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COMPARATIVE ANALYSIS OF BANK'S ATM AND POS TECHNOLOGIES BY CUSTOMERS

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ABSTRACT

This study aims to investigate comparative analysis of bank's ATM and technologies POS by customers applying Technology Acceptance Model 3 (TAM3) so that TAM3's accepted components will be analyzed separately for each ATM and POS technologies. Statistical population includes Melat Bank's customers residing in Tehran. Applying Cochran's sample size formula, 139 customers were selected randomly. The data collected from questionnaires were analyzed applying SPSS 21. The findings show that generally speaking, people use points of sale than ATMs. In most of TAM3's components, ATMs show higher acceptance than points of sale. Only in self-efficacy, perceived joy and result demonstrability, points of sale were higher than ATMs. In anxiety and behavioral intention components, there was a meaningful difference between points of sale and ATMs regarding acceptance.

Keywords: Technology Acceptance, ATM, POS, TAM3





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1. INTRODUCTION

One of the most important tasks of banks is presenting services via modern technologies including ATM and POS. Today, customer's judgment for bank affairs is based on bank capabilities in helping them to solve problems and developing sustainable business. Security, transaction speed, being friendly with consumers, ease of use, trust and privacy-related issues are among the most significant factors regarding customer's bank selection (LAFORET; LI, 2005).

Therefore, online banking acceptance is rising in most countries so that in pioneer countries, the rate of electronic banking connections is more than fifty percent (PIKKARAINEN; PIKKARAINEN; KARJALUOTO; PAHNILA, 2004).

In banking system, quick affairs and having no time-loss is considered as a significant success factor for competing among banks. As a primary factor defining this competition, customers value technology and quickness above all and the technical specialization of banks are at the second place. In modern banking, it is necessary to describe bank services especially electronic banking services, therefore banks need to obtain sufficient customer information, understand their interests and requests, and develop their relationships in order to be efficient.

Regarding the above items, the main issue is that whether there is a difference between acceptance of ATM and POS bank technologies by customers using TAM3 model in Melat Bank's branches in Tehran. Also, since there are insufficient studies regarding this issue in Tehran's Melat banks, this study aims to comparatively analyze ATM and POS bank technologies by customers using TAM3 model.

Recent developments in information technologies specially in internet has transformed traditional economy into network and knowledge-based economy in which electronic commerce plays an increasingly important role in reshaping buyer-supplier relations, improves main business processes, leads to acquisition of new markets and segments, and also results in an increase in operational and office expenditures (MOGHADAM et al, 2014, MOGHADAM; SALAMZADEH, 2016).

Information technology has fundamentally transformed all the parts of the society in a unique way and banks as one of the fundamental societal sectors of economy are no exception. With an everyday growth of global electronic commerce



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transactions and a need for bank for transferring financial assets, electronic banking is an indispensable part of electronic commerce and plays a pivotal role in launching

it.

Electronic commerce manifests itself in banking and financial services. Certainly, there is no electronic commerce without electronic banking. Also, new studies on technology and self-efficacy development are based on technology (DABOLKAR; BOBBITT, LEE, 2003).

This development in offering electronic services result in numerous changes in methods of offering services to customers, interaction with service customers and research study methods and the way service is being offered in electronic service organizations (YANG, 2005).

Therefore, regarding the above-mentioned issues and the significance of modern and electronic banking in banking industry, nowadays it is necessary to study these subjects in banking industry and it is a one of the main concerns, in a way. Also, due to a shortage for such studies in banking industry, this study aims to investigate a comparative analysis of bank's ATM and POS technologies by customers using TAM3 model in Melat bank branches in Tehran.

Hopefully, this study provides a base for improving Melat Bank branches' performance, increasing service quality and customer satisfaction. Therefore, the research question is: "Is there a significant difference between usage of Bank's ATM and POS technologies by customers using TAM3 model in Melat bank branches in Tehran?". In fact, this research is trying to shed light on customers' propensity toward these two technologies, as well as their level of technology acceptance. Then, the main contribution of this paper is to compare these two technologies in the banking system of Iran, which is neglected in the existing literature.

2. LITERATURE REVIEW

With complex plans throughout the world, Information and Communication Technology (ICT) phenomenon enables distant people to dynamically interact and empowers them to follow mutual objectives (FAQIH; JARADA, 2015).

Electronic banking technology refers to financial activities performed by electronic technologies. This includes Automatic Teller Machines (ATMs) to other



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services like POS, electronic bill payment, electronic asset transfer, phone banking, etc. (GURITING; NDUBISI, 2006).

These financial electronic technologies are in different development phases. For instance, it is almost 30 years since ATM are installed and used for the first time and accepted by customers in a widespread way. On the other hand, phone banking, electronic bill payment and online banking are among those activities recently added to bank services which requires computer and internet and is not as widespread as ATM among customers (KNIGHT; PEARSON, 2005).

From the customers' viewpoint, electronic banking provides numerous benefits for people like quick access to the account and cash, ability to have distant access to bank transfers and investments and performing electronic applications. With electronic banking there will be no concepts like time and place and these services are available to people regardless of time and place they are in.

2.1. ATM And Electronic Banking

One of the modern methods of electronic banking is using ATMs. Economy of ATM market is similar to other markets but differs in a way that ATM market is a monopoly one regarding similar markets like POS markets (CHRISTOPHER; KNITTEL; STANGO, 2011).

Many of banking affairs would be performed via ATM regarding the fact that the person is needed near the machine with his cart in his hand and he needs to enter his password and of course the security precautions are less considered. In recent years, technologies like ATM are more prevalent as a method of sustaining loyal customers and increasing market share. Banks utilize technologies to face competitive challenges imposed by competitors and online banks and also as a method for decreasing costs of services which used to be performed exclusively by employees (FAQIH; JARADA, 2015).

ATMs or automatic teller machines could automatically play the role of a teller and perform all the teller operations and based on its speed and efficiency, this system could easily substitute bank branches in hotels, institutes and big malls and practically, serve bank customers all the cash services in every time and place. Often, ATM cards have been associated with saving and checking accounts and allow access to money all day long and all year long. Also, these cards could be



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used for depositing cash into the account, transferring assets among accounts, receiving account balance and in some cases, paying bills (VENUS; MOKHTARIAN, 2005) insert, the factors influencing the quality of customer satisfaction regarding ATM services are as follows.

The benefits of using ATM are: (i) Continual access and increasing productivity of banking services, (ii) Ability to pay different payments via ATMs in every hour of day/night, (iii) Decreasing the volume of customer traffic in rush hours, (iv) Preventing time and human resource loss for performing daily bank affairs which would be done by ATM easily and more precisely, and (v) An increase in public chance of using ATMs may lead to an economic decrease in the costs of note's printing since it reduces the usage of notes. In details, it should be noted that an ATM increases the rate of commerce in institutes it is installed in. Generally, customers with ATM cards purchase %20-25 more than customers with no ATM cards. Therefore, ATMs prosper businesses (CARBO; RODRIGUEZ, 2008).

Using ATMs results in creation of new businesses since generally, people tend to use places which have ATM which subsequently leads to creation and development of new businesses (AMIR SHAHI, 2010).

For instance, with advertisments displayed on ATM screens, public pay attention toward products and services therefore new businesses prosper. Since ATMs have advertising facilities, it could add other streams of income for its owners like selling other stuff like stamps. Also, for every transaction made, a sum is considered for the ATM owner as a wage.

Using ATMs decreases the risks of honored checks because it is possible for the buyer at the moment of sale to pay quickly. When exchanging a country's currency to other foreign currencies, it frees the card holder from carrying foreign currencies and makes it possible to buy in foreign countries with a lower wage. Using ATMs makes the card holder free of carrying cash.

Therefore, it lowers the security of assets regarding roberies. Beside the benefits ATMs have for citizens and consumers, they have a number of benefits for other stakeholders. Using ATM machines reduces unnecessary transportation of citizens which leads to less trafic and polution because ATM makes it possible to withdraw money from other branches and banks. An increase in public attection



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toward using ATMs makes it possible for lower costs of printing notes because it

reduces the application of notes (DAS, 2009).

2.2. POS Devices

Ponits Of Sale are among the most common payment devices for credit cards, debit cards, checks, smart cards, electronic bank transfer (EBT) and other electronic transactions in a retail and wholesale environment. These terminals are used in face-

to-face deals (AMIR SHAHI, 2010).

POS is a device which provides automatic transfer of purchasing price from seller's account via telephone or network connection to bank systems. Apart from payment, POS includes different performances including account balance, account billing, postponing a purchase and daily reports which has benefits of a small bank branch for its owners (BEGONA; DOLORES; ZAIDA, 2014).

In fact, points of sale or POS refers to small store systems used in the exit parts of stores, restaurants, hotels and alike for receieving customers' cash. In a more common sense, POS refers to the point allocated to this activity and in a more

special sense, it could be the device performing this activity.

Amazing development of ICT and its development into monetary markets and banking systems has changed current banking methods and facilitated affairs for bank customers. New technologies and electronization of banks enables banks to increase the speed, quality, precision and devrsity of their services and to decrease the costs for presenting these services. Efficient payment systems are among main components of efficient economies andmonetary markets and facilitates the transaction of products and services and assets. The growth of electronic payments could significantly decrease social costs of a country's payment system (HUMPHREY; WILLESSON; BERGENDAHL; LINDBLOM, 2006).

POS is a totally known device in the world economy and in a way, is considered as a catalyst in global economic system (BEGONA; DOLORES; ZAIDA, 2014). This device boasts numerous benefits but unfortunately, there is not enough attention toward it due to a lack of culture and inconsistency among numerous departments in Iran.

This small device has a number of benefits including a decrease in time loss and unnecessary trips, high level of security rate, having no cost for using it, using



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less/least number of notes which are a source of filth and diseases, etc.. In details, POS has numerous benefits for the whole banking system and bank customers and monetary and financial markets of Iran (MOHAMMADIPOUR, 2013) including:

 A decrease in customers visiting bank branches in order to withdraw cash and also deposit money into centralized accounts

 Less depreciation of banks' ATMs due to less visit by customers for cash withdrawal

 Less worn-out cash due to being passed from someone to someone else and protecting national assets

 A decrease in travel checks' transactions and other checks issued by banks and therefore a decrease in the volume of operation performed in bank documents' clearing room

 Cash not exited from banking systems and customers' accounts and residing in people's hands

 Promoting public health rate and decreaseing contagious diseases due to a contact with coins and notes

 A decrease in traffic and noise noise pollution and a decrease in gasoline consumption and public transportation depreciation specially in cities

Promoting customers and public's knowkedge level

 Increasing occupation and creating job positions and revenue and creating wealth in the society

Although there are so many benefits for POS, so many customers still do not use this device which its most important reasons seem like to be customers' lack of trusting electronic payment system and lack of clarity in financial affairs whereas POS registers all the successful and unsuccessful payments and one can make sure any difference in payment and residual would be defined clearly (MOHAMMADIPOUR, 2013).

Investigations shows that consumers' acceptance and application of electronic banking technologies is related to personal characteristics of consumer and that special technology (CHAN; LU, 2004). For instance, it seems like acceptance of a



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technology is related to consumer's personal and economic-social characteristics like age and income, perceptions toward special technologies like percieved ease of use and personal preferences like control on bill payment process. Like other technologies, using magnetic and smart bank card technologies for using ATMs and POS is related to numerous factors including consumers' characteristics and requests, card issuers or banks, sellers or those who accept these devices, the characteristics related to type and amount of transactions, description of sale place (BEGONA; DOLORES; ZAIDA, 2014).

Corradi and Swanson (2005) studied 13 OECD members from 1988 to 2003 and demonstrate that using ATMs face a decrease with a daily increase in using POS devices. Amromin and Chakravorti (2006) insert that in many economies, ATMs are primarily considered as a wallet for consumers with which people have access to cash. With an increase in POS usage by businesses, the rate of credit card usage increased and people showed less tendancy toward carrying cash with themselves. With all these, the authors believe that final selection of each device depends on consumers' attitude toward ATM and POS accesibility.

In a study entitled "Payment Systems' Copetitor Technologies: POS and ATM and A Demand For Cash", Carbo and Rodriguez (2008) investigate the adoption and diffusion of ATM and POS in companies. The experimental research results shows that competitors network and marlet authority directly influences the selection of each technology by individuals and companies. Also, the results shows that when demand for ATM machines is growing, the demand for POS devices decreases.

In a study by Owh et al, (2009) entitled "Effect of Numerous ATMs on Cost Efficiency: An Empirical Study of Taiwan", the effect of ATMs on banks' cost efficiency was studied and insert that using ATMs could decrease costs and via cost reduction, banks could obtain a higher performance. Chin believes that using ATMs leads to a decrease in operational costs by removing manual operation.

Chan and Lu (2004) insert that perceived ease of usefulness by customer indirectly influences individuals' intent for deciding and/or continuously using electronic banking. Also, Guriting and Ndubisi (2006) insert that ease of usefulness and preliminary instructions equally has an indirect effect on using electronic banking.



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In another study in Parsian Bank, the researcher investigates the required

contexts for electronic banking and introduces a suitable approach from approaches

for transforming traditional banking to electronic banking. He believes that technology, managerial, organizational and cost factors are the factors mostly

influence the establishment and development of electronic banking in Parsian Banks.

In another study by Su and Han (2005), two factors of ease of use and usefulness of

services are significant in ATM acceptance by customers.

In a study performed by Olowookere and Olowookere (2014), they found out

that ATMs are extensively used by people so that %93 of individuals studied are

using this system. High accessibility to these systems makes them more acceptable

while high transaction fees and high fraud risks decreases the usage rate

(OLOWOOKERE; OLOWOOKERE, 2014).

Abbas et al (2015) figured out that most significant factor influencing services

presented by ATM and POS systems are reliability, responsiveness and assurance.

They suggest that by promoting ICT infrastructure in a country trustworthiness

increases.

In a study by Ozbeka et al. (2014) entitled "The Impact of Personality on

Technology Acceptance: A Study on Smart Phone Users", they studied the impact of

personality on technology acceptance. They set their study on 401 university student

and the results shows that perceived usabilty and user's behavioral intent are

influenced by users' personality.

Torabi (1930) inserts that until the year 1390, most of ATM users are working

in governmental departments. This means that bank managers and policy makers

must consider a special share for governmental organizations, institutes amd

companies when planning for their strategies. Based on the results obtained by the

same study, people who are working in private sector do not tend to use ATM

services.

Laforet and Li (2005) suggests that banks' marekting managers apply suitable

explorative marketing research and find out the reason behind this phenomenon.

Also, with regard to the procedure of service assimilation performed in most banks,

he suggests to bank managers that they have to merge ATM services with services

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that private sector employees benefit and must encourage that group of customers to use ATM technology services.

3. RESEARCH MODEL

This study aims to investigate a comparative analysis of the level of acceptance of bank's ATM and POS technologies by customers applying TAM3 in Melat Bank in Tehran. TAM3 is the final updated model for TAM1. Venkatesh and Davis (2000) developed primary TAM model and added new theoretical structures to the primary model known as TAM2 including social impacts and cognitive tool processes. Aggregating TAM and ease of use's influencing factors' model (VENKATESH, 2000) technology acceptance model was developed as an integrated model named TAM3.

In fact, TAM3 is a complete network of influencing factors related to people, compatibility, and usability of information technology. In this model, there are three extended theory beyond TAM2 and ease of use's influencing factors with the logic of integration. TAM3 model investigates voluntary and mandatory use of technology and shows that over time when people gain more experience from the system, they pay attention to the judgment about usability of a system based on the potential place benefits obtained from using more social information in shaping perceived usefulness.

Other scholars suggest the critical role of investigating external factors and found out that these factors are critical for using technology (LEGRISS; INGHAM; COLLERETTE, 2003). From that moment on, primary TAM model components were used as mediating factors which themselves are under the effect of external factors (Figure 1).

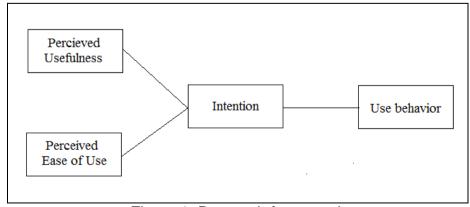


Figure 1: Research framework



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4. RESEARCH METHODOLOGY

Research method is descriptive correlational method and data collection is field study. In this study, since the volume of statistical population is not defined, a formula by Ozbeka et al. (2014) was used for defining sample size. The formula is as follows:

$$n = \frac{Z^2 P(1-P)}{d^2}$$

In the above formula,

- n is the number of sample under study
- Z is the unit rate of normal distribution coefficient equal to confidence level
- P is estimation of characteristics of variable to population
- d is permitted error rate

With respect to 95% confidence level and normal distribution hypothesis, t equals to 1.96 and d equals to 0.05. Beside this distribution, 20 primary questionnaires showed that 18 people are eligible to participate in the study and therefore, the possibility of observing such characteristics is around 90%. Therefore, sample size equals to:

$$n = \frac{(1.96)^2 * 0.9(1 - 0.9)}{0.05^2} = 139$$

Thus, 139 customers of Melat bank in Tehran branches were investigated.

In this study, targeted method was used for sampling. The customers were asked to participate in this study if it is possible for them. The questionnaire was delivered to those customers who were able to participate and tend to do so. Data collection was performed via questionnaire which was made based on literature review. For data analysis, multiple regression was used and ATM and POS comparison was performed via comparing regression coefficient between the two models. The first model was related to ATM technology and the second model was related to POS technology.



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5. FINDINGS

In order to investigate the relations between research model's variables, a multiple regression test was used to specifically define the relation between each one of the variables based on using each ATM and POS technologies. In this study, two regression model were proposed in order to make a comparison regarding the difference between bank ATM and POS technologies by customers. The following table shows a summary of regression model and coefficient for each variable.

Table 1: Model Summary

| | Model | R | R Square | Adjusted R Square |
|---|-------|------|----------|-------------------|
| 1 | ATM | .528 | 0.462 | 0.398 |
| 2 | POS | .357 | 0.311 | 0.211 |

Regarding the above results, the highest R2 belongs to ATM model and shows that this model could be more explained than POS model. Table 2 shows regression coefficients of the study.

Table 2: Regression coefficients ^a

| | | Unstandardiz | Unstandardized Coefficients | | | |
|-------|-----------------------|--------------|-----------------------------|-------|-------|------|
| Model | | В | Std. Error | Beta | t | Sig. |
| ΑТМ | Norms | 0.408 | 0.754 | 0.397 | 4.640 | .000 |
| | Image | 0.328 | 0.719 | 0.404 | 4.540 | .000 |
| | Job | 0.267 | 0.75 | 0.487 | 3.910 | .000 |
| | Quality | 0.407 | 0.549 | 0.468 | 4.890 | .000 |
| | Results | 0.412 | 0.573 | 0.468 | 4.990 | .000 |
| | Usefulness | 0.397 | 0.794 | 0.360 | 4.600 | .000 |
| | Ease of use | 0.390 | 0.511 | 0.382 | 4.630 | .000 |
| | Efficacy | 0.438 | 0.654 | 0.417 | 3.940 | .000 |
| | Perception external C | 0.368 | 0.629 | 0.304 | 4.092 | .000 |
| | Playfulness | 0.297 | 0.601 | 0.387 | 3.843 | .000 |
| | Anxiety | 0.385 | 0.439 | 0.268 | 4.804 | .000 |
| | Enjoyment | 0.409 | 0.373 | 0.268 | 4.528 | .000 |
| | Voluntariness | 0.317 | 0.694 | 0.460 | 4.925 | .000 |
| | Intention | 0.361 | 0.771 | 0.399 | 4.750 | .000 |
| P.O.S | Norms | 0.374 | 0.724 | 0.324 | 2.940 | .000 |
| | Image | 0.212 | 0.796 | 0.300 | 2.840 | .000 |
| | Job | 0.389 | 0.84 | 0.269 | 2.350 | .000 |
| | Quality | 0.260 | 0.889 | 0.394 | 2.060 | .000 |
| | Results | 0.202 | 0.741 | 0.320 | 2.270 | .000 |
| | Usefulness | 0.291 | 0.6 | 0.309 | 2.000 | .000 |
| | Ease of use | 0.343 | 0.801 | 0.394 | 3.140 | .000 |
| | Efficacy | 0.375 | 0.539 | 0.328 | 4.843 | .000 |

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| Intention | 0.237 | 0.756 | 0.263 | 3.110 | .000 |
|-----------------------|-------|-------|-------|-------|------|
| Voluntariness | 0.242 | 0.639 | 0.327 | 2.765 | .000 |
| Enjoyment | 0.285 | 0.547 | 0.424 | 2.740 | .000 |
| Anxiety | 0.327 | 0.581 | 0.409 | 3.750 | .000 |
| Playfulness | 0.417 | 0.804 | 0.560 | 3.925 | .000 |
| Perception external C | 0.399 | 0.573 | 0.338 | 3.504 | .000 |

Regarding the obtained results, the two models are meaningful and there is a meaningful relationship between Independent variable of ATM and POS models and behavior of using these technologies but the coefficient of ATM is higher than POS.

6. CONCLUSION AND DISCUSSIONS

The main objective of this study was to comparatively analyze acceptance of bank ATM and POS technologies by customers using TAM3 model. Investigating the difference in perceived usefulness by customers for ATM versus POS shows that in this regard, the level of acceptance for ATM is higher by customers.

This happens because ATM features all the functions of a POS and apart from that, it has access to money transfer and cash withdrawal and POS does not have such functions. Investigating the difference between customers' perceived ease of use for ATM technology versus POS technologies shows that people believe that usability of ATM is way easier than POS.

This ease of use would be attributed to the record it holds in being present in the society. ATMs are older than POS and therefore, a higher level of learning has been established regarding these machines and people evaluate it as an easier device to work with compared to POS. Although participants showed a different self-efficacy in using ATM and POS and supported the above-mentioned hypothesis, the current difference was in align with a higher perceived self-efficacy regarding POS.

This subject could be attributed to the process of using this technology by individuals and its easiness as being so routine a subject. This technology lacks any complexity and various multiple applications of an ATM. Participants perceived a higher external control over ATMs. In other words, people believe that there is not enough information and operational resources for them in the environment for using that system and it will be higher for the ATM.

This difference roots in the presence of more guiding information in ATMs and a lack of time urgency in purchasing queues. Customers receive various messages



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when using ATMs which assists him in using the machine but when using POS, there is no such function. Also, in most of the cases, POS is used for purchases with time urgency from other customers which decreases the possibility of try and error for learning.

Finally, POS are relatively simple systems in which the concept of perceived external control is of very low significance. The comparison between ATM and POS's level of amusement showed that ATM shows a higher level of amusement than POS. The source of such difference could be found in the structure of these systems. ATM devices perform a more diverse set of activities and deliver messages to customers before, during and after the activity.

Apart from that, ATM has a bigger screen with which the customer receives a higher level of visual information. A comparison between the rate of computer anxiety between ATM and POS shows that there is a meaningful difference between these two technologies. The reason is that these two technologies are used for financial transactions with similar activities and these two are almost identical based on the significance of being the anxiety factor.

Therefore, there was not any meaningful relation between these two. Perceived joy was higher for POS than ATM which is because of less time spent on using them and high speed financial transaction with POS.

Comparing the level of support in subjective norms for ATM and POS, it was concluded that these norms provide a higher level of support for ATM compared to POS. Subjective norms surrounding the individual are induced by society. Therefore, with regard to ATMs' higher record of usage in society, resolving the ignorance and fear of technology in this context, it is more probable that people in one's social network persuade him to use ATMs above POS. participants evaluate ATM's output quality higher than POS.

This difference is because of numerous services respondents receive from ATM. The results of this study show that respondents believe that POS are higher than ATMs regarding result demonstrability. In other words, individuals consider that the outcome results of POS are more tangible than ATM outputs. Regarding the fact that POS are mostly used for purchasing and purchased product/service will be delivered to the customer in front of his eyes, it is possible that customers consider



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the results of POS technology application as more tangible and subjective and therefore more demonstrable than ATM.

Comparative study of job relation between the technology of ATM and POS shows that people consider that POS have a higher relation with relevant jobs. This conclusion is made because in the current age, people use their card in point of sale for organizational purchasing and so it is natural that they consider points of sale as more relevant to their job than ATM. Investigating the points earned by two technologies of ATM and POS based on behavioral intent shows that people share the same intent over using both technologies.

In other words, people are no longer willing to disregard one for another. This shows that both technologies are currently necessary and useful and by making some changes or improvements, one could not be substituted by the other one. Comparing real usability of both technologies in ATM and POS shows that participants consider ATM with a higher usability than POS, the reason behind this difference could be found in ATM's capability in cash withdrawal. Anyhow, banking is related to cash and people consider cash as more real than electronic money.

Thus, there is no excuse for the difference between real usability between ATM and POS. Participants have a higher mental image for ATM than POS. In other words, participants believe that using ATM systems leads to a more positive mental image of them in social system than POS. Comparing the results of this study with previous studies, most of the researches performed previously both inside and outside of Iran have not compared ATM and POS technologies directly based on technology acceptance model and most of the researches have investigated the overall benefits of each separately.

For instance, in a study by Humphry and Berger (1990) which Introduces the cheap price of POS compared to ATM cards as a competitive advantage for POS, believes that in future, the use of POS would be more than the use of ATM. In another study by Amormin and Chakravorti (2006) on POS and ATM, they insert that consumer's attitude toward each of these technologies would eventually lead to the acceptance of each of these technologies.



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REFERENCES

ABBAS, S. S.; MEHMOOD, B.; SAIR, S. A. (2015) Quality of Branchless Banking Service in Lahore City: Application of SERVEQUAL Model. **Science International**, v. 27, n. 2, p. 1487-1491

AJZEN, I. (1991) **The theory of planned behavior**. Organizational Behavior and Human Decision Processes . p. 179-211.

AMINI, B. (2006) Studying And Identifying Obstacles And Challenges Of Electronic Banking Development And Improvement In Parsian Bank, M.A. Dissert., Management And Accounting Faculty, Shahid Beheshti University.

AMIR SHAHI, P. M. (2010) **Identification of factors that influence customers' acceptance of internet Banking in Iran**. Ecommerce in developing countries: with Focus on export.

AMORMIN, G.; CHAKRAVORTI, S. (2006) forthcoming, Whither Loose Change? The Diminishing Demand for Small Denomination Currency, . **Journal of Money, Credit and Banking**.

BEGONA, P.; DOLORES, S.; ZAIDA, S. (2014) Towards payment systems for all: accessible POS. **Journal of Accessibility and Design for All(CC) JACCES**, v. 4, n. 3, p. 2013-7087.

CARBO, V.; RODRIGUEZ, E. (2008) ATMs vs. POS terminals: A horse race? **21st Australasian Finance and Banking Conference**.

CHAN, S.; LU, M. (2004) Understanding Internet banking adoption and use behavior: A Hong Kong perspective. [Electronic version]. **Journal of Global Information**, v. 12, n. 3, p. 21-44.

CHRISTOPHER, R.; KNITTEL, A.; STANGO, V. (2011) Strategic incompatibility in ATM markets. **Journal of Banking & Finance**, n. 35, p. 2627–2636.

CORRADI, V.; SWANSON, N. (2005) Bootstrap specification tests for diffusion processes. **journal of econometrics**, n. 117-148.

DABHOLKAR, P. A.; BOBBITT, L. M.; LEE, E. J. (2003) Understanding consumer motivation and behavior related to self-scanning in retailing: implications for strategy and research on technology-based self-service. **International Journal of Service Industry Management**, v. 14, n. 1, p. 59-95.

DAS, A. (2009) Customers providing benefit to banks through usage of ATM and EDC machines. **Journal of Economics**, n. 26, p. 479-501.

FAQIH, K.; JARADA, A.-I. (2015) Assessing the moderating effect of gender differences and individualism-collectivismat individual-level on the adoption of mobile commerce technology:TAM3 perspective. **Journal of Retailing and Consumer Services**, p. 37–52.

GURITING, P.; NDUBISI, N. (2006) Borneo online banking: Evaluating customer perceptions and behavioral intention. [Electronic version]. **Management Research News**, v. 29, n. 1/2, p. 6-16.

HUMPHERY, D.; BERGER, A. (1990) Market failure and resource use: economic incentives to use different payment instruments. In: HUMPHREY, D. (Ed.), The



http://www.ijmp.jor.br v. 8, n. 3, July - September 2017

ISSN: 2236-269X

DOI: 10.14807/ijmp.v8i3.528

US Payments System: Efficiency, risk, and the Role of the Federal Reserve. Kluwer Academic Publishing, Norwell, MA:, 45-86.

HUMPHERY, D.; WILLESSON, M.; BERGENDAHL, G.; LINDBLOM, T. (2006) Benefits from a changing payment technology in European banking. **Journal of Banking & Finance**, n. 30, p. 1652-1631.

JAFARI MOGHADAM, S.; SALAMZADEH, A. (2016) **Do Senior Bankers Care about Entrepreneurial Behavior? Case of Senior Managers of the Iranian Vanguard Banks**. World Review of Entrepreneurship, Management and Sustainable Development, Forthcoming.

JAFARI MOGHADAM, S.; SALAMZADEH, A.; YOUSEFIYAR, A. (2014) Factors Affecting Senior Managers' Entrepreneurial Behavior in Iranian Pioneer Banks. **International Conference on Entrepreneurship (ICE 2014)**, Tehran, Iran.

KNIGHT, M.; PEARSON, M. (2005) The changing demographics: The diminishing role of age and gender in computer usage. [Electronic version]. **Journal of Organizational and End Use Computing**, v. 17, n. 4, p. 49-66.

LAFORET, S.; LI, X. (2005) Consumers' attitudes towards online and mobile banking in China, **International Journal of Bank Marketing**, v. 23 n. 5, p. 362-380, doi: 10.1108/02652320510629250

LEGRIS, P.; INGHAM, J.; COLLERETTE, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. **Information & Management**, v. 40, n. 3, p. 191-204.

LIN, Y. C. V.; YEH, R. C.; CHEN. (2006) Examining factors influencing behavioral intentions to use asynchronous Web-based language learning. **The tenth pacific Asia conference on information systems(PACIS)**.

MOHAMADIPOUR, SEYEDI, S. (1393) Identifying And Ranking Of Obstacles For Using POS In Saderat Banks In Bandar-Abbas, **Commercial Management Journal**.

PIKKARAINEN, T.; PIKKARAINEN, K.; KARJALUOTO, H.; PAHNILA, S. (2004) Consumer acceptance of online banking: an extension of the technology acceptance model, **Internet Research**, v. 14 n. 3, p.224-235, doi: 10.1108/10662240410542652

OLOWOOKERE, E. A.; OLOWOOKERE, A. E. (2014) Determinants of ATM Usage among Students of Tertiary Institutions in Nigerian. **Journal of Economics Theory**, v. 8, n. 1, p. 5-13.

OZBEKA, V.; 'ALNIACIK, Ü.; KOCC, F. (2014) The Impact of Personality on Technology Acceptance: A Study on Smart Phone Users. **Procedia - Social and Behavioral Sciences**, n. 150, p. 541 – 551.

SHAH, M. H.; SIDDIQUI, F. (2006) organizational critical success factors in adoption of e – banking at the woolwich bank. **International Journal of Information Management**.

SU, B.; HAN, A. (2002) Effect of trust on customer acceptance of Internet banking. Electronic commerce Research and application.

TORABI, M. (1930), Identifying The Factors Influencing On ATM Service Implementation By Customers. **9**th International Management Conference, **Tehran**, Sharif University Of Technology.



http://www.ijmp.jor.br v. 8, n. 3, July - September 2017

ISSN: 2236-269X

DOI: 10.14807/ijmp.v8i3.528

VENKATESH, V. (2000) Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model, Information systems research, v. 11, n. 4, p. 342–365

VENKATESH, V.; DAVIS, F. D. (2000) A theoretical extension of the technology acceptance model: Four longitudinal field studies, **Management Science**, v. 46, n. 2, p. 186–204, doi:10.1287/mnsc.46.2.186.11926

VENUS, D.; Mokhtaran, M. (1384), Investigating And Analyzing The Reasons Behind Acceptance Of ATM Cards In Tehran And Presenting A Suitable Model For An Increase In Using These Cards, **Economy And Management Journal**, p. 65-75.

Yang, K. C. C. (2005) Exploring factors the adoption of mobile commerce in Singapore. **Telematics and Informatics**, v. 22, n. 3, p. 257–277.

APPENDIX I: RESEARCH QUESTIONS

- [1] I believe that using ATM/POS technologies are useful for me.
- [2] ATM/POS technologies are generally accepted by consumers.
- [3] ATM/POS technologies will be useful when shopping.
- [4] Using ATM/POS technologies will make the shopping process easier.
- [5] By shopping through ATM/POS technologies my choices as a consumer will be improved (e.g. flexibility, speed).
- [6] Using ATM/POS technologies enhances buying performance of users.
- [7] I have got enough self-efficacy in using ATM/POS technologies for shopping.
- [8] I know how to use ATM/POS technologies for shopping.
- [9] I get anxious while using ATM/POS technologies for shopping.
- [10] I will be able to use ATM/POS technologies for shopping with some hints.
- [11] I will be able to use ATM/POS technologies for shopping if I had used a similar platform before.
- [12] Using ATM/POS technologies for shopping is playful.
- [13] It will be easy to become skillful at using ATM/POS technologies for shopping.
- [14] I enjoy using ATM/POS technologies for shopping.
- [15] I voluntarily use ATM/POS technologies for shopping and prefer using these technologies instead of using cash money.
- [16] I have got enough reasons to use ATM/POS technologies for shopping.

