The Role of Innovation Resistance and Technology Readiness in the Adoption of QR Code Payments Among Digital Natives: A Serial Moderated Mediation Model

Dewan Mehrab Ashrafi
Department of Business Administration, University of Liberal Arts Bangladesh (ULAB)
688 Beribadh Road, Dhaka, Dhaka 1207, Bangladesh.
Tel: +8801778528446
Email: mehrab.ashrafi35@gmail.com

Rubina Easmin
School of Business Administration, East Delta University
Abdullah Al Noman Road, Chittagong, Chittagong 4209, Bangladesh.
Tel: +8801814943190
Email: rubina.e@eastdelta.edu.bd

Abstract
Recent literature on the QR code payment system has called for further research on the adoption of QR codes as a payment tool among digital natives. In response to this call, this study investigates the influence of perceived value on digital natives' attitudes and trust in fostering their intention to adopt QR code payments through the integration of prospect theory and perceived value theory. Following a purposive sampling technique, a quantitative approach was employed and PLS-SEM was performed to evaluate the study hypotheses. A structured questionnaire was used to collect survey data from 387 digital natives. Findings showed that digital natives' behavioural intention to adopt QR code payments was positively influenced by perceived value and trust but not by attitude. Furthermore, the findings demonstrated that attitude and trust serially mediated the relationship between digital natives' perception of value and their propensity to accept QR code payments. Nevertheless, this study also highlighted the moderating effects of technology readiness and innovation resistance and showed how they strengthen and weaken the relationships amongst perceived value, attitude, trust, and behavioural intention. The study offers valuable insights for marketing managers and policy makers in understanding digital natives' perceptions towards adopting QR codes with regard to making payments and advances the theoretical depth by contributing to the literature related to the adoption of QR codes while making payments.

Keywords: QR code payment, innovation resistance, technology readiness, digital natives

1. INTRODUCTION

Technological innovations and smart devices have transformed our lives. The QR code payment method embodies the seamless integration of novel technologies into our daily lives and provides two-dimensional digital images recognized by smartphones, providing faster access to mobile services (Canadi et al., 2010; Lou et al., 2017). The QR code payment system has driven consumers to use mobile banking (m-banking) applications to buy and pay for goods and services conveniently (Suebtimrat and Vonguai, 2021). The QR code payment service is an embodiment of technological innovation and is perceived as a novel technology by individuals and organizations (Yan et al., 2021). As a result, QR code payments have long been a matter of great interest in mobile payments (Chang et al., 2021; Tu et al., 2021; Hossain et al., 2018). The increasing growth in m-banking services has prompted the development of QR codes that are compatible with mobile payment (m-payment) applications. Such a novel payment method has already gained popularity due to its ease of use, flexibility, creative design, and efficiency (Tu et al., 2021). What is more, the rapid adoption of camera-enabled smartphones is a precursor to the growth of QR code payment usage, resulting in increased financial transactions. The growing acceptance of QR code payments in brick-and-mortar establishments signifies a cashless future (Tu et al., 2021). Therefore, service providers use these payment methods to attract customers, reduce the expenses of POS terminals, speed up transactions, and make it easier for customers to pay (Hossain et al., 2018). Although the usage of mobile payments has been extensively investigated, limited attention has been given to QR code payments as an m-payment method (Chang et al., 2021; Hossain et al., 2018; Yan et al., 2021).

Users' m-banking behaviour can be influenced by a wide range of characteristics, including socioeconomic, cultural, and behavioural aspects, which have been studied in digitally progressed countries like the USA, Singapore, India, China, and Taiwan (Koh et al., 2018; Sampaio et al., 2017; World Bank, 2019). In this new era of transaction services, contemporary mobile communication technologies like biometric technology, facial recognition, and contactless payment and information processing technologies like QR codes have rapidly increased. More crucially, as COVID-19 cases continue to rise globally, consumers are more likely to adopt digital contactless payments to avoid human contact and lower their chance of contracting an illness (Zhong and Moon, 2022). The pandemic has altered people's consumption patterns, and these contactless QR-code payment options are growing in popularity compared to other payment options (Suo et al., 2022; Tu et al., 2021). Thus, it is critical for marketers, policymakers, and service providers to recognize the drivers that affect users' intention to adopt the QR code as a payment tool.

Prior and existing literature in the field of mobile-payment places a strong emphasis on the characteristics of NFC based m-payment systems, such as convenience, usefulness, complexity, and mobility (Hossain et al., 2018; Lou et al., 2017; Suebtimrat and Vonguai, 2021). Despite the importance of the characteristics of NFC based m-payment systems in generating stronger behavioural intentions, there remains a paucity of evidence on how these components affect users' value and risk perception, affecting their behavioural intention to adopt QR code payments (Chang et al., 2021; Prodanova et al., 2019). Moreover, while the existing body of research on innovation adoption has focused on attitude and trust as exogenous variables for determining users' behavioural intentions (Chang et al., 2021; Zhao et al., 2021), there has been little discussion about the effects of attitude and trust as mediating variables. As a result, recent studies in the context of fintech have highlighted the mediating impact of attitude and trust (Cham et al., 2022; Roh et al., 2022) but those studies have focused on examining the impact of attitude and trust on users' behavioural intentions, ignoring the mediating effect for both of the factors in the QR code payment context. Therefore, it is still not known whether users' attitudes and trust sequentially mediate the association among users' perceived value and behavioural intent, making it necessary to better understand how to augment the growth of QR code payment methods and the determinants of users' behavioural intentions.

Furthermore, Turner (2015) suggested that these factors are connected to the characteristics of distinct generations. Different generations have different perspectives on the use of digital technology and payment methods (Agárdi and Alt, 2022). According to eMarketer (2019), there will be 1.31 billion mobile payment users by 2033. Digital natives have lower barriers to adopting new technology than earlier generations and considerable purchasing ability, making them an attractive target for business organizations (Kimberly et al., 2022). They are more open to using non-traditional payment methods because they are familiar with digital technology and recognize the advantages of digital financial services, such as reduced costs and convenience (Agárdi and Alt, 2022). Furthermore, by 2025, digital natives are projected to make up as much as 75% of the workforce, constituting the largest demographic group in history (Jimenez and Ford-Wilcox, 2022). Previous published studies that investigated how someone's generation affects people's willingness to use QR code based mobile

payments are limited (Agárdi and Alt, 2022). For instance, Mun et al. (2017) investigated Millennials' attitudes toward using NFC based mobile payments. A similar empirical study on Generation Z's acceptance of digital wallets was undertaken by Dalimunte et al. (2019), showing that the majority of the existing literature has examined the acceptance of NFC payment systems among Millennials and Generation Z rather than QR code payments. Additionally, Yan et al. (2022) argued that researchers have not treated QR code payment in much detail and, according to Payne et al. (2018), there is a dearth of research in the field of QR code payment acceptance that specifically addresses how digital natives' perception of value impacts their behavioural intention to make QR code payments. Therefore, there is a gap in research examining digital natives' QR code payment acceptance behaviour.

Therefore, considering the research gap, the objectives of this study are to investigate the serial mediation effects of attitude and trust in fostering QR code acceptance behaviour among digital natives and to explore whether there are moderating effects of innovation resistance and technology readiness that weaken and strengthen the relationships between perceived value and intention to use QR code payments. By addressing the above objectives, the study makes several noteworthy contributions. Firstly, this study enhances the theoretical depth by proposing prospect theory and perceived value theory as underpinning theories. It is important to examine this because, the perceived value and prospect theory's contextual relevance to understanding preference in the adoption of digital QR code based mobile-payments among digital natives has not been adequately explored, despite its widespread use in other fields to explain decision making, such as economics, law, politics, and clinical practice at the individual level (Puiu et al., 2022; Khan et al., 2022). As individuals make decisions in the presence of risk and uncertainty, prospect theory provides a framework for understanding these processes. Particularly, this can shed light on the factors that influence consumers' decisions to adopt or reject digital m-payment services, such as QR code-based payments, in the midst of risk and uncertainty. This study has also integrated perceived novelty, psychological risk, security risk, complexity, usefulness, and convenience as determinants of users' value perception, which in turn impacts users' behavioural adoption of QR code payments. We argue that investigating users' intention through the lens of perceived value theory is important since consumers are more likely to make purchases of goods and services that they view as providing value to them and this concept can be used by marketing professionals to anticipate how customers will perceive their products (Ashrafi et al., 2022; de Souza and Baldanza, 2018; Ashrafi and Easmin, 2022). Secondly, this study contributes to the current body of knowledge by investigating the role of trust in determining the relationship among users' willingness to accept QR codes and their sense of value. Additionally, this research contributes by adding to the existing body of knowledge by investigating the sequential mediating impact of attitude and trust in predicting the effects of perceived value and behavioural intention among digital natives. Finally, this study adds to the theoretical depth by showing how innovation resistance acts as a moderator to weaken the impact of perceived value on the willingness to pay with a QR code and how technology readiness strengthens trust's positive impact on digital natives' adoption of QR code payments.

The study's practical significance lies in its potential to help service providers and policymakers highlight the aspects that work as an antecedent to boosting users' value perception and minimizing associated risks, so encouraging consumers to increase their willingness to accept the QR code payment method. Another practical significance of the study is for the service providers, app designers, and managers, who will benefit from a better understanding of the intricate mechanisms of the factors (perceived value, attitude, innovation resistance, and trust) involved in fostering users' behavioural adoption due to the study's critical identification of a serial mediation and moderating effect.

2. LITERATURE REVIEW AND THEORETICAL FOUNDATION

2.1. The concept of Digital Natives

The term "Digital Natives" refers to those born between 1980 and 2010 (Parry and McCarthy, 2017). The digital natives are the first generation to have grown up with an "always-on" lifestyle as most of their social interactions occur "online." This includes information gathering and consumption, purchasing, and entertainment (Khalaf, 2015). Digital natives are a well-educated and tech-savvy generation that excel when they are constantly connected to the internet (Prensky, 2001). To put it differently, this generation became the first "digital natives" due to their access to the internet and a variety of communication devices at varying price points (Hershatter and Epstein, 2010). When it comes to accessing information, digital natives have hypertext minds and do not follow a predetermined path. Instead, digital natives consume and analyze information simultaneously. On average, digital natives will have used information technology for 20,000 hours by the time they are aged 20 (Vodanovich et al., 2010). The digital world has become an integral part of the daily lives of digital natives, who are constantly connected and intertwined with information technology. According

to Vodanovich et al. (2010), technology allows digital natives to seamlessly shift between their personal and professional lives. In the modern digital era, it is crucial to understand how digital natives influence the usage, consumption, and market patterns related to new technologies. While it comes easy for digital natives to adopt new forms of media, technologies, products, and services, they also excel in persuading others to share their preferences and understand their reasoning (Filho et al., 2021; Ilhan et al., 2018). Thus, digital natives' inclination to be "always-on" will flow over into the organization, which has enormous implications for businesses and IT managers (Ng et al., 2010; Weeger et al., 2020).

2.2. Prior knowledge on QR code payment adoption amongst digital natives

QR codes, which were created in the 1990s by a Japanese company, have since expanded across the world and are now used for accessing information and making payments (Zhong and Moon, 2022). Existing literature shows that the QR-code is more prevalent among individuals during their payments in shopping, restaurants, cafes, etc., due to its contactless payment feature and digital natives find it more convenient to make payment via mobile phone compared to other generations like generation X and Y (Alamoudi, 2022; Agárdi and Alt, 2022).

Consequently, retailers in underdeveloped and developing countries also adopt the latest technologies like QR code-based payments for their business, considering customers' convenience (Jiang et al., 2021). QR code-based payment makes it a convenient payment method for digital natives since it allows them to pay via scanning a code from the merchant's device, or even the merchants can scan a code from the customer's mobile phone (Tu et al., 2021). There is existing literature that has explored users' intention towards the acceptance of m-payment but studies that have focused explicitly on digital natives are scant. For instance, Zhong and Moon (2022) investigated customers' behavioural intention towards contactless payment through perceived usefulness, perceived ease of use and security. However, how those constituents affect their perceived value leading to their intention to use QR code payment was ignored. On the other hand, although studies conducted by Bailey et al. (2017) and Leong et al. (2013) have examined the antecedents that affect users' intentions to use m-payment, they have not investigated the mediating impact of trust on users' behavioural intention. Chang et al. (2021) conducted a study on the acceptance of QR code payments and showed the mediating impact of attitude, but this study ignored the mediating impact of trust and did not focus on digital natives. Therefore, to fully comprehend digital natives' behavioural intention toward adopting QR code-based payment, it is important to keep researching what drives them to use QR code payments. Furthermore, none of these prior and existing studies have unveiled any serial mediation effects of attitude and trust nor did they take the moderating role of innovation resistance and technology readiness into account concerning the field of QR code payment acceptance amongst digital natives. Hence, we argue that, to the best of our understanding, this study is one of the first studies that aims to present and highlight the serial mediation effects of attitude and trust leading to digital natives' behavioural intention and the moderating effects on technology readiness and innovation resistance.

2.3. Theoretical foundation

In consumer behaviour research, perceived value refers to users' assessment and evaluation of their perceptions regarding the difference between what they give and receive (Zeithaml, 1988). Users' decisions are based on their perception of value, which includes an assessment of the offering's total benefits and losses, as they have difficulty estimating the objective value of goods and services (Zeithaml, 1988). In 1985, Dodds and Monroe's (1985) study examined how perceived quality, price, and perceived worth affect the inclination to buy. The study conducted by Wood and Scheer (1996) then integrated an individual's perception of risk as a component within the model, which led to the formulation of the theory of perceived value. An investigation conducted by Kim et al. (2007) examined customers' intention to adopt mobile network services with respect to perceived value through the measurement of entertainment, perceived usefulness, price, and perceived ease of use. When it comes to the use of mobile technology, Lin and Lu (2015) found that consumers' perceptions of value are influenced by aspects such as security risk and cognitive effort, service compatibility, and convenience. According to prior literature, perceived value has been shown to directly and significantly influence users' willingness to accept m-payment services (Kim et al., 2007; Tankovic and Benazic, 2018). Nevertheless, value impacts a person's attitude, interests, and behaviour (Zhao et al., 2019). Therefore, adopting the theory of perceived value was considered appropriate in examining the effect of consumers' perception of value on their attitudes, trust, and willingness to make QR code payments.

Literature on technology adoption has often examined the importance of individuals' initial condition of assessment through a reference point, which may, for instance, signify the current status. Reference dependence describes how the valuation of changes above and below the reference point,

referred to as gains and losses, varies with closeness to the reference point (Tversky and Kahneman, 1992). According to Kahneman and Tversky (1979), an individual's judgments are based on the function of value when confronted with uncertainty. When people are presented with risky choices, they are more concerned with the potential losses than the potential advantages. Thus, potential losses may exert stronger influence on users' inclinations to adopt innovative and novel services (Yang et al., 2015a). According to Wood and Scheer (1996), a critical component in the theory of perceived value is the assumption that users require some sort of reference point to assess their gains or losses. Several researchers have examined how people who use mobile services make their own frames of reference from the point of view of prospect theory (Constantiou, 2009; Yang et al., 2015a). Moreover, based on prospect theory, there is evidence that perceived risk has an interaction effect on the association amongst usage intention and perceived value (Ashrafi et al., 2021; Chiu et al., 2014). Existing literature concentrating on using QR code payments based on prospect theory is scant. Therefore, prospect theory has been incorporated as one of the theoretical foundations for examining the association between users' perception of value and risk.

Considering the above, this study seeks to investigate the behavioural intention of digital natives to adopt QR code payments using perceived value theory and prospect theory. The conceptual model aims to predict perceived value's effect on digital natives' adoption intention of QR code payments through the integration of antecedents such as convenience, perceived usefulness, perceived novelty, perceived security, psychological risk and complexity. Furthermore, we included attitude and trust as mediators and technology readiness and innovation resistance as moderators in the model. Figure 1 depicts the associations between the influencing factors and digital natives' inclination towards adopting QR code-based mobile payments.

3. RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT

3.1. Convenience

Convenience refers to the extent to which buyers think it is essential to get the job done promptly and effectively (Chang and Tseng, 2013). Convenience decreases the amount of time and energy necessary for users to purchase and own a product (Ojiagu et al., 2022; Yale, and Venkatesh, 1986). In many technology-related studies, convenience and its relevance to users' attitudes have been empirically examined. The notion of "service convenience" refers to users' evaluation of how much effort and time it requires to make a service acquisition (Berry et al., 2018; Seiders et al., 2007). Scholars have examined various convenience dimensions, including access, transaction, search, possession, evaluation, and decision-based convenience (Mpinganjira, 2015; Pham et al., 2018; Roy et al., 2016). Perceived value is customers' overall impressions of the value they obtain and receive in return for goods and services (Zeithaml, 1988). Prior studies have pointed out that many people are willing to pay a greater price for a greater level of convenience (Thuy, 2011). Similar studies conducted in various sectors, including hotels, restaurants, educational trips, health and fitness, suggest that perceived convenience impacts users' value perception (García-Fernández et al., 2018; Liébana-Cabanillas et al., 2020; Martín-Ruiz et al., 2012; Pham et al., 2018). In this study, we particularly focus on the concept of convenience in terms of how quickly and easily a transaction can be accomplished. As a result, we argue that more convenient services for the customer will raise their perceived value. By putting the findings of past research into the context of paying with QR codes, the following hypothesis is postulated:

H1: Users' perception of convenience (CNV) positively influences their perception of value (PVL)

3.2 Perceived usefulness

Weight Perceived usefulness is how much an individual believes adopting a new technology would improve their performance (Davis, 1989). If a digital solution provides additional value, such as efficiency, less work, and time savings, users are more likely to consider or utilize it. Perceived usefulness in the context of QR payment refers to the extent to which a payment mechanism enables customers to utilize mobile applications more quickly. Features like flexibility and speed can also enhance the user's perception of usefulness. Several studies have found a positive association between perceived usefulness and consumers' attitude and willingness to use novel technologies (Ashrafi et al., 2020; Ashrafi and Easmin, 2022; Lara-Rubio et al., 2020; Singh et al., 2020). In this study, the QR code mobile-payment is represented by a mobile technology or service, and before making the switch to QR code m-payment, customers will assess the advantages and disadvantages (Shankar and Datta, 2018). Consequently, the perceived usefulness of a product is considered to be a component in determining its value to users (Zhao and Bacao, 2021). Hence, we argue that if users find QR payment useful, it will augment their perception of the value with regard to using the novel payment mode: QR

code payment. In other words, perceived usefulness will enhance users' perceptions of value. Therefore, we hypothesize the following:

H2: Perceived usefulness (PUN) positively influences users' perception of value (PVL)

3.3. Perceived security

The term "perceived security" refers to the risks that may cause economic harm to data as a result of issues like data loss, theft, unauthorized access, or other types of fraud, waste, or misuse (Kalakota and Whinston, 1997). Customers have considerable grounds to be concerned about QR code payment security, given the non-physical nature of the transactions (Chang et al., 2021). Recent news stories and allegations of QR code payment fraud and hacking difficulties may catalyze a lack of trust in m-payment. Moreover, such fear of using a product could also lead to reluctance, which may negatively impact users' intentions. Given that mobile payment is a financial service, it is crucial to address security concerns affecting adoption decisions (Chang et al., 2021). However, it is essential to note that for QR code payment to function, users' information and bank accounts must be made available to third parties. Nevertheless, earlier studies conducted by Yang et al. (2015) and Kim et al. (2010) have indicated that the perception of security influences a user's attitude toward mobile payments. While prior studies showed that users' confidence in mobile payments is heavily influenced by their perception of the system's security, many scholars also pointed out that users' perception of security leads to increased trust levels through the reduction of risks and uncertainties (Khalilzadeh et al., 2017; Liébana-Cabanillas et al., 2020), arguably raising users' value perception. Therefore, considering QR codes as a mobile payment mechanism, this study considers perceived security as an essential component of perceived value. In other words, a higher perception of security will strengthen users' perception of value while using QR code payment. Thus, we postulate the following hypothesis:

H3: Perceived security (PSR) positively impacts users' perception of value (PVL)

3.4. Perceived novelty

Perceived novelty is defined as a customer's predisposition to seek out new technologies based on their desire for novelty and the intrinsic innovativeness (Lin and Filieri, 2015). According to Andreassen and Streukens (2013), new technology acceptance and readiness to attempt new things are both reflected in novelty seeking, and it is considered a major driver in the usage of new technologies and services. Scholars suggest that perceived novelty may be linked to a desire for change and a drive to learn something new (Hirschman and Holbrook, 2018; Sheth et al., 1991). Trying new technologies and services, or exploring variety, is an important part of consumers' novelty seeking, which is considered an individual's preferences for a technology. According to Bettiga and Lamberti (2017), novelty is one of the vital pillars of the users' value perception. Moreover, prior literature on consumer behavior found that user's perceived novelty impacts users' hedonic and utilitarian values (Bettiga and Lamberti, 2017; Hartman et al., 2006). Perceived novelty, based on the context of the study, is how customers view and judge the innovativeness while making payments through QR codes owing to technological advancements. Users' perception of novelty may influence their perception of a greater utilitarian value in the service usage since it catalyzes users' initial attempts at using technology-based services. Prior literature suggests that the perceived value of a new technology or service increases when users acknowledge its novelty, utility, or applicability to their needs (Im et al., 2015; Karjaluoto et al., 2019). Thus, we conjecture that users' appreciation of the value of a service is influenced by the perceived uniqueness and usefulness of a new technology (Lowe and Alpert, 2015). In other words, we anticipate that an increased level of perceived novelty in the usage of QR code payment will improve users' perceptions of value.

H4: Perceived novelty (PN) positively influence users' value perception (PVL)

3.5 Psychological risk

Innovative products and services are often associated with a high level of risk (Ashrafi et al., 2021). Psychological risk is a critical determinant of perceived risk, which is considered as a common approach for evaluation of the consumers' perception of value and acceptance of m-payment systems. Psychological risk refers to the negative influence on an individual's state of mind, for instance, unpleasant emotions and perplexity (Martins et al., 2014). In the context of QR code payments, perceived psychological risk refers to the possibility that customers will experience anxiety or tension as a result of using QR codes to make purchases. When compared to more established payment methods like online or credit card, QR code-based m-payment is a more recent and more complex innovation and, hence, inability to use the technology properly may lead to psychological stress for

users. What is more, anxiety among regular consumers over unsuccessful transactions may be exacerbated by the difficulty of storing payment evidence in users' mobile phones. According to the literature on consumer behaviour, psychological risk is a significant component influencing the consumer's decision-making. Previous literature found that psychological risk as a constituent of perceived risk negatively impacts consumers' perception of value and adoption intention (Sobti, 2019; Tzavlopoulos et al., 2019; Wei et al., 2009). In light of the findings of the previous literature, we argue that users' psychological anxiety, worry and distress will reduce their perception of value. In other words, psychological risk will have a negative impact of users' perceived value. Therefore, we hypothesize the following relationship:

H5: Psychological risk (PSR) negatively influences perceived value (PVL)

3.6 Complexity

Complexity is a term that refers to the difficulty associated with using new technologies (Beer and Mulder, 2020; Vaesen and Houkes, 2017). Complexity in this study relates to an individual's difficulty in utilizing QR code-based payment systems (Venkatesh et al., 2003, Venkatesh et al., 2012). Complexity is a measure of how complicated it is for users to operate a particular technology, and it focuses on the "given" component of an individual's value perception (Xie et al., 2021). The "given" component refers to the price individuals incur while using a QR code to make a transaction. Xie et al. (2021) argued that as users require mobile phones to make QR code payments, factors including screen size, operational restrictions, and an unfriendly user interface may make it challenging to use QR code payments. Therefore, there is a risk that users may show reluctance to engage in QR code payments if they perceive the payment mechanism as complex and convoluted (Adapa et al., 2020). Hence, the user's complexity in making the QR code payment is relevant in this context. Existing research in m-payment, smart retail technology, and sharing economy indicates that users' perceived value is connected to their perceived complexity while using a particular technology (Adapa et al., 2020; Xie et al., 2021; Yuen et al., 2020). Therefore, we argue that the complexity of using such technology will negatively impact users' perception of value. Thus, the following hypothesis is developed:

H6: The complexity (CX) of using QR code-based payment negatively influences users' perceived value (PVL)

3.7 Perceived value

Perceived value is a well-established concept in determining users' intentions in consumer behaviour research, and behavioural decision theories explain that consumers' decision-making is based on their understanding of the trade-off between utility and effort (Ashrafi et al., 2021; Payne, 1982). The widely accepted definition of perceived value is a person's overall assessment of the utility of goods and services based on their views of the given and received components (Zeithaml, 1988). To put it differently, perceived value is the outcome of a user's comparison of the perceived advantages with the perceived disadvantages (Zeithaml, 1988). Users' perceptions of the worth of commercial transactions are highly subjective since they require making evaluative judgments (Ruiz-Molina, 2009). Prior studies have shown that individuals use a variety of factors while determining the value of a product or service (Ashrafi et al., 2021; Kwak et al., 2021; Roh et al., 2022). Prior literature has revealed that consumers' perceptions of value influence their attitudes and intentions (Gordon et al., 2018; Shaw and Sergueeva, 2019). Furthermore, studies conducted on internet-based environmental contexts have found that users' perceptions of value positively influence usage intentions (Hewei and Youngsook, 2022; Yen, 2022). Hence, based on the context of QR code-based mobile payments, we argue that users' perceived value will positively affect their attitude and behavioural intention to use QR code-based payments. Therefore, the following hypotheses are proposed:

H7: Perceived value (PVL) positively impacts users' attitude (ATT) towards using QR code based mobile payments

H8: Perceived value (PVL) positively affects users' behavioural intention (BI) to make payments through QR codes

Prior literature has shown that users' perception of value is a predictor of trust (Roh et al., 2022; Sharma and Klein, 2020; Uzir et al., 2021). Chen (2013) conducted a study in the organic food consumption context and found a positive association between perceived value and trust, which was further verified by Konuk (2018) based on empirical data. According to Curvelo et al. (2019), consumers' trust and purchase intention are influenced positively by their perceptions of value. Furthermore, Abror et al. (2022) showed that trust in the product or service increases its perceived

value. By contextualizing the findings of prior literature, we argue that users' perceived value will strengthen their trust in QR payments. Thus, we hypothesize the following:

H9: Users' perceived value (PVL) positively influences their trust (TRST) in making QR code payments.

3.8 Attitude, trust and behavioural intention

Attitudes are widely characterized as users' predispositions to react positively or negatively to goods or services (Ajzen and Fishbein, 1980). In consumer behaviour research, consumers' attitudes are generally perceived as a precursor to users' behavioural intentions (Ajzen, 1985; Fishbein and Ajzen, 1977). As with consumer–technology interactions, users' attitudes toward adopting a particular technology influence their actual use of it (Davis, 1989; McLean et al., 2020). Users' purchase intentions are defined as the likelihood of a person's views and attitudes influencing their behaviours toward a specific product in the future (Paço and Lavrador, 2017). Previous studies have investigated the association between users' behavioural intention and attitudes in various contexts, including online shopping, media use, personal care, e-health and voice-assistant services, and found that users' attitudes positively affect users' behavioural intention (Delistavrou et al., 2022; Gefen et al., 2003; Holden and Karsh, 2010; Kim and Qu, 2014). Moreover, previous studies showed that attitude significantly impacts users' trust in adopting novel technologies (Dai et al., 2019; Li et al., 2006). Users are more likely to accept QR code payments if they have a positive attitude towards the adoption of new technology, which can result in enhanced trust. In other words, users' intention towards using QR code payment will be reduced if they develop a negative attitude towards using the technology. In light of the above discussion, the following hypotheses are postulated:

H10: Users' attitude (ATT) positively influences their trust (TRST) in using QR code payments

H11: Users' attitude (ATT) positively influences their willingness (BI) to use QR code payments

The importance of trust in human-machine interactions has long been recognized in consumer behaviour research (McLean et al., 2020; Pitardi and Marriott, 2021). There is a consensus among scholars that a user's trust is formed based on dependability, which is strengthened by having faith in the interactions between the technology and the user (Pitardi and Marriott, 2021). Mayer et al. (1995) argued that an entity's perceived competency, honesty, and goodness are reflected in the concept of trust. Prior literature has examined the role of trust not only online but also in an offline setting and found that users' trust is one of the key drivers that affect their behavioural intention to use any particular good or service (Pitardi and Marriott, 2021; Ye et al., 2019). Furthermore, Tandon et al. (2020) and Roh et al. (2022) showed that users who have a higher degree of trust are more likely to demonstrate a stronger behavioural intention to use those goods and services. Therefore, by contextualizing the findings of the previous literature into the context of QR code payments, we argue that users' who have higher levels of trust in QR payments will demonstrate stronger behavioural intention to make QR code payments. Thus, the following hypothesis is proposed:

H12: Trust (TRST) positively impacts users' behavioural intention (BI) to pay via QR codes

3.9 Mediating impact of Attitude and trust

In this study, we argue that attitude and trust are two vital and sequential mediators, which may illustrate the association amongst perceived value and users' behavioural intention to make QR code payments. Prior literature has investigated the influence of attitude as a mediator in determining the relationship between perceived value and behavioural intention in various contexts, including mobile banking, organic foods, and mobile commerce (Khoi et al., 2018; Sun et al., 2020). However, in the context of QR code-based payments, Chang et al. (2021) argued that users' attitude significantly impacts their behavioral intention. However, it still remains unclear whether attitude mediates the relationship between perceived value and users' behavioural intention. Moreover, existing studies have pointed out that attitudes result in increased trust amongst the users, which in turn positively affects their behavioural intentions. Although there is existing literature which reveals the mediating impact of trust in predicting the relationship between perceived value and behavioural intention (Watanabe et al., 2020; Yuen et al., 2018), it still remains unclear whether trust mediates the association between perceived value and users' behavioural intention in the context of QR code payment. In other words, while several studies in the context of mobile banking and payments have shown the impact of trust on users' behavioural intentions (Karjaluoto et al., 2021; Liébana-Cabanillas et al., 2022), trust's role as a mediator in QR code payment is limited. Furthermore, in the QR code payment literature, it remains unanswered whether the impact of perceived value on users' behavioural intention can be explained through the amalgamation of two mediating variables: attitude and trust. We propose that the greater the perceived value associated with QR code-based payments, the more likely consumers will develop

a favourable attitude toward the novel technology, which leads to a higher level of trust, which increases their inclination towards making QR code payments. Thus, based on the above discussion, the following hypotheses are proposed:

H13a: Attitude (ATT) mediates the association between users' perceived value (PVL) and behavioural intention (BI) towards making QR code payments.

H13b: Trust (TRST) mediates the association between users' perceived value (PVL) and behavioural intention (BI) towards making QR code payments.

H13c: The relationship between users' perceived value (PVL) and behavioural intention (BI) is serially mediated by users' attitude (ATT) and trust (TRST) in making QR code payments

3.10 Moderating role of innovation resistance and technology readiness

Innovation resistance is the attitude of individuals against the acceptance and usage of new technologies, resulting in a preference for the status quo (Seth et al., 2020). The evaluation of the perceived value examines if the advantages received outweigh the costs involved in the transition from the status quo to the new setting. According to Samuelson and Zeckhauser (1988), users will be more resistant to the innovation if they do not see its value. On the other hand, if users' perception of value is high, they are less likely to reject the innovation and form a more favourable attitude towards it. Therefore, changes with a higher perceived value are less likely to be resisted because people strive to maximize value in their decision-making (Sirdeshmukh et al., 2018). Prior studies have shown that in the study of behavioural intentions, it is critical to consider the role of innovation resistance since it may negatively impact the adoption of innovative technologies (Lallmahomed et al., 2017; Shahbaz et al., 2020). Several studies in the field of technology adoption identify innovation resistance as a barrier to technology adoption (Reginato et al., 2016; Sharma et al., 2017). Prior studies explored the moderating impact of innovation resistance in green supply chain management and big data analytics and found that innovation resistance negatively moderated the relationship between users' behavioural intentions and actual behaviour (Mahmood et al., 2013; Shahbaz et al., 2020). By contextualizing the results of the prior literature into the context of QR code-based payments, we postulate that innovation resistance will negatively moderate the relationship between digital natives' perceived value and their willingness to use QR code payments. Hence, the following hypothesis is proposed:

H14: The positive effect of perceived value (PVL) on behavioural intention (BI) to use QR code payments is weakened by innovation resistance (INVRT).

Technology readiness refers to an individual's degree of willingness to adapt and use new technology to fulfil professional and personal goals (Parasuraman, 2000). Technology readiness reduces an individual's anxiety and discomfort, and augments optimism and innovativeness (Liljander et al., 2006). In the internet-based environment, users' behavioural intentions are significantly influenced by technological readiness (Lam et al., 2008). Technology readiness is a precursor to a number of factors that contribute to technological acceptance, including perceived ease of use, usefulness, and trust (Elliott, 2013; Lin et al., 2007). Prior studies have shown that the adoption of new technologies is linked to a person's level of technology readiness, which significantly influences their perceived value (Lin and Chang, 2011; Pham et al., 2019). Consumers with low technology readiness drivers are more likely to be demotivated to accept new technologies in general (Yen, 2007). Hence, we hypothesize that technology readiness will moderate the impact of users' trust on their behavioural intention to adopt QR code payments. It is also argued that technology readiness will positively moderate the relationship between users' perceived value and their inclination towards using QR code payments. Therefore, the following hypotheses are proposed:

H15a: The positive effect of trust (TRST) on behavioural intention (BI) to use QR code payments is strengthened by technology readiness (TGRN).

H15b: The positive effect of perceived value (PVL) on behavioural intention (BI) to use QR code payments is strengthened by technology readiness (TGRN).

4. RESEARCH METHOD

4.1 Data collection and sampling procedure

Data were drawn from the digital natives of Bangladesh using a purposive sampling technique. The participants were provided with the survey form only if they met two criteria: i. participants were born between 1980 and 2010, and ii. participants must have used or heard of using QR code payments

for transaction purposes. The age categorization has been selected as per the prior literature, where digital natives are identified as individuals who were born between 1980 and 2010 (Parry and McCarthy, 2017; Prensky, 2001; Jensen, 2008; Friedl and Verčič, 2011; Creighton, 2018). Since the samples were drawn deliberately and focused on digital natives of Bangladesh, the purposive sampling strategy was considered more acceptable and relevant (Alkassim et al., 2016). The respondents were notified of their confidentiality and were allowed to withdraw from the survey at any time, even after completing it. The questionnaire consisted of two parts, and the first part included items adapted from prior validated research on digital natives and their payment intention. The second part of the questionnaire was based on the respondents' demographic profiles, which contained information regarding their age, gender, educational background, and monthly income. According to Kline (2015), the minimum sample size for SEM should be 375. Therefore, in this study, a sufficient number of questionnaires was distributed to ensure the reliability and validity of the responses. The questionnaires were distributed to 550 target respondents using both offline and online platforms. Overall, 487 responses were collected from both online and offline platforms. However, some responses contained missing values, which were purposefully ignored. In the end, a total of 387 complete responses were obtained, resulting in a response rate of 70.36 percent.

Figure 1: Research framework
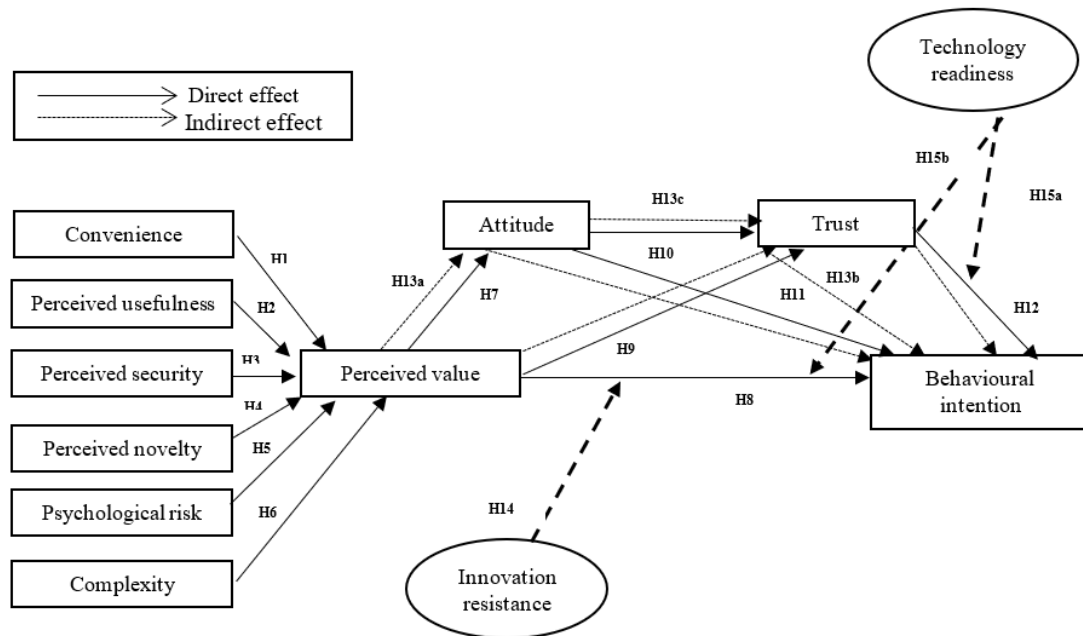
4.2 Development of measurement

Survey items were developed from previous studies in order to determine the components influencing digital natives' adoption of QR code-based payments and to develop the content validity. To verify the validity and reliability of the items and scales, quantitative analysis has been employed through partial least squares structural equation modelling (PLS-SEM). The values of Cronbach alpha for all of the exogenous and endogenous variables ranged between 0.706 and 0.935. For the purpose of measuring convenience, a four-item scale has been adapted from Liébana-Cabanillas et al. (2022) and Pal et al. (2015). While four items from Wang et al. (2015) have been adapted to measure the perceived usefulness, three items from the studies of Karahanna et al. (1999), Lin and Huang (2012), and Moore and Benbasat (1991) were adapted to assess complexity. The five items related to perceived security have been adapted from the study of Chen and Barnes (2007). Psychological risk, consisting of three items, has been adapted from Featherman and Pavlou (2003), and users' perception of novelty was measured by using three items from Wells et al.'s (2010) study. While four items with regard to individuals' perception of value were drawn from the work of Kim et al. (2007), the attitude was assessed by using four items from Saleem et al.'s (2022) study. For the purpose of assessing trust, three items were drawn from Kim et al. (2008) and Featherman and Pavlou's (2003) study. The behavioural intention was assessed by adapting three items drawn from Chen and Barnes's (2007) work. A five-point Likert scale was used to assess the degree of agreement with regard to the given statements and

included two anchors (1-strongly disagree and 5-strongly agree). The reason for using a five-point Likert scale is that it ensures a higher response rate and is more user-friendly (Elhoushy and Jang, 2021).

Table 1: Validity and reliability of the constructs

	Cronbach alpha	Composite reliability	AVE
ATT	0.854	0.91	0.772
BI	0.917	0.942	0.82
CX	0.85	0.855	0.691
CNV	0.83	0.894	0.75
PN	0.801	0.817	0.712
PCR	0.706	0.723	0.543
PSR	0.789	0.841	0.699
PUN	0.729	0.778	0.5863
PVL	0.775	0.785	0.69
TRST	0.935	0.936	0.886

Note.; CX, complexity; CNV, Convenience; PUN, Perceived usefulness; PN, Perceived novelty; PCR Perceived security; PCR, Psychological risk; TRST, Trust; PVL, Perceived value; ATT, Attitude; BI, Behavioural intention

5. DATA ANALYSIS AND RESULTS

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the study hypotheses through Smart PLS 3.33. For the purpose of achieving more precision and robustness, the PLS-SEM technique has been used in this study (Risher and Hair, 2017). In analyzing data, PLS-SEM has considerable benefits in certain aspects (Joe F. Hair et al., 2020). For instance, PLS-SEM efficiently assesses data that has complex hierarchical models with a small sample size and is also appropriate if the acquired data does not have a normal distribution (Shiau et al., 2019; Wang et al., 2019). According to Hair et al. (2019), PLS-SEM should be used when the structural model is complex and includes many constructs, indicators, and model relationships. When the research objectives are to better understand increasing complexity by exploring theoretical extensions of established theories, PLS-SEM should be used by researchers (Hair et al., 2019). In this study, we argue that the structural model is complex and since the objective was to explore the intricate relationships among the constructs, selecting PLS-SEM was deemed appropriate (Hair et al., 2019). Thus, this study employed PLS-SEM for the purpose of validating the hypotheses of the study. Overall, a two-step method by (Gefen et al., 2000) has been followed. First, the evaluation of the measurement model was carried out by analyzing the convergent and discriminant validity through the examination of the values with regard to Cronbach alpha, composite reliability (CR), average variance extracted (AVE), and Heterotraint-monotrait (HTMT) ratio values. Next, the structural model was assessed using path analysis and coefficient of determination.

5.1 Descriptive statistics

The results provided a detailed description of the respondents' demographics. Males made up 55.1 percent of the valid sample, while females made up 44.9 percent. More than 80% of the participants had previously used QR codes for their payment-related purposes. Overall, respondents were educated (75.3 percent had a college/university degree or higher) and relatively young (81.6 percent were between the ages of 18 and 40).

5.2 Measurement model

The measurement model was evaluated by examining the construct's internal consistency followed by its validity and reliability (Hair et al., 2020). Internal consistency and reliability were assessed using Cronbach's alpha and composite reliability (CR) values. While all of the values of Cronbach's alpha were between 0.706 and 0.935, the composite reliability values were between 0.723 and 0.936. The values were greater than the required benchmark of 0.70 (Henseler, 2018; Hair et al., 2017), indicating that the measurement model was both reliable and internally consistent. Next, the average variance extracted (AVE) was examined for each construct to ensure convergent validity. The AVE values for all the constructs met the required benchmark of 0.50 Hair et al. (2019). Moreover, all items of each of the constructs were examined to identify the outer loadings, and the results showed that the outer loadings of the items were greater than 0.7 (Hair et al., 2012). Fornell and Larcker's (1981) criteria (see table 2) and HTMT ratio (see table 3) were used to assess discriminant validity. Findings revealed that all of the constructs' square root of average variance extracted (SAVE) values were greater compared to

their other corresponding constructs' correlations, indicating that the measurement model had no discriminant validity concerns. Additionally, discriminant validity of the research model was examined via the HTMT ratio values. The results indicated that the values of the HTMT ratio were below the necessary benchmark of 0.8, indicating that the model has sufficient discriminant validity (Hair et al., 2016; Henseler et al., 2015). Overall, the results showed that all of the values for the constructs were above the benchmarks and in the required range. It is therefore argued that the measurement model used to assess the research model's components was adequate.

Table 2: Assessment of discriminant validity (Fornell-Larcker criterion)

	ATT	BI	CX	CNV	PN	PSR	PCR	PUN	PV	TRST
ATT	0.879									
BI	0.599	0.895								
CX	0.592	0.574	0.831							
CNV	0.56	0.63	0.55	0.866						
PN	0.453	0.611	0.445	0.502	0.844					
PSR	0.632	0.819	0.561	0.704	0.602	0.836				
PCR	0.533	0.602	0.466	0.539	0.453	0.502	0.831			
PUN	0.466	0.533	0.571	0.582	0.531	0.504	0.574	0.599		
PVL	0.437	0.595	0.622	0.693	0.607	0.499	0.763	0.532	0.632	
TRT	0.715	0.768	0.633	0.687	0.51	0.709	0.648	0.83	0.741	0.912

Note.; CX, complexity; CNV, Convenience; PUN, Perceived usefulness; PN, Perceived novelty; PCR Perceived security; PCR, Psychological risk; TRST, Trust; PVL, Perceived value; ATT, Attitude; BI, Behavioural intention

Table 3: Assessment of discriminant validity (HTMT ratio)

	ATT	BI	CX	CNV	PN	PSR	PCR	PUN	PV	TRST
ATT										
BI	0.661									
CX	0.677	0.648								
CNV	0.639	0.706	0.63							
PN	0.533	0.711	0.544	0.595						
PSR	0.72	0.756	0.676	0.809	0.736					
PCR	0.512	0.412	0.566	0.632	0.601	0.701	0.744			
PUN	0.622	0.674	0.744	0.754	0.69	0.674	0.614	0.723		
PVL	0.516	0.694	0.761	0.849	0.752	0.609	0.535	0.706	0.801	
TRT	0.711	0.723	0.704	0.699	0.598	0.808	0.683	0.601	0.622	0.825

Note.; CX, complexity; CNV, Convenience; PUN, Perceived usefulness; PN, Perceived novelty; PCR Perceived security; PCR, Psychological risk; TRST, Trust; PVL, Perceived value; ATT, Attitude; BI, Behavioural intention

5.3 Common method bias:

For the purpose of examining the effect of common method bias in our study, Harman's single factor test was conducted. According to Podsakoff et al. (2003), when the total variance of a single factor exceeds 50%, this indicates that the data and the empirical outcomes of the study are influenced by common method bias (CMB). The total variance in our study for a single factor was 45.76%. When all the factors remained present in our model, the percentage of the variance explained was 75.0, suggesting that there were no issues related to the presence of CMB in our study (Molinillo et al., 2020). Additionally, all of the inner VIF values were examined, and findings dictated that all the values were less than the required threshold of 3.3 (Kock, 2015), which also confirms that no issues regarding common method bias were detected.

5.4 Evaluation of the structural model:

After the examination of the internal consistency and validity, PLS-SEM was performed to analyze and validate the hypotheses of the structural model. The reason for choosing PLS-SEM is that it can analyze complex hierarchical models and assess both direct and indirect relationships between the exogenous and endogenous variables while having a small sample size when the data is not normally distributed (Henseler, 2018). Additionally, we have used the bootstrapping method, which indicates the results of a significant level of the coefficients, for the purpose of identifying the significance of the path coefficients for the PLS-SEM analysis. The results showed that out of the proposed 11 hypotheses, most of the hypotheses were supported. As shown in table 4, convenience (β_1= 0.462, t value=5.624, p value= 0.001), perceived usefulness (β_2= 0.203, t value =2.212, p value= 0.017), perceived security (β_3= 0.261, t value=2.78, p value= 0.003) and perceived novelty (β_4= 0.308, t value=3.730, p value= 0.001) positively and significantly influenced users' perceived value, supporting H1, H2, H3 and H4. The effects of complexity (β_5= -0.261, t value=2.493, p value= 0.006) and psychological risk (β_6= -0.218, t value=3. 12, p value= 0.001) on users' perceived value were both negative and significant. Hence, H5 and H6 were supported. As per our expectation, the influence of perceived value on users' attitude (β_7= 0.437, t value=7.086, p value= 0.001) and behavioural intention was significant (β_8= 0.251, t value=3.434, p value= 0.000), confirming H7 and H8. The impact of perceived value (β_9= 0.280, t value=3.893, p value= 0.001) on users' trust was significant. Therefore, H9 was supported. However, to our surprise, the results showed that attitude (β_{11}= 0.077, t value=0.073, p value= 0.223) did not influence users' behavioural intention to adopt QR code payment but significantly influenced users' trust (β_{10}= 0.251, t value=3.434, p value= 0.000). Hence, H10 was supported while H11 was not supported. Nevertheless, trust (β_{12}= 0.577, t value=5.067, p value= 0.001) revealed a positive and significant impact on behavioural intention of users in adopting QR code payments, supporting H12.

Table 4: Hypothesized relationships

Hypothesis	Path from	Path to	Coefficient	t value	p value	Remarks	f square
H1	CNV	PVL	0.462	5.624	0.001	Supported	0.213
H2	PUN	PVL	0.203	2.126	0.017	Supported	0.241
H3	PSR	PVL	0.308	3.78	0.003	Supported	0.187
H4	PN	PVL	0.261	2.63	0.001	Supported	0.182
H5	PCR	PVL	-0.218	1.12	0.313	Not Supported	0.223
H6	CX	PVL	-0.261	2.493	0.006	Supported	0.153
H7	PVL	ATT	0.437	7.086	0.001	Supported	2.45
H8	PVL	BI	0.251	3.434	0.001	Supported	0.323
H9	PVL	TRST	0.28	3.893	0.001	Supported	0.267
H10	ATT	TRST	0.592	5.2	0.001	Supported	0.312
H11	ATT	BI	0.077	0.073	0.223	Not supported	0.183
H12	TRST	BI	0.577	5.067	0.001	Supported	0.246

Note.; CX, complexity; CNV, Convenience; PUN, Perceived usefulness; PN, Perceived novelty; PSR Perceived security; PCR, Psychological risk; TRST, Trust; PVL, Perceived value; ATT, Attitude; BI, Behavioural intention

Figure 2: Path analysis results
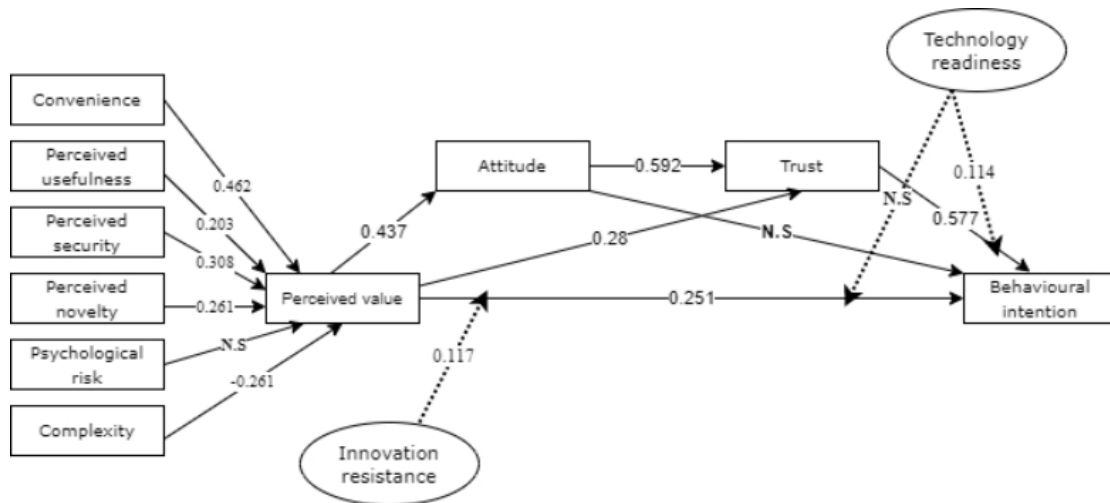
According to the results of PLS-SEM, the coefficient path model was found to be compatible with the data (Shiau et al., 2019). The results showed that 68% of the variance in perceived value was explained by convenience, perceived usefulness, complexity, psychological risk, perceived novelty, and perceived security. Additionally, digital natives' intention to use QR code payments was explained by the perceived value at 64.85%. The results also showed that 38.5% of the variance in digital natives' attitude was predicted by their value perception, while 33.9% of the variance in trust was explained by the attitudes of digital natives towards adopting QR code payments. This study also examined the predictive relevance and size of the effects for the endogenous variables. Using Stone–Geisser's Q^2 value, the research model was found to be predictively relevant since the Q^2 values of the endogenous variables exceeded 0 (Hair et al., 2017). In a similar vein, exogenous variables showed medium, large, and small influences on the endogenous variables, in accordance with Cohen's (1988) suggestion.

Table 5: Values of R Square and predictive relevance

Variable	R^2	Adjusted R^2	Predictive relevance (Q^2)
ATT	0.392	0.385	0.306
BI	0.652	0.6485	0.460
PVL	0.71	0.68	0.397
TRST	0.351	0.339	0.339

Note. ATT, Attitude; BI, Behavioural intention; PVL, Perceived value; TRST, Trust.

Next, the mediation effects were tested. Table 6 shows the indirect relationships of the coefficient paths. Based on the results of PLS-SEM, it was observed that attitude (β_{13a}= 0.034, t value=0.669, p value= 0.242) did not mediate the relationships between perceived value and behavioural intention to adopt QR code payments. Therefore, H13a was not supported. However, the results revealed that trust (β_{13b}= 0.161, t value=3.03, p value= 0.001) both positively and significantly mediated the association between users' perception of value and inclination to use QR payments. Hence, H13b was supported. Moreover, interestingly, as per table 6, the results showed that users' attitude and trust serially mediated (Perceived value->Attitude->Trust->Behavioural intention) the association among digital natives' intention to adopt QR code payments and their perception of value (β_{13c}= 0.149, t value=3.03, p value= 0.001), confirming H13c.

Table 6: Results of Specific Indirect Effects

Hypothesis	Parameters	Coefficient	t value	p value	Remarks	Type of mediation
H13a	PVL->ATT->BI	0.034	0.699	0.242	No	No mediation
H13b	PVL->TRST->BI	0.161	3.03	0.001	Yes	Partial mediation
H13c	PVL->ATT->TRST->BI	0.149	3.04	0.001	Yes	Serial mediation

*Note. ATT, Attitude; BI, Behavioural intention; PVL, Perceived value; TRST, Trust.*

The moderating effects of innovation resistance and technology readiness were also tested. The product indicator approach has been used to test the interrelations and interaction effects within constructs and therefore was used to verify the moderating hypotheses (Chin et al., 2003). The results of the moderating relationship effects showed that innovation resistance weakened the positive effect of perceived value on consumers' intention to adopt QR code payments (β_{14}= 0.117, t=3.276, p= 0.001). Therefore, H14 was supported. Moreover, Table 7 also showed that technology readiness (β_{15a}= 0.114, t=3.126, p= 0.001) strengthened the positive effect of trust on behavioural intention, confirming H15a. On the other hand, according to the findings, technology readiness did not moderate (β_{15b}= 0.012, t=1.276, p= 0.105) the relationship of perceived value and adoption intention. Hence, H15b was not supported. The findings suggest that the association between perceived value and intention to pay through QR codes will be weaker for individuals who have a higher level of innovation resistance. Therefore, an individual's perception of value in QR code payments will have less impact on their adoption if their innovation resistance is high compared to users whose innovation resistance is low. The results also suggested that for people with a higher level of technology readiness, the relationship between trust and behavioural intention will be strengthened. In other words, a person's trust in QR code payments will have a stronger effect on their intention to use them if they are more ready to use technology than if they are not prepared to use such technology.

Table 7: Moderating impact of innovation resistance and technology readiness

Hypothesis	Relationship	Beta	t value	p value	Remarks
H14	PVL*INVRT-> BI	0.117	3.276	0.001	Supported
H15a	TRST*TGRN->BI	0.114	3.126	0.001	Supported
H15b	PVL*TGRN->BI	0.012	1.276	0.105	Not supported

Note. PVL, Perceived value; BI, Behavioural intention, INVRT, Innovation resistance; TGRN, Technology readiness.

Figure 3: Moderating impact of innovation resistance and technology readiness
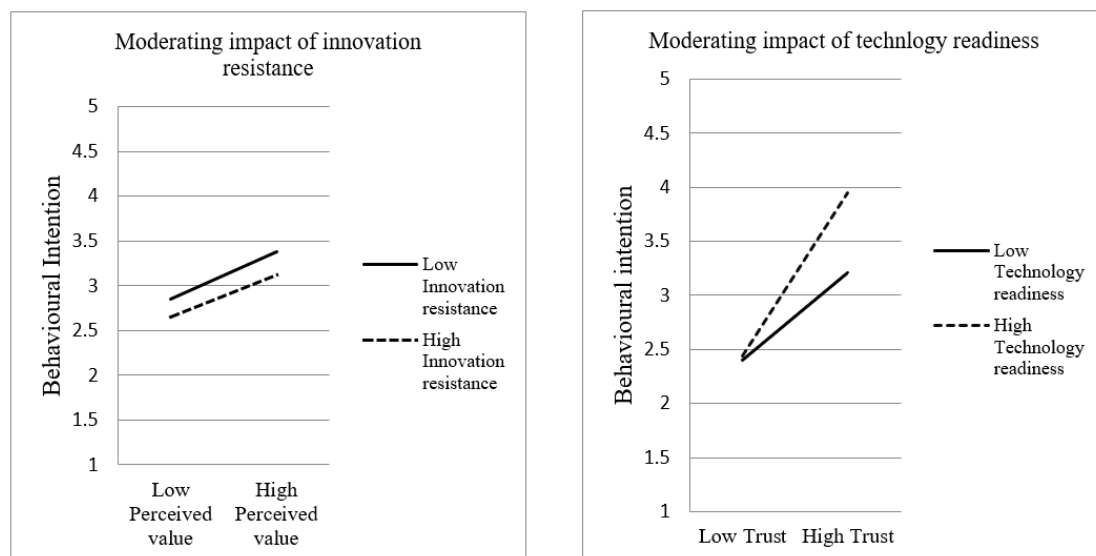
6. DISCUSSION

The results of the study showed that convenience and perceived usefulness significantly impacted users' perceived value. The results are in line with the studies of Ashrafi et al. (2021) and Jebarajakirthy and Shankar (2021), suggesting that digital natives' perception of value towards QR code payment may be enhanced if they find the QR code payment mechanism to be convenient for the purpose of making transactions and useful in their daily lives. Additionally, perceived novelty and perceived security influence users' perceived value and imply that when users consider the QR code payment method as a new or novel technology, it enhances their perception of value. On the other hand, an individual's perceived security was revealed to strengthen users' value perception. These findings are in line with the findings of Chang et al. (2021) and Prodanova et al. (2019) and imply that digital natives' perceptions of novelty and security are vital determinants of their perceived value. Moreover, complexity negatively impacted users' perception of value and is consistent with the findings of Barbu et al. (2021), implying that if users find the payment method complex, it will reduce their perception of value. However, the psychological risk did not impact users' perceived value, which contrasts with the findings of Yang et al. (2015). One of the reasons might be that digital natives may find QR code payments easy to use and do not think that making payments through QR codes will result in any psychological discomfort. The results on the antecedents of users' perception of value demonstrated that convenience exhibits the strongest influence on perceived value, followed by perceived security, suggesting that convenience and perceived security are the most important sources of perceived value. Moreover, the results revealed the positive impact of perceived value on attitude, indicating that when digital natives form evaluative judgments towards QR code payments, their perception of value can make a difference. However, perceived value also positively influenced trust, which indicates that the user's perception of value is a crucial determinant for the purpose of generating trust. The findings are in accordance with recent studies where perceived value catalyzes users' attitudes and trust (Abror et al., 2022; Chang et al., 2021). Notably, perceived value was shown to have a salient impact on behavioural intention to adopt QR code payments. This suggests that apart from having an influence on users' attitude and trust, their perception of value is a salient determinant that exerts influence on the inclination of users towards making QR code payments, which is in line with the previous studies conducted in the field of mobile banking (Prodanova et al., 2021; Yang et al., 2015). The results highlighted how users make their decision on the adoption of QR code payments based on their perceived value through estimating and assessing the benefits and potential losses of using such novel technology. This study also highlights how digital natives make their decisions based on the value function of QR code payments despite facing uncertainty (i.e., security concerns and psychological risk). Therefore, these results demonstrate how prospect theory, along with perceived value theory, can be combined to enhance and advance the theoretical depth of the adoption of QR code payments (Zeithaml, 1988; Kahneman and Tversky, 1979). However, to our surprise, attitudes did not exert any influence on behavioural intention to adopt QR code payments. This suggests that, in our case, attitude was not an antecedent and motivator in fostering the digital natives' adoption intention, which contrasts with the findings of Chang et al. (2021), undertaken in the field of QR code payment acceptance, and indicates how an individual does not always rely heavily on their evaluative judgments with regard to the acceptance and adoption of QR code payments. Furthermore, attitude was revealed to positively impact the trust of digital natives in adopting QR code payments, indicating that holding a more positive attitude will foster and augment digital natives' trust in making QR code payments and this makes a notable contribution to the existing body of literature in the field of QR code payment acceptance behaviour of digital natives. In addition to that, digital natives' trust levels influence their inclination towards adopting the QR code payment method, which is in line with the findings of Suebtimrat and Vonguai (2021). Findings also demonstrated that trust was comparatively a stronger predictor than perceived value in determining digital natives' intention to adopt the QR code payment mechanism. This suggests that in order to pay with QR codes, customers need to have faith in the technology. One of the possible explanations for this outcome is that users have been assured by multiple channels that QR code payments are safe, trustworthy, and reliable since they are tech-savvy and stay connected to an internet-based environment (Pitardi and Marriott, 2021; Prensky, 2001). Additionally, individuals' who have a higher degree of trust in QR codes may also perceive them as both hedonistic and useful, strengthening their trust in the payment system (Pitardi and Marriott, 2021). The results of the study indicated that while attitude did not mediate the relationship between perceived value and adoption intention, trust positively and significantly mediated the relationship between perceived value and adoption intention of QR code payments. Hence, these findings explore and highlight the vital role of trust in predicting digital natives' intention to adopt QR code payments,

exhibiting how perceived value may develop a sense of trust within individuals, eventually fostering their adoption intention. A possible explanation for these results may be that trust in a payment system is more important than one's evaluative judgments toward it (Singh et al., 2015).

To the best of our knowledge and understanding, this is one of the first studies that has highlighted trust as a mediating variable in predicting the relationship between perceived value and QR code payment adoption intention, and, hence, arguably, this study extends and adds to the theoretical depth of the mobile-payment literature. Next, the study showed the serial mediation effect of attitude and trust in predicting digital natives' intention to adopt QR code payments. This implies that although attitude did not mediate the relationship between perceived value and behavioural intention, it had a distinct role in forming trust, which ultimately fosters digital natives' intention to adopt QR code payment. Therefore, the possible interference of attitude cannot be ruled out, and both attitude and trust are shown to serially mediate the relationships between perceived value and behavioural intention to adopt QR code payments. Furthermore, this study showed the moderation effects of innovation resistance and technology readiness. The findings demonstrated that innovation resistance weakened the positive impact of perceived value on behavioural intention. In other words, individuals with a lower level of innovation resistance will have a stronger association between perceived value and intention. On the other hand, technology readiness was revealed to moderate the association among digital natives' intention and trust towards using QR code payment systems, indicating that for people with high technology readiness, the association between perceived value and behavioural intention will be stronger. To put it differently, technology resistance increased the positive impact of trust on digital natives' intentions to pay via the QR code system.

7. IMPLICATIONS

7.1 Theoretical implications

The study enhances our understanding of users' value perception, attitude, trust, and behavioural intention to adopt QR code payments and adds to the existing body of literature in various ways. Firstly, this study explores the multidimensional role of perceived value in predicting users' attitudes, trust, and willingness to adopt QR code payment methods. In the field of mobile-based QR code payment, prior studies have explored the influence of perceived value on users' trust, attitude, and behavioural intention as a uni-dimensional construct. The findings explored the role of users' value perception in impacting users' trust, attitude, and behavioural intention to use QR code payment. Hence, this study adds to the existing body of literature by highlighting perceived value as a multidimensional construct in the field of QR code-based payments. Secondly, this study has investigated the role of perceived value, attitude and trust in digital natives' willingness to pay via QR codes. To the best of our knowledge, no studies have highlighted the digital natives' behavioural intention to use QR code payments in earlier studies. Therefore, the findings of our study enhance the theoretical depth and extend the current body of the literature by developing a comprehensive understanding of the behavioural intention of digital natives in adopting QR code payments. Thirdly, prior studies that have highlighted the role of attitude as a mediating variable in the field of QR code payment adoption and mobile banking are limited (Djayapranata and Setyawan, 2021; Chang et al., 2021). However, very little is known regarding the mediating impact of attitude (Chang et al., 2021) and trust in the field of QR code payments. Therefore, the findings enhance the theoretical depth and add to the existing body of the literature by investigating the mediating impact of attitudes and trust on digital natives' intention to use QR code payments. Earlier studies in the field of QR code payments have not yet explored the serial mediation effect of attitude and trust in predicting digital natives' intention to use QR code payments. Therefore, this study deepens our understanding and enhances the current literature by showing how attitude and trust serially mediate the relationship between perceived value and users' intention to make payments via QR codes. Another contribution of the study is the identification of the components of perceived value in the QR code payment adoption literature. The findings of the study enrich the theoretical depth by exploring how convenience, perceived usefulness, novelty, and security increase users' value perception. In addition to that, the results deepen our understanding of the way in which technological complexity and psychological risk reduce users' perception of value, which in turn affects users' attitude and trust, therefore influencing their behavioural intention to adopt QR code payments. This study makes a notable contribution to the existing literature by showing how innovation resistance and technology readiness act as moderating variables in strengthening and weakening the relationships between intention and perceived value as well as intention and trust.

7.2 Practical implications

The empirical findings of this study provide many practical and managerial implications. Firstly, this study investigated the factors associated with users' perceived value. Service providers and policymakers can emphasize the factors that act as a precursor to enhancing users' value perception and minimize the associated risks to motivate them to foster their willingness to adopt the QR code payment method. The service providers may also develop attractive promotional strategies such as discounts and cashback and develop innovative, useful, and effective functions of QR code payment to motivate digital natives to use the QR code payment method (Chang et al., 2021). Secondly, the results imply that psychological risk and technological complexity reduce users' perception of value and provide useful and meaningful insights for service providers and policymakers. Hence, service providers should take extensive measures to minimize users' doubts and mitigate psychological risks through the promotion of features concerning privacy protection, account security, and charging policies for QR code payments. Service providers and designers of the applications need to emphasize the visual attractiveness, ease of use, functional attributes, and strong verification steps in order to mitigate the psychological risks and enhance users' acceptance of the usage of QR code technology for making payments. Moreover, the study's findings imply that attitude was the most vital factor in users' acceptance of QR code technology. Although service providers are confident in their technology, not all users are familiar with using such advanced technology for payment-related purposes. Hence, app designers and service providers may add a "how to use" section and may add a step-by-step visual representation or a video on "how to use" so that users develop positive attitudes toward the adoption of QR code payment methods, as adopting such measures would reduce users' security, privacy, and financial concerns. Additionally, developers may also educate users on the understanding and operation skills of QR codes and communicate a positive perception and image of QR code payments, which ultimately would enhance consumers' knowledge of QR code payments by increasing their perception of value and trust (Yang et al., 2014). The intricate relationships amongst the variables and the serial mediation effect identified in the study will assist the designers, service providers, and managers in understanding the underlying mechanisms that exist amongst value, attitude, and trust in fostering users' behavioural adoption. Henceforth, service providers need to realize how important perceived value and attitude are in building users' trust, which encourages users to use QR code-based payments. The results of the moderation effect highlighted the intricate relationships between innovation resistance and technology resistance with digital natives' perception of value, trust, and behavioural intention. Therefore, marketers, service providers, and policymakers should take effective measures to reduce users' resistance to innovation with regard to the adoption of QR payments by making effortful attempts to enhance their technology readiness.

8. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Although this study offers some novel insights into the adoption behaviour of digital natives with regard to the usage of QR code payments, it has several limitations. Firstly, the samples are drawn from the digital natives of Bangladesh, and this might not represent the opinions of all the digital natives of other developed countries. Therefore, further studies can be conducted in other developed countries to discover whether there are regional differences in the digital natives' adoption behaviour in adopting QR code payments. Secondly, this study has taken only digital natives' perceptions into consideration in adopting QR code payments, and hence, it would be interesting to see whether there are any differences in adoption intentions between digital natives and people from other generations, such as millennials and generation X, through a multi-group analysis. Thirdly, there is a considerable debate over the relevance of different components in different cultures. As a result, it would be interesting to look at how digital natives acquire trust and form attitudes in various geographical locations. This study employed the PLS-SEM technique to evaluate the hypotheses of the study; future studies may adopt a mixed-method approach (quantitative and qualitative) to enhance the robustness of the findings.

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