Towards an Understanding of FinTech Users’ Adoption: Intention and e-Loyalty Post-COVID-19 from a Developing Country Perspective

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Abstract: Earlier literature has shown that the implementation of FinTech innovations is not only determined by banks, financial institutions, or government support, but also by the perception and experiences of FinTech users. FinTech research has shown encouraging findings from scholars in developed countries. However, little is known about the users’ acceptance and use of FinTech in Jordan. The aim of this study is to investigate the determinants of users’ intentions and e-Loyalty toward FinTech adoption in Jordan post the COVID-19 era. A conceptual framework was developed by integrating the four original constructs of the unified theory of acceptance and use of technology (UTAUT), namely performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC), with three additional factors: personal innovativeness (PI), financial literacy (FL), and uncertainty avoidance (UA). In addition, the proposed model considered the e-Loyalty of FinTech users as a consequence of having a good FinTech experience. A quantitative approach using a cross-sectional online questionnaire was applied to collect data from 423 FinTech users. Data were analyzed utilizing structural equation modeling (SEM) based on AMOS 26.0 software package. The findings revealed that UA has a moderating effect on the relationship between FC and users’ intentions. Also, PI has a significant impact on PE and EE. While PE, SI, and FC are factors that enhance behavioral intentions. In return, it builds users’ e-Loyalty toward FinTech services and is deemed a new normal behavior. This study may help FinTech service providers and policymakers better understand the, currently relatively low, usage rate of FinTech, and how it contributes to the development of strategies that boost the acceptance and e-Loyalty of FinTech by Jordanian users after the COVID-19 era, where FinTech is still considered an innovation.

Keywords: Jordan; FinTech; structural equation modeling (SEM); UTAUT; COVID-19; behavioral intentions; e-Loyalty; developing countries

1. Introduction

The accelerated growth in information and communications technology (ICT) industry has become a landmark for economic development worldwide [1–3]. The growth of ICT has been augmented by the widespread usage of mobile technologies and significant
expansion in the digital market, transforming users’ expectations and government’s support. By highlighting such phenomena, ICT has paved the path for a financial paradigm shift in terms of service delivery. FinTech innovations have boomed in the last few years, facilitating secure, efficient, simple, and high-quality delivery of web-based banking services. According to Gai et al., (2018), FinTech is “a distinguishing taxonomy that mainly describes the financial technology sectors in a wide range of operations for enterprises or organizations, which mainly addresses the improvement of the service quality by using information technology (IT) applications” [4]. There are various benefits of FinTech, for example, low-cost transaction fees, user-friendly and transparent service, enhanced service quality, and highly efficient financial solutions [5–7]. As such, FinTech has flourished as a result of the need to meet users’ demands and of commercial organizations endeavoring to satisfy such demands and requirements [6,8].

FinTech has been implemented in different industry areas, for example, securities, insurance, and e-commerce payments [9]. The recognition of FinTech rises as the fourth industrial revolution, or Industry 4.0, has triggered a significant shift in the financial systems. FinTech, for instance, facilitates financial practices such as enterprise business, trading, and e-services offered to retail consumers [8]. The latest proliferation of the m-payment industry led by innovative FinTech payments services such as Samsung Pay and Apple Pay, etc. is evidence that it is the most vital and fastest developing industry from customers’ viewpoint [8,10]. Such services, provided by non-financial institutions, are growing at a great pace since they allow customers to simply enter their passwords, PINs, and/or biometric authentications without the need to install other complicated add-ons [8,10]. According to Senyo and Osabutey [11], FinTech services are strongly considered to be underlying game-changers in strengthening financial inclusion. At present, there is a range of FinTech services, including insurance, digital payments, assets management, online banking, online financing and lending, crowdfunding, etc. accessible through various organizations, credit card companies’ IT service providers, and banks.

Technological tools (e.g., FinTech services and applications) have been implemented among public and private organizations in their efforts to communicate improved experiences to their employees and customers [12]. However, Al-Okaily et al. [13] have stated that there is a need to scrutinize these IT tools, such that their positive effect on users’ experience could be achieved. The impact of these technologies’ characteristics on users’ experience should also be investigated, thus the acceptance and adoption of such technologies. Therefore, great attention needs to be paid when designing and developing such IT.

Yet, a large group of users has demonstrated a reluctance to adopt FinTech services [11,14]. Individuals may have critical concerns about using online technologies for financial transactions, much of these concerns illuminate users’ perceptions of security and privacy risks [15,16], the virtual nature of transactions, required skills and education, degree of ease, and accessibility of FinTech services [11]. Other researchers have highlighted users’ concerns regarding the available infrastructure including personal computers, internet access, internet-enabled devices, etc., uncertainty levels; the services effectiveness, and the required IT skills for transferring online [17]. Therefore, it becomes of vital importance for policymakers, practitioners, and service providers to understand the antecedents that could facilitate or inhibit the acceptance and adoption of FinTech, which contributes to strategy formulation, improvement of the take-up of FinTech services, and the deepening of financial inclusion.

The acceptance and adoption of FinTech by individuals differs from one citizen’s group to another, from one social context to another, and from one cultural background to another [18]. In Jordan, the number of internet users rose from 48.4% to 103.5% of the population between 2015 and 2020 [19] which created an opportunity for Jordanian financial institutions to expand to a wider customer base of their online services. However, despite the relatively well-managed and advanced financial systems and the vast amount of investments and different resources that have been estimated in this vein by all financial
service providers including banks in Jordan [20]. FinTech is still a relatively novel phenomenon in the Jordanian context and its acceptance and use by the users is stated to be very low [21–23]. For instance, the United States Agency for International Development (USAID) indicated in “Digital Finance Country Report—Jordan” (2018), that the ownership rate of mobile phones in Jordan is 92.1 percent, with 76.5 percent of adults holding smartphones. According to the report, this has so far only translated into 1.4 percent of adults using internet banking (IB) and 2.1 percent using m-banking services, so financial service providers are required to improve the usability and quality of their services. In addition, in 2020, the share of adult inhabitants having one or more mobile wallets was only 11.1% [20]. This reality implies that FinTech services and applications in Jordan are still innovative and the usage rates lag very far behind in comparison to counterparts in other countries. Such low usage rates are upsetting for financial institutions [22–24]. In addition, it is also stereotyped that in Jordanian culture a lot of the population prefers the classic/physical payment methods to conduct financial transactions which raises a concern regarding the low usage rates of FinTech [24].

Without knowing the influencing factors, service providers are probably going to continue struggling, wasting resources, effort, and time. Furthermore, people are required to be aware of FinTech services and applications and feel secure and satisfied with utilizing FinTech as such technology is completely novel to them. Therefore, further studies are needed to understand the antecedents affecting the adoption and use of FinTech by users in Jordan aiming to develop strategies that will ensure the successful implementation and use of FinTech services, particularly in crisis times. Although m-payment/e-payment services, as forms of FinTech services, have been widely investigated in developed countries as a result of the technological evolution in payment methods, there has not been enough research carried out on the adoption of these technologies in developing countries in general, and Jordan in particular. According to the authors’ knowledge, this study is considered the first empirical research which investigates the adoption intentions of FinTech services among Jordanian citizens in the post-COVID-19 era. Thus, the current research presents an effort to fill the gap mentioned above and determine the critical factors that affect the acceptance and use of FinTech in the Arab context, Jordan in particular. Hence, this study has introduced the contextual foundation for replication and comparison within other Arab contexts. Accordingly, this becomes a significant contribution to the IT/IS literature and it encourages other researchers to conduct further research on the acceptance and use of FinTech at the regional level.

Different well-known theoretical models have been developed to understand the relationships between users’ beliefs and behavioral intentions (BI) to accept and use new technologies. From the perspective of social psychology, the theory of reasoned action (TRA), the theory of planned behavior (TPB), the social cognitive theory (SCT), the motivational model, technology acceptance models (TAM), the combination of TAM and TPB constructs, and diffusion of innovation (DOI) theory are only a few of the key theoretical approaches that have led the path in analysis and conclusions [18]. As a result of reviewing and synthesizing eight previous theoretical models of IT/IS acceptance and use, Venkatesh et al., (2003) [25] introduced the unified theory of acceptance and use of technology (UTAUT) (see Figure 1).
Figure 1. Theories and models of IT/IS acceptance and use (individuals level) [26]. TRA: theory of reasoned action; TPB: theory of planned behavior; TAM: technology acceptance model; C-TAM–TPB: combined TAM and TPB; SCT: social cognitive theory; DOI: diffusion of innovation; MPCU: model of personal computer utilization; MM: motivational model.

UTAUT has been established to be a valid theoretical research tool for predicting individuals’ usage behavior by emphasizing the salient role of PE in explaining IT/IS acceptance and use [26,27]. Hence, UTAUT becomes one of the most widely applied theories due to its robustness and parsimony [18]. It was also confirmed to be superior to other prevalent competing theories [28,29]. Applications, extensions, and integrations of this model have enabled many scholars to understand IT/IS acceptance and use systematic theorizing, despite the extensive replications; an investigation of the salient constructs that affect context-based user IT usage is therefore required [18]. In addition, scholars in the field of information systems debate over whether the constructs of UTAUT are adequate to predict users’ acceptance of innovative IT in a voluntary context, as initial UTAUT research focused on organizational context which limits UTAUT’s explanatory power [18].

During the COVID-19 pandemic, borders, malls, financial institutions, and even small shops closed to reduce any additional spread of the virus in healthcare and public settings. FinTech services allow citizens and organizations to access, perform and sustain financial transactions, mainly due to the measures, guidelines, and strategies that many governments worldwide have enforced (e.g., social distancing and staying home) to mitigate the risk of COVID-19 infection. As a result, FinTech applications have accelerated at a swift speed [10], offering a significant opportunity for FinTech service providers. Yet, the situation has considerably changed; under normal conditions, people still desire to do traditional shopping activities and perform financial transactions face-to-face/physically [6]. Due to the health crisis, such types of transactions are required to be transformed online, and FinTech applications have become the main technology to sustain risk-free and smooth financial transactions. Yet, earlier literature has not investigated the impact of COVID-19 on the significant change to users’ FinTech behavior after the COVID-19 pandemic.

In addition, in an ongoing state of health crisis state that has persisted for more than two years, people realize how beneficial FinTech is in sustaining a normal life. Individuals may become familiar with the suitability of this technology and continue to utilize it after the pandemic times. FinTech applications are becoming competitive as they help to maintain existing users and attract potential ones. They are needed to determine the characteristics that influence users’ intention to use FinTech services, as well as leverage the competitive advantage. Therefore, the current study identifies the important factors that in-
fluence behavioral intentions toward FinTech services after the COVID-19 pandemic. Furthermore, the consequences of FinTech adoption have not yet been examined. If users feel satisfied with FinTech services, they are likely to keep utilizing them for a long period and become loyal [30]. The current study investigated the e-Loyalty of a user as a consequence of getting a satisfactory financial service experience throughout forced situations, i.e., the COVID-19 pandemic. The research findings may highlight and explain a user’s positive behavior toward using the FinTech services after crisis times.

Moreover, to investigate the acceptance of FinTech, other factors are considered important such as the PI, FL, and UA in the current research context. By modifying the UTAUT model to take account of those factors, a more comprehensive study model of user IT acceptance in the context of FinTech will be introduced. Without a doubt, FL has been deemed a significant factor in user reluctance to perform financial transactions using FinTech [31]. This is because the individuals are principally responsible for their financial transactions and hence their decisions will be controlled by issues of knowledge and skills. Hwang and Lee (2012) [32] stated that though users’ confidence in the technology is strong, this confidence could be affected in high UA cultures owing to the intangibility and ambiguous consequences of utilizing such technology. Consequently, adding UA will complement the original constructs of the UTAUT and is likely to provide a better explanation of users’ adoption of FinTech in Jordan. The rationale behind incorporating UA in UTAUT is the direction of managerial attention to cultural challenges and to provide a trustworthy virtual environment that allows its users to make full use of FinTech. Furthermore, a review of more recent literature suggests other factors relevant to the acceptance and use of innovative technologies (e.g., FinTech). In the current research, the authors integrated the PI within the UTAUT as an antecedent of users’ behavioral intention. The rationale behind integrating PI is based on the fact that the level of user’s speed of adopting new technology compared to others in the social system will develop positive perceptions regarding technology acceptance and use [33].

In addition, the majority of the IT/IS acceptance models, and particularly UTAUT, have not been widely examined in developing countries in general and Jordan in particular. To the best of the researchers’ knowledge, there is no single research that has addressed the relationship between users’ intention and e-Loyalty of FinTech in Jordan, particularly in the post-COVID-19 period. Furthermore, the proposed constructs and relationships have not received any attention from previous research in the Jordanian setting. Thus, the current research aims to bridge this gap by modifying the UTAUT to integrate those constructs, namely PI, FL, and UA.

Generally, the current research would be useful for FinTech service providers and policymakers to illustrate the relatively low current rates of use of FinTech in Jordan after the times of crisis, which could contribute to the formulation of strategies to promote the acceptance of FinTech by Jordanian users, where FinTech is still deemed an innovation. Over the last few years, Jordan has developed a world-class FinTech service. The government in Jordan has made the development of e-government systems and services a pivotal goal for the country’s future. FinTech services and applications (e.g., m-wallet and m-payment) are at the core of that development. One major objective is to move toward financial inclusion [20,34], which aims to introduce official financial services for eliminated and underprivileged groups instead of unofficial alternatives, especially for citizens and residents living in rural areas without bank accounts. This would enable these groups to make electronic payments using FinTech services through their internet-enabled devices such as mobile phones [34,35]. Understanding the experiences, issues, challenges and lessons encountered by Jordanian users during this implementation can benefit service providers and professionals worldwide, particularly those in developing countries aspiring to enhance and develop FinTech services, and especially those in the Middle East region. For this reason, the authors carried out an empirical study identifying the key factors that affect the acceptance, use, and e-Loyalty of FinTech services in Jordan.
This article also contributes to the research related to theoretical models of IT/IS acceptance and use which have been suggested to be extended to new contexts by scholars (e.g., [18]) and particularly to the applicability and generalizability of the UTAUT in new contexts (FinTech after the COVID-19 pandemic), new user groups (customers/end users) and new cultural settings (Jordan), something which is a crucial step in advancing a theory [36]. Considering the fact that Jordan is a country with citizens who are varied in terms of their education, cultural backgrounds, and income, these characteristics will offer interesting dimensions to the research work and introduce unique insights into the nature of variables that are significant to financial institutes in such environments.

The structure of the article is organized as follows. The first section provides a study model and hypothesis development. The second section proposes the research methodology implemented in this study. The third section shows the findings based on the statistical analysis. The fourth section discusses the results. Finally, further potential research directions are presented, and research limitations are outlined.

2. Literature Review and Hypothesis Development

2.1. Prior Research on FinTech Services and Applications

Earlier studies on FinTech adoption issues have been based on management information systems and related theoretical frameworks. The TAM theory developed by Davis (1989) [37] introduces the dominant theoretical background for many of these studies (e.g., [22,38,39]). The authors of [6] integrated TAM with TRA to understand individuals’ behavior towards FinTech services and applications post-COVID-19 lockdown. Other studies, for example [40], have integrated TAM with the diffusion of innovation (DOI) theory, focusing on technological determinants but maintaining a relative silence on social factors. Venkatesh, Morris, Davis, and Davis (2003) [25] developed the UTAUT to understand users’ behavioral intentions toward IS/IT. UTAUT has become the main theoretical lens for research on the adoption of innovative technologies, such as FinTech services and applications (e.g., [23,41]). In addition to users’ acceptance perspective, the perspective of e-Loyalty is another important theoretical structure employed in the IT/IS literature [6,30,42]. Researchers have stated that customers’ satisfaction and engagement behavior with online services could contribute to longtime usage and thus build e-Loyalty [6,43]. Based on the above-mentioned discussion, this study proposes a more comprehensive model for FinTech adoption (see Figure 2).

![Figure 2. Research model.](image-url)
2.2. UTAUT

The research on innovative technologies’ acceptance and adoption covers one of the key topics in the information system (IS) management domain. A number of competing theoretical models have been developed to understand users’ behavior: the theory of reasoned action (TRA), the TPB, the TAM, etc. [25]. However, a more comprehensive theoretical model was required to contribute to the understanding of users’ acceptance of IT/IS. Venkatesh et al. (2003) [25] proposed the UTAUT theoretical model to synthesize the conclusions of earlier literature on this topic (see Figure 1) [26]. The UTAUT’s main constructs include four critical antecedents (PE, EE, SI, and FCs) which influence both behavioral intention and actual behavior, and four moderators (i.e., experience, gender, age, and voluntariness of use) of main relationships. These key relationships have also been examined by [41] and [44] in the context of FinTech services and applications. Therefore, the UTAUT model is appropriate for understanding the acceptance and use of FinTech services from the users’ perspectives.

The research across the disciplines of sociology, psychology, and technology argues that behavioral intentions of individuals to perform or reject a specific behavior could be deemed as the best predictor of conducting a particular action [25,26,45]. This presumption has been widely confirmed in IS/IT literature [18]. Drawing on consistent findings from previous research that BI is a determinant of actual usage behavior, the studies have investigated antecedents that could influence individuals’ intention to use, rather than actual usage behavior. Thus, this study investigates the factors affecting the behavioral intention to adopt FinTech based on a modified UTAUT model. BI describes the commitment level that the people show to become involved in a particular behavior [46], which in the context of this study is the users’ commitment level to accept the use of FinTech services and applications to complete financial transactions and ensure their continuity during and beyond the pandemic era.

The authors argued that the moderators in the UTAUT model were not applicable in this research context, and that this explains why no moderators (e.g., age and gender) were integrated into the proposed study model. The first reason is that this study was primarily interested in explaining the direct relationships of exogenous factors with behavioral intentions, as other dominant theoretical models of IT/IS adoption do with BI, except for the UTAUT model, which employed moderators. In other words, the aim of this study was to propose a more simplified, moderator-less, and unified model that could examine the direct relationships between the factors. While Venkatesh et al. [18] were developing the UTAUT2, they noticed that most studies employed only a subset of the theoretical model, and that moderators were generally dropped. The second reason for dropping moderators from the proposed theoretical model is basically to introduce a parsimonious model that could be examined for any FinTech settings, rather than depending too much on any particular context (such as gender, age, experience, etc.), as models such as the UTAUT/UTAUT2 do.

Figure 2 shows the suggested research model, and a detailed explanation of each variable is provided in the following subsections.

2.3. Performance Expectancy (PE)

PE is the extent to which a person believes that the usage of innovative IT will assist him/her to gain benefits from task performance. PE is the strongest predictor of IT/IS usage intentions and has a significant effect on the mandatory and voluntary settings of IT usage [18,25,47,48]. PE is similar to perceived usefulness PU in the TRA, in the TPB, and in TAM and TAM2, also “relative advantage” in innovation diffusion theory (IDT), “extrinsic motivation” in the motivation model, “job-fit” in the model of personal computer utilization (MPCU) and “outcome expectation” in SCT. In the current study, PE indicates that utilizing FinTech services is extremely beneficial to individuals’ daily life and improves performance and productivity in completing financial transactions and activities.
Supposedly, using FinTech services results in greater convenience. An abundance of earlier studies has shown that PE is positively related to digital payment, mobile payment, FinTech services, and mobile banking intentions in terms of their acceptance and use [17,41,44,49]. For example, [36] found that PE is a significant influencer of consumers’ intentions toward FinTech adoption. Hence, the following hypothesis was anticipated:

**H1.** PE will positively influence users’ intention toward adopting FinTech services.

### 2.4. Effort Expectancy (EE)

EE is the extent of ease in utilizing innovative technologies. This factor is expected to have a more significant impact in the early adoption stage however becomes less important post-adoption. EE is the individuals’ perception that IT/IS are free of effort and the usage difficulty is minimal. EE is similar to “perceived behavioral control” in TPB, “perceived ease of use” in TAM and TAM 2, “complexity” in IDT and MPCU, and “self-efficacy” in SCT. In the current research, the EE in using FinTech services is supposed to be easy to use and learn, as well as less inconvenient. In previous empirical research, EE is positively related to FinTech adoption, [11,50,51]. For instance, [11] confirmed that EE has a positive impact on behavioral intentions to use FinTech services. This implies that individuals are more inclined to utilize such services if less effort is needed to conduct financial transactions. Therefore, the subsequent hypothesis was recommended:

**H2.** EE will positively influence users’ intention toward adopting FinTech services.

### 2.5. Social Influence (SI)

SI can be “defined as “the degree to which an individual perceives that important others believe he or she should use the new system” [25]. Three ways can be used to affect individuals’ behaviors that reflect SI, namely internalization, identification, and compliance [25]. Compliance leads a person to amend his/her beliefs, whilst internalization and identification amend a person’s beliefs based on subjective norms or social status. This factor is similar to “subjective norms” in TRA and TPB. SI is also similar to “subjective norms and images” in TAM2, “social factors” in MPCU, and “images” in IDT. All constructs in these theories and models indicate that individuals’ behaviors are identified by how others conceive their use of a certain technology. Individuals are susceptible to other individuals surrounding them. In the context of this study, an individual is supposed to be affected by the other individuals around them to accept and adopt FinTech services. SI is empirically confirmed to have an influence on users’ intentions to adopt FinTech services [17,52]. Therefore, the subsequent hypothesis was suggested:

**H3.** SI will positively influence users’ intention toward adopting FinTech services.

### 2.6. Facilitating Conditions (FC)

FC is defined as “the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system” [25]. In this study, FC is expected to ease the acceptance and use of innovative IT (e.g., FinTech services with an accessible support system). Hence, the IT is completely equipped with adequate experiences for the users with the accessibility of a helpdesk and/or troubleshooting if any issue occurs. While Venkatesh et al. [25] postulated that FC has a direct effect on users’ adoption rather than the behavioral intentions construct, they have also [18] theorized a direct effect of FC on users’ intentions in the UTAUT2 model. Thus, FC is expected to influence users’ behavioral intentions towards FinTech services directly. Empirical research has shown that FC is positively related to users’ intentions toward FinTech services, e-payment systems, mobile banking, and other IS/IT [7,52–55]. Thus, the following hypothesis is recommended:
**H4.** Facilitating conditions will positively influence users’ intention toward adopting FinTech services.

2.7. Financial Literacy (FL)

Financial literacy (FL) can be described as “measuring how well an individual can understand and use personal finance-related information” to make a decision [56]. Remund [57] summarized different definitions of FL and introduced them into five categories: (1) knowledge of financial-related concepts; (2) skills to communicate regarding financial-related concepts; (3) ability in managing personal financial affairs; (4) aptitude to make correct financial decisions; and (5) self-confidence in planning efficiently for future financial desires [57]. It has been revealed that financial literacy has an impact on a range of financial-related decisions (e.g., retirement planning) [58]. FL has been found to have a positive association with the adoption of FinTech services [31]. While FinTech is considered an innovation, people intend to use it for financial management. Therefore, an individual’s decision to adopt FinTech services and applications will also be determined by factors beyond IT, specifically relating to individuals’ financial literacy. Debatably, individuals’ FL may affect the degree to which an individual can appreciate and understand the extent to which FinTech services and applications might be beneficial to them. Particularly for this current research, FL is not about what FinTech’s definition is or the way it works but rather concerned with the knowledge to understand the information that FinTech services can provide.

Earlier studies in the area of FinTech acceptance and information systems have found that FL affects acceptance and adoption behavior [31,39,59,60]. However, limited research efforts have investigated whether FL could have a moderating role in the UTAUT model, e.g., [41]. Thus, in this study, FL was hypothesized as a moderator variable rather than a direct determinant of adoption intentions based on the subsequent reason. A moderator is a factor that will strengthen or weaken an association rather than directly influence another factor. As the above-mentioned research illustrates, FL influences financial decisions. Yet, the adoption of FinTech is not a financial decision by itself (it is a decision to use a tool that can support improving financial decisions), consequently, the researchers do not hypothesize that FL is a direct determinant of usage intentions. Rather, this research proposed FL to affect two factors (i.e., PE and EE) on usage intentions. For instance, FinTech services may offer options to save interest on individual loans. Even if the same content is presented and the same usefulness (PE) is perceived, people with higher FL may be more enthused to use FinTech services than those with lower FL as they are more apt to understand the content nature of interest savings or information offered by the FinTech applications and, without doubt, have the knowledge on how to link this information with their personal financial well-being (i.e., FL strengthens the impact of PE on usage intentions). By the same token, if two people get the same content and perceive the same efforts to use the FinTech application, the one with a higher level of FL may be more motivated to use it, as they be may better capable to relate the efforts to justify their financial benefit than the person with a lower level of FL (i.e., FL strengthens the impact of EE on adoption intentions). Accordingly, the following hypotheses are suggested:

**H5a.** FL will positively moderate the association between PE and users’ intention toward adopting FinTech services.

**H5b.** FL will positively moderate the association between EE and users’ intention toward adopting FinTech services

2.8. Uncertainty Avoidance (UA)

UA describes the extent to which people feel uncomfortable with uncertain and ambiguous cases [61], which is related to a person’s risk perception when making financial-related decisions [62]. Hofstede [61] has proposed UA as one of the cultural dimensions
that can be used to describe Arab societies. According to this cultural dimension, Arab people manifest a high position of UA; explaining their inclination to feel threatened by unknown situations. Undoubtedly, uncertainty is a crucial obstacle to the acceptance and use of state-of-the-art technologies as the usage consequences may provoke such uncertainty; these consequences are the changes that take place in a person or social systems due to the rejection/adoption decision of new technology [17, 63, 64]. The concerns individuals have regarding the unfamiliar situation in high UA culture can also be lessened by listening to other people’s usage experiences and comments [32]. This informational effect from a person’s reference group can offer evidence for people to accept and adopt innovative technologies [65]. A stronger association between SI and BI was confirmed by Lai and his colleagues (2016) in high UA cultures [66]. In addition, it has been revealed that the association between SI and users’ behavioral intention is positively stronger in cultures with higher UA levels [67].

Individuals from countries with high UA cultures are less enthusiastic to use new IT/IS as they feel that technology is risky and threatening [68]. According to the findings of research conducted by Im and his colleagues, an insignificant relationship was found between FC and cultural dimensions [69]. Yet, it was debated that a culture that has a high level of UA will look for more FC to alleviate uncertainty levels [70]. As such, service providers can raise usage rates in countries with high UA cultures by offering more support and help services to the end users. Finally, earlier research found UA to be a significant moderating factor e.g., [71, 72]. Thus, the subsequent hypotheses are proposed:

H6a. UA will negatively moderate the association between SI and users’ intention toward adopting FinTech services

H6b. UA will negatively moderate the association FC and users’ intention toward adopting FinTech services

2.9. Personal Innovativeness (PI)

Innovativeness in the latest technologies is the inclination of an individual to embrace these technologies [73]. Meanwhile, Hu et al. (2019) defined users’ innovativeness as the degree of individuals’ acceptance and adoption of certain innovations (e.g., new products, new services, or new technologies) [2]. Personal innovativeness (PI) is described as “the degree of the speed of an individual to adopt new ideas in relation to other members of the social system” [33]. Agarwal and Prasad (1998) [73] have illustrated that individuals with high PI are appeared to develop a positive perception regarding a particular IT/IS compared with other people and are also less risk reluctant. This positive perception regarding the new IT/IS will be shown in their assumptions about their ease of use (i.e., EE) and usefulness (i.e., PE) of them for different tasks [74]. Therefore, PI in new IT/IS is a crucial antecedent, which may affect the behavioral intentions of users. In addition, studies e.g., [30, 75] on PI have revealed that positive PI in new IT will have a positive impact on EE and PE. In line with these earlier studies, the researchers propose that for FinTech users, PI will positively affect the EE and PE of FinTech services. Thus, the following was hypothesized:

H7. PI will positively influence the PE of FinTech services

H8. PI will positively influence the EE of FinTech services.

2.10. Behavioural Intention towards Adopting FinTech Services

Recently, loyalty has been used to describe all online services and online loyalty/e-Loyalty extends the traditional perception of brand loyalty to customers’ behaviors on the internet [30, 76]. E-Loyalty can be defined as individuals’ intentions to revisit and repur-
chase from online portals (e.g., e-commerce websites) or to reuse the e-services in the future, even if they have other alternatives. [30,77]. In this study context, an individual’s e-Loyalty refers to FinTech users, such as utilizing online services or mobile applications after a good usage experience, demonstrated through repeated usage intention and behavior at the same FinTech services and positive electronic word of mouth (e-WoM). In terms of intentional e-Loyalty, the contributing factors of online customers’ loyalty include customer engagement [43], perceived ease of use and usefulness of new technology [30], interactivity and quality of e-services [78], trust, satisfaction, and service quality [42]. In addition, the security of e-services can improve loyalty toward FinTech acceptance and adoption [79,80]. FinTech experience could influence customers’ e-Loyalty toward the providers of FinTech services [81]. When people spend a longer period of time using online services, they can simply make their own decisions regarding the quality of the service [82,83]. Therefore, the following hypothesis is formulated:

**H9. Users’ intention will positively influence users’ e-Loyalty towards FinTech services**

### 3. Research Methodology

#### 3.1. Research Design

A quantitative approach was adopted in this research to empirically examine the proposed theoretical model and provide statistical support with the opportunity for the findings’ generalization for future applications [84]. The researchers employed a self-administered, structured, online survey questionnaire to collect data from current and potential FinTech users. Before starting the first section of the questionnaire, the researchers presented participants with an introduction and definition of the FinTech concept extracted from earlier literature, the website of the Central Bank of Jordan (CBJ) [34], and the website of Jordan Payments and Clearing Company [85] to ensure that participants understood the basics of FinTech services. After this information, the respondents were asked to answer a question to make sure that they properly understood the use and the nature of FinTech. Of the 538 participants who responded to the verifying question, 449 were able to understand the concept of FinTech and continued the questionnaire. A possible reason for this is that the development of FinTech services in Jordan is in the initial stages, and also the study sample also included potential future FinTech adopters.

Participation in the research was entirely voluntary. Participants were asked to complete the questionnaire based on their beliefs and opinions concerning FinTech acceptance and e-Loyalty. Those respondents were briefed on the aim of the current research and informed of their rights to withdraw from the survey before, during, or after they had filled the online survey. On average, each respondent spent not more than 11 minutes to answer the survey questions.

#### 3.2. Measurement Instrument

The items and scales for this research were adapted from existing literature related to UTAUT and earlier empirical research conducted in relation to FL, UA, PI, and e-Loyalty to preserve the reliability and validity of employed scales. The items were adapted with wording adjusted to fit the current research context. More specifically, PE and SI were measured utilizing 5 items, whereas EE, FC, PI, and e-Loyalty were measured utilizing 4 items. Furthermore, PI, UA, and FL were measured utilizing 3 items. These items were adapted from [18,25,30,43,86–88] (see Appendix A). A five-point Likert scale ranging from 1—strongly disagree to 5—strongly agree was utilized to measure the items for each factor within the study’s theoretical model. The demographic profile for the participants including “gender, age, experience, and educational level” were measured utilizing a nominal scale.
The researchers initially developed the online questionnaire in the English language and then translated it into the Arabic language by a professional translator. As a subsequent step, the questionnaire items were translated back into the English language by another translator to confirm translation harmony. Though the items in the proposed questionnaire were adapted from a well-built theoretical model, prior to further research the authors carried out a pilot study with 20 randomly selected respondents aiming to revise and amend the questions in the study instrument and to establish content validity and reliability. A number of questions were reviewed and amended on the basis of this pilot study. The final version of the online questionnaire was circulated by advertising the questionnaire link to the targeted respondents via various communication channels (e.g., personal emails, social media platforms, and university mailing lists). It was available to access using an online questionnaire website (https://www.surveymonkey.com) from March to May 2022.

4. Analysis and Results

4.1. Demographics

After reviewing the completed questionnaires, 26 invalid questionnaires were excluded because of incomplete data. This means a total of 423 valid responses were used for statistical analysis. As presented in Table 1, there were 54% males and 46% females, with the sample ages ranging mainly between 18 and 45 years old. In terms of internet experience, 19% of the respondents had “some experience”, 33% had “moderate experience”, and 48% were “experienced”. In regard to educational level, 10% had secondary education, 38% were bachelor’s holders and 52% had a postgraduate degree.

Table 1. Demographics.

| Variable                | Count (423) |
|------------------------|-------------|
| Gender                 |             |
| • Male                 | 54% (229)   |
| • Female               | 46% (194)   |
| Age                    |             |
| • (18–25) years        | 27% (114)   |
| • (26–35) years        | 39% (165)   |
| • (36–45) years        | 26% (110)   |
| • 45 years and above   | 8% (34)     |
| Education              |             |
| • Secondary school     | 10% (42)    |
| • Undergraduate        | 38% (161)   |
| • Postgraduate         | 52% (220)   |
| Internet Experience    |             |
| • Some experience      | 19% (80)    |
| • Moderate experience  | 33% (140)   |
| • Experienced          | 48% (203)   |

4.2. Descriptive Statistics

The descriptive statistics for each variable (i.e., mean and standard deviation (SD)) in the proposed study model are shown in Table 2. All means were >3.14 which indicates that the majority of participants provide positive responses to the constructs that are measured in this study. In addition, Cronbach’s alpha (α) scores showed that all constructs demonstrated strong internal reliability.
Table 2. Descriptive statistics.

| Constructs | Mean | SD  | α   |
|------------|------|-----|-----|
| PE         | 3.51 | 1.13| 0.906|
| EE         | 4.29 | 1.04| 0.903|
| SI         | 3.14 | 1.16| 0.827|
| FC         | 3.36 | 1.25| 0.902|
| FL         | 3.83 | 0.96| 0.856|
| UA         | 4.06 | 1.12| 0.783|
| PI         | 3.91 | 1.19| 0.811|
| BI         | 3.94 | 1.22| 0.847|
| e-Lo       | 4.11 | 1.24| 0.755|

4.3. Measurement Model

As suggested by Kline (2015), the current research applied a two-step approach to testing the relationships among the constructs within the proposed study model [89]. The measurement model was firstly analyzed to evaluate the reliability and validity of the study instrument before examining the proposed hypotheses in the structural model (second step). Firstly, a confirmatory factor analysis (CFA) based on AMOS 26 package was employed to assess the fit and also the validity of the measurement model [90]. The researchers adopted the maximum-likelihood method to evaluate the theoretical model’s parameters where all tests were operated on variance–covariance matrices [90]. Yet, testing for multicollinearity as a first step before going on with the analysis was required. Multicollinearity appears when two or more constructs are highly correlated [91]. Different scholars have recommended different values to be acceptable. However, according to Pallant (2014) [91], a value of 0.7 or above is considered problematic. Two values: (1) tolerance and (2) variance inflation factor (VIF) are used to determine the presence of multicollinearity [91]. The absence of multicollinearity is achieved when the value of tolerance is (>0.1) and the value of VIF is (<3.0). Taking into account that all the independent factors have VIF (<3.0) and tolerance values (>0.10), this indicates no multicollinearity in the sample of this study.

The researchers considered some fit indices to estimate the fit of the measurement model [89,90]. The measurement model fit was determined by employing the chi-square value (χ²). However, as the χ² was revealed to be too sensitive to the size of the study sample and is not always the best indicator of model fit, the ratio of the (χ²) static to its degree of freedom/or adjusted chi-square (χ²/df) was employed instead, with a value < 3.0 indicating an acceptable figure [90]. This research applied a range of further fit indices as suggested by Hair et al. (2014) and Kenny (2020), these indices are: “goodness-of-fit index (GFI); normed fit index (NFI); root mean square residuals (RMSR); comparative fit index (CFI); adjusted goodness-of-fit index (AGFI); and the root mean square error of approximation (RMSEA)” [90,92], as is in line with the extant literature (e.g., [47,93]). The suggested and actual values of model fit indices are stated in Table 3. It is clear from the figures that all fit indices were within the acceptable values. Consequently, the researchers continued to measure convergent validity, discriminant validity as well as reliability in order to assess and validate if the “psychometric properties” of the measurement model were satisfactory.
Table 3. Fit indices for the “measurement model” and “structural model”.

| Fit Indices | Measurement Model | Structural Model | Recommended Value |
|-------------|-------------------|------------------|-------------------|
| χ²          | 571               | 580              | χ² > df           |
| df          | 336               | 345              | ≥0                |
| χ²/df       | 1.966             | 1.681            | ≤3.0              |
| GFI         | 0.915             | 0.917            | ≥0.9              |
| AGFI        | 0.870             | 0.871            | ≥0.8              |
| CFI         | 0.934             | 0.933            | ≥0.9              |
| RMSR        | 0.071             | 0.073            | ≤0.1              |
| RMSEA       | 0.050             | 0.050            | ≤0.08             |
| NFI         | 0.929             | 0.925            | ≥0.9              |

Convergent validity validates whether each factor can be reflected by its own indicators in order to confirm uni-dimensionality of the multiple-item constructs and to exclude unreliable indicators [94,95]. Discriminant validity evaluates the degree to which the measures of different concepts are statistically different and actually unrelated [94]. The current study assessed the convergent and discriminant validity of the proposed scales in the instrument based on CFA to justify the measurement model. Anderson and Gerbing (1988) [96] have suggested three ad hoc tests for convergent validity. Table 4 shows the standardized factor loading (FL), composite reliability (CR), and average variance extracted (AVE). Standardized FL is representative of the extent of association between scale items and a single latent factor. The FL values were revealed to be highly significant in all occurrences. The CRs, similar to the α values, were shown to be acceptable >0.7 as recommended by Hair et al., (2014) [90] in each occurrence. The average variance extracted (AVE) estimates the variation explained by the latent factor to random measurement error [90]. The AVE ranged between (0.722–0.864) for all variables. These estimates reflect an acceptable threshold for AVE which is >0.50. Hence, the results of these three tests confirmed adequate convergent validity.

Table 4. CR, AVE, and FL for the study sample.

| Constructs | CR   | AVE   | FL     |
|------------|------|-------|--------|
| PE         | 0.912| 0.771 | 0.82–0.89 |
| EE         | 0.907| 0.667 | 0.82–0.89 |
| SI         | 0.915| 0.746 | 0.72–0.91 |
| FC         | 0.837| 0.533 | 0.69–0.86 |
| FL         | 0.866| 0.611 | 0.80–0.85 |
| UA         | 0.884| 0.744 | 0.51–0.83 |
| PI         | 0.901| 0.803 | 0.86–0.92 |
| BI         | 0.767| 0.529 | 0.89–0.91 |
| e-Lo       | 0.855| 0.704 | 0.92–0.94 |

Discriminant validity was also evaluated by applying the test suggested by [96]. To achieve acceptable results, the factor correlation between latent constructs should be less than the square root of the AVE [90] “as presented along the diagonal of Table 5 in a bold font” of each construct, as exhibited in Table 5 through the correlation matrix of the proposed factors. The estimation of this validity pointed out that the square root of the AVE for each construct was always higher than the correlation figure for any pair of constructs. For instance, the correlation between UA and BI was 0.42, which was less than the square root of the AVE presented along the diagonal of both constructs. According to the values
listed in Table 5, the square root of AVE for each variable is higher than its correlation coefficients with other model variables. This implies adequate discriminant validity for the study sample.

Table 5. Discriminant validity.

|    | PE  | EE  | FC  | SI  | FL  | UA  | PI  | BI  | e-Lo |
|----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| PE | 0.88|     |     |     |     |     |     |     |      |
| EE | 0.55| 0.82|     |     |     |     |     |     |      |
| FC | 0.34| 0.56| 0.73|     |     |     |     |     |      |
| SI | 0.44| 0.38| 0.44| 0.86|     |     |     |     |      |
| FL | 0.36| 0.56| 0.63| 0.48| 0.78|     |     |     |      |
| UA | 0.50| 0.51| 0.50| 0.41| 0.46| 0.86|   |     |      |
| PI | 0.045| 0.49| 0.13| 0.53| 0.091| 0.095| 0.90|     |      |
| BI | 0.38| 0.38| 0.57| 0.31| 0.51| 0.42| 0.15| 0.73|      |
| e-Lo | 0.55| 0.56| 0.51| 0.52| 0.50| 0.59| 0.102| 0.55| 0.84 |

4.4. Structural Model

Applying the same criteria for the “measurement model” to estimate the goodness-of-fit for the study model, the analysis of the “structural model” showed a good fit for the empirical data (Table 3). Therefore, the researchers proceeded to test the hypothesized associations within the study model.

As presented in Table 6 and Figure 3, the analysis results of the path coefficients (β) illustrated that three out of four proposed direct relationships between UTAUT original constructs and BI were supported. More specifically, PE, SI, and FC were revealed to have a significant positive impact on BI towards using FinTech. These findings demonstrate support for H1, H3, and H4. Unexpectedly, the path coefficient from effort expectancy to users’ behavioral intention was not significant. Accordingly, this research failed to provide support for H2.

Table 6. Path coefficients and hypotheses testing.

|    | Path Coefficient (β) | Supported |
|----|----------------------|-----------|
| H1 | PE >> BI 0.250 **   | Yes       |
| H2 | EE >> BI 0.070       | No        |
| H3 | SI >> BI 0.211 **   | Yes       |
| H4 | FC >> BI 0.193 **   | Yes       |
| H5a| The moderating role of FL on the relation of H1 0.064 | No |
| H5b| The moderating role of FL on the relation of H2 0.056 | No |
| H6a| The moderating role of UA on the relation of H3 0.79 | No |
| H6b| The moderating role of UA on the relation of H4 −0.097 ** | Yes |
| H7 | PI >> PE 0.132 *    | Yes       |
| H8 | PI >> EE 0.104 *    | Yes       |
| H9 | BI >> e-Lo 0.451*** | Yes       |

* p < 0.05; ** p < 0.01; *** p < 0.001; Not supported p > 0.01.
Secondly, while the moderating hypotheses for FL were not supported (H5a and H5b), UA was found to be a quasi-moderating impact according to the proposed hypotheses. With users having higher levels of UA, the effect of FC on FinTech intentions decreases (H6b was supported). However, H6a was rejected as the suggested interaction does not have a significant effect on FinTech usage intentions. Thirdly, as evident from the path coefficients and p-values, both H7 and H8 were supported, indicating a positive direct impact of PI on PE and EE respectively. Finally, users’ intentions towards using FinTech have a direct positive impact on their e-Loyalty and are statistically significant at the “p < 0.001” level, supporting H9.

5. Discussion and Conclusions

The main aim of the current research was to extend the UTAUT by integrating FL, UA, PI, and e-Loyalty factors in order to identify the variables that influence users’ intentions toward using FinTech in Jordan during and beyond the COVID-19 crisis. The findings in the current study empirically and theoretically support the ability of the UTAUT model to be a suitable theoretical framework to offer a better understanding of the user’s acceptance of FinTech. Generally, the results show that FinTech is well accepted in Jordan. Most of the direct associations between the suggested constructs and behavioral intentions were revealed to be statistically significant except for the association between EE and BI. In addition, the findings of this study show that users’ intentions to use FinTech systems and applications were found to be significantly influenced by PE, SI, and FC, while EE did not play a salient role in affecting BI to use the FinTech. The findings also found that PI was found to be a significant determinant of both PE and EE. Intentions to utilize FinTech with the cumulative contribution of the factors proposed in the study model can lead to users’ e-Loyalty, and the user will continue to use the technology after the COVID-19 pandemic. The new normal behavior will be established [6], and both managers and academic researchers are predicting that this type of behavior will develop adequate strategies.

In this study, PE was found to be one of the significant determinants within the proposed model. This study’s results confirm what has been suggested by previous studies [35,49,97,98]. Thus, when the user of FinTech finds the technology to be beneficial then they are more expected to have better perceptions and intentions towards using it. Consequently, practitioners and developers need to enhance the quality of their FinTech ap-
applications based on user suggestions and recommendations in order to motivate more users and satisfy their needs and expectations. To attain this, policymakers and service providers should offer a usage manual that provides detailed instructions and information regarding the advantages of FinTech applications and services such as allowing individuals to perform financial transactions from anywhere and at any time while they have internet-enabled devices. Also, as PE was confirmed to have a significant effect on BI to adopt FinTech services, the service providers should give thought to upgrading the existing FinTech applications and services to offer greater performance to the customers. That is, financial institutions should invest more in domains that affect the users most, for example, taking into consideration functions to optimize financial transactions and swift payments.

Surprisingly, EE has been found in the current research to be an insignificant predictor of users’ intention toward using FinTech. While this result is inconsistent with prior conclusions [25] it is consistent with those of [47,99,100]. A possible explanation is that difficulty in utilizing web-based services and applications is becoming less of a concern for the users as such technology becomes more user-friendly. Thus, the users will mainly utilize those applications and services because of their perceived usefulness (or performance expectancy) rather than their ease of use (or effort expectancy). Consequently, it is recommended that application developers need to design more user-friendly FinTech interfaces in order to attract individuals with less IT skills to accept and adopt FinTech.

Even though technology users are not influenced by reference groups but by individual needs in voluntary contexts [25], the findings of this research indicate that SI has a significant positive impact on users’ intentions which is similar to what has been suggested by prior literature in the area of information systems (e.g., [17,41,101–103]). In this study context, it is recommended that practitioners and service providers be required to encourage earlier adopters of FinTech to contribute to the promotion of this technology to other people. This is important in Jordanian culture which has high degrees of power distance, uncertainty avoidance, collectivism, and femininity. Generally, in such contexts, individuals may be influenced by positive WoM from their colleagues, peers, friends, and important others. In an effort to attract additional users, the providers of FinTech services are also recommended to increase the use of social media channels (e.g., Facebook), SMS messages via mobiles, and e-mails as well as traditional media channels (e.g., TV and newspapers). This, in turn, will influence individuals’ decisions to accept and use FinTech.

Earlier literature has suggested that FC plays a significant role in behavioral intentions toward using technology [7,53,54]. Thus, FinTech service providers are required to invest more in IT infrastructure and also recommended to offer all facilitating conditions for their users such as offering help service centers to enhance users’ IT skills and their ability to use FinTech applications. By doing so, people are more likely to have positive inclinations to accept and use FinTech.

While the moderating relationships for FL were rejected (H5.a and H5.b), further investigation of its direct relationship with behavioral intentions shows a negative effect. This finding could suggest that Jordanian users of FinTech with higher levels of FL have an inverse association with intentions to adopt and use this technology in Jordan. This is a peculiar result showing inconsistency with the findings from earlier studies e.g., [31], which revealed a positive effect of FL on FinTech adoption intentions. This inverse relationship could be explained by the way in which, in Jordan, FinTech may play a role in significantly attaining a level of financial inclusion in which individuals with lower FL are also able to utilize FinTech to complete financial transactions in ways which were, in the past, inaccessible. This may also mean that Jordanian people with higher FL do not conceive FinTech as a valuable tool to complete their financial transactions, as those users may have high accessibility to conventional financial tools and facilities. To attract early adopters of FinTech, those with higher educational levels and multiple financial institutions connections need to be targeted. Yet, it is also possible for this group to have an adequate level of financial literacy, but be less inclined to trust the new service providers.
of FinTech. This means more effort is essential to persuade and build trust from the perspective of this user segment.

The moderating impact of the cultural dimension (i.e., UA) was also tested and this led to the rejection of H6.a, because the suggested interaction did not significantly affect the behavioral intention of the study sample. This finding suggests that espoused cultural values of UA did not play a vital role in moderating the hypothesized association. This finding is similar to other researchers’ conclusions, for example [72]; which confirmed that culture has no significant impact as a moderating factor. Also, empirical results from the current study found that, for FinTech users with higher levels of UA, the impact of FC on FinTech usage intentions decreases. While contradictory results have been confirmed by scholars (e.g., [104]), their findings indicate that users are more likely to accept innovative technology that is easier to be used in cultures with high levels of UA to minimize unwanted outcomes [105]. Future research could conduct further investigations of the two moderating factors (FL and UA) relationships with other factors, such as their direct relationship with the BI to adopt FinTech.

PI is established as a critical antecedent variable. It is seen that PI has a direct relationship with both PE and EE (H7 and H8). This result confirms what has been found in previous studies [30,75], where the role of PI is established as an important factor from the perspective of IT users. The users of new technologies (e.g., FinTech) considered them innovative by nature, however, this result highlights the possibility of segmenting the market for innovative technologies and applications based on the innovative traits of the users. Next, the current study investigated the extended variables affecting the behavioral intention towards FinTech, enhancing the e-Loyalty to these services. Original constructs of UTAUT (i.e., PE, EE, SI, and FC) were added to FL, UA, and PI to examine their impacts on users’ behavioral intention to use FinTech which is suggested as an antecedent of e-Loyalty. These factors could contribute to intentions to adopt FinTech post-COVID-19, and increase e-Loyalty.

In this study context, the repercussions of the COVID-19 pandemic introduce a leverage opportunity to boost the improvements of FinTech and users’ intentions to adopt such services in the post-COVID-19 era. Users will become loyal to FinTech as a result of their behavioral intentions to use these services, services that they were required to adopt due to the contingency circumstances of the COVID-19 pandemic. The users’ intentions come from factors that have been validated by this study to be PE, EE, SI, FC, UA, and PI. Hence, the crisis circumstances are a good lever to access FinTech services, assisting users to realize the value of FinTech. Users who accept and use FinTech become loyal to it, as long as the abovementioned variables are still maintained and guaranteed as expected.

6. Limitations and Future Studies

This study reveals key factors explaining the intentions of users to accept FinTech and build e-Loyalty towards such services. However, the research work undertaken is not devoid of all limitations. First, there are concerns regarding the generalizability of the findings since the current research was based on a non-probabilistic sampling technique. Furthermore, the respondents were mostly experienced in utilizing the internet technologies which could result in a selection bias. Thus, future studies could collect data from respondents with different backgrounds and experiences. Second, this study applied a cross-sectional approach carried out at a specific point in time; however, FinTech services users’ relationship is dynamic. Future studies could apply a longitudinal approach to examine changes in the customer–brand relationship over a period of time and realize updated tendencies in real-time. Future studies may investigate several specific FinTech services/applications and make comparisons to identify the particular characteristics of each one that can contribute to creating a competitive advantage. Third, this study did not test the moderating role of sample demographic characteristics (e.g., age and gender). Further studies may also pay attention to demographic and other environmental factors, such as the impact of governmental regulations on FinTech acceptance and use. Finally, only data
from Jordan were collected in this study. For future research, it is recommended that respondents be drawn from different countries, developing countries in particular, in order to understand the impact of cultural differences and examine whether the same factors will affect FinTech adoption.

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Appendix A

| Table A1. Constructs and measurement items. |
|-------------------------------------------|
| **Item**                                  | **References** |
| Performance Expectancy                    |               |
| PE1 I find the FinTech services useful in my daily life | [25] |
| PE2 Using FinTech services enables me to perform my financial transaction quicker | |
| PE3 Using FinTech services increases my overall productivity | |
| PE4 Using FinTech services improves my performance in many of my daily activities | |
| PE5 FinTech services would bring me greater convenience | |
| Effort Expectancy                         |               |
| EE1 Using FinTech services is easy for me | [25] |
| EE2 It is easy for me to learn how to use Islamic FinTech | |
| EE3 My interaction with FinTech services would be clear and easy to understand | |
| EE4 It would be easy for me to develop the skills to use FinTech services | |
| Social influence                          |               |
| SI1 My peers and close friends support the idea of me using FinTech services | |
| SI2 Most people I admire and am influenced by are using FinTech services | |
| SI3 People who are important to me could assist me in the use of FinTech services | [25] |
| SI4 Using FinTech services makes me look intelligent and modern | |
| SI5 In the future, companies that offer FinTech services will guarantee its proper functions | |
| Facilitating Conditions                   |               |
| FC1 I have the knowledge and capability to use FinTech services | [25] |
| FC2 FinTech product is compatible with all of my computing | |
| FC3 | I always can get help when finding any difficulties using or dealing with FinTech product |
| FC4 | I have sufficient experience to comfortably use FinTech |

**Behavioral Intention**

| BI1 | I intend to continue using FinTech services in the future. |
| BI2 | I will always try to use FinTech services in my daily life. |
| BI3 | I plan to continue to use FinTech services frequently. |

**Personal Innovativeness**

| PI1 | If I heard about a new information technology, I would look for ways to experiment with it |
| PI2 | Among my peers, I am usually the first to try out new information technologies |
| PI3 | In general I am hesitant to try out new information technologies |
| PI4 | I like to experiment with new information technologies |

**Uncertainty Avoidance**

| UA1 | I do not use internet banking content when I am unsure of its quality. |
| UA2 | I am bothered when an internet banking service does something strange. |
| UA3 | I am reluctant to use an internet banking service if the security of operations is compromised in any way. |

**Financial Literacy**

| FL1 | I have knowledge of compounding interest |
| FL2 | I have knowledge of inflation |
| FL3 | I have knowledge of risk diversification |

**e-Loyalty**

| e-Lo1 | I intend to continue using the FinTech services |
| e-Lo2 | The likelihood that I will recommend the FinTech services to a friend is very high |
| e-Lo3 | If I had to do it all over again, I will still choose these FinTech services |
| e-Lo4 | I will choose FinTech services even if alternative shopping options are available |

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