



EFFECT OF PERCEIVED USEFULNESS ON USAGE INTENTION WITH THE MEDIATION OF PERCEIVED USEFULNESS IN BANKING SERVICES

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ABSTRACT

The present study aims to investigate the effect of perceived usefulness on usage intention with the mediation of perceived Usefulness of banking services. This research is applied in terms of purpose and descriptive survey in terms of data collection method. The statistical population of this study includes all customers of Kowsar Credit Institution. Cochran's formula was used for sampling, resulting in a sample size of 400 individuals. Simple random sampling was performed among the customers of Kowsar Credit Institution. The data collection tool was the localized questionnaire of Rodrigues (2019). To assess validity, three methods were used: content validity, construct validity (confirmatory factor analysis), and convergent validity (AVE). For reliability, the Cronbach's alpha coefficient of the questionnaire was calculated at 0.893 in this study. Data analysis was performed using SPSS and PLS statistical software. Results showed that perceived Usefulness has an effect of 0.13 on perceived usage intention. Additionally, the results indicated that perceived usefulness affects both perceived Usefulness and perceived usage intention.

Keywords: Perceived Usefulness, Usage Intention, Perceived Usefulness, Customers of Kowsar Credit Institution

INTRODUCTION

One of the newest methods for increasing motivation, interaction, and improving the quality level of banking services worldwide is the application of gamification in the economic field. Although in the most advanced countries, this approach is relatively new, it can be claimed that since as early as 1700 AD, banks and financial institutions have always provided opportunities to customers to create incentives for deposits and financial transactions. However, the application of gamification in banking technology, in its specialized sense, is a financial

approach aimed at creating motivation among bank customers and financial institutions by utilizing gamification elements in financial and credit environments (Kim, 2017).

The ultimate goal of this process is to increase the Usefulness derived from performing financial and banking services, engage customers with financial and banking services, and create relationships and tendencies to continue these services (Deterding et al., 2011). It is important to note that the application of gamification in banking is different from performing financial services based on play. Some theorists illustrate this distinction by suggesting that gamification only occurs when financial services are delivered in a non-play context—for example, within a bank environment—while a set of game elements is applied as a system or “game layer” during the delivery of financial services in that bank. Conversely, pure games are designed to teach financial points to users based on play (Mekler, 2017).

Hsu et al. (2017) investigated the effect of gamification on customer purchase intention in online stores. In this study, website features were considered as a mediating factor between gamification elements and customer purchase intention. The results demonstrated that both utilitarian and hedonic features significantly impact customer shopping experience, affecting customer perception of product value. It was also revealed that employing gamification patterns increases customers' willingness to stay in the store and to shop online. Additionally, website appearance features significantly influenced customers' purchase intentions.

Rodrigues et al. (2016) studied gamification in electronic banking and the role of ease of use on perceived Usefulness. The findings showed that ease of use combined with gamification leads to perceived Usefulness, which in turn increases customers' inclination to use electronic banking services. Insley et al. (2014) conducted a qualitative study on the impact of gamification on customer purchase intention in online retail stores. Their results indicated that gamification elements are a key factor in increasing customers' willingness to shop online and positively influence their online shopping experience. However, they noted that without proper management, customers may create their type of game in the store, which increases competitive pressure among online retailers.

Kowsar Credit Institution is one of the licensed credit institutions in Iran, affiliated with the Ministry of Defense and Armed Forces Logistics (VEDAJA). The Foundation of VEDAJA Cooperation was responsible for pursuing the establishment of this institution, and following efforts, in 2009, concurrent with the birth anniversary of Imam Reza (PBUH), the initial approval for establishing the institution named Kowsar was obtained. In February 2011, after a change in the founders' perspective and approval of the rapid expansion theory, a capital of 75 billion IRR was deposited at the Central Bank, and quantitative and qualitative expansion began, such that by the end of 2013, about 350 active branches were established nationwide. In February 2012, the Charity Youth Loan Institution merged with Kowsar.

Gamification and its application in banking remain a new topic worldwide. Given the novelty of scientific research on this subject in Iran and the attempt to localize it with regard to Iranian culture, the gap between Iran and the world in this field will be reduced, and full utilization of gamification possibilities in different sectors will be achievable. The applied outcome of this research (if positive results are obtained) will be a comprehensive online financial system for Kowsar Credit Institution, which undoubtedly will be extendable to all banks and financial institutions. Moreover, based on the experiences and achievements of this study, other financial, credit, and banking institutions in the country can benefit sufficiently from gamification principles and techniques to improve their financial and banking service levels. Considering the above, the present study aims to investigate the effect of perceived usefulness on usage intention with the mediation of perceived Usefulness from banking services.

Theoretical Foundations of the Research

Gamification

Gamification refers to the application of game-thinking and game design techniques in contexts other than games. Gamification relies on creating entertainment and employing game techniques to achieve goals beyond mere play, such as motivating users, encouraging desired behaviors, or promoting increased participation (Zichermann et al., 2013). Gamification is an incentive technology that seeks to influence user behavior by providing personal motivation through game elements. Therefore, this approach is not necessarily related to game design but offers a structured way to resolve conflicts. Gamification also involves designing gamified services, which consist of a core that proposes a product, service, or information system based on information technology. The starting point for designing such systems is the clear definition of goals by the providers of the core. For example, providers should declare that they desire their proposed program to have a positive effect on users' historical or analytical knowledge in the future. These goals are then translated into game elements and transformed into gamified enhancement services. By creating a game-like situation, the service can encourage users to engage with the core offering and thereby increase product consumption (Leimeister, 2012).

Gamification means using dynamic game elements in non-entertainment contexts to influence user behavior. To improve employee productivity, tools that create interest and fun—such as a range of experiences, achievements, badges, and a leaderboard of top employees—can be used to successfully attract and retain talent in companies (Hall et al., 2012).

Advantages of Gamification

Gamification offers numerous benefits that vary across industries. The main measurable success metrics are: engagement, influence, loyalty, time spent, and virality. All of the definitions stated unanimously state that the use of game design thinking, game tools, and game mechanics is an integral part of game creation and its application in non-game and serious contexts, and directly or indirectly indicate that its goal is to create motivation, participation, and user commitment. However, there are a few minor differences. For example, the definitions of Zickerman and Hotari, and Homari are very broad. So they also include the subject of serious games. Loyalty programs are also generally not considered gamified systems. Whether full-fledged games that are used to educate, create participation, or improve behavior, and which we refer to as serious games, fall under the umbrella of game creation or not, is a question that there is no consensus on based on the definitions mentioned. But our approach to defining game design is to consider serious games outside the realm of game design, based on the definitions of Deterding and Werbach. Furthermore, the idea of audience engagement that Zickerman directly states is not directly stated in other definitions. The definition that we consider for game design, and intend to dissect it, is based on the definition of Deterding et al. (2018) and the definition of game design by Werbach and Hunter (2012): “Game design is the process of applying game patterns and game design techniques to non-game contexts.”

Importance of Gamification

Researchers have found that games benefit the brain. Due to its interactive nature, gamification plays an important role in attracting and engaging customers with businesses. Gamification uses elements such as simplicity, social interaction, entertainment, attractiveness, customer psychology, and competition to form a chain of customer acquisition and loyalty. This chain creates added value concerning competitors, leading to targeted customer attraction and intelligent engagement. Three key factors underpinning the acceptance and increased use of gamification in various industries today are:

1. The growth of interactive tools connected worldwide: The presence of various interactive tools enables business owners to establish more interactive relationships

with customers. Businesses use different electronic communication tools to interact with their customers. Such direct, intermediary-free communication compels service providers to shift their services toward gamification technology.

2. Increased awareness and attention to technology: The penetration of technology in daily life and its acceptance by different social groups is another crucial factor for implementing gamification in customer service.
3. The popularity and widespread adoption of games across different social groups: According to a report by Apis Partner, a major business service provider, more than 900 million people worldwide belong to communities related to computer and mobile games. The latest data released in 2016 show that over 183 million users in the United States alone are members of online gaming communities. Therefore, the widespread acceptance and popularity of online games among various social groups is another reason for focusing on gamification in customer service delivery. The greatest role of gamification is in attracting and retaining customers who use products and services for the first time. Gamification provides a space for better learning and communication between the user and the product (Ling, 2005).

Gamification and Education

Gamification in education is an advanced and significant topic. Although the use of games in educational processes, especially in interaction between students and teachers, is not a new concept, gamification can be observed in virtual education, homeschooling, school education, employee training, and knowledge management (Muntean, 2011).

Jessica Hammer and Joey Lee, in their article, discuss student motivation and participation and the effectiveness of gamification in education. They identify three features through which gamification can intervene in education: the educational nature of games, the emotional engagement of users, and sociality. They believe a well-designed gamified platform can help users experience effective education by accepting meaningful roles (Oliveira, 2017). One limitation of virtual education is the lack of emotional exchange, which makes it difficult to engage students compared to teacher-led education. This deficiency requires systems to use tools to fill this gap and motivate students. Using educational games (serious games or simulations) and gamification is one of the solutions to this problem.

Khan Academy¹ is one successful example of virtual education that has effectively employed gamification. Another example is “Ribbon Hero,” a free game offered by Microsoft that teaches users how to use the tools available in Microsoft Office 2007 and 2010 ribbons.

Perceived Intention to Use

Behavioral intention or intention to use refers to customers' perception of service providers' performance in service delivery and whether customers are willing to make more purchases from a specific organization or reduce their purchases (Feldmann, 2005).

Perceived Usefulness

Perceived usefulness is the degree to which an individual believes that using a particular technology improves their performance. The primary factor influencing individuals' tendency or reluctance to use a technology depends on their belief about the technology's usefulness. If people believe that technology enhances their work, they are inclined to use it. This variable is called perceived usefulness (David, 2005).

¹ <http://www.khanacademy.com/>

Method

This study is classified as applied research based on its purpose and descriptive survey research in terms of data collection method. The statistical population includes all customers of Kowsar Credit Institution. Random sampling was used in this research. To determine the sample size, Cochran's formula for an infinite population was applied, resulting in a sample size of 385. To increase the reliability of the study, 410 questionnaires were distributed. Among them, 6 questionnaires were not returned, and 4 questionnaires were discarded due to incomplete data entry, making them unusable for statistical analysis. Primary data were collected using a questionnaire. The research questionnaire is based on a localized version of the questionnaire from Rodrigues (2016), which was adjusted according to expert opinions from professors and relevant specialists. Content validity was assessed by providing the questionnaire to several experts, advisors, and supervisors, who unanimously approved it. Construct validity (confirmatory factor analysis) and convergent validity (Average Variance Extracted, AVE) were also examined. For reliability, Cronbach's alpha coefficient was calculated as 0.893 for the questionnaire in this study. The conceptual model of the research is evaluated using Structural Equation Modeling (SEM). Data analysis was performed using SPSS and PLS software.

Findings

The results showed that 178 respondents (approximately 44.5%) were female and 222 were male. Thirty-two respondents were younger than 25 years, constituting less than 10% of the sample. Eighty-five respondents were aged between 25 and 30 years. The majority, 165 respondents, were between 30 and 40 years old. Ninety respondents were between 40 and 50 years old, and only 28 were over 50 years old. Eighty-five respondents (22%) held a diploma or lower degree. Fifty-four respondents had an associate degree. The number of respondents with a bachelor's degree was 182. Seventy-nine respondents held a master's degree or higher. Regarding financial and credit service experience with the brand, 115 respondents (29%) had used the services once. One hundred twenty-seven respondents had used the services twice, representing the highest frequency. Eighty-nine respondents had three experiences, constituting 22% of the sample. Sixty-nine respondents (17%) had used the financial and credit services more than three times.

Table 1: Descriptive Analysis of Research Variables

Research Variables	N	Mean	Min	Max	Range	Std. Dev.
Perceived Usefulness	400	3.564	1.40	5.00	3.60	0.706
Perceived Usefulness of Use	400	3.955	1.00	5.00	4.00	0.581
Perceived Intention to Use	400	3.943	1.25	5.00	3.75	0.554

According to the data in Table 1, 400 valid responses were collected for the research variables. The mean scores ranged between 3.5 and 4. The median and mode indicate that most respondents chose options 3 and 4 ("moderate" and "high") on the Likert scale. The variability, as indicated by the range, is high and covers values from 1 to 5. The range of variation for most research variables is about 4. Regarding the standard deviation, perceived usefulness shows the highest dispersion among variables.

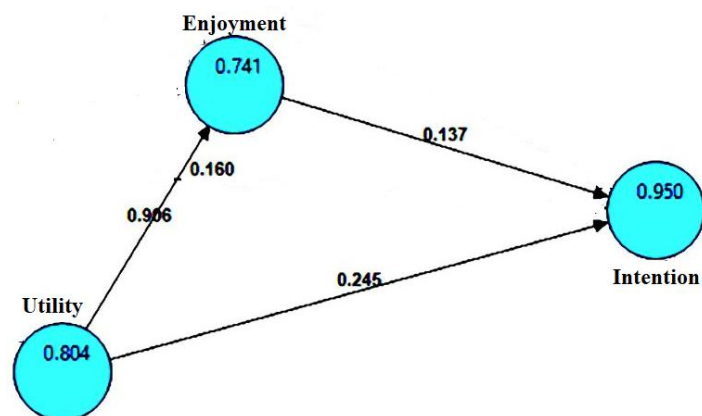


Figure 1: Inner Model Path Coefficient Estimates

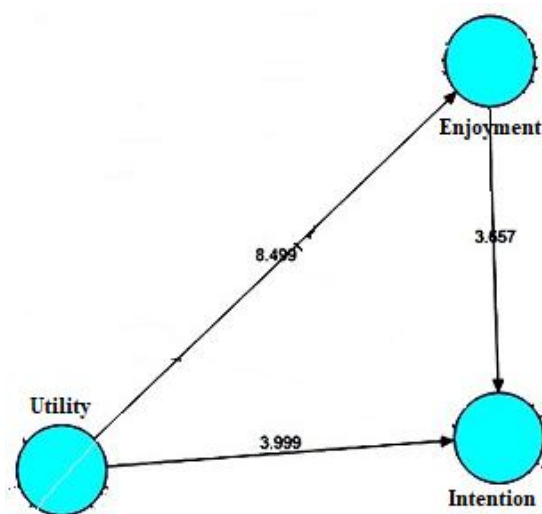


Figure 2: Significance of Path Coefficients in the Inner Model

Table 2: Factor Loadings

Variable	Question	Factor Loading	Significance (t-value)
Perceived Usefulness of Use	14	0.737709	18.251523
	15	0.727961	18.626412
	16	0.740227	17.221962
	17	0.756812	19.41598
	18	0.744277	17.654657
	19	0.750617	18.859789
Perceived Usefulness	20	0.82374	28.081194
	21	0.832146	32.584101
	22	0.814001	31.648718
	23	0.83922	32.731904
	24	0.850228	35.868319
	25	0.830995	33.533274
	26	0.841053	37.987758
Perceived Intention to Use	27	0.913835	56.332917
	28	0.924301	65.6578
	29	0.916014	52.599121
	30	0.906683	52.389868
	31	0.91744	54.322161
	32	0.920879	54.292482
	33	0.901328	46.210814

According to Table 2, all questions have factor loadings greater than 0.5. Therefore, none of the questions were removed and the model is analyzed as is. The significance of the coefficients, i.e., the t-statistics, is also shown in the table (Figure 2). Since these values fall outside the ± 2.57 range, the factor loadings are significant.

Table 3: Model Reliability Indices

Variables	Cronbach's Alpha	CR	Communality	AVE
Perceived Usefulness	0.837694	0.88085	0.552036	0.552036
Perceived Usefulness	0.92651	0.940761	0.694102	0.694102
Perceived Intention to Use	0.967619	0.973001	0.83736	0.83736

Table 3 shows the model reliability indices. Cronbach's alpha values above 0.7 indicate acceptable reliability. The Cronbach's alpha coefficients for all research variables in this study are above 0.7, confirming internal consistency. The Composite Reliability (CR) reflects the internal consistency of the indicators for each variable within the model. The acceptable range for CR is above 0.7 and below 0.95. Therefore, the composite reliability of the items is also confirmed.

Table 4: Fornell-Larcker Criterion

Variables	Perceived Usefulness	Perceived Usefulness	Perceived Intention to Use
Usefulness	0.74299		
Usefulness	0.705144	0.83313	
Intention to Use	0.61908	0.8012	0.91507

Based on the results shown in Table 4, the numbers on the main diagonal are greater than the corresponding values in their rows and columns. Therefore, the Fornell-Larcker criterion is also confirmed. Overall, considering the confirmation of both convergent and discriminant validity tests, the construct validity is also supported. The results related to the inner model, i.e., the conceptual model of the research, are presented in Table 5.

Table 5: Path Coefficients of the Structural Model

Inner Model Path	Path Coefficient (β)	Significance (t-value)	Result
Effect of Perceived Usefulness on Perceived Usefulness	0.906	8.499	Hypothesis accepted
Effect of Perceived Usefulness on Perceived Intention to Use	0.245	3.999	Hypothesis accepted
Effect of Perceived Usefulness on Perceived Intention to Use	0.138	3.657	Hypothesis accepted

Table 6: R-Square and Q-Square Test

Variables	R ²	Q ²
Usefulness	0.729963	0.395085
Usefulness	0.791399	0.548782
Intention	0.95035	0.78638

According to Table 6, the R^2 values for all variables are very strong. In other words, the variables ease of use, Usefulness, usefulness, and intention together can strongly explain the social perception variable. Also, the Q^2 values indicate that the predictive relevance of all variables in the model is very strong.

The Goodness of Fit (GOF) index is calculated as follows:

$$GOF = \sqrt{\overline{\text{communality}} * \overline{R^2}}$$

where $\overline{\text{communality}}$ is the average communality of each construct, and $\overline{R^2}$ is the average of the R^2 values of endogenous constructs, which are shown inside the circles in the software output. The average communality is 0.759, and the average R^2 is 0.849; as a result, the GOF value is equal to 0.803. The result was obtained. By comparing the value of 0.803 with the GOF with the above values, it can be said that the present research model, along with the variables within it, is very strong.

Based on the results of Table (5), the path coefficient between perceived usefulness and perceived Usefulness of use is 0.906, which is positive, so the effect is direct and positive, and its significance is 8.499, which is outside the range (+1.96 and -1.96). Therefore, with 95% confidence, it can be said that perceived usefulness has a positive and significant effect on perceived Usefulness of use. In other words, the higher the perceived usefulness, the greater the perceived Usefulness of use. The eighth hypothesis of the present study is accepted.

Based on the results, the path coefficient between perceived usefulness and perceived intention to use is 0.245, which is positive, so the effect is direct and positive, and its significance is 3.999, which is outside the range (+1.96 and -1.96). Therefore, with 95% confidence, it can be said that perceived usefulness has a positive and significant effect on perceived intention to use. In other words, the greater the perceived usefulness, the greater the perceived intention to use. The ninth hypothesis of the present study is accepted.

Based on the results, the path coefficient between perceived Usefulness of use and perceived intention to use is 0.137, which is positive, so the effect is direct and positive, and its significance is 3.657, which is outside the range of (+1.96 and -1.96). Therefore, with 95% confidence, it can be said that perceived Usefulness has a positive and significant effect on perceived intention to use. In other words, the greater the perceived Usefulness, the greater the perceived intention to use. And the tenth hypothesis of the present study is accepted.

CONCLUSION

The present study aimed to investigate the effect of Perceived Usefulness on Intention to Use mediated by Perceived Usefulness. The results showed that the effect of Perceived Usefulness on Perceived Usefulness was 0.90. These findings align with previous studies by Chen et al. (2016), Hsu et al. (2017), Rodrigues et al. (2016), Insley et al. (2014), Yavari (2014), Karimi Alavijeh et al. (2015), Tehrani et al. (2015), Hassani et al. (2010), Solvati & Karimi (2016), and Sarafrazi et al. (2012).

Moreover, the effect of Perceived Usefulness on Intention to Use was 0.24, which is significant at the 95% confidence level. This result is consistent with findings from Jansen et al. (2017), Jang (2018), Cadison et al. (2015), Mishen et al. (2007), and Powell et al. (2010).

On the other hand, the effect of Perceived Usefulness on Intention to Use was 0.13, significant at 95% confidence, aligning with studies by Zickerman et al. (2011), Petkov (2011), Michel et

al. (2017), and Harris et al. (2014).

The identified variables for measuring constructs generally have their roots in studies conducted outside the country, and localizing these studies naturally involves shortcomings and difficulties.

Perceived usefulness of the internet has a positive and significant relationship with the attitude towards internet use and the behavioral intention to use the internet. It is recommended that managers of Kowsar Credit Institution take steps to increase perceived usefulness to enhance perceived Usefulness. To positively improve customer loyalty to Kowsar Credit Institution, it is suggested that necessary trust-building efforts be made with customers first. Timely service delivery, a transparent response system, a complaint handling system, facilities for refund in case of customer dissatisfaction, alignment of service features with those described on Kowsar Credit Institution's website, the existence of incentive services and free gift packages, offering discounts to loyal customers and vouchers or discount coupons, as well as courteous and well-intentioned support staff online, are all factors that positively enhance customer loyalty.

Considering the importance of the variable "usefulness" regarding security in explaining changes in the use of financial and credit services, it is essential to improve customers' perception of security to facilitate the use of these innovative services. Due to lack of personal contact, inability to evaluate services directly, uncertain security in transactions, and lack of privacy protection, the internet is inherently a risky environment, and perceived risk is an important factor in online purchasing behavior. Therefore, it is recommended that Kowsar Credit Institution take the following measures to increase customers' trust and confidence in this new system:

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