App atmospherics, personality factors and technology acceptance behaviour towards the adoption of mobile banking apps – a systematic literature review

Atmosféricos de aplicativos, fatores de personalidade e comportamento de aceitação de tecnologia para a adoção de aplicativos bancários móveis - uma revisão sistemática da literatura

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Tanmoy Deb\textsuperscript{2}
KDV Prasad\textsuperscript{3}

Abstract
Mobile banking apps have become increasingly popular in recent years, providing customers with a convenient and secure way to manage their finances. These apps have transformed the way we conduct financial transactions and have revolutionized the banking industry. However, despite the widespread adoption of mobile banking apps, there is still a significant gap in our understanding of the factors that influence customers' acceptance of these apps.

This systematic literature review aims to provide a comprehensive overview of the current state of research in this area based on app atmospherics, personality factors, and technology acceptance behaviour. The review analysed 40 papers published between 2019 to 2023 to synthesize the evidence and identify key factors that influence the adoption and intention to use mobile banking apps. One of the key findings of the review is that app atmospherics, including the visual design, functionality, and interactivity of mobile banking apps, significantly influence customers' technology acceptance behaviour. Customers are more

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likely to adopt mobile banking apps that are visually appealing, user-friendly, and interactive. Additionally, technology acceptance behaviour, such as perceived usefulness, perceived ease of use, and perceived trustworthiness, also plays a crucial role in shaping customers’ attitudes towards mobile banking apps. The review also identified personality factors such as emotions and attitudes that significantly influence the adoption and intention to use mobile banking apps. Customers who are open to change, innovative, and willing to take risks are more likely to adopt mobile banking apps than those who are not. Additionally, customer demographics, cultural differences, and technological advancements were identified as key factors that affect the adoption of mobile banking apps. Banks and financial institutions must keep up with technological advancements to stay ahead of the competition and provide customers with the latest and most innovative technologies. This study has identified the key research gaps and suggest a theoretical framework for future research agenda.

Keywords: Mobile Banking Apps. App Atmospherics. Technology Acceptance Behaviour. Customer Adoption.

Resumo
Os aplicativos bancários móveis têm se tornado cada vez mais populares nos últimos anos, oferecendo aos clientes uma maneira conveniente e segura de gerenciar suas finanças. Esses aplicativos transformaram a maneira como realizamos transações financeiras e revolucionaram o setor bancário. No entanto, apesar da adoção generalizada de aplicativos bancários móveis, ainda há uma lacuna significativa em nossa compreensão dos fatores que influenciam a aceitação desses aplicativos pelos clientes. Esta revisão sistemática da literatura tem como objetivo fornecer uma visão abrangente do estado atual da pesquisa nesta área com base na atmosfera do aplicativo, fatores de personalidade e comportamento de aceitação da tecnologia. A revisão analisou 40 artigos publicados entre 2019 e 2023 para sintetizar as evidências e identificar os principais fatores que influenciam a adoção e a intenção de usar aplicativos bancários móveis. Uma das principais conclusões da análise é que a atmosfera dos aplicativos, incluindo o design visual, a funcionalidade e a interatividade dos aplicativos bancários móveis, influencia significativamente o comportamento de aceitação da tecnologia dos clientes. Os clientes estão mais propensos a adotar aplicativos bancários móveis que são visualmente atraentes, de fácil utilização e interativos. Além disso, o comportamento de aceitação da tecnologia, como a percepção da utilidade, a percepção da facilidade de uso e a percepção da confiabilidade, também desempenha um papel crucial na formação das atitudes dos clientes em relação aos
**Introduction**

The banking sector in India has seen exponential growth over the years and has become a significant contributor to the country's GDP. According to the Reserve Bank of India (RBI), the banking and financial sector contributed approximately 7.5% to India's GDP in 2020 (Reserve Bank of India, 2020). The growth of the banking sector in India has been primarily driven by the adoption of digital banking channels such as mobile banking. Mobile banking has evolved as a convenient and accessible mode of banking in India, with the introduction of mobile banking applications. It has made banking services accessible to customers from the comfort of their own homes, reduced the need for customers to visit bank branches, and provided 24x7 banking services. The rise in smartphone penetration and internet usage in India has resulted in the growth of the mobile banking sector. As of March 2022, there were over 160 mobile banking applications available in India, catering to over 1.5 billion mobile users. However, despite the growth in the mobile banking sector, banks face significant challenges in making customers adopt mobile banking applications. Issues such as security concerns, lack of awareness, and technological challenges have hindered the adoption of mobile banking applications. It is crucial for banks to understand the factors that influence customers to use mobile banking applications to overcome these challenges and enhance their overall market growth in the country. Several research papers have been published on the factors that influence customers to use mobile banking applications. For instance, a study conducted by Hassan et al. (2014) highlighted that perceived usefulness,
perceived ease of use, and trust are the most significant factors that influence the adoption of mobile banking applications among customers.

The mobile banking market in India is expected to grow at a CAGR of 22.2% during the period of 2021-2026, driven by factors such as increasing adoption of smartphones and the internet, availability of affordable data plans, and government initiatives towards a cashless economy (The Express Wire, 2022). With around 160 mobile banking applications available in the market, banks need to improve customer adoption of mobile banking services by addressing challenges such as lack of awareness and security concerns.

Various studies have been conducted on the factors affecting the adoption of mobile banking apps. Souiden, Ladhari, and Chaouali (2021) focused on identifying the main theories and models used to explain consumers' adoption of mobile banking. Similarly, Alkhowaiter (2020) only focused on the factors influencing adoption in Gulf countries, while Shaikh and Karjaluoto (2015) had a narrow focus on consumer acceptance and adoption of mobile banking, and Ha et al. (2012) conducted a comprehensive literature review and found the most commonly used drivers of mobile banking (m-banking) adoption. The study conducted by Sahu and Deshmukh (2020) evaluated the literature on mobile banking adoption and arrived at the conclusion that various factors, including security concerns, perceived risk, complexity, technical issues, and insufficient knowledge, are barriers to the adoption of mobile banking. This highlights the need to address these issues to promote the adoption of mobile banking. It is important to recognize that these challenges must be overcome to achieve wider adoption of mobile banking technology. While these studies identified key drivers of adoption, they did not consider psychological and behavioural factors together that may influence adoption. Therefore, there is a need for further in-depth review that considers both psychological and behavioural factors and include other significant factors as well, which can provide a more comprehensive understanding of the adoption of mobile banking apps.

**Review Methodology**

In this paper, we apply a systematic literature review process which is a research method that involves the systematic and rigorous analysis of existing research on a specific topic. The goal of this paper is to synthesize the existing evidence on key factors that influence mobile banking customers to use and adopt using mobile banking apps and to identify gaps in the literature and provide recommendations for future research. The
following steps were involved in the proposed qualitative review methodology of this systematic literature review. These steps include:

Defining the research questions: The first step in the systematic literature review process is to define the research questions that the review aims to address. This helps to ensure that the review is focused and relevant, and that the review process is structured around a set of well-defined objectives. (Petticrew & Roberts, 2006).

<table>
<thead>
<tr>
<th>Research Questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the current state of the literature on factors influencing customer adoption on mobile banking?</td>
</tr>
<tr>
<td>2. Do app atmospherics factors, personality factors and technology acceptance behaviour impact customer adoption of mobile banking?</td>
</tr>
<tr>
<td>3. What are the gaps in the current literature on factors affecting customer adoption on mobile banking, and what are the potential directions for future research in this area?</td>
</tr>
</tbody>
</table>

**Box 1: Research Questions**

Source: Authors creation

1. **Searching for Relevant Literature:** Based on the research questions, we have carried out search for relevant literature. Research papers from academic databases such as PubMed, Google Scholar, or Scopus etc were retrieved.

<table>
<thead>
<tr>
<th>Table 1 - Keywords used for Searching Relevant Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>“App atmospherics” &amp; “customer adoption of mobile banking”,</td>
</tr>
<tr>
<td>“Personality factors” &amp; “customer adoption of mobile banking”</td>
</tr>
<tr>
<td>“Technology acceptance behaviour” &amp; “customer adoption of mobile banking”</td>
</tr>
</tbody>
</table>

**Table 1 - Keywords used for Searching Relevant Articles**

Source: Authors creation

2. **Selecting studies for inclusion:** The next step is to select studies for inclusion in the review. This may involve defining inclusion and exclusion criteria, such as the type of study design, the population of interest, and the relevance of the study to the research questions (Petticrew & Roberts, 2006). Studies published in peer reviewed journals and studies published between 2019 to 2022 are only included in this study.

3. Extracting data from selected studies: Once the studies for inclusion have been identified, the next step is to extract data from these studies. This step involved extracting data such as the study design, sample size, and key findings (Petticrew & Roberts, 2006).

4. Analysing and synthesizing the data: The final step in the systematic literature review process is to analyse and synthesize the data from the selected studies. This
step involved using techniques such as meta-analysis or narrative synthesis to identify trends and patterns in the data (Petticrew & Roberts, 2006).

The PRISMA flow chart is a tool that helps researchers to track and document the process of identifying, selecting, and reviewing research studies for inclusion in a systematic review. In this paper, we have followed the steps as per PRISMA flow chart as shown in the Figure 1:

![Figure 1: PRISMA Flow Chart](image)

Following these steps in a systematic and transparent manner that helped us to ensure the reliability and validity of the review, and allows us to draw valid conclusions based on the evidence identified.

### Data Synthesis

In the systematic literature review of App Atmospherics, Personality Factors, Technology Acceptance Behaviour and other significant factors towards the Adoption of Mobile Banking Apps, data synthesis plays a crucial role. This step involves synthesizing
the data from the selected studies to identify trends and patterns in the literature related to the research questions. The findings of the synthesis will be presented in the following tables.

3.1 App Atmospherics

In general, ‘Atmospherics’ refers to the physical elements that create a certain atmosphere or environment in a retail setting. These elements include lighting, layout, music, colors, and other sensory stimuli that can impact a customer's behaviour and perception of a store. In the context of mobile banking apps, app atmospherics refer to the design and user experience of the app, which can influence a customer's intention to use the app and their actual usage behaviour (Hsieh, Lee, & Tseng, 2021). App atmospherics refer to the visual, auditory, and sensory cues used in mobile applications to create a particular mood or atmosphere that enhances the user experience. These cues can include everything from the design and layout of the app to the use of sounds and animations, and are designed to create a cohesive and engaging experience for the user. By creating a positive and memorable atmosphere, app atmospherics can help to increase user satisfaction and drive adoption of the app.

Research has shown that the design and user experience of a mobile banking app are critical factors in determining its success. Customers are more likely to use an app that is easy to navigate, visually appealing, and provides a seamless user experience. In order to create an effective mobile banking app, banks must consider a number of key factors related to app atmospherics. One of the most important elements of app atmospherics is the visual design of the app. The app should be visually appealing, with a clean and modern design that is easy to navigate. The use of colors, images, and typography can all impact a customer's perception of the app, and can help to create a positive and engaging user experience (Lee, & Kim, 2019).

Another key factor in app atmospherics is the ease of use of the app. The app should be intuitive and easy to navigate, with clear instructions and prompts that guide customers through the various features and functions of the app. The use of icons, buttons, and other visual cues can help to make the app more user-friendly and accessible to customers of all ages and backgrounds.

App atmospherics also play a role in creating a sense of trust and security among customers. Mobile banking apps deal with sensitive financial information, and customers need to feel confident that their data is being protected. The app should provide clear information about security measures, such as encryption and two-factor authentication, and
should be designed in a way that reassures customers that their data is safe and secure. The use of animations, sound effects, and other sensory stimuli can also impact a customer's perception of the app. These elements can be used to create a more engaging and immersive user experience and can help to make the app more memorable and distinctive. However, it is important to use these elements judiciously, as too much sensory stimulation can be overwhelming and distracting for customers. App atmospherics also play a role in shaping customer perceptions of the bank as a whole. A well-designed and user-friendly app can help to create a positive impression of the bank, and can help to build customer loyalty and trust. On the other hand, a poorly designed or difficult-to-use app can damage the bank's reputation and lead to customer frustration and disengagement.

<table>
<thead>
<tr>
<th>App Atmospherics</th>
<th>App Atmospherics Elements</th>
<th>Effects on App Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Elements</td>
<td>• Aesthetics&lt;br&gt;• Usability&lt;br&gt;• Symmetry&lt;br&gt;• Complexity&lt;br&gt;• Visual Appeal</td>
<td>User experience, increasing user engagement, and fostering brand loyalty</td>
</tr>
<tr>
<td>Sensory Cues</td>
<td>• Music&lt;br&gt;• Color&lt;br&gt;• Images</td>
<td>Users’ emotional responses, attitudes, and behaviour towards the app</td>
</tr>
<tr>
<td>Visual Design Elements</td>
<td>• Composition&lt;br&gt;• Repetition&lt;br&gt;• Shape</td>
<td>Users’ perceptions and attitudes towards the app, leading to increased adoption and usage</td>
</tr>
<tr>
<td>Functionality</td>
<td>• Consumer Appeal</td>
<td>Higher subjective ratings</td>
</tr>
<tr>
<td>Sensory Cues with Design Elements</td>
<td>• Casing of text&lt;br&gt;• Adapting to page scrolling techniques i.e., horizontal, or vertical scrolling&lt;br&gt;• Size and design aspect of buttons and text boxes&lt;br&gt;• Display of bank logo&lt;br&gt;• Integration of “help” and “search” option.</td>
<td>Experiential emotions of pleasure, arousal, and dominance, leading to increased usage intention and brand relationship building</td>
</tr>
<tr>
<td>Design Features</td>
<td>• 18 Design features of Magrath and McCormick’s (2013) mobile marketing design framework</td>
<td>User’s Stickiness intention</td>
</tr>
</tbody>
</table>

Table 2: App Atmospherics Constructs and its Effects on App Users
Source: Authors creation
<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Key Findings</th>
<th>Methodology</th>
<th>Audience</th>
<th>Target App</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wang &amp; Hsu</td>
<td>2020</td>
<td>The study analyzes the emotional impact of shape and aesthetics in smartwatch interface design.</td>
<td>Laboratory</td>
<td>Young people</td>
<td>Apple and Samsung smartwatches</td>
</tr>
<tr>
<td>Martinez &amp; McAndrews</td>
<td>2021</td>
<td>Design features on mobile do not directly impact user stickiness, but rather influence emotional responses of pleasure and arousal which mediate the relationship between design features and stickiness intentions, while dominance has no mediating effects.</td>
<td>Stimulus-Organism-Response model and Conditional Process Modelling</td>
<td>Women aged 18-36 years</td>
<td>Retail apps</td>
</tr>
<tr>
<td>Chaouali et al.</td>
<td>2020</td>
<td>The design aesthetics of mobile banking apps positively impact customers’ values and adoption intention, with happiness moderating the relationship between design aesthetics and these values.</td>
<td>Quantitative</td>
<td>281 bank customers</td>
<td>Mobile banking applications</td>
</tr>
<tr>
<td>Lau et al.</td>
<td>2021</td>
<td>Objective app quality and subjective consumer ratings were generally high. App functionality and aesthetics were highly consistent with consumer appeal, whereas evidence-based components were not.</td>
<td>Quantitative</td>
<td>General population</td>
<td>Mobile health apps available on App Store iOS and Google Play</td>
</tr>
<tr>
<td>Bhandari, Chang, &amp; Neben</td>
<td>2019</td>
<td>Emotional subcomponents resulting from aesthetic-based design impact higher order judgments and intention to download in mobile apps, with selective subdimensions significantly impacting quality perception and attractiveness.</td>
<td>Laboratory experiment</td>
<td>Researchers, designers, developers, and marketers</td>
<td>Mobile apps</td>
</tr>
<tr>
<td>Hodović &amp; Kalajdžić</td>
<td>2019</td>
<td>Perceived usefulness positively impacts attitudes towards mobile banking but is negatively moderated by novelty-seeking behaviour of consumers.</td>
<td>Quantitative</td>
<td>Banking customers</td>
<td>Mobile banking apps</td>
</tr>
<tr>
<td>Hsieh, Lee, &amp; Tseng</td>
<td>2021</td>
<td>Atmospherics cues in branded apps can generate experiential emotions of pleasure, arousal, and dominance, leading to increased usage intention and brand relationship building</td>
<td>Quantitative</td>
<td>App Users</td>
<td>Branded apps</td>
</tr>
<tr>
<td>Lee &amp; Lim</td>
<td>2023</td>
<td>Repeating the same food product increases visual appeal for burgers and iced tea, while different compositional lines affect each differently, and cross-modal correspondences between vision and taste impact mobile platform purchase decisions.</td>
<td>Quantitative</td>
<td>App Users</td>
<td>Mobile food delivery app</td>
</tr>
</tbody>
</table>

**Table 3: Review on the Influence of App Atmospherics Factors**

Source: Authors creation and compilation
3.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a widely used theoretical framework that explains the adoption of technology by individuals. The model is based on the premise that the intention to use a technology is influenced by two primary factors: perceived usefulness and perceived ease of use. Several studies have examined the relationship between TAM and the adoption of mobile banking apps among customers in various countries and populations. For instance, a study by Alalwan et al. (2017) found that perceived usefulness and ease of use significantly influenced the adoption of mobile banking apps among Saudi Arabian customers.

The Extended Technology Acceptance Model (ETAM) is an extension of the original TAM model that considers additional variables such as perceived risk, social influence, and facilitating conditions. A study by Rehman et al. (2019) investigated the adoption of mobile banking apps in Malaysia using the ETAM framework. The authors found that perceived usefulness, perceived ease of use, and perceived risk were significant predictors of mobile banking app adoption. Additionally, social influence and facilitating conditions were found to moderate the relationship between perceived usefulness and adoption intention.

The Unified Theory of Acceptance and Use of Technology (UTAUT) is another theoretical framework that explains technology adoption by individuals. The UTAUT model integrates several factors that influence technology adoption, including performance expectancy, effort expectancy, social influence, and facilitating conditions. A study by Afshan and Sharif (2016) examined the adoption of mobile banking apps among Pakistani customers using the UTAUT framework. The study found that performance expectancy, effort expectancy, and facilitating conditions significantly influenced the intention to use mobile banking apps, while social influence did not have a significant effect. Understanding these factors can help banks and financial institutions develop effective strategies for promoting mobile banking app adoption among their customers.

Another factor that may influence mobile banking app adoption is the level of trust that customers have in the technology and the financial institution offering the service. A study by Dwivedi et al. (2019) examined the adoption of mobile banking apps in India and found that trust was a significant predictor of adoption intention. The study also found that the perceived usefulness and ease of use of mobile banking apps were significant factors in adoption intention, but the effect of perceived risk was not significant.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Key Findings</th>
<th>Methodology</th>
<th>Audience</th>
<th>Target App Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jouda</td>
<td>2020</td>
<td>Attitude, facilitating conditions, perceived ease of use, website usability, and perceived trust are important variables in mobile banking adoption.</td>
<td>Quantitative cross-sectional study</td>
<td>Banking consumers in Palestine</td>
<td>Mobile banking</td>
</tr>
<tr>
<td>Boonsritomachai &amp; Pitchayadejanant</td>
<td>2019</td>
<td>Hedonic motivation is the most important factor motivating customers to adopt mobile banking.</td>
<td>Structural equation modelling</td>
<td>Generation Y</td>
<td>Mobile banking</td>
</tr>
<tr>
<td>Ho et al.</td>
<td>2020</td>
<td>Compatibility, perceived usefulness, perceived risk, self-efficacy, facilitating conditions, and perceived behavioural control affect mobile banking adoption in Taiwan and Vietnam.</td>
<td>Integrated model based on DOI theory, TAM, and DTPB</td>
<td>Consumers in Taiwan and Vietnam</td>
<td>Mobile banking</td>
</tr>
<tr>
<td>Kumar et al.</td>
<td>2020</td>
<td>Perceived usefulness, perceived ease of use, subjective norms, personal innovativeness, trust, and self-efficacy have a statistically significant positive effect on the mobile banking adoption intention of customers.</td>
<td>Quantitative</td>
<td>Online and Offline bank consumers</td>
<td>Mobile Banking</td>
</tr>
<tr>
<td>Altundağ</td>
<td>2020</td>
<td>The study aimed to analyse the relationships among the factors that determine the attitude of bank customers using mobile banking application via the Technology Acceptance Model (TAM) theory.</td>
<td>Quantitative</td>
<td>Public, private, and participation bank customers in Konya province</td>
<td>Mobile apps</td>
</tr>
<tr>
<td>Sakala &amp; Phiri</td>
<td>2019</td>
<td>To encourage the adoption of mobile banking, banks and mobile banking service providers should work on enhancing factors such as perceived ease of use, perceived usefulness, and external factors.</td>
<td>Quantitative</td>
<td>Consumers of Commercial Banks in Zambia</td>
<td>Retail banks</td>
</tr>
<tr>
<td>Aldammagh, Abdeljawad, &amp; Obaid</td>
<td>2020</td>
<td>Perceived Trust positively influences on consumers ‘intention.</td>
<td>Quantitative</td>
<td>Customers of Palestine Bank</td>
<td>Online Banking Users</td>
</tr>
<tr>
<td>Hu et al.</td>
<td>2019</td>
<td>Users’ trust in Fintech services has a very significant influence on users’ attitudes for adoption.</td>
<td>Quantitative</td>
<td>Hefei Science and Technology Rural Commercial Bank Customers</td>
<td>FinTech Services</td>
</tr>
<tr>
<td>Mahakunajirakul</td>
<td>2022</td>
<td>This study proposed a model to understand the adoption of mobile banking services in Thailand, with the moderating effect of hedonic and utilitarian consumers on the relationship between the factors and the intention to adopt mobile banking.</td>
<td>Quantitative</td>
<td>Mobile banking customers of Thailand</td>
<td>Mobile banking apps</td>
</tr>
<tr>
<td>Singh et al.</td>
<td>2020</td>
<td>The main factors influencing the intention to use FinTech services are perceived usefulness and social influence, with the latter having a significant negative impact.</td>
<td>Quantitative</td>
<td>Customers of Top public and private sector banks</td>
<td>Banking Apps</td>
</tr>
</tbody>
</table>

**Table 4: Review on the Influence of Technology Acceptance Behaviour Related Factors**

Source: Authors creation and compilation

Revista Gestão e Secretariado (GeSec), São Paulo, SP, v. 14, n. 10, 2023, p. 17336-17362.
3.3 Personality Factors

Personality factors play a crucial role in determining customers’ attitudes and intentions towards mobile banking usage. While some studies have shown that traits such as agreeableness, conscientiousness, and openness to new experiences have a positive impact on the adoption of mobile banking, others have found that factors such as optimum stimulation level, self-image congruence, and attitude have a more significant influence.

However, it is essential to note that the impact of personality traits on mobile banking usage can vary across different countries and cultures. For example, in a study conducted in Ghana, Agyei et al. (2020) found that agreeableness, conscientiousness, and openness to new experiences were significant predictors of mobile banking adoption, whereas in China, Khan et al. (2019) found that conscientiousness, agreeableness, extraversion, and openness were the main predictors of m-payment adoption.

This difference in findings can be attributed to the fact that different cultures place different values on specific personality traits. For instance, in collectivist cultures such as Ghana, where group harmony and social relationships are highly valued, agreeableness may play a more significant role in mobile banking adoption than in individualistic cultures such as China, where independence and self-reliance are highly valued.

Moreover, the impact of personality traits on mobile banking adoption can also be influenced by other factors such as the perceived usefulness, ease of use, security concerns, and social influence. For example, in Patil et al.’s (2020) study conducted in India, performance expectancy, intention to use, and grievance redressal were significant predictors of mobile payment use behaviour, while attitude, social influence, and facilitating conditions also influenced intention to use.

Therefore, it is essential for mobile banking providers to consider the impact of personality traits on customer attitudes and intentions towards mobile banking adoption, as well as the cultural and societal values that influence these traits. By understanding these factors, providers can tailor their mobile banking services to meet the specific needs and preferences of their customers, ultimately increasing adoption rates and usage.
<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Key Findings</th>
<th>Audience</th>
<th>Target App Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agyei et al.</td>
<td>2020</td>
<td>Agreeableness, conscientiousness, and openness to new experience significantly impact users' intention to adopt mobile banking through perceptions of usefulness and ease of use.</td>
<td>Mobile Banking Users in Ghana</td>
<td>Mobile Banking Apps</td>
</tr>
<tr>
<td>Patil et al.</td>
<td>2020</td>
<td>Performance expectancy, intention to use, and grievance redressal are significant positive predictors of consumer use behaviour towards mobile payment in India. Attitude, social influence, and facilitating conditions also influence intention to use.</td>
<td>Users of Mobile Payments</td>
<td>Mobile payments in India</td>
</tr>
<tr>
<td>Avornyoa et al.</td>
<td>2019</td>
<td>Optimum Stimulation Level (OSL), a broad personality trait that determines individuals' need for stimulation, influences Mobile Banking Discontinuous Usage Intentions (MBDUI) among customers. Microcomputer Playfulness (MCP) and Personal Innovativeness in Information System (PIIT) mediate the OSL - MBDUI relation.</td>
<td>M-Banking Users from Ghana</td>
<td>Mobile Banking Apps</td>
</tr>
<tr>
<td>Merhi, Hone and Tarhini</td>
<td>2020</td>
<td>Age and gender have a significant impact on consumer intention and use of mobile banking, with facilitating conditions, trust, performance expectancy, effort expectancy, hedonic motivation, price value, habit and perceived security being the key factors.</td>
<td>Lebanese and British mobile banking users</td>
<td>Mobile Banking</td>
</tr>
<tr>
<td>Wu et al.</td>
<td>2020</td>
<td>Self-image congruence is positively significantly related to mobile app intention to use. Symbolic congruence is a vital determinant of the mobile app intention to use among Chinese smartphone users.</td>
<td>Chinese smartphone users</td>
<td>Mobile apps</td>
</tr>
<tr>
<td>Luna et al.</td>
<td>2018</td>
<td>The attitude of a consumer is an important factor in determining their intention to use a new payment system. It has a significant, positive and direct effect on their willingness to use the system. However, the effect may be weaker due to the consumer's lack of information or experience with the new technology. Nonetheless, the consumer's attitude still has a decisive influence on their intention to use new mobile payment systems.</td>
<td>Users of mobile payment terminals</td>
<td>Mobile payment terminals</td>
</tr>
<tr>
<td>Frimpong et al.</td>
<td>2020</td>
<td>Intrinsic traits are stronger in explaining consumers' attitude toward mobile banking in Ghana than in the United Kingdom. However, no significant variance between the two countries was observed with regards to the mediation effect of consumers' attitude on the intention to use mobile banking.</td>
<td>Mobile app consumers from United Kingdom and Ghana</td>
<td>Mobile apps</td>
</tr>
<tr>
<td>Khan et al.</td>
<td>2019</td>
<td>Conscientious, agreeableness, extraversion, and openness are main predictors of m-payment adoption. Neuroticism don't have direct effect mobile banking.</td>
<td>m-payment customers from China</td>
<td>m-Payment systems</td>
</tr>
<tr>
<td>Inegbedion et al.</td>
<td>2019</td>
<td>The exposure and usage of ATM, internet banking, and mobile banking significantly affect customers' attitude.</td>
<td>Customers from EcoBank, First bank and Zenith bank in Edo, Kogi and Kwara states of Nigeria</td>
<td>e-banking</td>
</tr>
<tr>
<td>Hilal &amp; Neira</td>
<td>2022</td>
<td>This study expands the UTAUT2 model and examines how a personality trait, proactive personality, relates to mobile banking adoption through UTAUT2 perceptions in a developing country context.</td>
<td>Lebanese bank customers</td>
<td>Mobile Banking</td>
</tr>
</tbody>
</table>

Table 5: Review on the influence of Personality Factors
Source: Authors creation and compilation
3.4 Other Significant Factors

● The study conducted by Shankar and Rishi (2020) explores the impact of different dimensions of online convenience on mobile banking adoption intention. The results show that access convenience, transaction convenience, and possession/post-possession convenience predict mobile banking adoption intention, with the possession/post-possession convenience being the chief driver. The study suggests that mobile banking adoption intention leads to mobile banking adoption and usage. These findings offer valuable insights for banks to enhance the convenience of their mobile banking platforms and increase adoption and usage.

● The study by Shams et al. (2020) aimed to explore the mobile banking experiences and expectations of different generations (X, Y, and Z) in Iran. The study employed in-depth interviews with 27 active mobile banking users, and a qualitative content analysis was used to analyse the data. The study identified specific features of different generations regarding their experiences and expectations of mobile banking services. For instance, generation X customers perceived mobile banking as complicated, generation Y preferred it for quick payments, and generation Z wanted more customized services. Each generation also expected different features, such as more user-friendly functions for generation X and an enhanced user interface for generation Z. The study provides useful insights for management to tailor dynamic customer expectations among different generations.

● The study by Singh and Srivastava (2020) aimed to understand the initial acceptance of mobile banking by existing online banking users in India. The study found that adoption factors significantly impacted customers’ behavioural intention to use mobile banking. The findings provide insights into digital banking channels, contribute to existing research on digital banking adoption, and offer guidance to banks and financial institutions on the adoption of mobile banking in India.

● Humbani and Wiese (2019) aimed to develop and test an integrated model of the modified technology readiness index (TRI) with the extended expectation-confirmation model in the context of information technology (E-ECM-IT) to explain the adoption and the intention to continue to use mobile payment applications. The study collected data from 426 users of mobile payment apps in South Africa and used confirmatory factor analysis and structural equation modelling to validate the proposed
model and test hypotheses. The study found that “drivers” were better predictors of adoption than “inhibitors” and satisfaction emerged as the strongest predictor of continuance intentions.

This study provides an enhanced way to understand the factors that influence adoption and continuance intention towards mobile payment apps and adds to the existing knowledge of mobile technology literature.

- Bhatt & Nagar (2021) evaluated the factors that affect customer satisfaction in the adoption of mobile banking. The study measured the direct and indirect effects of factors such as ease of use, mobile atmosphere, perceived responsiveness, image of bank, perceived security, perceived risk, performance benefits, social influence, and hedonic motivation towards mobile banking. The study also considers trust and performance expectancy, and innovativeness as mediating and moderating variables respectively.

- Akther et al., (2020) identified the factors that affect customers' intention to use mobile banking services in Bangladesh. Perceived usefulness, perceived ease of use, trust, security, perceived privacy, and technology competency were used to analyse their impact on the behavioural intention of banking customers to use mobile banking services. The results showed that perceived usefulness, security, and technology competency were significant predictors of customers' intention to use mobile banking in Bangladesh.

- The study by Lin (2011) investigates the impact of innovation attributes and knowledge-based trust on the attitude and behavioural intention of potential and repeat customers towards adopting mobile banking. The research model is developed based on innovation diffusion theory and knowledge-based trust literature. The study collects data from 368 participants, including 177 potential customers and 191 repeat customers, through a survey. Structural equation modelling is used to analyse the data, and the results indicate that perceived relative advantage, ease of use, compatibility, competence, and integrity significantly influence attitude, which in turn leads to behavioural intention to adopt or continue to use mobile banking. Furthermore, the study found that the antecedents of attitude towards mobile banking differ between potential and repeat customers.

- Yan et al. (2021) investigates the factors that influence Bangladeshi users' intention to adopt mobile financial service (MFS) platforms during the COVID-19 pandemic by extending the Unified Theory of Acceptance and Use of Technology
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(UAUT). The study finds that social influence, perceived trust, and perceived value strongly influence users' intention to adopt MFS platforms, while perceived risk, performance expectancy, and effort expectancy affect users' perceived value of MFS platforms during the pandemic. Interestingly, users' perceived risk does not influence their intention to adopt MFS platforms.

- Lin et al. (2022) conducted an empirical study to investigate the key elements influencing the sustainable usage intention of two different mobile payment platforms in Korea. The study extended the Unified Theory of Acceptance and Use of Technology (UTAUT) model by incorporating multi-group and multi-model constructs, including the Information System Success (ISS) model and an Initial Trust Model (ITM), and considered a multi-group analysis with mediating variables.
- The study conducted by Zhou et al. (2021) proposed a customized service quality model and collected survey data from mobile banking users to investigate the factors that affect service quality and loyalty intention in mobile banking. The study found that the interface design, system quality, security assurance, and service quality significantly influenced mobile banking loyalty intention.
- Samartha et al. (2022) conducted a study to understand the factors influencing the adoption of mobile banking applications using the Unified Theory of Acceptance and Use of Technology (UTAUT) modified model. The study found that social influence, effort expectancy, and trust strongly influence purchase intention, while effort and risk factors have a negligible impact. The study also highlighted the importance of banking institutions offering unique features to retain their customers as consumers move towards different third-party apps.
- Chakraborty et al., 2022 investigated the factors that influence the adoption of mobile payment apps (MPAs) among Indian consumers. The study found that functional, conditional, epistemic, and emotional values have a significant positive impact on MPA adoption intention, while social value does not. Initial Trust (INT) mediated all consumption values, while conditional values positively moderate the relationship between functional, epistemic, and emotional values with adoption intention. However, the study's findings are based on cross-sectional data collected during the pandemic from the urban population in India, and may not be generalizable to other contexts.
- Mukhopadhyay & Upadhyay (2022) reports Institutional interventions increased eagerness to use mobile payment, resulting in the emergence of multiple
platforms, and competition among them positively impacted continuance intention of users. The proposed research model in this paper is developed through a single-case study and is primarily based on archival data. While the study is supported by a limited number of interviews.

- Behera, Bala, and Rana (2022) explored the privacy concerns and lack of global standards that prevent some consumers from adopting mobile payments, and identifies self-compassion characteristics as contributing factors to non-adoption, while also examining the role of self-compassion in the relationship between intention to use mobile payments and non-adoption. The study offers a unique threat model and provides insights into the dark sides of mobile payments.

- The study by Rehman and Shaïk (2019) aimed to identify the critical factors that influence Malaysian customers' behavioural intention toward mobile banking. The study found that perceived usefulness and ease of use significantly and positively influenced consumers' behavioural intention to use mobile banking. In contrast, a significant negative relationship was found between perceived risk and consumers' behavioural intention to use mobile banking. The study also found that attitude mediated the relationship between perceived usefulness, ease of use, risk, and behavioural intention to use mobile banking.
<table>
<thead>
<tr>
<th>Author</th>
<th>Independent Variables</th>
<th>Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shankar and Rishi (2020)</td>
<td>Access convenience, transaction convenience, and possession/post-possession convenience</td>
<td>Mobile banking adoption intention, Mobile banking adoption, Mobile banking usage</td>
</tr>
<tr>
<td>Shams et al. (2020)</td>
<td>Generation X, Generation Y, Generation Z</td>
<td>Perceived as Complicated, Prefer Quick payments, Prefer Customized services</td>
</tr>
<tr>
<td>Singh and Srivastava (2020)</td>
<td>Perceived ease of use, Perceived security, Mobile self-efficacy, Social influence and Customer support</td>
<td>Customers’ behavioural intention to use’</td>
</tr>
<tr>
<td>Humbani and Wiese (2019)</td>
<td>Satisfaction, Drivers of the technology readiness,</td>
<td>Continuance intentions</td>
</tr>
<tr>
<td>Bhatt &amp; Nagar (2021)</td>
<td>Trust and performance expectancy, Innovativeness</td>
<td>Customer satisfaction Mobile Banking Adoption</td>
</tr>
<tr>
<td>Akther et al., (2020)</td>
<td>Perceived usefulness, Security, Technology competency</td>
<td>Customers’ intention to use</td>
</tr>
<tr>
<td>Yan et al. (2021)</td>
<td>Social influence, Perceived trust, Perceived value</td>
<td>Intention to adopt</td>
</tr>
<tr>
<td>Lin et al. (2021)</td>
<td>Information system success model, Initial trust model</td>
<td>Technology acceptance</td>
</tr>
<tr>
<td>Zhou et al. (2021)</td>
<td>Interface design, System quality, Security assurance, Service quality</td>
<td>Service quality, Loyalty intention</td>
</tr>
<tr>
<td>Samartha et al. (2022)</td>
<td>Social influence, Effort expectancy, Trust</td>
<td>Purchase intention</td>
</tr>
<tr>
<td>Chakraborty et al., 2022</td>
<td>Functional, Conditional, Epistemic, and Emotional values</td>
<td>Mobile payment apps adoption intention</td>
</tr>
<tr>
<td>Mukhopadhyay &amp; Upadhyay (2022)</td>
<td>Institutional interventions, Multiple platforms, and competition</td>
<td>eagerness to use, continuance intention</td>
</tr>
<tr>
<td>Behera, Bala, and Rana (2022)</td>
<td>Privacy concerns, Lack of global standards,</td>
<td>Intention to use and non-adoption</td>
</tr>
</tbody>
</table>

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<table>
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<tr>
<th>Source</th>
<th>Factors</th>
</tr>
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<tbody>
<tr>
<td>Rehman and Shaik (2019)</td>
<td>self-compassion, Attitude</td>
</tr>
</tbody>
</table>

**Table 6: Other significant factors towards Mobile Banking Adoption**

Source: Authors creation and compilation
3.5 Research Gaps

After conducting a thorough review of recent research on app atmospherics and mobile banking adoption, potential research gaps have been identified and listed in this section. These gaps can help direct future research efforts, prioritize areas for investigation, avoid duplicating existing research, and inform policy and practice in a particular field.

- App atmospheric and social influence: Another potential research gap related to atmospheric elements in mobile banking apps could be the impact of social influence on user experience and adoption. Social influence refers to the impact of social norms, peer pressure, and social comparison on user behaviour. For example, a mobile banking app could use social influence by displaying reviews or ratings from other users or by allowing users to share their financial goals or achievements on social media. Investigating the impact of social influence on user experience, adoption, and engagement can provide insights into how mobile banking apps can be designed to leverage social influence to increase user engagement and motivation, thus enhancing adoption rates and overall user satisfaction.

- User experience: User experience is a crucial factor in the adoption of mobile banking apps. While existing studies have demonstrated the positive influence of user experience on customer experience in other app categories, there is a need for further research to specifically examine the factors that influence the user experience of mobile banking apps. Future research could focus on identifying the specific design elements, features, and functionalities that contribute to a positive user experience in mobile banking apps, and how these factors can be optimized to enhance customer satisfaction and adoption rates.

- Security concerns: Security concerns are a major barrier to the adoption of mobile banking apps. Findings on the impact of security over mobile adoption is inconsistent. Thus, there is a need to explore the app security concerns that customers have and how they can be addressed to increase adoption.

- Demographic differences: Previous studies have paid little attention to the role of demographic characteristics in mobile banking adoption. It is important to examine how adoption rates vary across different demographic groups, such as age, gender, income, and education level. This can provide insights into the factors that influence adoption among different groups and inform targeted marketing strategies. Further research should focus on identifying the demographic factors that influence
mobile banking adoption, and how these factors can be leveraged to increase adoption rates among different customer segments.

- Integration with other financial services: Mobile banking apps offer more than just payment services, including options for credit cards, loans, trading, insurance, and more. Further research could provide insights into how integration with other financial services, such as payments, investments, and insurance, can impact customer adoption and usage of mobile banking apps, and how these factors can be optimized to enhance customer satisfaction and retention.

- Generational differences: One potential research gap related to generational differences could be exploring how the adoption and use of mobile banking apps vary across different age groups, and how these differences may be influenced by factors such as trust, familiarity with technology, and financial literacy. Specifically, further investigation could be done to understand how the younger generations' higher familiarity with technology affects their adoption of mobile banking apps compared to older generations who may have less technological familiarity but greater financial literacy.

- Impact of cultural differences: The influence of cultural differences on the adoption of mobile banking apps has not been widely explored. There is a need to examine how culture can shape the perceptions, attitudes, and behaviour of customers towards mobile banking apps adoption.
3.6 Future Research Directions

Figure 2: Future Research Directions
Source: Authors creation

Conclusion

The literature suggests that factors such as initial trust, customer involvement, and consumption values play a crucial role in enhancing the adoption of mobile payment apps. Individual differences, such as personality traits, age, and gender, have been shown to moderate the relationship between adoption intention and usage behaviour. Finally, design aesthetics can influence user adoption and satisfaction. By considering these factors, developers, policymakers, and marketers can create mobile payment solutions that are more appealing, trustworthy, and user-friendly, thereby enhancing the adoption and use of mobile payments.

It is important to note that while the literature provides valuable insights into the factors influencing the adoption of mobile payment apps, further empirical evaluations are necessary to confirm these findings. Additionally, as the technology and consumer behaviour continue to evolve, new factors may emerge as significant determinants of adoption. Therefore, it is recommended that future studies conduct empirical evaluations of the factors identified in this SLR to gain a more nuanced understanding of their impact on mobile payment adoption. Furthermore, emerging contextual factors (refer to the environmental, situational, and social conditions) also influence the adoption of mobile payments. Cultural norms, economic conditions, and technological infrastructure of a particular region can also influence the adoption of mobile payments. Other contextual
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Factors could include the availability of alternative payment methods, the level of trust in financial institutions, and the regulatory framework in a given country. Understanding these contextual factors is important for identifying the specific challenges and opportunities for mobile payment adoption in different regions and markets.

References


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