AUTOMATED BANKING SERVICES CONSUMPTION BY ADULTS WITH LOW FORMAL EDUCATION LEVELS

CONSUMO AUTOMATIZADO DE SERVIÇOS BANCÁRIOS POR ADULTOS COM BAIXOS NÍVEIS DE EDUCAÇÃO FORMAL

Gabriel Henrique Pimenta Isboli
Universidade Estadual de Maringá (UEM), Maringá/PR, BRASIL
gabriel.isboli@gmail.com

Olga Maria Coutinho Pépece
Universidade Estadual de Maringá (UEM), Maringá/PR, BRASIL
opepece@gmail.com

Abstract

This paper aims to understand the automated banking services consumption in automated teller machines (ATMs) by adults with low education levels. Data were collected in two bank agencies in one city in Brazil. Through content analysis and using the service dominant logic (SDL) as theoretical background, interviews and field observations were analyzed qualitatively. Results indicate a certain portfolio of services consumed in the bank, also indicating the way ATMs are used, usually in the presence of an intermediate, which implies loss of the purpose of a self-service technology. The paper concludes with implications for practice and further research.

Keywords: Consumption. Automated. Services. Bank. Education.

Resumo

Este artigo busca compreender o consumo de serviços bancários em terminais de autoatendimento, por adultos com baixos níveis de instrução. Os dados foram coletados em duas agências bancárias em uma cidade no Brasil. Através de análise de conteúdo e usando a lógica dominante do serviço (LDS) como fundamentação teórica, entrevistas e observações de campo foram analisadas qualitativamente. Resultados indicam que existe um portfólio de serviços consumidos por esse público no banco, também indicando a forma como os terminais de autoatendimento são utilizados, frequentemente, na presença de um intermediário, o que implica em perda do propósito de uma tecnologia de autoatendimento. O artigo aponta para algumas implicações gerenciais e pesquisas futuras.

Palavras-chave: Consumo. Automatizado. Serviços. Banco. Educação.

Introduction

This paper is about banking consumption. The banking sector provides services broadly consumed by a wide audience, once that people inevitably will have to deal with resources transfers and money usually is the common way to do that. As presented by the Brazilian Federation of Banks (FEBRABAN, 2017), in 2016 65 billions transactions were executed in Brazil, 9,3 billions more than the previous year, comprising all the platforms – mobile (21 billions), internet banking (14,8), automated teller machines (ATMs) (10), local agencies (5,3) and other possibilities (like banking correspondents, payment machines and so on) (13,9). In the mentioned report it is said that the self-service technologies are being more and more accepted by the consumers. But is it correct? All the consumers share the same behavior to deal with their finance?

On account of diverse factors, that may contain the market being managed by people with higher education levels, or the predominance of alphabetized people over national territory, it is possible to understand the thoughts of Adkins and Ozanne (2005) that the market (be it for products or services) tends to aim its developments to a portion of the population with higher education levels, even if it occurs unintentionally, given that information about products tend to be presented through writing, using few image related appeal or other non-textual forms (Viswanathan, Toreli, Xia & Gau, 2009).

Low level education people (from illiterates to people with only elementary school completion) represent a massive public and, according to Brazilian Institute of Geography And Statistics (IBGE) (2010), 32% of the Brazilian population were adults (18 complete years or over) that have not completed elementary school, comprising over 60 million of people that have a partial (or no) reading and writing skills. Even if it represents just a fraction of Brazil, this audience is bigger than the population of many countries, like Canada, Argentina and Spain, to name a few (The World Bank, 2016).

Although the automatization in the processes of the companies presents advantages both to the company (reducing operational costs, increasing variety of services and directing the work force to more strategic ends) and to the customer side (extended service times, speed in operations, comfort by consuming outside of offices, to name a few), not all customers can read and write with ease, causing them not to use the presented services satisfactorily (Sahi & Gupta, 2013, Miller & West, 2009, Marshall & Heslop, 2007). Through the service-dominant logic (SDL), we see that the inventions are not a pathway to prosperity, once that they do not connect with the actors automatically, but need to be accepted as the valor proposed (Lusch & Vargo, 2014).

Sahi and Gupta (2013) studied the customer motivations for the use of automated teller machines (ATMs) in Canadian retail banks, finding that the only demographic variable that altered the classifications among users and non-users of the technology was education, showing the relevance in studying the consumption by people with low education levels. Also, studies have pointed that lower levels of education can reflect in lack of financial literacy (e.g. to select investments, to understand risks) (Riitsalu & Põder, 2016), resistance to banking innovations in technology (Sahi & Gupta, 2013) and difficulties in the consumption activities in the market (Adkins & Ozanne, 2005). So, knowing that the consumers with low education levels may have limitations in reading and writing, maybe the data from FEBRABAN (2017) should be read with reservations: is the reported preference to self-service legit? In the effort to sell a discourse that the consumers are preferring the self-service technologies, maybe the employees are forcing the change of personal care to unwanted platforms, due to goals established by supervisors. No paper studied how people with low education levels consume banking services at ATMs, and this is our proposal, aiming to expand the literature by knowing how these potentially handicapped consumers deal with a self-service technology.

The purpose of the following study has as general objective to understand how low education level clients consume automated services at banking terminals. To accomplish this, three specific objectives were established: (1) Identify which automated services, available in self-service banking terminals (ATMs), are consumed by low education level people; (2) Identify which services, available in self-service banking terminals (ATMs) are not consumed by low education level people; and (3) Identify the methods used by low education levels clients to consume the automated services offered in self-service banking terminals (ATMs) to overcome their difficulties.

Theoretical foundation

We developed the theoretical foundation of this paper in two core points. At first, we approach education levels, according to Brazilian education settings, since the term may be related to different types of literacy. After this, we address the consumption of services, pointing the classic characteristics of services that could be important to understand the difficulties of low educated users. We chose to use the service-dominant logic (SDL) to explore the gap presented in the introduction. At the end, a table demonstrates the theoretical alignment with the objectives of the paper.

Education levels

Whereas the concept of "level of education", especially its equivalent – literacy – refers to a specific knowledge, different types of knowledge can be found in the literature. Besides the formal education level, there are also educational levels related to specific applications, such as environment (Atabek-Yiğit, Köklükaya, Yavuz & Demirhan, 2014), digital/technology uses (Greene, Yu & Copeland, 2014), and contexts related to customer interests (Pappalardo, 2012), for example. In this paper, the definition of formal education was presented by the United Nations Educational Scientific and Cultural Organization (UNESCO) (2009):

> Education provided in the system of schools, colleges, universities and other formal educational institutions, which generally constitutes a continuous ladder of full-time education for children and young people, generally beginning at age five to seven and continuing up to 20 or 25 years old (p. 101).

Seeking to find the best way to communicate with people holding lower education levels, Jae and Viswanathan (2012) state that these customers tend to make more use of images stimuli in the market environment, and found that the most effective strategy for communication with this audience is the use of images consistent with the intended message, without additional subtitles. Thus, if the images are not congruent with the desired message, customers can end up being led to an erroneous interpretation of the same, causing the authors to underscore the need for public policies that regulate the visual communication of companies – reinforcing Pappalardo (2012).

Knowing this, it is possible that co-creation of value, as presupposed by the SDL might be harmed, due to limitations that may impede the customers with low education levels to consume the services offered in the ATMs in the way they were designed. This scenario results in loss in some degree of the value proposed (Vargo & Lusch, 2016).

Services consumption and difficulties of automated consumption

What is meant here, then, by services? The meaning chosen was that of Zeithaml, Bitner and Gremler (2014), which state that service is

> all that includes all economic activities whose result is not a simple physical or manufactured product, but that is consumed when it is generated and provides added value in ways that are, in essence, the interests of the one who acquires (such as convenience, fun, generation at the appropriate time, comfort or health) (p. 4-5).

Aligned with this, we see that services also have, in the SDL definition, the notion that they are identified as a process where actors apply resources to some benefit (Lusch & Vargo, 2014). The theory states that "all humans apply their competences (knowledge and skills) to benefit others and reciprocally benefit from others' competences translates into the simple idea: *service is exchanged for service*" (Lusch & Vargo, 2014, p. 250, emphasis in original). The customer always co-create value with the firm, once that the value is always determined by the one benefited, which means that if the value is not identified it does not exist (Vargo & Lusch, 2008). So, a relation where a customer does not understand how to operate a machine can be interpreted as, besides all the money invested in the technology, having no value.

In the literature there are papers that follow both the directions, exploiting ease of use and consumption of services (e.g. Chowdhury, Patro, Venugopal & Israel, 2014; Marshall & Heslop, 2007), as well as those who study difficulties of such uses (e.g. Gelbrich & Sattler, 2014; Sahi & Gupta, 2013). Although there are different directions, this paper is oriented

to the study of the difficulties linked to the use of automated banking services for people with low levels of education, thus assuming the difficulties faced by customers with this profile.

Seeking to know factors that impact the adoption of self-service technologies, we can find evidences stablishing that some elements externals of the technology itself can influence in this adoption behavior, like the presence of a front-line employee providing support having a positive effect (Chowd *et al.*, 2014), anxiety having a negative effect (Gelbrich & Sattler, 2014) and education levels as a positive effect (Marshall & Heslop, 2007), what reinforces the importance of this work.

Although the automation of functions has widely reached the needs of customers, many costs occur when people are not familiar with these technologies, such as refunds, rework, wasted time and loss of customers (due to inadequate care), as well as negative spoken review (Chowdhury *et al.*, 2014; Miller and West, 2009). Miller and West (2009) point to the fact that the lack of pattern in the systems is another obstacle because the need to assimilate different technologies, complemented by Scherer, Wünderlich and Wangenheim (2015) aiming to include technologically more complex self-services does not guarantee greater identification value, as customers cannot accept the value proposition offered by the company.

When we look only to banks, we can see that the technologies were created in a way to allow customers to consume the bank off the bank, through computers, smartphones and ATMs, for example (Zacharias, Figueiredo & Almeida, 2008). But, although the internet has offered an ease for the consumption of banking services, not all customers deal satisfactorily with such facilitators, some even preferring to continue with the traditional services due to insecurity (Müller & Alexandrini, 2012). By not using the technology, the bank is also impacted, once that feedbacks to improve technologies are hampered due to non-use (Abbade & Noro, 2010), what relates with the importance of the co-creation of value (Lusch & Vargo, 2014; Vargo & Lusch, 2016, 2008).

And finally, we present a theoretical framework relating the above in this section with the objectives of paper (Table 1).

Table 1 . Theoretical alignment with the objectives

OBJECTIVE	REFERENTIAL	AUTHORS
Identify which automated services, available in self-service banking terminals (ATMs), are consumed by low education level people	Consumption of automated banking services.	Scherer *et al.*, 2015; Chowdhury *et al.*, 2014; Sahi & Gupta, 2013; Müller & Alexandrini, 2012; Zacharias *et al.*, 2008; Marshall & Heslop, 2007.
Identify which services, available in self-service banking terminals (ATMs) are not consumed by low education level people.		
Identify the methods used by low education levels clients to consume the automated services offered in self-service banking terminals (ATMs) to overcome their difficulties.	Customers with low levels of education.	Vargo & Lusch, 2016, 2008; Lusch & Vargo, 2014; Jae & Viswanathan, 2012; Pappalardo, 2012; Adkins & Ozanne, 2005.
	Difficulties of automated consumption.	Vargo & Lusch, 2016, 2008; Lusch & Vargo, 2014; Sahi & Gupta, 2013; Müller & Alexandrini, 2012; Zacharias *et al.*, 2008; Marshall& Heslop, 2007.

Note: Elaborated by the authors.

Methods

Having established the objectives and the theoretical basis, the research conducted here is qualitative. The study combined the use of interviews, observations and content analysis.

Data colection

Data was collected by observations and structured interviews in two bank agencies in a city in the south of Brazil, being one of bank Alpha and the other of bank Beta[1].

The city, in the countryside, was chosen to carry out the field research for its demographic and geographic characteristics. According to the data extracted from IPARDES (2017) its estimated population in 2016 was 7,472 inhabitants. The nearest city of medium size is had approximately 110,000 inhabitants and was 88 km away. Its Municipal Human Development Index (HDI) for the education of the adult population is 0.43, considered very low[2]. As one of the researchers have family in town, this eased access to managers and consequent acceptance of this research.

It is worth to indicate this city representation in comparison to Brazilian demographic configuration as the average number of inhabitants distributed in 5596 cities. According to an IPEA report (2017), approximately 70% of Brazilian cities have fewer than 20,000 inhabitants, highlighting this city's profile as the most common in the country, which indicates relevance of studying and knowing the public consumption behavior from its residents (Table 2).

Table 2 . Number of cities as population ranges

		n	%
Valid	Up to 10.000 inhabitants	2513	44.9
	From 10.001 up to 20.000 inhabitants	1401	25.0
	From 20.001 up to 30.000 inhabitants	581	10.4
	From 30.001 up to 40.000 inhabitants	311	5.6
	From 40.001 up to 50.000 inhabitants	151	2.7
	From 50.001 up to 100.000 inhabitants	325	5.8
	From 100.001 up to 200.000 inhabitants	150	2.7
	From 200.001 up to 300.000 inhabitants	54	1.0
	From 300.001 up to 400.000 inhabitants	27	0.5
	From 400.001 up to 500.000 inhabitants	14	0.3
	From 500.001 up to 1.000.000 inhabitants	23	0.4
	From 1.000.001 up to 10.000.000 inhabitants	14	0.3
	Above 10,000,000 inhabitants	1	0.0
	Total	5565	99.4
Absent	System	31	0.6
Total		5596	100.0

Note: Prepared by the authors based on data provided by IPEA (2017).

[1] Fictitious names adopted at the request of the banks that allowed data collection in its agencies (authors note).

[2] "The index ranges from 0 (zero) to 1 (one) and has the following municipal human development tracks: 0.000 to 0.499 - very low; 0.500 to 0.599 - low; 0.600 to 0.699 - Average; 0.700 to 0.799 - high and 0,800 and more - very high" (IPARDES, 2016, p. 38).

Ten days were spent in the field at bank hours, when the bank assistants would be available and preferences in the use of self-service terminals or services in the bank's internal environment could be observed. The researcher remained four hours a day in the field (on average two hours each agency), representing a total of 40 hours of observation.

People were observed and, when they were leaving (the terminal or the inside of the bank), they were addressed by the researcher surveying the use of ATMs. Customers were inquired about their educational level and if they could have a few minutes to do a confidential interview. It is important to add that only the observations of clients that agreed to be interviewed were considered, maintaining the confidentiality of the data.

Complementary to this, Flick (2004) exposes some dimensions to assist in the understanding of observations, being chosen in this paper a combination of a non-participant, systematic and "in natural" situations. This means that there was a relative standardization of the observation with situations occurring without a construction from the researcher, just reporting the observed points. To this end, we present the method as seen in the literature to perform this data collection and how this paper tried to follow these guidelines: the selection of an environment is necessary – in this case, is the physical environment of the bank; the definition of what should be documented – the use of automated services offered in bank ATMs, for adults (people over 18 years old) with low levels of education; initial overview of the field – the context that explains the interest, previously exposed in the "Introduction" section; focal observations – reports of observations for adults with low levels of education.

As shown in the theoretical foundation, there are different classifications in the formal education level. The ranking used was composed of people whose highest level of education was rated one of the following levels (adapted from Ministério do Trabalho e Emprego, 2011, p. 26): (1) Illiterate (without formal education); (2) Elementary school Incomplete; and (3) Elementary school Completed.

To make the collection of more comprehensive data, it was decided to interview the staff of the agencies to provide a complementary look where both parties (customer and company) could express considerations of consumption in self-service terminals.

Method for data analysis

The data collected through structured interviews were analyzed following the method of content analysis, encoding them in record units and content, seeking to answer to the research objectives. To perform the data analysis was taken by reference Bardin (2011).

Among the categories of data analysis presented by Bardin (2011), the one used here was the categorical analysis, considered the first and most widespread in research, exploring the generated text in its entirety, drawing

> the frequency of the presence (or absence) of items sense [...] is the method of the *categories*, species of drawers or significant rubrics that allow the classification of the constituent elements of meaning of the message. It is therefore a taxonomic method and designed to [...] enter an order, according to certain criteria, in apparent disorder (p. 43, emphasis in original).

To perform the data analysis, we followed the three steps mentioned by Bardin (2011): (1) pre-analysis; (2) exploration of the material; and (3) treatment of results, inference and interpretation.

The pre-analysis refers to the systematization of the data collected, with the transcription of the interviews and notes made, in order to prepare the material for the operation, encoding and decomposing as function of rules.

Transcripts were used as basis for the adaptation of 14 encoding rules present in Manzini (2008). Eight of the criteria were chosen by the authors, knowing that only studies with higher demands of linguistic analysis should follow all the 14 rules (according to the material itself). The following Table 3, taken from Manzini (2008) with the standards employed here (suppressing the remaining).

Table 3 . Explanatory summary of transcription standards

Categories	Signals	Categories description	Examples
Pauses and silences	(+) or (2.5)	To small pauses, a + signal for every 0.5 seconds is suggested. Pauses longer than 1.5 seconds, measured, the time is indicated.	See examples on item 5.
Questions or overlap	( )	When you do not understand part of speech, mark up the place with parentheses and use the audible expression or written what is supposed to be heard.	... A: /.../ For example (+) we was talking about misfit, (+) I particularly think everything in life relative (1.8) EVERYTHING EVERYTHING EVERYTHING (++) there is a few that ar::e (+) / some people are problematic because had so much love (is the case) (unintelligible) (+) others because /.../
Emphasis or strong tone	CAPITAL	Syllables or words spoken with emphasis or tone stronger than usual.	See examples
Vowel lengthening	::	Depending on the duration the colon can be repeated.	... A: li::ke" (+) m:::e
Analyst comments	(( ))	This notation is used in the moment of occurrence or immediately before the segment that it refers to.	((Laughs)), ((lowers voice)), ((coughing)) ((speaking nervously)) ((has to speak)), ((gestures asking to speak))
Syllabication	---------	When a word is pronounced syllable by syllable, hyphens are used to indicate the occurrence	
Repetitions	Own writing	Reduplication letter or syllable	hee hee him; e e each one.
Pause filled hesitation or attention signals.		It is used reproductions of sounds whose spelling is much discussed, but some are more or less clear.	eh, ah, oh, ih:::, mhm, aham, among others.

Source: Adapted from Manzini (2008) pp. 8-10

We conducted the interview transcripts by ourselves. A specialized company was hired to carry out the transcription of one interview, with the requirement of the presence of the encoding rules selected in Manzini (2008), serving as a model for the transcription of all other interviews. With the known structure, the remaining transcripts were made by the authors of this paper.

Finally, the last step exposed by Bardin (2011) refers to process, interpretation and display of the results, aligning them with the theoretical references found, in order to compare previous knowledge, reconfirming and point out to unexploited gaps. Such analysis were performed using NVivo software.

Quality and reliability

To certify reliable data from qualitative research is a challenge to many researchers, as punctuated by Roulston (2010). Unlike statistical indexes in quantitative research, the author presents "phases" in the research design to note: 1. Learning how to ask in order to be understood by those participants; 2. Designing an appropriate methodology; 3. Reflexivity in the research process; 4. Analysis of data from interviews to see them as meta communicative events.

This paper tried to build a suitable methodology, showing purpose and importance of this study, relying on procedures such as conducting an initial collection for adjustments (the first 3 interviews served as a pretest, and we discarded them from the analysis) and analyzing the data through content analysis, enabling closer information obtained to the theoretical basis used. Thus, the research design is aligned with the "phases" of Roulston (2010).

To enhance the quality of qualitative research, Tracy (2010) provides eight points to note: 1. Worthy topic; 2. Rich rigor; 3. Sincerity; 4. Credibility; 5. Resonance; 6. Significant contribution; 7. Ethics; and 8. Meaningful coherence.

This article derives from the master's thesis of one of the authors, being a work that implies a process of high level of demand, which has driven a construction guided by considerations arising from extensive theoretical and field data, explaining successes and limitations of the process. Through peer review, it seeks to demonstrate the consistency of the study.

Finally, it is presented a methodological framework (Table 4).

Table 4 . Methodological referential

METHODOLOGIC STAGE	REFERENTIAL	AUTHORS
DATA COLLECTION	Observations	Flick, 2004.
	Structured interviews	Roulston, 2010.
	Formal education level classification	Ministério do Trabalho e Emprego, 2011.
DATA ANALYSIS	Content analysis	Bardin, 2011.
QUALITY AND RELIABILITY	Phases in the research design and points observed in its construction	Roulston, 2010, Tracy, 2010.

Note: Elaborated by the authors

Analysis of results

Once collected, the survey data detailed how the analysis occurred in the study. As stated, the authors conducted interviews and observations over 10 days, obtaining 60 interviews with clients and four interviews with employees. From the interviews with customers, the three pretest interviews were discarded and six others for reasons like: spouses interference answering together (compromising the particularity of answers); bad dictation (making transcription difficult and increasing risk of incorrect understanding); and contradiction in the answers (as saying that no longer uses the personal service and have been observed performing operations at the counter). The analysis was performed with 51 interviews with clients and four interviews with employees.

Profile of interviewed customers

Although customers surveyed in both agencies show subtle differences, the samples of the two agencies, when viewed together form a well distributed sample according to gender (54.9% male and 45.1% female), and provides a view of local customer characteristics of banking services with low levels of education: it has between 45 and 64 years old (66.6%) and incomplete elementary education (72.5%), having stopped studying in the 4th grade (41.7%). Other sample data can be given in Table 5.

Table 5 . General profile of respondents

Profile		Bank Alpha		Bank Beta		General	
		N	%	N	%	N	%
Gender	Masculine	10	40.0	18	69.2	28	54.9
	Feminine	15	60.0	8	30.8	23	45.1
	Total	25	100.0	26	100.0	51	100.0

Age group	Between 18 and 24 years old	0	0.0	0	0.0	0	0.0
	Between 25 and 34 years old	1	4.0	0	0.0	1	2.0
	Between 35 and 44 years old	6	24.0	4	15.4	10	19.6
	Between 45 and 54 years old	9	36.0	8	30.8	17	33.3
	Between 55 and 64 years old	6	24.0	11	42.3	17	33.3
	Between 65 and 74 years old	3	12.0	2	7.7	5	9.8
	Above 75 years old	0	0.0	1	3.8	1	2.0
	Total	25	100.0	26	100.0	51	100.0
City	Urban area	22	88.0	21	80.8	43	84.3
	Rural area	3	12.0	2	7.7	5	9.8
	Other cities	0	0.0	3	11.5	3	5.9
	Total	25	100.0	26	100.0	51	100.0
Education levels	Illiterate (no formal education)	1	4.0	7	26.9	8	15.7
	Incomplete Elementary School	19	76.0	18	69.2	37	72.5
	Complete Elementary School	5	20.0	1	3.8	6	11.8
	Total	25	100.0	26	100.0	51	100.0
Incomplete Elementary School (last grade attended)	1st grade incomplete	1	5.6	0	0.0	1	2.8
	1st grade	0	0.0	1	5.6	1	2.8
	2nd grade	2	11.1	2	11.1	4	11.1
	3rd grade	1	5.6	3	16.7	4	11.1
	4th grade	9	50.0	6	33.3	15	41.7
	5th grade	3	16.7	1	5.6	4	11.1
	6th grade	1	5.6	1	5.6	2	5.6
	7th grade	2	11.1	4	22.2	6	16.7
	Total	19	100.0	18	100.0	37	100.0

Note: Elaborated from field research.

Profile of interviewed employees

Before presenting the profile of the interviewed employees, it is important to note a consideration of the selected ones: senior managers of each agency were chosen because of their long experience; and also the employee more present in each agency for the support of customers in the use of ATMs, due to the greater contact and further observation of events. Table 6 presents the characteristics of employees:

Table 6 . Employees interviewed

Employee	Gender	Time of service[3]	Office
Alpha 1 (EA1)	Masculine	4 years	Relationship manager
Alpha 2 (EA2)	Masculine	27 years	Senior manager
Beta 1 (EB1)	Masculine	1 year 5 months	Intern
Beta 2 (EB2)	Masculine	25 years	Senior manager

Note: Elaborated from field research.

[3] Time of service refers to the total working time in banks, not only in the bank analyzed (authors note).

Considerations about the automated services consumption, in ATMs

To assist in the drafting of the text and the subsequent location of the answers, the considerations will be divided into sub-sections, such as: "Initial aspects and the person's relationship with the bank", "use or non-use of services in ATMs," "initial contact with the ATMs," "reasons for not using and found solutions," and "layout".

With the help of NVivo software, it was created "nodes" and "sub-nodes" for grouping of excerpts from interviews that were aligned with the objectives pursued in each question. Not all respondents provided all the answers (e.g. customers who did not use the ATMs had no way to tell the positive aspects of preference for this service channel).

As for the initial aspects and the person's relationship with the bank

The first questions dealt with characteristics of people as clients (or customers of banking services).

On average, the respondents have an account (or when do not have accounts, have contact with banking services) for over 10 years. This brings up a thought that they are already customers with established relationship, knowing the services offered by banks. Only 11% claimed less than one year, and 50% are at least 10 years using banking services.

Before inquiring customers about the use of services in ATMs, it was asked what services they consumed in the bank, whether in personal care or self-service terminals. Thus, there were seven services found (in descending order): withdrawal, deposit, payment (bills and billets), check, loan statement (balance) and transfer. Even though the result of the information expressed by customers verbally, there is a caveat on the extract service / balance[4]: Although little remembered by the people, it was common in observations see users accessing the menus and printing the balance statement, or even leave the personal service and go the ATM to quickly check on the screen the value before leaving the bank.

Consideration must also be made regarding other banking services in ATMs, such as savings bonds, insurance, consortium, applications and social securities, to name a few: none of these was cited by respondents.

As for the use or non-use of services in ATMs

By using the ATMs, the researchers found that there are approximately 50 possible operations distributed through 17 menus, what expresses that the platform is very complete and able to provide virtually all the operations average customers usually selects.

Related to the responses reported on the use of services in the bank, the services used (in descending order) were: withdrawal, deposit, statement (balance), payment and loan. These results have differences of findings by Abbade and Noro (2012)[5] (who conducted research with banking self-service users in general and not restricted to low level of education), not so much the order of presentation but by the number of services. This, again, reinforces that the people with lower levels of education use a smaller range of services and the value is co-created in a particular manner (the same services can have different values identified according to the customers).

As for the initial contact with the ATMs

Field data reinforce what was seen in Müller and Alexandrini (2012). Although more than half of customers surveyed already consume banking services for over 10 years, not all knew how long already had contact with the ATMs, and only 43.14% of the 51 respondents answered over 10 years of contact and the average of responses was between 8 or 9 years.

As the answers about the reasons to migrate to the self-service could vary greatly in the formulation, it was decided to not use NVivo reports. We chose to read one by one the parts encoded and create keywords that represent the reason. The number of keywords varies from person to person depending on the number of reported reasons, and can be seen in Table 7. This procedure was repeated in the next considerations.

---

[4] Although they are different services, here we treated them as synonyms, as was usual customers treat them as a way to see the amount available in their account (authors note).

[5] In reference specifically to ATMs, the services most used were (in decreasing order): "Withdrawal values", "balance inquiries, statements and applications", "deposit values", "bank transfer", "check withdrawal", "payment of bills", "accounts schedule", "purchase of credits for prepaid phones" and "loans" (authors note).

Table 7 . Reasons for the initial contact with ATMs

Reason	n	%
Queue	14	26.4
Speed	13	24.5
Directing	8	15.1
Service	4	7.5
Schedule	4	7.5
Easiness	3	5.7
Practicality	2	3.8
Access through card	1	1.9
Influence group	1	1.9
Privacy	1	1.9
Safety	1	1.9
No revolving door	1	1.9
Absolute total	53	100.0

Source: Field research

Among the reasons identified, it should be highlighted the "directing" in these responses. The change of service (for the terminal) was not necessarily a customer choice but was forced by employees, due perhaps to some strategic purpose.

> A: [...] When I'm going to withdraw, have to withdraw here [...] I do not know why they sent me here [...] I have a lot of difficulty (I39, 48 years old, incomplete elementary school).

Clients end up starting to deal with ATMs for different reasons (although not always by choice), most often motivated by reasons relating to the speed of operations (reducing the waiting time or realization of operations). Even if not everyone has the capability to make consumption in an unassisted self-service terminal, he/she may end up presenting different ways to perform the desired operation.

As to the reasons for non-use and found solutions

Previously, it was seen that there is a difference between the services inside the agencies and by the ATMs. And yet, the consumption of this platform was not performed by the interviewees in several occasions. Three situations were observed about the ones accessing the machine, from most common to least common: an employee performs access; or the person brings a family member along; or asks for any known person also present in the environment to help.

It was previously found that respondents consumed (in ATMs) at least one of the following: withdrawal, deposit, statement (balance), payment and loan. None of the customers claimed to do payments or contract loans alone, always being assisted by officials. When asked about this non-use, answers converged to an understanding that they do not feel comfortable with the machines, either due to a bad experience, lack of confidence in the platform's effectiveness, or even preference for assistance, strengthening the considerations of Sahi and Gupta (2013) and Marshall and Heslop (2007).

Although Chowdhury *et al.* (2014) have referred the question of the human factor as a component equally important to technology, influencing significantly its adoption, it was found that the respondents seek employees not necessarily to assist them in use, but to perform the operation they may want. In a way it decharacterizes the function for which the technology was developed – self-service – since there are intermediaries in the process. But even having to resort to others, it is not necessarily a desirable situation for customers.

> Q: I understand (+) is there something that you DO NOT like at the ATM? (1.5) something that you're not satisfied?
>
> A: ah (+) I think it has to be calling for help, because I am not able ((laughs)) (I16, 41, incomplete elementary school).

This expands the findings of Chowdhury *et al.* (2014). Although the human element as support is viewed positively, the situation of dependence of customers to this support can represent the opposite effect. If such people cannot learn to use for similar reasons and become dependent on the assisted service, it may be preferred not to use it, even being a technology considered well accepted by other customer groups (Lusch & Vargo, 2014; Vargo & Lusch, 2016, 2008).

There was then a predominance of customers with low education using third parties for support. The reasons vary, many related to the lack of contact with technology and having a bad experience, considering the procedures overly complex, or even having never attempted for fear of ending up blocking access (even the developers having already anticipated this and set the beneficiaries card without risk of blockage,

as informed by the interviewed employees) (Müller & Alexandrini, 2012, Marshall & Heslop, 2007). In addition, some indicated that they could perform the operations without assistance, but the queues put pressure on these customers and end up inhibiting behavior, corroborating Gelbrich and Satler (2014).

As for layout

Starting with the procedures for carrying out the operations, it was seen that the Beta agency terminals contained greater presence of explanatory images, which is in line with the recommendation seen at Jae and Viswanathan (2012), stating that people with lower levels of education tend to make more use of visual information in market environments. But even having more images, there were not images on all screens, which does not completely easy the access. Essentially, the images are concentrated at the transitions between the stages, which imply screens having only textual information. Furthermore, while the Beta agency terminals possessed biometric identification and touch screen display, Alpha agency lacked both, being access via the options held buttons on the side of the display.

To strengthen the above, beyond terminals being different relative to the usability of technologies, the systems are not standardized among banks, which may hinder the adoption of this self-service for the people, as indicated by Miller and West (2009). This is a point viewed negatively both by customers and employees.

An action already present in the system happens when the access is made by cards related to accounts that have an exclusive use for receiving benefits: unlike traditional accounts, access menu to beneficiaries is simplified, having a reduced number of options. Still, even with simplified access, there are those who do not use it alone, because of previous mentioned reasons.

Adding to this, EB2 reported that when the ATMs started to be implemented, they had fewer functions and when asked if the difficulties of the time were similar to nowadays, this employee believes that they had even less problems. Because of this, perhaps to give a complete self-service system to users, the machine has become very complex, causing resistance in use.

Even if it is already possible to replace at almost no loss of personal service, results show that a personal service channel is still necessary because of several reasons for not using self-service. There are clients who consider the procedures complex and need help, others prefer human contact, and there are some

who have had a bad initial experience and did not try again, or never tried. Different ways to carry out the desired operations were seen, being taken up in the final considerations.

Final considerations

In this last section, we present some considerations about the study in terms of contributions, limitations, managerial implications and possibilities of future studies related to the theme.

We considered that this paper contributes to the literature by showing that people with low education levels consume a portfolio of services different from those consumed by customers in general and also use ATMs in a particular way, as well as the results also indicate that objective data about the increasing use of self-service terminals should be interpreted with caution. On the other hand, we recognize that the situations in which the interviews took place could be rethought in order to provide greater comfort to the interviewees, which might lead to even more fruitful results. At the least moment, the research can also be useful for managers, since we offer some solutions such as differentiated layout and terminals that offer less services, and new studies should focus on optimizing these proposals.

We detail these considerations in the sequence.

Contributions

In the search for fulfillment of specific objectives 1 and 2 (which services are consumed in ATMs by people with low education levels and which are not) the following portfolio of services was met: withdrawal, deposit, query (balances, statements and applications), payment and loan. This portfolio is different from the one mentioned by Abbade and Noro (2012), which denotes that this is a particular audience. It is stressed that no one reported a new option different than the named. As said earlier, banks offer more than 50 different operations in ATMs, but people with low education levels use a fraction of these (approximately 10%, according to the results). This result may reflect a market opportunity to be explored (with the development of strategies to encourage consumption of other financial services such as savings bonds, applications and social securities, to name a few) that

captivate the audience with low levels of education, as it can be an indication that it is more profitable to banks to devote efforts to provide such services specifically for people with education levels above complete elementary education.

It also points out that the field has shown that researches such as FEBRABAN (2017) stating an increasing usage of self-service technologies, may contain biases, given that many customers interviewed, when asked how the transition from services provided in personal care to terminals was made, answered that this change was not always a choice, with directions being made by employees. Moreover, this forced change of a consumption does not imply client proficiency to use the terminals.

The search for the specific objective 3 (identify ways that people with low education levels use the ATM) showed that many customers used the third-party support as intermediaries in contact with technology, which has demonstrated a decharacterization of technology as self-service (without intermediaries). Through the SDL, the decharacterization of self-service is the manifestation of a not collaborative value creation: the banks consider it positively and the customers do not identify it in the same way, choosing to use the platform in their own way (Lusch & Vargo, 2014; Vargo & Lusch, 2016, 2008).

The option of using self-service terminals assisted by staff personnel provided an opportunity to expand what was found in the literature. Chowdhury *et al.* (2014) states that the presence of a support staff is viewed positively. To some extent, the field research corroborated to this finding, but there is a caveat: the dependence of this aid is viewed negatively by customers, which can cause dissatisfaction of these with the bank and implying all the possible consequences of unsatisfactory consumption.

Although it has been said that customers and employees consider the procedures complex, there is already a concern in improving the usability of the technology, such as the inclusion of biometric identification and insertion of images in some parts of the procedures. However, there are moments during access that the information displayed on the screen are exclusively written, which, according to Jae and Viswanathan (2012), is not the best form of communication for low level education customers.

Limitations

As limitations, all interviews were conducted with customers standing up, which may have contributed to faster response and less willingness to participate. Furthermore, due to difficulties to understand some of the answers, interviews were discarded. This may have limited the analysis of customer reports that in addition to the low level of education have greater difficulty in communication, which can also represent having greater difficulty in interpreting information of banking self-service terminals.

Managerial implications and suggestions for future research

Bank agencies have a challenge to transpose: to better understand the reasons for the non-use of self-service services and to minimize negative points assigned to this use, so that customers with low levels of education, in fact, could start using the ATMs as they were intended: self-service. To that end, managerial implications and future research suggestions are presented. It seems that the market environment is set to proficient users, considering that everyone has the same degree of familiarity with technologies, and this paper presents that low education level people use the self-service technology in a particular manner.

To make the ATMs services more in line with the reality, two options are suggested for management, what would bring people together with the technology: (1) using a color system in the options; and / or (2) the screen of the operation options including – at the end of each – an image that represents the operation (such as an envelope for deposit; a barcode for payment, some dollar signs for withdrawals, etc.).

Another suggestion is based on information obtained from the EB2 about the early implementation of ATMs, when the services/options offered on the machines were simpler. Maybe there is a "sweet spot" where banks could offer terminals with fewer service options (and identified as such) to see if less difficulties are encountered when it is presented a smaller range of service options.

Even if there is indication in literature that differentiation in the systems is a value generation strategy for companies, as seen in Scherer *et al.* (2015), the market does not necessarily see greater value in technologically more complex self-services (Vargo & Lusch, 2016) and sometimes, standardization would

be a better option, as seen in Miller and West (2009) and confirmed with our field research in this paper.

As a way to complement the present results, a new study could be developed that included interviews with directors of banks, in regard to the degree of knowledge of those of customers with low levels of education difficulties in the use of the self-service services and explore if there is a strategy development agenda in order to better serve this audience.

In addition to following the study of customer banking services in other self-service platforms, it is also possible point future researches to consumption of less common self-services, such as buying an airline ticket and completion of check-in by the person. It is expected to be able to compare the differences between the findings of the here presented paper and other self-services, both by technology as well as by the type of service consumed.

References

ABBADE, E. B. & NORO, G. de B. (2012). Conhecimento, segurança, resistência e utilização de tecnologias de auto-atendimento bancário. *Revista de Administração da UFSM*, Vol.5 No.3, pp.507-524.

ABBADE, E. B. & NORO, G. de B. (2010). Avaliação, utilização e resistência na adoção de serviços de autoatendimento bancário. *Anais do Encontro Nacional da Associação Nacional de Pós-Graduação e Pesquisa em Administração*, Rio de Janeiro, RJ, Brasil, 34. Available at: http://www.anpad.org.br/admin/pdf/mkt66.pdf.

ADKINS, N. R. & OZANNE, J. L. (2005). The low literate consumer. *Journal of Consumer Research*, Vol.32 No.1, pp.93-105.

ATABEK-YIĞIT, E., KÖKLÜKAYA, N., YAVUZ, M., & DEMIRHAN, E. (2014). Development and validation of environmental literacy scale for adults (ELSA). *Journal of Baltic Science Education*, Vol.13 No.3, pp.425-435.

BARDIN, L. (2011). *Análise de Conteúdo*. São Paulo: Edições 70.

CHOWDHURY, I. R., PATRO, S., VENUGOPAL, P. & ISRAEL, D. (2014). A study on consumer adoption of technology-facilitated services. *Journal of Services Marketing*, Vol.28 No.6, pp.471-483.

FEBRABAN. Federação Brasileira de Bancos. (2017). *Pesquisa FEBRABAN de tecnologia bancária 2017*. Available at: https://cmsportal.febraban.org.br/Arquivos/documentos/PDF/Pesquisa%20FEBRABAN%20de%20Tecnologia%20Banc%C3%A1ria%202017_final.pdf

FLICK, U. (2004). *Uma introdução à pesquisa qualitativa*. (2. ed). Porto Alegre: Bookman.

GELBRICH, K. & SATTLER, B. (2014). Anxiety, crowding, and time pressure in public self-service technology acceptance. *Journal of Services Marketing*, Vol.28 No.1, pp.82-94.

GREENE, J. A., YU, S. B. & COPELAND, D. Z. (2014). Measuring critical components of digital literacy and their relationships with learning. *Computers & Education*, Vol.76 No.7, pp.55-69.

IBGE. Instituto Brasileiro de Geografia e Estatística. (2010). *Censo Demográfico 2010: educação e deslocamento – resultados da amostra*. Available at: http://servicodados.ibge.gov.br/Download/Download.ashx?http=1&u=biblioteca.ibge.gov.br/visualizacao/periodicos/545/cd_2010_educacao_e_deslocamento.pdf.

IPARDES. Instituto Paranaense de Desenvolvimento Econômico e Social. (2017). *Caderno estatístico: município de Quatiguá*. Available at: http://www.ipardes.gov.br/cadernos/MontaCadPdf1.php?Municipio=86540&btOk=ok.

IPEA. Instituto de Pesquisa Econômica Aplicada. (2017). *População residente: total*. Available at: http://www.ipeadata.gov.br/.

JAE, H. & VISWANATHAN, M. (2012). Effects of pictorial product-warnings on low-literate consumers. *Journal of Business Research*, Vol.65 No.12, pp.1674-1682.

LUSCH, R. F. & VARGO, S. L. (2014). *Service-dominant logic: premises, perspectives, possibilities*. Cambridge: Cambridge University Press.

MANZINI, E. J. (2008). *Considerações sobre a transcrição de entrevistas*. ONEESP. Observatório Nacional de Educação Especial. Available at: http://www.oneesp.ufscar.br/texto_orientacao_transcricao_entrevista/at_download/file.

MARSHALL, J. J. & HESLOP, L. A. (2007). Technology acceptance in Canadian retail banking:

a study of consumer motivations and use of ATMs. *International Journal of Bank Marketing*, Vol.6 No.14, 31-41.

MILLER, E. A. & WEST, D. M. (2009). Where's the revolution? Digital technology and health care in the internet age. *Journal of Health Politics, Policy and Law*, Vol.34 No.2, pp.261-284.

Ministério do Trabalho E Emprego. (2011). *Nível de emprego formal celetista: cadastro geral de empregados e desempregados – CAGED, resultados do mês de junho e do primeiro semestre de 2011*. Brasília: Ministério do Trabalho e Emprego.

MÜLLER, R. & ALEXANDRINI, F. (2012). Canais de atendimento alternativo: facilitador do atendimento e da satisfação dos clientes do setor bancário. *Revista Caminhos*, Vol.3 No.5, Dossiê Gestão, pp.93-116.

PAPPALARDO, J. K. (2012). Product literacy and the economics of consumer protection policy. *The Journal of Consumer Affairs*, Vol.46 No.2, pp.319-332.

RIITSALU, L. & PÕDER, K. (2016). A glimpse of the complexity of factors that influence financial literacy. *International Journal of Consumer Studies*, Vol.40 No.6, pp.722-731.

ROULSTON, K. (2010). Considering quality in qualitative interviewing. *Qualitative Research*, Vol.10 No.2, pp.199-228.

SAHI, G. K. & GUPTA, S. (2013). Predicting consumers' behavioral intentions toward ATM services. *Journal of Indian Business Research*, Vol.5 No.4, 251-270.

SCHERER, A., WÜNDERLICH, N. von & WANGENHEIM, F. von. (2015). The value of self-service: long-term effects of technology-based self-service usage on customer retention. *MIS Quarterly*, Vol.39 No.1, pp.177-200.

The World Bank. (2016). *World development indicators: population dynamics*. Table 2.1. Washington: The World Bank. Available at: http://wdi.worldbank.org/table/2.1.

TRACY, S. J. (2010). Qualitative quality: eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry*, Vol.16 No.10, pp.837-851.

UNESCO. United Nations Educational Scientific And Cultural Organization. (2009). *Educação e aprendizagem para todos: olhares dos cinco continentes*. Brasília: UNESCO, Ministério da Educação.

VARGO, S. L., & LUSCH, R. F. (2016). Institutions and axioms: an extension and update of service-dominant logic. *Journal of the Academy of Marketing Science*, 44(1), 5-23.

VARGO, S. L. & LUSCH, R. F. (2008). Service-dominant logic: continuing the evolution. *Journal of the Academy of Marketing Science*, Vol.36 No.1, pp.1-10.

VISWANATHAN, M., TORELI, C. J., XIA, L. & GAU, R. (2009). Understanding the influence of literacy on consumer memory: the role of pictorial elements. *Journal of Consumer Psychology*, Vol.19 No.3, pp.389-402.

ZACHARIAS, M. L. B., FIGUEIREDO, K. F., & ALMEIDA, V. M. C. de. (2008). Determinantes da satisfação dos clientes com serviços bancários. *Revista de Administração de Empresas Eletrônica*, Vol.7 No.2, pp.1-23.

ZEITHAML, V. A., BITNER, M. J. & GREMLER, D. D. (2014). *Marketing de serviços: a empresa com foco no cliente*. São Paulo: Bookman.