

Understanding QR Code Mobile Payment Adoption in Jamaica: A University Community Perspective

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Abstract— The rise of mobile payments and digital wallets has revolutionized digital payment methods for businesses and consumers worldwide. This study focuses on Jamaica, a country with 82% internet usage penetration among its population and 103 mobile cellular subscriptions per 100 persons in 2021, surpassing the world average of 63%. Despite these promising figures, the adoption rate of mobile payment solutions remains relatively low. Adopting the Unified Theory of Acceptance and Use of Technology (UTAUT), this study investigates the adoption patterns of mobile payment systems, specifically QR code payments, among 91 participants, predominantly young adults and women, at the University of Technology, Jamaica. Our preliminary findings suggest a growing acceptance of mobile payment technologies among the educated youth yet highlights a gap between technological accessibility and actual usage. This paper delves into the factors driving and hindering mobile payment adoption, such as public awareness, perceptions of security, technical challenges and perceived utility. It offers valuable insights for policymakers, educators, and financial technology stakeholders. The study offers insights into the challenges and opportunities in promoting digital financial services in developing economies. It also underscores the importance of tailored strategies that address specific barriers to mobile payment adoption, thereby enhancing financial inclusion and bridging the digital divide in emerging economies like Jamaica.

Keywords: *Mobile Payment Adoption, QR Code Payments, Unified Theory of Acceptance and Use of Technology (UTAUT), Mobile Commerce, Financial Inclusion*

I. INTRODUCTION

While there has been a rapid increase in mobile technology around the world, with more than half of an estimated 5 billion people with mobile devices owning smartphones, there is wide disparity of smartphone ownership across countries based on income levels, age groups and education levels [1]. It was found that smartphone ownership was higher in advanced economies than emerging economies, among younger people, and among those better-educated [1].

Jamaica's population of approximately 2.8 million, with 72% between the ages 15 - 64, has 82% of Jamaicans using the Internet compared to the world average at 63% and out of every 100 persons, there are 103 mobile cellular subscriptions [2]. The high rates of mobile and internet usage in Jamaica suggest a technologically engaged population. Jamaica is well-positioned for mobile payment adoption, potentially aligning

more closely with advanced economies in terms of digital accessibility.

In 2023, the government of Jamaica introduced JamDex, a central bank digital currency, by partnering with regulated financial entities, to offer an alternative to cash that would be cheaper for the public to conduct business [3]. Access to Jamdex is currently offered through one privately owned mobile wallet, Lynk, with the aim of adding other privately owned mobile wallets to the market. Lynk was developed to target the country's unbanked population aiming to offer greater levels of financial inclusion and launched in December 2021[4]. The platform's initial growth with 100,000 customers and over 1,300 micro-merchants within the first five months post-launch was indicative of a strong market interest and initial trust in the service [4]. The gap between the 220,000 app downloads and 100,000 active users may suggest initial curiosity that may not have fully converted into regular usage, highlighting potential barriers to adoption. The increase to 400,000 app downloads by September 2022, yet a user base of 200,000 - 230,000 by August 2023, again suggests a conversion challenge [4][5].

Despite the public having access to smartphones the adoption rate of Lynk, a bank agnostic payment wallet, has been relatively low as it only attracted approximately 200k users within 15 months of launching [6]. Jamaica has tried to implement other instances of mobile wallets in the past. Jamaica. The Jamaica Co-operative Credit Union League (JCCUL) discontinued its mobile wallet, Conec, in 2017 after being in the market since 2013 citing "market readiness" and the need for public education [7].

The background context provided above highlights the need to better understand the drivers of mobile payment adoption given the country's look towards a cashless society. Although there is a high penetration of smartphones and mobile subscriptions in Jamaica, the adoption of mobile payments, including QR code payments, remains relatively low. This study aims to investigate the factors contributing to this discrepancy by exploring potential barriers to mobile payment adoption. Through a detailed analysis, we seek to understand the underlying reasons for the hesitancy toward mobile payments and assess the likelihood of future adoption of QR code-based payment systems. Our research will provide valuable insights that will facilitate a greater understanding of mobile payment adoption in the Jamaican context, offering potential solutions to enhance adoption rates.

II. LITERATURE REVIEW

A. Mobile Payments

Ref. [8] classified mobile wallets as prepaid instruments (PPI). Ref. [9] define a mobile payment (m-payment) as a versatile mobile service that enables consumers to procure products and services via smartphone use. Ref. [10] alternately define mobile payments as any payment method in which business transactions are conducted using a mobile device, supported by emerging technologies, such as the Internet of Things, Near Field Communication (NFC) and smart devices. One of the objectives of m-payment is to provide effective and efficient services to the customers, and an option that providers can apply to provide effective and efficient services is by using QR Codes [11].

Mobile wallets, as highlighted by Ref. [8], allow users to preload an amount of money that can be used to make online and offline payments via a credit card, a debit card, or internet banking. These can further be used for multi-channel transactions, for example, consumer to consumer, consumer to business, consumer to machine and consumer to online [8]. The potential for mobile payments will likely be realized when consumers and retailers are willing to adopt this payment method universally.

Ref. [12] define mobile payments as any payment service conducted through a mobile device, encompassing both remote and physical transactions. They include point-of-sales services like near-field communication (NFC) and sound wave-based payments, which facilitate credit/debit card transactions via a secure portal. Additionally, mobile wallets (m-wallets) and quick response (QR) codes support both in-store and remote payments, with m-wallets allowing direct online transactions from a stored balance, and QR codes integrating payment details through various banking and store apps. Other remote payment services include internet payments, SMS, and mobile banking [12].

Ref. [13], who reviewed several studies related to consumer adoption of mobile payments, found several factors including, perceived ease of use, perceived usefulness, performance expectancy and social influence, to influence consumer adoption of mobile payments, while a compelling user experience, usability and enjoyment were found to drive long-term usage. In Indonesia, the factors found to influence mobile payments adoption were habit, facilitating condition, social risks, performance level and social influence [14].

A 2023 study conducted by Ref. [15] surveyed 1003 respondents in which the study revealed that 42.9% of respondents had not used a digital payment method in over 12 months. Comparatively, almost all upper (98.5% of 68) and middle-income (91.1% of 112) of the survey participants had used at least one method in the previous 12 months with another 67.4% (of 258) of working-class and 40.7% (of 565) from the lower income demographic doing the same. Access to the internet and smartphone ownership was seen as universal. 97.2% of respondents indicated that they used a cell phone to access the internet. The Internet is primarily accessed at home (81.2%) and via mobile internet (47.9%). Only 11.8% of 1003 respondents owned a mobile wallet, while the highest mobile

wallet usage was among 18-29 year olds at 20.5% of 312. When analyzed by socio-economic levels, 30% (of 112) of middle-income respondents was the highest group to own a mobile wallet [15].

B. QR Code Payments

Ref. [12], as discussed earlier, stated that mobile payments can be broken down in two categories. Ref. [16] categorize mobile payments into proximity payments and remote payments, with proximity (or contactless or close) payments using Near-Field Communications (NFC) technology and QR Codes (Quick Response Code). The authors explain that NFC would require a contactless reader to communicate between devices, while instead of a reader for communicating between devices, QR Codes would use a smartphone camera to scan the QR Code. Remote (or distant), as explained by Ref [16], have SMS Banking and USSD (Unstructured Supplementary Service Data) as examples, where an SMS or USSD instruction is sent remotely from the smartphone to a server for processing. Therefore, a Quick Response (QR) Code Payment can be seen as a method of contactless payment, where a QR code is scanned to initiate payment.

Ref. [17] after surveying 207 participants concluded that information quality, which measures the value perceived by a user of the output produced by a website or application, and system quality, features which system users care about, such as system availability, reliability, adaptability, and response time, positively affect QR code m-payment customer experience. In [18], the authors found that trust was the most influential factor for QR codes adoption, with performance expectancy, effort expectancy, hedonic motivation, and habit also having positive significant relationships. Ref [17] posited that QR code m-payment was a widely used and growing method of payment globally, particularly in China, India, and other markets with transactions accounting for about half of the total point of sales (POS) payments in China and expecting to reach \$2.71 Trillion worldwide by 2025 due to their acceptance as a faster, easier, and safer mobile payment options.

C. Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology (UTAUT) is based on eight Technology Acceptance theories or Behavior Intention theories, including the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model (MM), the Theory of Planned Behavior (TPB), a model combining TAM and TPB (C-TAM- TPB), the model of PC utilization, the Innovation Diffusion Theory (IDT), and the Social Cognitive Theory (SCT). The Unified Theory of Acceptance and Use of Technology (UTAUT) is a more comprehensive and complete model than the eight reviewed and is used to study the process of technology acceptance and the factors that promote or hinder potential adopters from adopting innovation.

The UTAUT model has four established constructs that are determinants of behavioral intention. This intention refers to an individual's willingness to engage in a specific action and the four constructs are performance expectancy, effort expectancy, social influence, and facilitating conditions [19].

Ref. [20] proposed UTAUT2, extending the original UTAUT model to include more constructs and is specifically tailored to the context of consumer technology acceptance and use. UTAUT2 incorporates the original four constructs of UTAUT and adds three new constructs: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions. Additional constructs in UTAUT2 are Hedonic Motivation, described as fun or pleasure obtained from using a technology, Price Value, seen as the "consumer's cognitive tradeoff between the perceived benefits of the applications and the monetary cost of using them", and Habit, "the extent to which people tend to perform behaviors automatically because of learning" [20].

Both Ref. [12] and Ref. [21] discuss several factors influencing the adoption and recommendation of mobile wallets. These factors include ease of use, usefulness, perceived risk, attitude, intention to use, satisfaction, and recommendation of use, which looks at the user's willingness and satisfaction with the use of the technology and endorsing its use to others. The UTAUT2 model proposed by both sets of authors provides a robust framework for analyzing user intentions and behaviors in the context of digital wallet adoption.

D. Adoption of QR Code Payments

A study in Indonesia [11], investigated the key factors encouraging millennials to use QR codes for payment process. The study focused on four variables: mobile usefulness, trust, attitude, and behavioral intention. After surveying 165 Indonesian millennials, the study revealed that usefulness had a direct positive effect on using QR codes in mobile payments, and trust had the largest indirect effect mediated by attitude [11].

Ref. [10] used a modified version of the UTAUT model which integrates 'attitude', 'perceived security', and 'perceived benefits' as new constructs and excludes 'social influence'. After surveying 424 respondents, the study [10] concluded that customers' intent to adopt QR Code payment was enhanced by perceived usefulness, perceived benefits, and subjective norms. Potential customers appeared to have the intent to use QR code payments if they first perceived it would improve the efficiency of the transactions of other applications, if it reduced their transaction cost and if they received a discount for their usage of it or the usage of it by other people important to them [10].

A majority of 4,157 respondents from various countries across the world, including (United States, United Kingdom, Germany, France, Netherlands China and Japan) indicated they had used QR code for payments for the first in early 2021[22]. More than eight out of 10 respondents had now at least once in their life performed such a transaction. This was roughly twice as high as a figure from a previous survey held in September 2020. In 2020, there was more usage of QR codes in Europe

than in Latin America, however it is projected that the Latin American region will overtake Europe significantly in 2025 with 0.01 and 0.02 USD billion in 2024 and 2025 respectively with Europe not expected to break the 0.01 USD billion mark in any of those years. However, forecasts predict that the Americas - including North America - will not come close to the market size of QR transactions in the Far East & China [23].

Based on the literature reviewed, we have developed the following research questions:

RQ1: How do technical challenges, such as poor speed and performance, inadequate camera quality, insufficient storage capacity, and inconsistent data connection, influence individuals' willingness to adopt mobile payments, including QR code payments?

RQ2: What is the relationship between perceived security and the intention to adopt QR code-based mobile payments?

RQ3: How do subjective norms influence the intention to adopt QR code-based mobile payments?

III. METHODOLOGY AND DATA

This study uses survey data collected from July 2023 to August 2023. The questionnaire was designed to ascertain the likelihood of using QR code mobile payment as a method of payment and was administered online and in person. The survey was conducted using convenient sampling and was distributed to students and staff (academic, administrative, technical, ancillary) of the University of Technology, Jamaica, who are at least 18 years old and have been exposed to technology. The questionnaire includes a total of twenty-nine (29) questions, of which, two (2) are open-ended and six (6) were related to demographics. Using R and R studio, cross tabulation procedures were performed on responses to selected questions and presented in tables.

Data was collected using the Qualtrics platform. The study targeted 400 persons. One hundred and two (102) responses were collected online while 27 responses were collected physically and entered in Qualtrics, for a total of 129 attempted surveys. The responses were exported to Microsoft Excel. All responses that were not completed were removed leaving 91 valid responses.

New columns to indicate "Likelihood to Adopt Qr Codes payments" and "Public Exposure to QR Codes" were created to assist with cross tabulation. For Likelihood to Adopt Qr Codes payments responses "Likely" and "Very Likely" were combined as "Yes" while "Neutral", "Unlikely" and "Very Unlikely" were combined as "No". For "Public Exposure to QR Codes" the answers to questions related to "I use QR codes for purposes other than payments" and "I encounter QR codes at merchants or businesses." were combined where "never" represented "no", while all other responses represented "yes"

IV. FINDINGS AND RESULTS

The findings provide valuable insights into the factors influencing the likelihood of adopting QR code payments among respondents. The analysis reveals both significant and

less significant barriers based on the percentages relative to the overall study and within each variable category.

A. Demographic Profile

Table 1: Cross Tabulation for Survey respondents using Age and Gender

Gender	Age Band						Sum
	18 - 25	26 - 30	31 - 35	36 - 40	41 - 50	51 +	
Female	31	5	5	5	9	7	62
Male	20	3	0	1	1	1	26
Unspecified	2	1	0	0	0	0	3
Sum	53	9	5	6	10	8	91

B. Technical Barriers to Adoption

RQ1: How do technical challenges, such as poor speed and performance, inadequate camera quality, insufficient storage capacity, and inconsistent data connection, influence individuals' willingness to adopt mobile payments, including QR code payments?

Table 2: Cross Tabulation for survey respondents using technical challenges against likelihood to adopt QR Code Payments

Variable	QR Code Payment Adoption				Sum	
	Likely		Unlikely		No	Yes
	No	Yes	No	Yes		
Inexperienced With Smartphone	47	1	43	0	90	1
Low-Spec Phone	48	0	41	2	89	2
Speed and Performance of device	37	11	29	14	66	25
Camera Quality of the device	43	5	39	4	82	9
Storage Capacity on the device	41	7	36	7	77	14
Consistent data connection	16	32	23	20	39	52
None	37	11	29	14	66	25
	48		43		91	
	53%		47%			

Smartphone Experience:

Table 2 indicates a strong correlation between smartphone experience and adoption. Almost all respondents (90 out of 91) considered themselves experienced with smartphones, and within this group 47 out of 90 or 52.2% of respondents indicated they were likely to adopt QR code payments, whereas 47.7% (43 out of 90) of respondents, although experienced, were unlikely to adopt.

Low-Spec Phones:

There were only 2 respondents with low-spec phones and therefore did not provide a good data set to provide useful insights. The 2 respondents were unlikely to adopt. However, 52.7% of respondents with medium to high spec phones are likely to adopt QR code payments, while 45.1% with the same phone specifications are unlikely to adopt.

The fact that 45.1% of medium to high spec phone users are also unlikely to adopt suggests that factors other than phone specifications are influencing their decision.

Consistent Data Connection:

Consistent data connection issues are one of the most significant barriers to mobile payments, with 57% of respondents identifying it as a potential barrier. With 25.3% of respondents without data connection issues still unlikely to adopt, it suggests that there may be other significant barriers to adoption beyond just connection reliability.

Other observations include 16 out of 91 respondents (17.6%) without data connection issues are likely to adopt. Twenty (20) out of 91 respondents (22%) with data connection issues are unlikely to adopt, while 23 out of 91 respondents (25.3%) without data connection issues are unlikely to adopt.

Storage Capacity:

About 15% of the participants (14 out of 91) indicated that the storage capacity on their phones could be a challenge to using mobile payments. While 53% of respondents without storage capacity concerns are likely to adopt (41 out of 77) and 46.8% are unlikely to adopt. Half of the respondents with storage concerns are likely to adopt.

When asked about the most convenient channel to utilize mobile payments, 79% (72 out of 91) respondents indicated a preference to download and use an app. A small share of the sample, 12.5%, who would prefer to download an app (9 out of 72) indicated that storage capacity would be a challenge.

1. No Technical Challenges:

Only 27% of respondents indicated that they wouldn't face a technical challenge with their device when adopting mobile payments. 44% of respondents without any technical challenges (11 out of 25) are likely to adopt, while 56% are unlikely to adopt. Among those who identified challenges, 56% were still willing to adopt QR Code Payments.

The absence of technical challenges does not correlate with a higher likelihood of adoption, but a substantial percentage of those without challenges are still likely to adopt. This indicates that while technical challenges are a barrier, they are not the only factor affecting adoption decisions.

C. Security Perception and Adoption of QR Code Payments:

RQ2: What is the relationship between perceived security and the intention to adopt QR code-based mobile payments?

Table 3: Cross Tabulation for survey respondents using "Familiarity with the security of QR code payments" and the perception that "mobile payment is secure" against likelihood to adopt QR Code Payments

Variable	QR Code Payment Adoption				Sum	
	Likely		Unlikely		No	Yes
	No	Yes	No	Yes		
Familiar with QR Code Security	38	10	38	5	76	15
Mobile Payment is Secure	24	24	27	16	51	40
	48		43		91	
	53%		47%			

Table 4: A multi cross tabulation for survey respondents using “Familiarity with the security of QR code payments”, the perception that “mobile payment is secure” and likeliness to adopt QR Code Payments

QR Code Payment Adoption	Familiar with QR Code Security	Mobile Payment is Secure	Frequency	Percentage
Likely	No	No	20	21.98%
	Yes	No	4	4.40%
	No	Yes	18	19.78%
	Yes	Yes	6	6.59%
Unlikely	No	No	25	27.47%
	Yes	No	2	2.20%
	No	Yes	13	14.29%
	Yes	Yes	3	3.30%

2. Mobile Payment Security Perception:

Twenty-four (24) out of 91 respondents (26.4%) indicated they would adopt QR code payments despite believing mobile payments are not secure. Equally, 24 out of 91 respondents (26.4%) who believe mobile payments are secure indicated they would adopt QR code payments.

Twenty-seven (27) out of 91 respondents (29.7%) who do not believe mobile payments are secure indicated they would not adopt QR code payments. Conversely, 16 out of 91 respondents (17.6%) who believe mobile payments are secure indicated they would not adopt QR code payments.

3. Familiar with the Security of QR Code Payments:

Thirty-eight (38) out of 91 respondents (41.8%) indicated they would adopt QR code payments even though they are not familiar with QR code security. 10 out of 91 respondents (11%) who are familiar with QR code security indicated they would adopt QR code payments.

Fifteen respondents (16%) indicated that they were familiar with QR code payments security and 5 out of 15 (33.33%) indicated they would not adopt QR code payments.

4. Mobile Payments Security (The Wider Group):

The data reveals that security perceptions of mobile payments as a whole influence adoption. Specifically, 26.4% of respondents who believe mobile payments are secure are likely to adopt QR code payments. However, it is important to note that a significant portion (29.7%) of respondents who do not believe in the security of mobile payments are unlikely to adopt QR code payments.

5. QR Code Security (The Specific Group):

Familiarity with QR code security appears to play a role in adoption. Among those familiar with QR code security (15 out of 91), 67% are likely to adopt QR code payments. Comparatively, 33.3% of those that have familiarity with QR Code payment security are unlikely to adopt, indicating that other factors could still limit their adoption.

Conversely, 41.8% of respondents who are not familiar with QR code security still indicated they would adopt QR code payments, suggesting that their decision may be driven by general perceptions of mobile payment security rather than specific knowledge about QR codes.

D. Public Exposure to QR Codes and Adoption of QR Code Payments:

RQ3: How do subjective norms influence the intention to adopt QR code-based mobile payments?

Table 5: The table presents data on the adoption of QR code payments in relation to familiarity with QR payments and public exposure to QR codes

QR Code Payment Adoption	Familiar - QR Payments	Public Exposure QR Codes	Frequency	Percentage
Likely	No	No	5	5.49%
	Yes	No	1	1.10%
	No	Yes	17	18.68%
	Yes	Yes	25	27.47%
Unlikely	No	No	4	4.40%
	Yes	No	2	2.20%
	No	Yes	20	21.98%
	Yes	Yes	17	18.68%

Eighty six percent (86.8%) of respondents have been previously publicly exposed to QR Codes in some capacity. Public exposure to QR Codes could encourage adoption, as 22% (17 of 79) of the publicly exposed group although not familiar with QR code Payments would adopt. However, 25% (20 out of 79) though publicly exposed to QR codes would not likely adopt.

When persons were both publicly exposed and familiar with QR code payments they were more likely to adopt (32%, 25 out of 79) as opposed to 22% (17 of 79) in the same group.

For respondents who are not familiar with QR payments but have been exposed to QR codes in public, the adoption rate is higher (18.68%) compared to those who are not exposed (5.49%)

V. DISCUSSION

Given the rise in mobile payments across the world, this study aimed to examine QR code mobile payment adoption in Jamaica, a country with a high penetration rate of smartphones and mobile subscriptions. Our study has revealed several factors influencing the adoption highlighting technical barriers, perception of security and the public exposure to QR codes.

A. Technical Barriers

The data suggests that while present technical challenges are barriers, they are not insurmountable and do not deter the intent of future adoption. Another interesting insight was that while low-spec phones do not appear to be a major barrier, a significant portion of users with medium to high spec phones are still unlikely to adopt, indicating other influencing factors. Users' decisions to adopt QR code payments are likely influenced by a combination of factors, with technical challenges playing a role but not necessarily the dominant one.

Another consideration is the storage capacity on the mobile devices. The scanning of the QR code to extract and process payments most likely will require installing a mobile app taking up storage. In cases where storage is a limitation, there will be a competition for share of storage. Users will have to prioritize what is stored on the phone that is most useful to them, for example communications apps, pictures and videos, music, games among other things.

As observed in Ref. [15], users have access to the devices that make QR code payments possible, but there is limited access to mobile internet to take advantage of the technology. To increase adoption, the zero rating of mobile data for mobile payment solutions through partnership with telecommunication companies (teleco) could be considered. From a private sector standpoint, mobile payment providers can explore zero-rating by possibly incorporating a charge into a pay-as-you-use model. From a government standpoint, through state resources, they could arrange with telecos to provide free internet traffic for registered mobile payment wallets.

B. Security

Although 83.5% (76 out of 91) respondents were not familiar with security implemented by QR Code Payments, 24% of respondents in that group (18 out of 76) thought mobile payments were secure and were likely to adopt QR code payments. This suggests that their decision to adopt may be influenced more by their overall comfort or trust in mobile payments rather than specific knowledge about QR code security.

The data suggests that there might be a "trust spillover" effect where trust in the broader concept of mobile payments might lead users to adopt QR code payments even if they lack specific knowledge about its security. This could be because users assume that if mobile payments, in general, are secure, then QR code payments being a subset of mobile payment are secure as well. This is consistent with [24] who concluded that while users valued aspects of security relating to mobile payments, they perceived no risks in using mobile payments via QR codes. This is an area that could be further explored in future work.

In [18], the authors emphasize the need to build and maintain trust in the QR code payment platform's ability to protect user information and provide a secure transaction environment as a means of encouraging widespread adoption. This departs from Ref [14] which noted that trust did not significantly affect mobile payments intention in Indonesia. One interesting finding in our study was the 26.4% of respondents who considered adopting QR code payments despite believing mobile payments were not secure. This suggests that these individuals were risk-taking, perhaps believing the benefits would outweigh potential security concerns. Generally, for mobile payments, the literature has highlighted overcoming fraud-related concerns as paramount to building trust [13], as users often worry about data breaches and the security and privacy of their financial information [13], [18],[25].

Interestingly, among those familiar with QR code security, only 67% are likely to adopt QR code payments, while 33.3% are unlikely to adopt. This could indicate that while familiarity with QR code security can enhance confidence, it might also lead to greater scrutiny and awareness of potential risks, which in turn, could deter adoption.

C. Exposure

The data supports the hypothesis that public exposure to QR codes can make individuals more comfortable with adopting QR payments, even if they are not familiar with the technology.

Specifically, the jump in adoption likelihood from 5.49% (no public exposure) to 18.68% (with public exposure) among those unfamiliar with QR payments indicates that seeing QR codes in use can positively influence adoption.

Familiarity with QR payments alone, without public exposure, seems insufficient to encourage adoption. The low adoption rate of 1.10% among this group suggests that familiarity needs to be complemented by public exposure to have a significant impact.

The combination of familiarity and public exposure results in the highest adoption rate (27.47%), demonstrating that these two factors together are most effective in promoting QR code payment adoption. As suggested by Ref. [18], if the challenges related to trust, awareness and infrastructure are overcome, it could lead to higher adoption of QR code technology.

VI. CONCLUSION AND FUTURE WORK

This study adopted the UTAUT2 framework to investigate several factors related to the adoption of QR-code based mobile payment adoption within the context of Jamaica's high rates of internet and mobile penetration rates. The preliminary results showed that there is a growing acceptance of mobile payment technologies among the educated youth, but a gap exists between technological accessibility and actual usage. These findings provide useful insights that can encourage stakeholders to consider ways in which they can increase the adoption of mobile payments while overcoming the technical, security and exposure challenges related to its potential use.

Several limitations exist for this study. Given that the survey respondents were predominantly from one university community, representing a small convenient sample size, the results of the study cannot be generalized and should be interpreted with caution. Also, while the overall research work addresses most of the factors outlined in the UTAUT2 model, this paper focused on those relating to technical barriers, perception of security and the public exposure to QR codes and their influence on adoption. Future work could involve greater scope to include other potentially significant factors, such as cultural attitudes and other regulatory or economic considerations. Methodologically, we could seek to increase the validity of the results through an increased, representative sample size, random sampling techniques and mixed data collection methods, and greater statistical analyses with additional variables.

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