

Exploring Muslim students' adoption of mobile banking in conventional banks

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Abstract

Purpose – This study aims to analyze the factors that influence Muslim students' intention to adopt mobile banking in conventional banks.

Methodology – The research sample consisted of 170 Muslim students who used mobile banking in conventional banks. The partial least squares (PLS) method was used to evaluate the unified theory of acceptance and use of technology (UTAUT) on Muslim students' intentions to use m-banking in conventional banks.

Findings – This research shows that performance expectancy, facilitating conditions, and social influence the behavioral intention of Muslim students, while effort expectancy does not influence the behavioral intention of Muslim students to adopt mobile banking at conventional banks. On the other hand, behavioral intention influences Muslim students' behavior towards mobile banking in conventional banks.

Implications – Banks should focus on highlighting user-friendly designs and providing clear, accessible information and support to overcome perceived difficulties. Emphasizing the practical benefits and efficiency of mobile banking can play a significant role in encouraging its use. Additionally, creating a supportive environment with adequate resources and leveraging positive social influences can further increase students' intentions and actual usage of mobile banking services.

Originality – Research on the intention of Muslim students to adopt mobile banking at Islamic banks has been conducted by many previous researchers. Therefore, this study examines the influence of Muslim students' intention to adopt mobile banking in conventional banks, which has rarely been studied by previous researchers.

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Introduction

The development of information technology has brought about significant changes in various aspects of life, including the financial sector (Al-Ajlouni & Al-Hakim, 2019). Mobile banking, one of the innovations in banking services, allows customers to carry out various financial transactions via mobile devices (Salamah, 2017). The importance of mobile banking lies in its ability to provide

easy, fast, and secure access to banking services without having to visit a bank office physically. This service covers various activities, such as money transfers, bill payments, credit purchases, and account management, all of which can be done with a few touches on the cellphone screen (Saksonova & Kuzmina-Merlino, 2017; Thacker et al., 2021). Customers believe that using mobile banking will not be a hassle or require a lot of effort. The ease of use of mobile banking includes indicators such as time efficiency in use, ease of understanding the appearance of the site, increased skills in using it, and ease of learning (Sadiq & Sudarsono, 2022).

Mobile banking has become an important and useful banking service for customers, especially in increasing the ease of carrying out financial transactions (Saksonova & Kuzmina-Merlino, 2017). This was proven by the rapid development of mobile banking from 2015 to 2023. In 2015, mobile banking was still in the development stage, but since 2020, its use of mobile banking has increased drastically (Simamora, 2024). In 2021, BCA Bank will be the most popular, with a user percentage of 47.5%. In 2022, mobile banking transactions will reach IDR 3,888.09 trillion, an increase of 43.76% compared to the previous year. By 2023, the number of customer accounts will reach 38.8 million, and BCA mobile banking transactions will increase by 43.4 percent YoY (Safitri, 2023). In addition, several other banks, such as BTN and BSI, also experienced significant growth, with BTN recording user growth of 78% yoy to 593 thousand customers (Six, 2023). The ease of access and increased smartphone penetration among the public are the main driving factors in the development of mobile banking (Khasbullah, 2022).

Among the community of mobile banking users, Muslim students make up a large portion of mobile banking users. Muslim students, as digital natives, are a demographic group that is familiar with digital technology. They tend to be more open to adopting new technologies, including mobile banking (Sudarsono et al., 2022). For Muslim students, mobile banking not only offers convenience in managing personal finances but also supports religious activities such as paying zakat, infaq, and alms more easily (Santoso et al., 2024). In addition, mobile banking applications are often equipped with features that make it easier for students to manage budgets, save money, and carry out daily transactions. With mobile banking, students can access banking services anytime and anywhere, saving time and energy (Nuangjamnong, 2021). They no longer need to physically visit the bank to make transactions, so that they can be more flexible in managing their time and activities. In addition to ease of access, mobile banking provides efficiency benefits.

Several researchers have conducted research on the intention to adopt car banking. Alalwan et al. (2017), Bapista and Oliveira, (2015), Ramírez-Correa et al. (2019), Sudarsono et al. (2022), Suhartanto et al. (2021) and Tarhini et al. (2016) find that effort expectancy and performance expectancy influence an individual's intention to adopt mobile banking. Other studies reveal that facilitating conditions, social influence, hedonic motivation, price value, perceived risk, habit, trust, religiosity, and gender influence individuals' adoption of mobile banking (Farzin et al., 2021; Ghalandari, 2012; Im et al., 2011; Kwateng et al., 2019; Mullan et al., 2017; Palau-Saumell et al., 2019; Payne et al., 2018; Raza et al., 2019; Yu, 2012). Effort expectancy, performance expectancy, facilitating conditions, and social influence have received more attention in previous research as strong factors that influence the intention to adopt mobile banking.

This study differs from previous research because it specifically examines Muslim students' intentions to adopt mobile banking in conventional banks. Muslim students prefer financial services that comply with Sharia principles, but some of them use conventional banking services. UTAUT theory mentions a number of factors that influence an individual's intention to adopt technology, such as effort expectancy and performance expectancy, facilitating conditions, social influence, hedonic motivation, price value, and habit. This study is expected to explain the factors that influence Muslim students' intention to adopt mobile banking in conventional banks.

Literature Review

Mobile banking

Mobile banking is a banking service that allows customers to carry out financial transactions using mobile devices such as smartphones or tablets (Payne et al., 2018). Through mobile banking

applications, customers can carry out various banking activities, including fund transfers, bill payments, balance checks, and credit purchases. The development of mobile banking has experienced significant growth along with advances in mobile and internet technology (Al-Ajlouni & Al-Hakim, 2019). With the increasingly widespread use of smartphones and easier Internet access, mobile banking services have become one of the most popular and efficient ways for individuals to manage their finances electronically (Kwateng et al., 2019). Banks and financial institutions have also been competing to develop innovative and user-friendly mobile banking applications to attract customers to use mobile banking (Simamora, 2024).

Effort expectancy and behavior intention

Effort expectancy is an individual's perception of how easy or difficult it is to use a technology or system (Venkatesh et al., 2003). In this context, effort expectancy refers to the extent to which Muslim students consider using mobile banking services in conventional banks as something easy to do. The argument that explains the influence of effort expectancy on intention is that the more individuals feel that using mobile banking is easy, the more likely they are to intend to use the service. This is because perceived ease of use can increase individuals' confidence in their ability to master technology and reduce feelings of discomfort or fear regarding its use (Ghalandari, 2012). This argument is supported by research Alalwan et al. (2018), Kishore and Sequeira (2016), Raza et al. (2019) and Thaker et al. (2021) who found that effort expectancy influences intention to use technology. Based on the above arguments, the following hypothesis was formulated:

H₁: Effort expectancy has a positive effect on Muslim students' intentions to adopt m-banking in conventional banks.

Performance expectancy and behavior intention

Performance expectancy is an individual's perception of how effectively a technology or system helps them achieve certain goals or performance (Venkatesh et al., 2003). In this context, performance expectancy refers to the extent to which Muslim students believe that using mobile banking services in conventional banks will improve their performance or ability to carry out financial transactions (Shadiq & Sudarsono., 2022). The argument that explains the influence of performance expectancy on intention is that the more individuals believe that using mobile banking provides benefits or improves performance, the more likely they are to intend to use the service. This is because high perceived usefulness can increase an individual's motivation to use technology and strengthen their confidence in the decision to do so (Sudarsono et al., 2022; Ghalandari, 2012; Thaker et al., 2021). A number of previous studies, such as Anam (2023), Baptista and Oliveira (2015), Alalwan et al. (2017), and Farzin et al. (2021), confirmed that performance expectancy influences an individual's intention to adopt car banking. Based on the above arguments, the following hypotheses can be formulated:

H₂: Performance expectancy positively affects Muslim students' intention to adopt mobile banking in conventional banks.

Facilitating condition and behavior intention

Facilitating conditions are environmental factors or circumstances that facilitate or support the use of technology or systems (Venkatesh et al., 2003). Facilitating conditions refer to the extent to which Muslim students feel that their surrounding environment, such as service accessibility, support from related parties, and availability of resources, supports the use of mobile banking in conventional banks. The argument that explains the influence of facilitating conditions on intention is that the more individuals feel that their environment facilitates the use of mobile banking, the more likely they are to intend to use a service (Shadiq & Sudarsono., 2022). The existence of supportive environmental factors can reduce the obstacles or difficulties faced by individuals in using technology, thereby increasing their tendency to adopt it (Ghalandari, 2012; Im et al., 2011). Previous research supports a positive relationship between facilitating conditions and intention in various technological contexts, such as Baptista and Oliveira (2015), and Oliveira et al. (2014). Similar findings were also

found in research conducted by Farzin et al. (2021) and Raza et al. (2019) who showed that organizational support and technology accessibility contribute positively to individuals' intention to adopt technology. Based on this explanation, the following hypothesis can be formulated:

H₃: Facilitating conditions have a positive effect on Muslim students' intentions to adopt mobile banking in conventional banks.

Social influence and behavior intention

Social influence is the influence of individuals or social groups on the behavior or decisions of other individuals (Venkatesh et al., 2003). In this context, social influence refers to the extent to which Muslim students are influenced by opinions, norms, or support from other people when using mobile banking in conventional banks. The argument that explains the influence of social influence on intention is that when individuals feel supported or directed by the people around them, they tend to adopt a behavior that is in accordance with social norms or expectations from their environment (Ghalandari, 2012; Sudarsono et al., 2021). In the context of technology use, support from family, friends, and colleagues can provide additional encouragement for individuals to use services such as mobile banking. Previous research conducted Kishore and Sequeira (2016) and Tarhini et al. (2016) found that social influence has a significant influence on users' intention to use mobile banking. Similar findings were found in studies conducted by Farzin et al. (2021), Palau-Saumell et al. (2019), and Samsudeen et al. (2020). This shows that socialization and social support have a significant impact on individual decisions. Based on the above arguments, the following hypotheses can be formulated:

H₄: Social influence has a positive effect on Muslim students' intention to adopt mobile banking in conventional banks.

Behavior intention and user behavior

Behavioral intention is a person's intention or desire to perform a certain behavior (Venkatesh et al. 2003). In this context, behavioral intention refers to Muslim students' desire to use mobile banking services in conventional banks. The argument that explains the influence of behavioral intention on user behavior is that desired or desired behavior tends to encourage individuals to actually carry out that action (Kwateng et al., 2019; Oliveira et al., 2014). In the context of using mobile banking services, if someone has a strong intention or desire to use the service, they will most likely take concrete action to register and use the mobile banking service (Yu, 2012). Previous research has supported a positive relationship between behavioral intention and user behavior in various consumer behaviors and technology contexts. Farzin et al. (2021) and Palau-Saumell et al. (2019) found that behavioral intention has a significant impact on actual behavior. Similar findings were found in research conducted by Im et al. (2011) and Raza et al. (2019) who showed that users' intentions to use information systems significantly predicted their actual technology use behavior. Based on these arguments and previous research findings, the following hypotheses are proposed:

H₅: Behavioral intention has a positive effect on Muslim students' intention to use mobile banking in conventional banks.

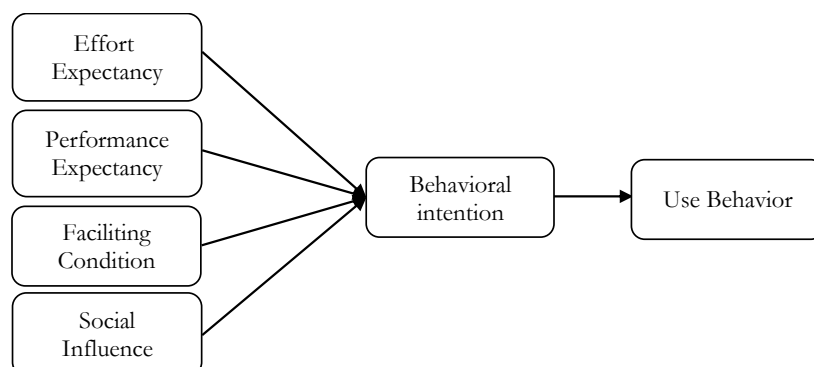


Figure 1. Research model
Source: Authors' own work

The influence of effort expectancy, performance expectancy, facilitating conditions, and social influence on behavioral intention and the influence of behavioral intention on user behavior are described in [Figure 1](#).

Methods

The questionnaire was compiled based on research by [Farzin et al. \(2021\)](#) and consisted of three to five questions. Before distributing the questions, a feasibility test was conducted on 21 students. From the question feasibility test, several questions were deleted because they were considered to have ambiguous meanings for the respondents. The questionnaire was distributed in Google form via several media networks, such as WhatsApp, email, and Facebook. Data collection was carried out from February 1, 2023, to February 21, 2024. To minimize double data entry, respondents were given the opportunity to complete it once.

After the data were collected, tabulation was conducted based on the identity of the respondent and the indicators for each variable. Data were processed using SEM-PLS. Structural equation Modeling with partial least squares (SEM-PLS) is a statistical analysis method used to model the relationship between latent and manifest variables ([Ramayah et al., 2016](#)). The advantages of SEM-PLS are that it can handle data that does not meet normal distribution assumptions, has the ability to handle multicollinearity, and can be used for data with relatively small samples. In addition, SEM-PLS also allows the use of formative indicators to measure latent variables, as well as dichotomous latent variables and very complex models with many latent variables and indicators ([Kline, 2016](#)).

The PLS test stages for validity and reliability include collecting relevant and accurate data; developing a model that includes latent and manifest variables; data analysis using the PLS algorithm; validity testing through measurement, discriminant, and convergent; and reliability testing through Cronbach's Alpha and Composite Reliability. Results that meet validity and reliability requirements can be used to make predictions or decisions, and models must be validated on different samples to ensure generalization to a wider population.

Results

From the results of distributing the questionnaire, 182 respondents were obtained, but for reasons of completeness, 170 respondents who had banking cars at conventional banks were selected. [Table 1](#) shows the number of respondents based on age, sex, highest level of education, and province of origin. The majority of respondents in this survey were aged 17–25 years (99%), with only 0.50% under 17 years and 0.50% between 26 and 35 years. In terms of gender, there was a fairly good balance with 56% women and 44% men. Most respondents were high school graduates (91%), indicating that they may have been in the early stages of higher education or had recently graduated from high school. Geographically, respondents mostly came from Central Java (43%) and DI Yogyakarta (24%), with smaller numbers coming from West Java (15%), East Java (9%), DKI Jakarta (6%), and Banten (2%).

Table 1. Demographic Test Results

Character	Category	Frequency	%
Age	Under 17 Years	1	0,50%
	17 - 25 Years	168	99%
	26 - 35 Years	1	0,50%
Gender	Man	75	44%
	Woman	95	56%
Last education	High school graduate	154	91%
	S1 graduate	16	9%
	Central Java	73	43%
Origin	West Java	25	15%
	East Java	15	9%
	DKI Jakarta	11	6%
	Banten	4	2%
	DI Yogyakarta	40	24%

Source: Data collected by the researchers

Table 2. Individual Item Reliability Test

Constructs	Items	FL	CA	CR	AVE
Effort expectancy	Mobile banking is very easy to use	0,853	0,842	0,89	0,678
	Mobile banking has the benefit of improving performance in many activities and needs	0,853			
	It doesn't require any skills and it was easy for me to learn to use mobile banking	0,794			
	It was easy for me to develop skills using mobile banking	0,792			
Facilitating condition	I have the knowledge and ability to use mobile banking	0,807	0,814	0,88	0,644
	I can always get help when I encounter difficulties using mobile banking	0,841			
	I have enough experience to use mobile banking comfortably	0,861			
	I can get help from others when I have difficulty using mobile banking	0,69			
Behavioral intention	I will always try to use the mobile banking application for daily activities	0,902	0,935	0,95	0,793
	I intend to continue using the mobile banking application to carry out daily activities	0,907			
	I intend to continue using the mobile banking application even though not all of the menus presented are according to my choice	0,873			
	I plan to use the mobile banking application for activities next month	0,897			
	I intend to use the mobile banking application for future activities	0,871			
Performance expectancy	I find mobile banking useful in my daily life	0,814	0,872	0,91	0,661
	Using mobile banking allows me to do my financial transactions faster	0,702			
	Using mobile banking increases my overall productivity	0,858			
	Using mobile banking improves my performance in many activities	0,868			
	Mobile banking will give me greater convenience	0,814			
Social influence	My colleagues and close friends support me in using mobile banking	0,762	0,841	0,89	0,613
	Most of the people I admire and influence use mobile banking	0,818			
	The people who are important to me can and help me in using mobile banking	0,838			
	Using mobile banking makes me look smart and modern	0,783			
	The place I work/study supports me using mobile banking	0,707			
User behavior	My use of the mobile banking app continues to increase	0,865	0,84	0,89	0,676
	I use the mobile banking app more than any other app	0,722			
	I always update the mobile banking application with the latest version	0,841			
	I would recommend using the mobile banking application to others	0,854			

Note: FL=Factor Loading, CA= Cronbach's Alpha, CR= Composite Reliability, AVE=Average Variance Explained

Source: Processed data with Smart PLS

Table 2 shows that all factor loadings are above 0.55 (Tabachnick & Fidell, 2007). Likewise, all constructs have a cronbach's alpha value higher than 0.7, a composite reliability (CR) value higher than 0.7, and an average variance explained (AVE) value higher than 0.5 (Bagozzi & Yi, 1988). All this confirms the convergent validity of the model. Meanwhile, in Table 3, the Fornell-Larcker criterion shows good discriminant validity because the root AVE value of the three bank groups is greater than the correlation between latent constructs.

Table 3. Fornel-Larcker Criterion

Indicator	INT	EE	FC	PE	SI	UB
Intention Behavior	0,891					
Effort Expectancy	0,499	0,824				
Facilitating Condition	0,576	0,706	0,802			
Performance Expectancy	0,652	0,672	0,664	0,813		
Social Influence	0,658	0,568	0,607	0,664	0,783	
User Behavior	0,852	0,438	0,545	0,624	0,603	0,822

Source: Processed data with Smart PLS

Discussion

In testing the structural model (inner model), the R^2 value. According to Ghozali and Latan (2015), the magnitude of the influence of the independent variable on the dependent variable can be determined from the R^2 value. Nilai R^2 is 0.75, including a strong model, while 0.50 and 0.25 are moderate and weak, respectively. From the results of the coefficient of determination test table, the R^2 value of the behavioral intention variable is 0.528 (52.8%) and the R^2 value User Behavior is 0.726 (72.6%). Thus, it can be interpreted that the ability of the independent variable to influence intention behavior is at a moderate level (52.8%), whereas the ability of the independent variable is at a strong level (72.6%) in influencing user behavior.

Table 4 shows the results of hypothesis testing, where performance expectancy, facilitating conditions, and social influence have a positive effect on intention behavior with p-values of 0.002, 0.098, and 0.000, respectively, or below $\alpha = 5\%$, while effort expectancy has no effect on intention behavior. $\alpha = 5\%$ with a p value of 0.000. However, behavioral intention influences user behavior at $p = 0.000$ or below $\alpha = 5\%$.

Table 4. Path Coefficients

Indicator	Original Sample	Standard Deviation	T-Stat	P Values
Performance expectancy → Behavioral intention	0,331	0,106	3,121	0,002
Effort expectancy → Behavioral intention	-0,05	0,087	0,574	0,567
Facilitating condition → Behavioral intention	0,172	0,103	1,659	0,098
Social influence → Behavioral intention	0,362	0,095	3,808	0,000
Behavioral intention → User behavior	0,852	0,025	34,476	0,000

Source: Processed data with Smart PLS

Effort expectancy has no effect on Muslim students' behavioral intention to use mobile banking at conventional banks, which could be caused by several factors. First, perhaps these Muslim students have incorrect or inaccurate perceptions about how easy it is to use mobile banking. For example, they may feel that using mobile banking requires considerable time and effort, even though mobile banking technology has been designed to be user friendly and easy to use. Alalwan et al. (2017) showed that individuals' perceptions of the ease of use of technology do not always reflect their technical reality. They may be influenced by previous experiences or incorrect opinions of others about mobile banking. Second, there is a possibility that other factors are more dominant in influencing behavioral intention than effort expectancy. For example,

perceived usefulness or perceived benefits from using mobile banking can be a stronger factor in forming users' intentions to adopt a service (Mullan et al., 2017). If Muslim students believe that mobile banking can provide significant benefits to their lives, they may be more likely to intend to use the service even though they may not find it easy to use.

Performance expectancy influences Muslim students' behavioral intention to use mobile banking in conventional banks, and they believe that using mobile banking will provide benefits or improve their performance in carrying out financial transactions (Six, 2023). This situation occurs because Muslim students believe that, by using mobile banking, they can carry out financial transactions more efficiently and effectively. If Muslim students believe that mobile banking will speed up the transaction process or provide access to more practical banking services, they will be more likely to intend to use the services (Al-Ajlouni & Al-Hakim, 2019). Muslim students may expect that the use of mobile banking will increase the control and convenience of managing their finances. Expectations of increased control and ease of use of technology are important factors in shaping individuals' intentions to adopt technology (Baptista & Oliveira, 2015). If Muslim students feel that mobile banking can provide easy access and greater control over their financial transactions, they are more likely to plan to use the service.

Facilitating conditions influence Muslim students' behavioral intention to use mobile banking in conventional banks because supportive environmental factors can reduce barriers or difficulties in using this technology, thereby increasing their tendency to adopt it (Farzin et al., 2021). This situation can be explained by the fact that the existence of adequate facilities and resources makes it easier for Muslim students to use mobile banking. For example, if a bank provides training services or technical support for customers who want to use mobile banking, it can improve their ability to overcome technical obstacles and increase their confidence in using the service. Facilitating conditions are one of the factors that influence technology adoption, where the existence of adequate resources and support can increase a person's possibility of using technology. Service accessibility and adequate infrastructure can also be important factors in shaping Muslim students' behavioral intention to use mobile banking. These findings support those of Farzin et al. (2021) and Ghalandari (2012) suggest that factors such as the availability of Internet access and mobile devices can influence an individual's intention to adopt technology. If Muslim students feel that they have easy and affordable access to mobile banking services, they are more likely to plan to use them.

Social influence influences Muslim students' behavioral intention to use mobile banking in conventional banks because opinions, norms, or support from other people can influence their decision to adopt this technology (Farzin et al., 2021). This is because Muslim students tend to pay attention to and consider other people's opinions and experiences before making decisions. If they see their friends, family, or community members using mobile banking well and profitably, they may feel compelled to follow their footsteps (Sudarsono et al., 2021). Social influence is one of the factors that influences user behavior in adopting technology, where the opinions and experiences of other people can provide direction or encouragement to individuals to use the technology (Ghalandari, 2012). In addition, support from the social environment can encourage Muslim students to adopt mobile banking. These results support the research Kishore and Sequeira (2016) which emphasizes that social influence has a significant influence on users' intentions to use information systems. If Muslim students feel supported or encouraged by their friends, family, or community to use mobile banking, they are more likely to plan to use it.

Behavioral intention influences the user behavior of Muslim students in using mobile banking at conventional banks because the intention or desire to carry out a certain behavior tends to encourage individuals to actually carry out that action (Im et al., 2011). This situation is caused by behavioral intention, reflecting an individual's conscious decision or awareness of carrying out an action. According to Farzin et al. (2021), intentions are a direct predictor of actual behavior, and individuals who have a strong intention to perform an action are more likely to carry it out. Thus, if Muslim students have a strong behavioral intention to use mobile banking, they are most likely to take concrete action to register and use the service. Behavioral intention can also influence individuals' perceptions of the match between their goals and desired behavior (Kwateng et al.,

2019; Oliveira et al., 2014). When individuals have a strong intention to perform an action, they tend to interpret the situation and available information in a way that supports that action (Palau-Saumell et al., 2019; Raza et al., 2019). In the context of mobile banking, if Muslim students have a strong behavioral intention to use it, they will most likely interpret the features or benefits of mobile banking services as relevant and useful for them, thus encouraging them to actually use it.

Conclusion

This research found that performance expectancy, facilitating conditions, and social influence influenced Muslim students' intention to adopt mobile banking in conventional banks. Meanwhile, effort expectancy had no effect on Muslim students' intention to adopt mobile banking. These results indicate that the ease of using mobile banking in conventional banks does not influence Muslim students' use. This is possible because Muslim students do not fully understand how to use and maximize mobile banking in conventional banks. Conventional bank management needs to socialize the benefits of mobile banking to Muslim students to optimize the benefits of mobile banking.

This research has a number of limitations: the number of respondents is quite limited, the variables do not fully represent the performance of Muslim students, and the object is limited to conventional banks. Based on these limitations, it is recommended that future research should increase the number of respondents who estimate the number of Muslim students in each region. It is necessary to consider the variables of religiosity and halal knowledge or literacy to measure respondents' level of Islamic understanding. Efforts need to be made to develop research by comparing the intentions of Muslim students to adopt banking cars in conventional and Sharia banks.

Author contributions

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