technology is for users. AR developers should focus on improving the interface and navigation to ensure that users find the technology easy to use.

Last, the R^2 value of 0.549 for the perceived value variable indicates that Immersion AR influences perceived value by 54.9%. This means that the higher the level of user engagement in AR, the more they perceive the technology as valuable. To enhance perceived value, the AR experience should be designed to be more engaging, so that users are more likely to use this technology.

C. Hypothesis Testing

Next, hypothesis testing will be conducted, where the P-Value must be < 0.05 or the T-Statistic > 1.96 for the hypothesis to be accepted [25]. This can be seen in Table V, which shows the structural model evaluation results.

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TABLE V
HYPOTHESIS TEST RESULT

Hypothesis	T Statistic	P Values	Description
H1 : PEOU → PU	14.710	0.000	Accepted
H2 : PU → ImAR	2.597	0.009	Accepted
H3 : PEOU → ImAR	3.522	0.000	Accepted
H4 : POU → ImAR	2.206	0.027	Accepted
H5 : FE → ImAR	2.398	0.017	Accepted
H6 : PI x PU → ImAR	1.143	0.253	Rejected
H7 : PI x PEOU → ImAR	0.685	0.493	Rejected
H8 : PI x POU → ImAR	0.450	0.653	Rejected
H9 : PI x FE → ImAR	0.756	0.449	Rejected
H10 : ImAR → CUR	11.888	0.000	Accepted
H11 : ImAR → PV	19.657	0.000	Accepted

Of the 11 proposed hypotheses tested, 7 hypotheses had a t-statistic > 1.96 and a p-value < 0.005, indicating that these hypotheses are accepted. Meanwhile, 4 hypotheses had values < 1.96 and p-values > 0.005, leading to their rejection. The next step is hypothesis testing with the addition of control variables for gender and major.

TABLE VI
HYPOTHESIS TESTING WITH CONTROL VARIABLE FOR GENDER AND MAJOR

Hypothesis	All Respondents	Gender		Jurusan		
		Male	Female	Math	English	Indonesian Language
H1 : PEOU → PU	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
H2 : PU → ImAR	Accepted	Rejected	Accepted	Accepted	Rejected	Rejected
H3 : PEOU → ImAR	Accepted	Rejected	Accepted	Rejected	Rejected	Rejected
H4 : POU → ImAR	Accepted	Accepted	Rejected	Rejected	Rejected	Rejected
H5 : FE → ImAR	Accepted	Rejected	Accepted	Rejected	Rejected	Rejected
H6 : PI x PU -> ImAR	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
H7 : PI x PEOU → ImAR	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
H8 : PI x POU → ImAR	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
H9 : PI x FE → ImAR	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
H10 : ImAR → CUR	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
H11 : ImAR → PV	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted

Based on the hypothesis testing results in Table V, H1 is accepted with a T Statistic value > 1.96, specifically 14.710, and a P Value < 0.05, which is 0.000. This indicates that perceived ease of use significantly influences perceived usefulness, consistent with previous findings that perceived ease of use significantly impacts perceived usefulness [13]. Additionally, H2 is accepted with a T Statistic value > 1.96 (2.597) and a P Value < 0.05 (0.009), showing that perceived usefulness significantly influences AR immersion, aligning with prior research demonstrating that system usefulness significantly impacts immersion [12].

H3 is also accepted with a T Statistic value > 1.96 (3.522) and a P Value < 0.05 (0.000), indicating that perceived ease of use significantly influences AR immersion, consistent with previous findings [12] H4 is accepted with a T Statistic value > 1.96 (2.206) and a P Value < 0.05 (0.027), indicating that perceived usability significantly impacts AR immersion, which is consistent with prior research showing that usability significantly affects immersion [26]

H5 is accepted with a T Statistic value > 1.96 (2.398) and a P Value < 0.05 (0.017), indicating that flow experiences significantly influence VR immersion, consistent with earlier research [12]. However, H6 is rejected with a T Statistic value < 1.96 (1.143) and a P Value > 0.05 (0.253), indicating that personal innovativeness does not significantly moderate the relationship between perceived usefulness and AR immersion, which contradicts earlier findings [12].

H7 is also rejected, with a T Statistic value < 1.96 (0.685) and a P Value > 0.05 (0.493), indicating that personal innovativeness does not significantly moderate the relationship between perceived ease of use and AR immersion, inconsistent with previous research (Guerra-Tamez, 2023). H8 is rejected as well, with a T Statistic value < 1.96 (0.450) and a P Value > 0.05 (0.653), showing that personal innovativeness does not significantly moderate the relationship between perceived usability and AR immersion, also inconsistent with earlier research [12].

H9 is rejected with a T Statistic value < 1.96 (0.756) and a P Value > 0.05 (0.449), indicating that personal innovativeness does not significantly moderate the relationship between flow experiences and AR immersion,

inconsistent with earlier findings [12]. Lastly, H10 is accepted with a T Statistic value > 1.96 (11.888) and a P Value < 0.05 (0.000), indicating that AR immersion significantly influences curiosity, consistent with previous findings that immersion significantly impacts curiosity [12].

H11 is accepted with a T Statistic value > 1.96 (19.657) and a P Value < 0.05 (0.000), showing that AR immersion significantly moderates the relationship between flow experiences and AR immersion, consistent with prior research that immersion significantly influences perceived value [12].

Based on the hypothesis test results, personal innovativeness does not significantly influence the relationship as a moderating variable. This could be attributed to students' lack of interest in innovation, which is likely hampered by the complexity of the AR learning media system. Key factors that contribute to this include the system's complex user interface, challenges in navigation, insufficiently clear instructions, and a lack of adequate training. These barriers prevent students from efficiently using and adopting the technology [27]

According to table VI, adding the control variables of gender and department revealed that, in the male control group, 4 hypotheses were accepted and 7 were rejected, while in the female control group, 6 were accepted and 5 rejected. The department control variable, divided into six categories, showed that in the Mathematics department, 4 hypotheses were accepted and 7 rejected, while in the Indonesian and English departments, 3 were accepted and 8 rejected. This suggests that gender and department may influence AR learning media acceptance. Females seem to accept AR technology more easily than males, this aligns with previous research [23]. which found that gender significantly impacts technology adoption. Female users appear to be more dominant in accepting AR learning media compared to male users, suggesting that women find it easier and more beneficial to use this technology for learning, whereas men may show less interest or engagement.

Regarding the department control variable, there are differences between the Mathematics department and the Indonesian and English departments in terms of perceived usefulness for AR media immersion. Mathematics students tend to accept AR media more readily than those in the language departments. This contrasts with the findings of [12], who stated that perceived usefulness can lead to a sense of personal improvement and positively affect the acceptance of AR media. This indicates that Mathematics students are more likely to feel that useful technology or methods result in deeper engagement with their learning experience, while students in the language departments may not feel that perceived usefulness significantly contributes to their level of engagement in the learning process.

D. Practical Implication

Based on the research findings, several practical implications can be applied to improve AR learning media. This study contributes to enhancing the quality of AR learning media, particularly concerning the factors influencing curiosity and perceived value in its use within FKIP UNIPA. The study utilizes the E-TAM model, adding the moderating variable of personal innovativeness, along with gender and department as control variables, to examine how these factors affect the acceptance of AR technology as a learning medium through curiosity and perceived value.

In practice, perceived ease of use and perceived usefulness play a significant role in the acceptance of AR learning media. Therefore, providing an intuitive and responsive interface, as well as clear and interactive user guides, is essential. Additionally, the content must be relevant to the learning material, high-quality, and capable of accelerating understanding. Personalized and context-rich learning experiences can also enhance the perceived value for users. Regular evaluation through user satisfaction surveys and the development of new features aligned with learning needs are crucial to improving AR's effectiveness.

The impact of perceived usability on the acceptance of AR learning media is highly significant. Several important steps must be taken to optimize the role of perceived usability. First, the application must run quickly and responsively without interruptions to ensure user comfort. Clear and real-time feedback is crucial to ensure users feel guided. Key features such as simulations and evaluations should be easily accessible without requiring too many complicated steps. Users should be able to quickly learn how to use the application through tutorials or training modes. User errors can be minimized with step-by-step guidance, and regular evaluations should be conducted for continuous improvement.

In this study, immersion has a significant impact on curiosity and perceived value in the acceptance of AR learning media. Therefore, presenting engaging interactive designs that spark user curiosity is important. Active involvement through simulations and hands-on experiences can enhance both curiosity and perceived value. Personalization and gamification elements are also key to increasing engagement, while relevant and in-depth learning materials add to the perceived value. A natural and intuitive experience will further deepen user engagement, making the acceptance of AR as a learning medium more optimal.

To optimize the acceptance of Augmented Reality (AR) learning media at FKIP UNIPA based on gender and department, adjustments can be made by personalizing content to meet the needs of each department, such as aligning materials with the curriculum and interactive visual learning. Additionally, approaches to technology use based on gender are important, with AR being designed to accommodate varied learning styles, such as interactive visualizations or practical simulations. By tailoring AR content and features, the acceptance of this learning medium can be enhanced through increased curiosity and perceived value.

Finally, the test results show that gender and department influence the acceptance of AR learning media, especially from the perspective of users with different backgrounds. Adjustments can be made by personalizing content according to department needs, aligning materials with the curriculum, and offering interactive visual learning. Additionally, gender-based technology use approaches are also important, with AR designed to accommodate different learning styles, such as interactive visualizations or practical simulations. By customizing AR content and features, the acceptance of AR learning media can be improved by boosting curiosity and perceived value.

IV. Conclusion, Limitation and Future Research Direction

A. Conclusion

This study examines the moderating effect of personal innovativeness on the Extended Technology Acceptance Model (E-TAM) in relation to curiosity and perceived value in the use of Augmented Reality (AR) learning media at the Faculty of Teacher Training and Education, Universitas Papua. The hypothesis testing results indicate that perceived ease of use, perceived usefulness, perceived usability, and flow experience significantly influence immersion in the use of AR learning media, which subsequently affects curiosity and perceived value, with a P-Value below 0.05.

However, this study found that personal innovativeness does not have a significant moderating effect on perceived ease of use, perceived usefulness, perceived usability, and flow experience, which serve as independent variables in the E-TAM model, with P-Values greater than 0.05. Indirectly, personal innovativeness does not significantly influence curiosity and perceived value from the use of AR learning media.

Additionally, findings show that regarding the control variable of gender, males accepted four hypotheses, while females accepted six hypotheses. For the control variable of major, the mathematics class accepted four hypotheses, while both the English and Indonesian classes accepted only three hypotheses each. These findings indicate differing perspectives among respondents based on gender and major regarding the use of AR learning media.

B. Limitation And Future Research Direction

The results of the study indicate that the variable personal innovativeness does not have a significant moderating effect in this research model. Therefore, for future research, it is essential to consider other variables, such as technology readiness, which may be more effective in moderating the relationship between perceived ease of use, perceived usefulness, and the immersive experience in using AR learning media. With the addition of more relevant moderating variables, it is hoped that the research findings can provide a better understanding of the factors that influence the adoption and effectiveness of AR media in supporting the teaching and learning process.

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