

# Ease of Use, Usefulness, Quality of Information Systems and Culture on the Behavioral Intention of Users of Digital Tax Education Services

Arniati<sup>a</sup>, Nabilla Septia Aryaputri<sup>b\*</sup>, Ria Anggraini<sup>c</sup>, Dedi Kurniawan<sup>d</sup>, Anjelina<sup>e</sup>, Afriyanti Hasanah<sup>f</sup>, Rizki Laniari<sup>g</sup>

<sup>a</sup>Business Management, Politeknik Negeri Batam, [arni@polibatam.ac.id](mailto:arni@polibatam.ac.id), Indonesia

<sup>b</sup>Business Management, Politeknik Negeri Batam, [nabilla.4112001018@students.polibatam.ac.id](mailto:nabilla.4112001018@students.polibatam.ac.id), Indonesia

<sup>c</sup>Business Management, Politeknik Negeri Batam, [ria@polibatam.ac.id](mailto:ria@polibatam.ac.id), Indonesia

<sup>d</sup>Business Management, Politeknik Negeri Batam, [dedi@polibatam.ac.id](mailto:dedi@polibatam.ac.id), Indonesia

<sup>e</sup>Business Management, Politeknik Negeri Batam, [anjelina@polibatam.ac.id](mailto:anjelina@polibatam.ac.id), Indonesia

<sup>f</sup>Business Management, Politeknik Negeri Batam, [afriyanti@polibatam.ac.id](mailto:afriyanti@polibatam.ac.id), Indonesia

<sup>g</sup>Business Management, Politeknik Negeri Batam, [rizkilanniari@polibatam.ac.id](mailto:rizkilanniari@polibatam.ac.id), Indonesia

**Abstract.** This research examines the application of tax digital education services on Tax Centre at Batam Polytechnic (Polibatam). To find out the factors that influence the implementation of these services. We use theoretical models such as the Technology Acceptance Model (TAM), the Information Systems Success Model (ISSM), and Hofstede's Cultural Dimensions. This research examines perceived ease of use (PEoU), perceived usefulness (PU), information system quality (ISQ), user satisfaction (US), and cultural values of individualism and collectivism (IC) in the context of implementing new technology. Based on the responses of 103 respondents, data analysis using PLS-SEM revealed that factors such as perceived usefulness, quality of the information system, and user satisfaction when using this service were found to have a significant influence on behavioral intentions. This study provides insight into system development that aims to increase the effectiveness of online services, increase user satisfaction, and encourage sustainable technology adoption in the context of digital-based tax education services in Indonesia.

**Keywords:** The Technology Acceptance Model (TAM), The Information Systems Success Model (ISSM), and Hofstede's Cultural Dimension, Digital Tax Education Services

## Introduction

Entering the era of Industrial Revolution 4.0, Indonesia must become increasingly advanced in the development and application of technology (Yusuf (2020, [kominfo.go.id](http://kominfo.go.id)). Indonesian Minister of Finance Sri Mulyani Indrawati stated that technology has opened new opportunities to improve welfare, especially in developing countries. However, the challenge now is to ensure that everyone can feel the accessibility, use, and benefits of this technology (IndoTelko (2008, [indotelko.com](http://indotelko.com)). Thus, developing countries need to have innovation capabilities, and their communities also need to be able to adapt to

accepting and using new, increasingly sophisticated technology. Therefore, it is essential to study the factors that may influence users' acceptance of new technologies in developing countries.

Many studies have been conducted to evaluate the acceptance of new technologies, using various models such as the theory information systems success model (ISSM) and the technology acceptance model (TAM). Sharma & Sharma (2019) used the ISSM model to test the quality of information systems. Chen & Tsai (2019) research used the ISSM model and the TAM framework to test information quality, convenience, and perceived usefulness (PU), generating a favorable impact on the intention to use. Other research using

\*Corresponding author. E-mail: [nabilla.4112001018@students.polibatam.ac.id](mailto:nabilla.4112001018@students.polibatam.ac.id)

TAM dimensions states that perceived benefits and comfort of use are important factors that directly influence a person's intention to adopt technology, and system quality and user habits also play a role in influencing technology use intentions (Rafique et al., 2020). Study Kamal et al. (2020) also show that the main factors influencing technology acceptance are PU, perceived ease of use (PeoU), social influence, facilitating conditions, and trust. This means that individualism is likely to accept and use a service if they find the helpful service easy to use, supported by social influence. These supportive conditions facilitate use, and they have trust in the service. These factors play an essential role in influencing individual's attitudes and intentions towards adopting technology.

Previous related research has also been reviewed by Zaidi et al. (2017), which has examined the factors that in developing countries by adding the influence of Hofstede's cultural values to predict social behaviour related to technology use. This Previous research uses e-filing as the research object and India as the research location. To validate and expand understanding, researchers aim to adapt the research by examining factors that influence the use of tax digital education services at the Polibatam Tax Center, considering PEoU, PU, ISQ, user satisfaction (US) and cultural value of individualism-collectivism (IC). Adapting research to different subjects, objects, and locations is necessary for several reasons. First, the Polibatam Tax Center is a tax service founded by the Batam State Polytechnic. At the end of June 2023, it introduced tax digital education services as a breakthrough step in providing education and tax services to the public through digital technology. Thus, this service is still in the early stages of public adoption. Tax digital education services never been evaluated for their services and systems.

Second, tax digital education services provide various online tax education options that can be accessed via website. This service includes the latest news about taxation in Indonesia, business categories that provide specific education regarding certain business fields, tax consultations carried out by tax experts according to taxpayer needs, training and certification. Apart from that, this website also provides various educational tools such as the PPh 21 calculator, access to tax applications, and access to relevant tax regulations. System designers need to facilitate and evaluate such online services according to user needs and expectations. The level of user satisfaction with services and systems will encourage continued use because it can increase work effectiveness and provide convenience in their tasks

(Hatta Hambali, 2020). It is hoped that this research can help system designers to improve the effectiveness of online services, thereby increasing user satisfaction and encouraging sustainable technology adoption.

Third, as an archipelago country, Indonesia has cultural diversity caused by its unique geographical factors. Indonesia is also located on world trade routes, which causes close interactions with various cultures of other nations (Hutomo S. Mulyono, 2020). Culture has an essential role in influencing the use of technology (Saragih, 2019). Therefore, Indonesia is the right research location to add to the study of Hofstede's cultural dimensions, especially in the context of individualism-collectivism values which are directly related to how individuals respond to the quality of information systems. These cultural values influence the extent to which users focus on personal interests versus group interests, which then influences user satisfaction. This research highlights that the level of user satisfaction with the quality of information systems is subjective and can be influenced by cultural values. Meanwhile, PEoU and PU are more technical factors and less influenced by cultural subjectivity.

#### *Literature Review*

##### *TAM*

The TAM utilized in this research is solely centered on the acceptance of information systems and technologies. This model emphasizes user perceptions of usefulness and ease of use as key factors that influence user satisfaction in adopting technology, which can affect subsequent usage intentions (Davis, 1989). The reason for including TAM in this research is to explain how individuals receive and use tax digital education services at the Polibatam Tax Center.

##### *ISSM*

The ISSM theory developed by DeLone and McLean in 1992 aims to understand and explain the factors that influence the success of information systems. This model identifies six main concepts that influence the success of information systems, namely system quality, information quality, user satisfaction, system use, individual impact, and organizational impact (DeLone & McLean, 1992). An update was made to the information system success model in 2003 by adding a new concept called service quality. This concept refers to the quality of interaction and support provided by information system service providers to

users. Service quality is considered an essential factor in influencing the success of information systems (DeLone & McLean, 2003a). The reason for including ISSM in this research is to understand the factors that are interconnected and influence the system information success of tax digital education services on the Tax Corner web.

### *HOFSTEDE*

Hofstede's Cultural Dimensions Theory was developed by Geert Hofstede in 2001. This theory provides a framework for understanding cultural differences between countries (Hofstede, 2001). There are six cultural dimensions identified by Hofstede, such as, Power Distance, Individualism vs. Collectivism, Masculinity vs. Femininity, Uncertainty Avoidance, dan Long-Term Orientation vs. Short-Term Orientation. This research uses one of Hofstede's dimension is Individualism vs. Collectivism (IC), to understand how cultural differences that prioritize the interests of individuals or groups can influence individual interactions to adopt tax digital education services at the tax clinic.

### *Hypothesis and Research Model*

Adaptation of the research model used by Zaidi et al (2017) by combining variables from TAM, ISSM, and Hofstede to measure user intentions in using tax digital education services on the Tax Corner website.

### *PEoU and PU*

TAM theory by Davis (1989) states that perceived of use (PEoU) and perceived usefulness (PU) interact with each other to influence the user intentions. According to TAM, if someone finds a technology easy to use (PEoU), they are more likely to see the technology as applicable (PU) for them. PEoU helps reduce barriers that may arise when using technology, thereby increasing PU. This is backed by research by Zaidi et al (2017) and Rafique et al (2020), which has tested PEoU significantly positively related to PU. It was concluded that the easier it is to use a technology, the more likely it is that users will see the technology as applicable. However, Chen & Tsai (2019) research states that the relationship between PEoU and PU is not supported. This can be caused by the user's belief that the system's ease of use is irrelevant to the system's functionality. Therefore, this research will test the relationship between the two to see the suitability of the results with the model developed by Davis (1989). It can be hypothesized that:

**H1:** PEoU is positively related to PU

### *ISQ, US, and BI*

TAM and ISSM are interrelated in explaining the relationship between these three variables. In TAM, high usage behavioral intention (BI) can also contribute to user satisfaction (US). When users are satisfied with their experience using a system or product, they tend to have a higher intention to continue using the system in the future. Supported by research conducted by Zaidi et al (2017), it was found that PEoU and PU were positively related to the US, and the US had a positive effect on BI's adoption of the technology. Then, in research, Rafique et al (2020) and Chen & Tsai (2019) found that PEoU and PU also have a significant positive relationship with BI for users who use new technology. Likewise, research by Kamal et al (2020) shows that PEoU and PU are essential drivers for technology acceptance and have a positive effect on BI. It can be interpreted that PEoU and PU have an essential role in encouraging BI users to use new technology. The more accessible and more valuable users perceive a technology, the higher positive reaction from users and the likelihood they will adopt the technology. Thus, the following hypothesis is put forward:

**H2:** PEoU has a positive effect on the US

**H3:** PU has a positive effect on the US

ISSM theory states that the factor that influences the success of an information system is information system quality (ISQ). The higher the ISQ, the higher the probability of US. This success can be achieved through the high level of US against the system (DeLone & McLean, 2003). ISQ turns out to have a positive effect on technology use intentions and user satisfaction (Chen & Tsai (2019); Sharma & Sharma (2019); Hatta Hambali (2020); Al-shargabi et al. (2021)). However, the findings from research by Zaidi et al. (2017) show that although ISQ affects US, the impact is not statistically significant. Thus, it can be concluded that ISQ plays an essential role in achieving information system success by increasing user satisfaction and intention to use technology. Thus, the following hypothesis is proposed:

**H4:** ISQ has a positive effect on the US

**H5:** US has a positive effect on BI

### Moderating Role of IC on ISQ and US

Culture has a significant influence on technology use (Saragih, 2019). One of Hofstede's cultural values used in this research is the individualism-collectivism (IC) dimension, which describes the extent to which individuals in a culture focus more on their interests (individualism) or the group (collectivism). As explained previously, the ISSM model is a framework that considers the factors that influence user satisfaction with information systems (DeLone & McLean, 2003a). Research by Sarbaini et al. (2019) and Metallo et al. (2022) shows that cultural values with the IC dimension as a moderator variable have an influence on the intention to use technology. However, research by Zaidi et al. (2017) results shows that IC does not moderate the relationship between ISQ and US. Based on Hofstede's theory, previous researchers, and researchers' logic, it can be interpreted that ISQ influences the US, and this influence can be moderated by IC cultural values, which ultimately influence the intention to use technology. Individuals who tend to be individualism-collectivism will prioritize personal or group interests in using information systems because the level of user satisfaction experienced is subjective to the quality of the information system, which ultimately has an impact on subsequent usage intentions. Although previous research did not find an influence between the two, in this study, the relationship between the two will be tested with different samples to prove that the influence of cultural values can strengthen or weaken the relationship between the two. Therefore, it can be hypothesized:

**H6:** IC cultural values positively moderate the relationship between ISQ and the US

The research model is presented in Figure I as follows:

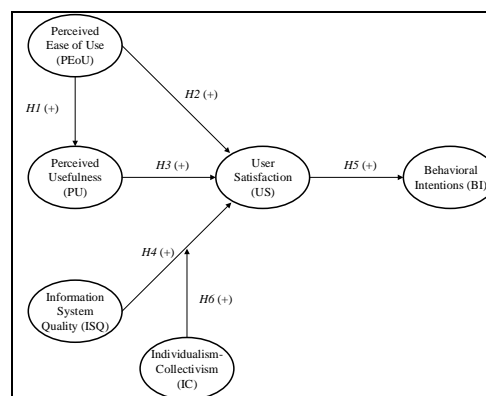


Fig.1. Research Model

## Research Method

### Variables

In this research, the variable that is the focus is behavioral intention (BI) to use tax digital education services. Independent variables, which include PEoU, PU, and ISQ, are used to influence BI. The mediating variable considered is US, while the variable that moderates the relationship between ISQ and US is IC.

### Models

Behavioral intention to use tax digital education services is analyzed using a model that has been adapted from research by Zaidi et al (2017). This model tests PEoU, PU, and ISQ against BI to use tax digital education services; IC mediates the ISQ factor. In addition, this model also tests the relationship between PEoU and PU, as well as between ISQ and US, which is influenced by Hofstede's cultural values (IC) as a moderator variable. The data obtained was then analyzed using SMART-PLS 3.29 software with the PLS-SEM (Partial Least Square) to test hypotheses and analyze data.

### Sample

The target sample in this research is individuals who are experienced in using tax digital education services and are taxpayers or prospective taxpayers aged >17 years in Indonesia. This research employs a survey method for data collection, utilizing a purposive sampling approach. Respondents were asked to provide their answers using a 5-point Likert scale, where 1 represents a strong disagreement and 5 indicates a strong agreement. Respondents had to test the application first before filling out the survey, and

the results produced 103 samples. Table 1 presents the information about the respondents.

Table 1  
Demographic Data

Items	Participants (%)
Total responses	103 participants
<i>Age (years)</i>	
Less than 17	0 (0)
17-27	37 (35.92)
Over 27	60 (58.25)
No responses	6 (5.83)
<i>Gender</i>	
Female	60 (58.25)
Male	35 (33.98)
No responses	8 (7.77)
Experience use the application	98 (95.15)
No experience use the application	5 (4.85)
Have a NPWP	68 (66.02)
Does not have a NPWP	25 (24.27)
No responses	10 (9.71)
<i>Job</i>	
Student	51 (49.51)
Lecturer	41 (39.81)
No responses	11 (10.68)

## Results and Discussion

### Evaluation of the Measurement Model

The initial measurement model evaluation test aims to see whether the measurement is good or not. The first is the convergent validity test seen from the loading value factor with criteria  $>0.7$  to prevent average values variance extracted (AVE) below 0.5 (Suhartanto, n.d.). Second, the reliability test is seen from Cronbach's value Alpha with criteria  $>0.7$ . Table II shows the loading values. The factor for each indicator exceeded 0.7, thus affecting the AVE value above the 0.5 criterion. This proves that these indicators have good convergent validity. The Cronbach's Alpha values for all variable exceed 0.7, indicating that the questionnaire or indicators are reliable and complete. Table 2 illustrates that each variable is defined operationally by utilizing theories and tools drawn from existing literature.

Table 2  
Outer Model Calculation Results

Construct and indicators	Loadings factor	Cronbach's $\alpha$	AVE
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<i>Perceived ease of use (PEoU)</i>	0,848	0,766
PEoU1	0,901	
PEoU2	0,875	
PEoU3	0,849	
<i>Perceived of usefulness (PU)</i>	0,857	0,699
PU1	0,851	
PU2	0,84	
PU3	0,819	
PU4	0,835	
<i>Information system quality (ISQ)</i>	0,848	0,766
ISQ1	0,904	
ISQ2	0,871	
ISQ3	0,85	
<i>User satisfaction (US)</i>	0,915	0,855
US1	0,927	
US2	0,934	
US3	0,913	
<i>Behavioral intentions (BI)</i>	0,875	0,8
BI1	0,908	
BI2	0,868	
BI3	0,907	
<i>Individualism-collectivism (IC)</i>	0,88	0,622
IC1	0,83	
IC2	0,76	
IC3	0,821	
IC4	0,861	
IC5	0,708	
IC6	0,742	

The study measures several variables using valid items, demonstrating strong relationship in explaining each variable. US variable is measured by 3 (three) valid items, with outer loading values ranging from 0.913-0.934. The reliability level is good, with a Cronbach's Alpha of 0.915 above 0.7.

Perceived Ease of Use (PEoU) is also measured by 3 valid items, with loading values between 0.849 and 0.901, and acceptable reliability (Cronbach's Alpha of 0.848). The most significant item is ease of navigation (PEoU1) (0.901). Among the three valid measurement items, PEoU reflected how easy it is to navigate (PEoU1) (0.901), which has the most significant contribution to measuring the variable perceived ease of use (PEoU).

Perceived Usefulness (PU) is measured with 4 valid items, loading values between 0.819 and 0.851, and good reliability (Cronbach's Alpha of 0.857). The most significant item is sufficient information about services (PU1) (0.851).

Information System Quality (ISQ) is assessed with 3 valid items, loading values between 0.850 and 0.904, and acceptable reliability (Cronbach's Alpha of 0.848). The item with the highest contribution is fast service from the vendor (ISQ1) (0.904). Among the three valid measurement items, ISQ is reflected by vendors providing fast service to customers (ISQ1) (0.904), which makes the most significant contribution to measuring the ISQ variable. This means that any changes that occur in the quality of the service information system will be visible in the fast service provided.

Behavioral Intention (BI) is measured by 3 valid items, with loading values ranging from 0.868 to 0.908 and good reliability (Cronbach's Alpha of 0.875). The most significant item is the option to regularly use online tax services and education (BI1) (0.908). Among the three valid measurement items, BI is reflected by the option to obtain tax services and education online. It is intended to be used regularly (BI1) (0.908), which is the most significant contribution to measuring BI. It can be interpreted that any changes that occur in the behavioral intention to use the service will be seen from the option of getting tax services and education online and intending to use it regularly.

Individualism-Collectivism (IC) is assessed using 6 valid items, with loading values between 0.708 and 0.861, and good reliability (Cronbach's Alpha of 0.880). The most contributing item is the importance of group loyalty (IC4) (0.861). Among the six valid measurement items, IC is reflected by maintaining loyalty to the group as more important than individual profits (IC4) (0.861), which is the most significant contribution to measuring the IC variable. This means that any changes that occur in IC cultural values will be seen in loyalty to the group rather than to the individual. Individualism-collectivism, related to the importance of a manager encouraging loyalty and a sense of responsibility in subordinates rather than encouraging individual initiative (IC5), was rated lower than the other items.

Third, discriminant validity was tested by comparing  $\sqrt{AVE}$  with correlations among latent variables and ensuring the heterotrait-monotrait ratio (HTMT) is below 0.90, confirming that the variables are theoretically distinct and empirically validated. Table 3 shows the results of the Fornell-Larcker parameters criterion for measuring  $\sqrt{AVE}$  and HTMT.

Table 3  
Fornell-Larcker Criterion Parameter Results

$\sqrt{AVE}$	BI	ISQ*IC	IC	ISQ	PEoU	PU	US
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BI	0,89						
ISQ*IC	0,27	1,00					
IC	0,55	0,22	0,79				
ISQ	0,76	0,29	0,53	0,88			
PEoU	0,64	0,25	0,43	0,68	0,88		
PU	0,73	0,30	0,56	0,71	0,71	0,84	
US	0,77	0,27	0,49	0,73	0,65	0,71	0,92

HTMT	BI	ISQ*IC	IC	ISQ	PEoU	PU	US
BI							
ISQ*IC	0,29						
IC	0,62	0,25					
ISQ	0,81	0,32	0,61				
PEoU	0,75	0,28	0,48	0,81			
PU	0,84	0,32	0,63	0,83	0,83		
US	0,86	0,29	0,53	0,82	0,73	0,80	

US has a more excellent  $\sqrt{AVE}$  (0.92) correlation with the latent variables. These results indicate that the discriminant validity of the US variable is met. Thus, the variables PU (0.84), PEoU (0.88), ISQ (0.88), IC (0.79), and BI (0.89) have greater values than the correlation values between other latent variables.

The cross-loadings show that all measurement items correlate more strongly with their respective primary variables than with other variables, demonstrating good discriminant validity. Also, the ratio of the average correlation between items assessing different variables (heterotrait) to the square root of the product of the correlation between items measuring the same variable (monotrait) less than 0.90.

It can be concluded that this model already has or meets good validity and reliability. This means that the questionnaire or indicators used are also excellent.

### Structural Model Evaluation

This assessment is conducted in two phases. The first phases includes checking for multicollinearity among the variables, which is done using the Variance Inflation Factor (VIF). A VIF value below 5 indicates that there is no multicollinearity present among the variables (Hair et al., 2019).

Table 4 shows the Inner VIF measures between variables. The level of multicollinearity between variables is low, confirm that the parameter estimation results in SEM PLS are unbiased.

Table 4  
Inner VIF

	BI	PU	US
BI			
ISQ*IC			1,114
I.C			1,534
ISQ			2,458
PeoU		1,000	2,328
PU			2,740
US	1,000		

The second step involves testing the hypothesis between variables by examining the p-value. The test results of p-value is less than 0.05, it indicated a significant relationship between the variables (Hair et al., 2019).

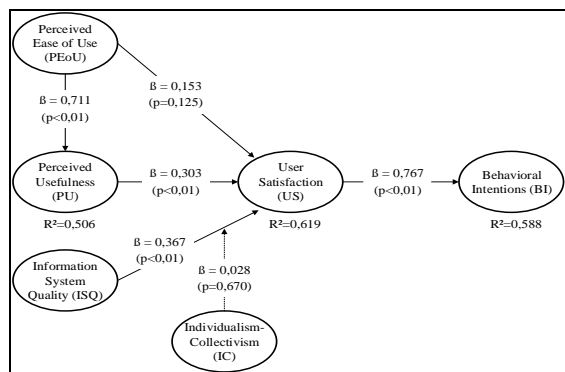


Fig. 1. Analysis Results Model

Based on Figure 2, PEoU has a significant effect on PU. H1 is supported ( $p < 0.01$ ). PEoU has no significant effect on the US. H2 was not supported ( $p = 0.125$ ). PU has a significant effect on the US. H3 is supported ( $p < 0.01$ ). ISQ has a significant effect on the US. H4 is supported ( $p < 0.01$ ). US influence on BI is said to be significant. H5 is supported ( $p < 0.01$ ). IC shows an insignificant moderating effect. This means that the IC variable as a moderator is only referred to as a potential moderator. H6 is not supported ( $p = 0.670$ ).

*Evaluation of Model Quality*

Figure 2 shows the goodness of the model using R<sup>2</sup>, resulting in PEoU influencing PU of 0.506. PEoU, PU, and ISQ affect the US by 0.619. US influences BI by 0.588. These three variables are influenced by other latent variables with a moderate level of influence, around 0.50 (Hair et al., 2019).

The influence of each variable at the structural level uses the f- f-square test in Table 5 below. According

to air et al. (2017), The f- f-square value can be said to be significant if it is around 0.35, it can be said to have a moderate influence if the value is around 0.15. It can be said to have a low influence at the structural level if the value is around 0.02. IC moderation has an influence at the structural level of 0.002 on US the, which is stated to have a low influence. The US has a significant influence on BI at the structural level of 1.430. Likewise, PEoU has a significant influence at the structural level of 1.023.

Table 5  
F-Square Calculation Results

	BI	PU	US
ISQ*IC			0.002
ISQ			0.144
PEoU		1,023	0.026
PU			0.088
US	1,430		

Table 6 shows a summary of the results of the hypothesis test.

Table 6  
Results

Hypothesis	Supported
H1: PEoU is positively related to PU	Yes
H2: PEoU is positively related to US	No
H3: PU is positively related to US	Yes
H4: ISQ is positively related to US	Yes
H5: US is positively related to BI in the use of tax	Yes
H6: IC cultural values positively moderate the relationship between ISQ and US	No

The results of hypothesis testing show that H1 is supported, in line with Udo & Bagchi (2011), who found that PEoU was positively related to PU. This shows that any changes that occur in PEoU have an impact on PU and are relevant to system functionality. H2 failed to prove that PeoU influences the US in using this web-based tax corner service. This shows that the convenience that users feel about the services provided fails in influencing user satisfaction in using tax digital education services. This could be because the website is not very familiar to respondents. PU is positively related to US (H3), and ISQ is positively related to US (H4) support. As expected, the functionality and sophistication of the information system and the quality of the service can influence user satisfaction.

Consistent with H5, the results show that the US is positively related to BI. This shows that users will be more satisfied if they think that the system is sound and the quality of the information system provided by

the latest vendor. The results show a substantial effect on this hypothesis. Next, H6 examines the moderating effect of the cultural dimension, namely the IC held by Hofstede (2001), tested whether these dimensions moderated the relationship between ISQ and US the in using tax digital education services at Polibatam Tax Centre. The results found that IC was not significantly related to moderation, hence it was only a potential moderation (Baron & Kenny, 1986).

## Conclusion

The research results indicate that several factors must be considered when developing tax education services at the Polibatam tax centre, using the theoretical framework of TAM (Davis, 1989), ISSM (DeLone & McLean, 2003b), and national cultural values (Hofstede, 2001). The adoption of new technology is influenced by user satisfaction, which is determined by perceived usefulness (PU) and information system quality (ISQ).

This study could not prove the positive relationship between PeoU and US as stated Davis (1989). Although there were 98 respondents experienced with the website, they found the available features not optimal to navigate yet. Among the 51 respondents who were student, probably lacked an understanding of taxation, which affected their perception of the ease of using the digital tax education services.

Importantly, the study found that one of Hofstede's cultural values (IC), did not show a significant moderating effect between ISQ and US. IC only has the potential to moderate but does not have sufficient substantial evidence to moderate the relationship between ISQ and the US statistically. Without IC as a moderating factor, the service already exhibited high ISQ that influenced user satisfaction.

These finding align with the mission of the Ministry of Education, Culture, Research and Technology (Kemendikbudristek) to strengthen digital learning through ICT-based learning program (PembataIK, 2023) aims to promote the use of technology in education (Sekretariat Jenderal Kemendikbudristek, 2023). Therefore, our findings can help develop future services and implement them.

This research did not differentiate between status of respondents, such as prospective taxpayers versus students majoring in taxation. Future research can be conducted focus on target respondents with experience or frequent use of digital tax education services.

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