



Perceived risk and anxiety in online transaction intention¹

Risco percebido e ansiedade na intenção de realizar transação online

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Abstract

Purpose: This study aims to develop a model to explain how perceived risk and anxiety affect the intention to make transactions online. **Methods:** We applied an online survey consisting of 285 valid respondents. The data were analyzed with structural equation modeling using Smart-PLS 3.2.8 with the application of PLS-PM model through Confirmatory Factor Analysis. **Findings:** Results demonstrate that social, physical, and performance risks were not statistically significant to explain the intention to conduct transactions online, meaning only that time risk, anxiety and psychological risk are statistically significant influences. **Theoretical contributions:** Although the literature demonstrates that technological anxiety can catalyze perceived risks, this research found that it did not strongly affect the analyzed consumer sample. Thus, respondents positively feel safer when doing financial online transactions. This research advances discussions on consumers performing an online transaction facing emotional, physical, and financial risks. **Practical implication:** This study shows that consumer behavior has been less affected by emotional factors, such as anxiety and risk perception, arising from the use of digital technologies to carry out online transactions. A relevant aspect to be explored by managers and decision makers is to further explore the convenience factor in their actions, which will further reduce the effects of risk perception and anxiety in carrying out online transactions. Because if they know how the consumers behave during an online transaction, they can improve the actions to favor a successful transaction.

Keywords: Online transaction; perceive risk; use intention; online transaction intention; anxiety; consumer behavior.

Resumo

Objetivo: Este estudo visa desenvolver um modelo para explicar como o risco percebido e a ansiedade afetam a intenção de fazer transações online. **Métodos:** Aplicamos uma pesquisa online composta por 285 respondentes válidos. Os dados são analisados por modelagem de equações estruturais usando Smart-PLS 3.2.8 com a aplicação do modelo PLS-PM por meio da Análise Fatorial Confirmatória. **Resultados:** Os resultados demonstram que os riscos sociais, físicos e de desempenho não foram significativos para explicar a intenção de realizar transações online. Apesar da relevância desses riscos, o tempo, a ansiedade e os riscos psicológicos foram significativamente influentes. **Contribuições teóricas:** Embora a literatura demonstre que a ansiedade do uso de tecnologia pode ser um catalisador de riscos percebidos, esta pesquisa constatou que a tecnologia não afetou fortemente a amostra de consumidores analisada. Assim, os respondentes se sentem positivamente mais seguros ao realizar transações financeiras online. Esta pesquisa avança nas discussões sobre os consumidores que realizam uma transação online enfrentando riscos emocionais, físicos e financeiros. **Contribuições práticas:** Este estudo evidencia que o comportamento do consumidor tem sido menos afetado por fatores emocionais como ansiedade e percepção de risco oriundos do uso das tecnologias digitais para

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realizar transações online. Um aspecto relevante a ser explorado por gestores e tomadores de decisão e explorar mais o fator conveniência em suas ações, o que diminuirá mais ainda os efeitos da percepção de risco e ansiedade na realização de transações online. Assim, ao compreender como o consumidor se comporta durante uma transação online, eles poderão melhorar as ações para favorecer uma transação bem-sucedida.

Palavras-chave: Transação online; risco percebido; intenção de uso; intenção de realizar transações online; ansiedade; comportamento do consumidor.

1. Introduction

The number of users who transact online has grown considerably around the world. This segment is undergoing a profound transformation with traditional banks and payment services struggling with an innovative small and medium business, competing for a segment that's worthy nearly USD 850 billion worldwide (Capgemini, 2022). The use of mobile payment applications and the increased availability of online stores have stimulated this behavior, as well as the use of services such as Netflix, UBER, and Cabify. This brings us to a cashless economy society, which is already evident in China and India, where people often use credit and debit cards, digital devices, and digital wallets in their transactions (Pande, 2019).

In Brazil, seven among ten banking transactions are digital, were registered by the financial institutions an amount of 119.5 BRL (24.5 USD) billion, 15% above the last year. This growing was boosted by mobile banking transactions, increasing in 28% leaping from 52.6 (10.32 USD) BRL billion to 67.1 (13.16 USD) billion (Deloitte, 2022). In this context of online transactions, one of the fundamental concerns is the Perceived Risk (PR) by consumers with this type of transaction, which impacts their intention to conduct or not perform this type of transaction (AlSoufi & Ali, 2014; Ebrahimi et al., 2022; Frik & Mittone, 2019; Koksall, 2016). Anxiety negatively influences consumers' perceptions of risk and their intent to engage in online trading, which has a negative effect on this type of transaction's possibility (Noble et al., 2009; Celik, 2016).

We can highlight that consumers have personal beliefs about the risks inherent in each transaction based on their experience and the information available to them (Dowling & Staelin, 1994; Yang et al., 2015). In addition, it should be noted that individuals' sense of risk is difficult to capture as an objective reality (Bauer, 1960; Hubert et al., 2018). In this study, PR is defined as the subjective belief of the consumer to suffer a loss in the pursuit of a desired outcome. PR is the nature and amount of risk of a purchase decision (Cox & Rich, 1964), and reflects the uncertainty involved as to the seriousness of the consequences of a choice (Dowling & Staelin, 1994; Walsh et al., 2017). Thus, the basic conceptualization of PR is represented by the uncertainty-consequence binomial (Dowling & Staelin, 1994).

Zikmund and Scott (1974) pointed out that the risk uncertainty dimension measures the consumer's subjective probability that the purchase may result in undesirable consequences. Engel et al. (1990) consider that the risk goes beyond uncertainty about the consequences, being a personal expectation that a loss may occur (Kovacs & Farias, 2004). Therefore, this study deals with PR in online transactions, which comprehends online transaction that results in any payment or transfer of value by digital means using a mobile phone, tablet, notebook or computer; the originality of this paper is the proposal of analysis in the online and m-banking transaction, risk analysis, mainly because we are applying in different ways that are not done in the past, using Brazilian sample of respondents. In addition, we consider in this study the advancement of sharing economy platforms such as Uber, Airbnb, iFood, FinTech, among others. In this sense, consumers are more likely to use digital platforms to conduct their payment's transactions.

We explain that what motivated this study was the evidence that consumers performing an online transaction face different types of risks such as anxiety and financial risk (Ho & Ng, 1994; Aboelmegeed & Gebba, 2013; AlSoufi & Ali, 2014; Koksall, 2016). Previous studies such as Forsythe and Shi (2003) have examined the nature of PRs associated with internet shopping and the relationship between types of PRs. Frik and Mittone (2019) explored the factors that influence consumer buying intentions and their perceptions about the reliability of e-commerce site privacy practices. Park et al. (2019) explained that the clarity with which benefits are perceived by consumers increase the possibility of adopting online payment services, for example, the decision-making process for consumers to adopt payment services online is influenced by their perception of time and economic benefits.

We point out that our study differentiates of the previous ones because we considered the risks together and evaluate how was the behaviors of them in a complete perspective. We emphasize that the financial dimension of PR is not, however, the only one to be evaluated when analyzing the intention to transact online. Although it is an online banking transaction, where concern about

financial loss is presumed most evident, other uncertainties and perceptions of potentially worrying consequences concur for a decision to engage in an online financial transaction (Belkhamza & Wafa, 2006; Tsai & Yeh, 2010; Celik, 2016).

We focus primarily here on a psychometric paradigm that is based primarily on a cognitive theory (Slovic, 1992), and PR studies focusing on technological impacts on society. The psychometric paradigm concerns on risk sources, and the psychometric approach used to understand consumer behavior is based on risk dimensions. The research presented here uses the Risk-Components Approach to measure the amount of risk of different dimensions that consumers perceive when considering online transactions. Thus, the aim of this article is to develop a model to explain how perceived risk and anxiety affect the intention to make transactions online.

To do so, we applied a survey with 285 valid respondents for this survey. Data were analyzed using the structural equation model using the SmartPLS 3.2.8 software using the PLS-PM model, due to the explanatory power of this approach (Chatelin et al., 2002; Henseler et al., 2009; Tenenhaus et al., 2005). Data were analyzed using Confirmatory Factor Analysis (CFA).

The rationale for PR studies is in line with Mitchell (1999), who points out that the PR model helps traders see the world through the perspective of customers. In another position, it can be applied to the strategy of buying or using various products, brands, and situations. We can also say that a better understanding of PR when adopting online financial transactions allows one to understand consumers' behavior, avoid mistakes, and maximize the utility of buying.

2. Theoretical background and hypothesis

This section presents the concepts that support discussion and the hypotheses related to PR, anxiety and use intention to conduct online transaction.

2.1. Perceived Risk - PR

The psychometric paradigm has dominated risk perception research in recent decades (Rundmo & Nordfjærn, 2017). These studies focus on the unique and subjective qualities of risk perception (Starr, 1969; Peter & Tarpey, 1975; Slovic, 1992; Slovic & Peters, 2006; Hubert et al., 2018). Starr (1969) sought to develop a method for measuring technological risks against benefits, his revealed approach of preference assumed that, by trial and error, society strikes an ideal balance between the risks and benefits associated with its activity. In this sense, companies must identify risks related to managing information technology to avoid adverse business consequences as important aspect of IT governance (Nuijten et al., 2023). The basic assumption in this approach is that PR is multidimensional and can be measured by scales that reflect the unique characteristics of the risk source.

Rundmo and Nordfjærn (2017) emphasize that it is not primarily risk but the source of risk that is perceived; measures designed to influence risk perceptions should consider how that risk is perceived. Bauer (1960) does not focus on the sources of risk but on the components or dimensions of risk (physical, financial, performance, psychological, social, and time). We emphasize that risk is inherent in business transactions and defines part of consumer behavior, as any action you take can have unpleasant or frustrating consequences (Walsh et al., 2017). In this sense, a considerable amount of research related to consumer behavior has been conducted on PR (Cox, 1967; Cunningham, 1967; Roselius, 1971; Jacoby & Kaplan, 1972; Zikmund & Scott, 1974; Peter & Ryan, 1976; Sjoberg, 1980; Mitchell, 1999; Slovic, 1992).

Rundmo and Nordfjærn (2017) question whether PR should be considered as a reflexive construct. They claim that the perception of risk is identical to the perception of the object and therefore not significant as a distinct construct. One of the problems for the authors is that risk perception is like a pure cognitive construct, composed of subjective assessment of probability and intuitive judgment of the severity of the consequences of a negative event occurring. The authors also suggest differentiating risk judgments from risk perception, and in this conceptualization of PR, they remove emotional or affective reactions from PR, as if this were possible.

Slovic and Peter (2006) argue that it would be unwise to discard the concept of risk perception, especially when the goal is, for example, to predict people's demands for risk mitigation. As for the measurement of PR, we can say that sometimes it is given by an assessment of uncertainty, sometimes by the perceived probability of loss, seriousness of consequences, total risk calculation, or individual analysis of risk dimensions, or analysis sources of risks (Jacoby & Kaplan, 1972; Mitchell, 1999). Regarding the types of studies, the numbers and types of risks are not consensus either (Mitchell, 1999), which becomes an opportunity for researchers about the scope of applications of this construct, e.g., such as electronic commerce, electronic bank, and financial transactions (Carvache-Franco et al., 2022; Stone & Winter, 1985; Rundmo & Nordfjærn, 2017).

We can say that the consequence dimension measures the extent to which a consumer seeks to avoid certain possible outcomes of the purchase, namely losses. Thus, risk is a concept that involves consequences that can be minimally anticipated. Therefore, PR is analyzed according to the subjective feeling of the individual about the certainty of the consequences of an event, between favorable and unfavorable (Cox, 1967). The consequence dimension can be assessed, for example, according to performance risk (technical performance) and psychosocial (psychological and social aspects) (Cox, 1967).

The definitions of risk dimensions selected in this study for understanding online transactions are as follows:

- Physical Risk (FISR) - The risk that the consumption of a product or service represent a potential threat to the buyer's physical well-being or health (Mitchell, 1999), or undermines its safety (Noble et al., 2009). The perception of risk of physical loss of money, or potential physical harm to the consumer or third parties. We may also understand this risk as a card loss or other non-financial damage (Amirtha et al., 2021; Jacoby & Kaplan, 1972; Roseli, 1971; Ho & Ng, 1994).
- Performance Risk (PERI) - Refers to the possibility that the product will not function as expected and / or provide the desired benefits (Mitchell, 1999); the perceived risk of the internet infrastructure for the online transaction to be realized, the site's performance risk that a specific payment method cannot be used to complete a transaction (Jacoby & Kaplan, 1972; Roseli, 1971; Ho & Ng, 1994).
- Psychological Risk (PSRI) - This is how the consumer would perceive himself after making a purchase, the risk of being disappointed with himself for not making a choice that is satisfactory or consistent with his self-image, concern for a dissonant cognitive analysis (Perry & Hamm, 1969; Jacoby & Kaplan, 1972; Roselius, 1971; Kaplan et al., 1974; Kovacs & Farias, 2004). Psychological risk refers to the likely regret of a post-purchase reaction (Noble et al., 2009). The perceived risk that using a specific payment method will reduce consumer self-image (Jacoby & Kaplan, 1972; Roseli, 1971; Ho & Ng, 1994).
- Social Risk (SORI) - This is related to the judgment of others and has to do with the image the consumer wants to project of himself (Kaplan et al., 1974), is the likelihood of a purchase affecting the opinion of other people about the consumer (Roehl & Fesenmaier, 1992). The risk perception of the consumer's perceived image of what others will think (Jacoby & Kaplan, 1972; Roseli, 1971; Ho & Ng, 1994). Russell and Bradley (1997) state that this risk is related to embarrassment due to unexpected public exposure of computer-related incompetence that generates social anxiety.
- Financial Risk (FIRI) - Refers to a possible monetary loss resulting from the need to repair, replace or repay a purchase (Horton, 1976), consumers assess the benefits of a potential purchase in relation to its cost price (Noble et al., 2009). The perceived risk of financial loss means that the consumer cannot obtain a refund when necessary or is unable to reverse the transaction or stop payment after discovering the error (Banerjee & Vidyasagar, 2021; Jacoby & Kaplan, 1972; Roseli, 1971; Ho & Ng, 1994).
- Time Risk (TERI) - Time risk is perceived by the possibility that a purchase will take a long time, i.e., a waste of time (Cherry & Fraedrich, 2002; Roselius, 1971). Time refers to the energy spent on adjustments, repairs, replacements, or the need to purchase again due to some failures to choose (Roselius, 1971; Noble et al., 2009). The perceived risk that it will take longer to complete an online business transaction than using other means. The risk of choosing a specific payment method will take longer to complete a transaction than paying by other means (Banerjee & Vidyasagar, 2021; Jacoby & Kaplan, 1972; Roseli, 1971; Ho & Ng, 1994).

After analyzing these types of risks, we can say that risk perceptions can negatively affect consumer buying intentions (Chen & He, 2003; Kozak et al., 2007). However, each dimension of risk, whether financial, performance, psychological, social, physical, and temporal perceived may have an adverse impact on purchase intentions in equally specific ways (Stone & Grønhaug, 1993; Mitchell & Groatorex, 1993; Quintal et al., 2016). How these dimensions affect the intention to transact refers to another construct that will be covered in the next section.

2.2. Use intention to conduct online transaction

Consumer behavior studies address purchase intent, while use intent is being studied more and more, often with strong foundations in technology-related areas (AlSoufi & Ali, 2014; Koksai, 2016; Davis et

al., 1989). Regarding the relationship between PR and purchase intention, we can evidence that the literature helps to infer that PR has negatively affected purchase intentions (Sweeney et al., 1999). During the period of Covid-19 pandemic crisis, this discussion returned mainly because the need of people to do online transactions, which reduced the resistance for online purchase intentions (Theodorou et al., 2023).

Purchase intent refers to the consumer's tendency to buy a product (Yoo et al., 2000), which may be influenced by attitude and preference for a brand (Kim & Ko, 2012). Purchase intent is an attitudinal variable for measuring future customer contributions to a brand (Kumar, Lee, & Kim, 2009). Intention to use, in turn, is the expression of the discrete probability of the consumer to use something specific for a certain period (Dimitriadis & Kyrezis, 2010).

Intention to use is a subject that has been explored further in studies on the Technology Acceptance Model (TAM) by Davis et al. (1989) and Davis (1989). Several studies on TAM have focused on antecedents and subsequent ones, which included it as a basic component of consumer behavior such as the Triandis Choice Model (Triandis, 1979), Attempt Theory (Bagozzi & Warshaw, 1990), TAM2 (Venkatesh & Davis, 2000), Theory of Reasoned Action - TRA (Fishbein & Ajzen, 1975), Theory of Planned Behavior - TPB (Ajzen, 1991), in the decomposed TPB model (Lim & Dubinsky, 2005; Pavlou & Fygenson, 2006), in the utilization of an extended Technology Acceptance Model (Klopping & McKinney, 2004), Theory of Diffusion of Innovation (Eastin, 2002), Social Cognitive Theory (SCT) (Foucault & Scheufele, 2002; Oyedele & Simpson, 2007), Unified Theory of Acceptance and Use of Technology - UTAUT (Venkatesh et al., 2003), among others. During the pandemic crisis, TPB was used to assess the online Behavior by Theodorou et al. (2023). These models are mostly based on social psychology and information systems, and many are applied to the online shopping universe (Celik, 2016).

Pavlou and Fygenson (2006) and Ramos et al. (2018) remember that much e-commerce researchers has shown that intended to use involving online transactions can significantly predict the effective participation of consumers in the transactions themselves. This relationship between intention and behavior assumes that humans make rational decisions based on the information at their disposal, meaning that as they have more information, more rational are their decisions. The intention to use technological devices or "intent to transact" on the Web encompasses intentions regarding the entire online transaction process (Pavlou, 2003). As such, PR is expected to be inversely related to consumers' intentions to use websites or electronic applications for transactions. Therefore, we may point out that fears that a web retailer has not taken appropriate measures to mitigate infrastructure risks will also negatively affect use intention to conduct online transaction (Pavlou, 2003; Zhou et al., 2021).

The relationship between PR and transaction intent can be explained by the notion of perceived behavioral control described in the TPB (Ajzen, 1991). Because attitudes typically lead to action, we estimate that reducing PR influences the willingness to trade online. According to Pavlou (2003), in online transactions, there is a risk of monetary loss and there is also a risk of loss of privacy associated with the intentional or involuntary provision of personal information. Jarvenpaa et al. (1999) suggested that reducing the risk associated with buying in internet store would increase the likelihood that a consumer would buy from it.

Therefore, PR has been shown to negatively influence transaction intentions with Web retailers (Featherman & Pavlou, 2002; Jarvenpaa et al., 1999; Pavlou, 2001). In this sense, TRA predicts that consumers would be willing to transact if their risk perceptions were low (Ajzen, 1991; Fishbein & Ajzen, 1995). In the same view, Bensaou and Venkataman (1996), Ring and Van de Vem (1994), and Pavlou (2003) were concerned about the risks arising from the use of technology and derivatives of the underlying infrastructure (environmental), or relational, resulting trading partner (behavioral risks). Behavioral and environmental forms of uncertainty are typically intertwined because the actions of web retailers play a major role in extending third party risk through encryption, firewalls, and authentication (Pavlou, 2003).

Pavlou (2003) states that retrieving and exchanging information may be viewed as intent on using a website, but purchasing the product is more applicable to the transaction intent. From the point of view of measurement, the convergence of these items supported the study's proposition that the transaction process is viewed by consumers in their entirety as both intention to use (information exchange) and transaction intention (product purchase). We want to point out that the same procedure was also used here for the same reasons.

Much of the literature regarding PR and purchase intent, use of technologies, or even making an online transaction is anchored in the rational bases of consumer choice based on their perceptions, e.g., Pavlou (2003), Zhou et al. (2021), and Jarvenpaa et al. (1999). Thus, further studies are needed on how emotional factors influence the intention to conduct online transactions, and how all of these are

impacted by PR. Since the studies show that the risks perception reductions directly influence the increase of the intention to use technologies, we propose the following hypotheses:

- H1- Psychological risk reduction positively influences the use intention to conduct online transaction.
- H2 - Social risk reduction positively influences the use intention to conduct online transactions.
- H3 - Financial risk reduction positively influences the use intention to conduct online transaction.
- H4 - Time risk reduction positively influences the use intention to conduct online transaction.
- H5 - Physical risk reduction positively influences the use intention to conduct online transaction.
- H6 - Performance risk reduction positively influences the use intention to conduct online transaction.

The next topic addresses the concept of anxiety that we assume has a moderating effect between risks and the intended use of online transactions.

2.3. Anxiety

Traditional cognitive approaches to PR tend to underestimate or fragment emotions when deciding based on a risky or uncertain situation. On the other hand, human cognition and emotions behave differently because emotional reaction overcomes cognitive assessment (Alcántara-Pilar et al., 2018; Khoa & Huynh, 2022; Loewenstein et al., 2001). Slovic (1992) addresses the dread risk factor, which is the most significant risk factor in purchasing decisions, and the higher it is, the higher the PR (Rundmo & Nordfjærn, 2017).

In this study, we adopted the definition of anxiety for online shopping by Celik (2016), which describes anxiety stated behavior as the client's tendency to experience some degree of fear or apprehension when intending to make an online transaction. Therefore, anxiety can directly and/or indirectly influence individual acceptance and use of technology (Powell, 2013). Positive (e.g., pleasure, fun and play) and negative (e.g., fear, apprehension, and worry) affective responses from users play an important role in the acceptance and use of technologies (Celik, 2011).

Anxiety has received considerable attention in technology adoption studies (Hasan & Ahmed, 2010; Powell, 2013). In terms of the concept used by the Cognitive Social Theory, anxiety is a negative valence affective reaction that influences an individual's determination to perform a specific act in the avoidance of technology uses (Compeau et al., 1999; Wilson et al., 2023). The manifestation of anxiety can be divided into two categories: trait anxiety and state anxiety (Igarria & Ivari, 1995). Anxiety trait refers to an individual's personality trait, reflecting their relatively stable negative attitudes toward certain external stimuli or situations. A state of anxiety corresponds to an individual's temporary emotional distress to a particular external stimulus or situation (Saadé & Kira, 2006).

Computational anxiety is a specific form of anxiety state that manifests as a transient tendency of the individual to be fearful, apprehensive, intimidated, restless, and aggressive when interacting with functional (software) and mechanical (hardware) aspects related to technology adoption and nowadays IoT components in smart cities (Alloulbi et al., 2022; Celik, 2011). Russell and Bradley (1997) cite computational anxiety as derived from the preoccupation with completing a computer-related task (task anxiety); anxiety about damage, which refers to the possibility of damaging equipment or losing important information; and social anxiety, which refers to embarrassment due to unexpected public exposure of computer-related incompetence.

In addition, social anxiety is the most distant influencer of a customer's online purchasing decisions (Celik, 2016). Task anxiety is closely related to online shopping because it requires customers to interact with online stores through the internet communication infrastructure using various hardware, software, and protocols during purchasing tasks. Customers have been more anxious about online transactions and may refrain from buying online if they experience difficulties during purchase tasks due to access difficulties, navigation issues, inconvenient checkout procedures, bad interface design, and outdated information content (Vijayasathy, 2004).

We can say that online shopping, the high level of anxiety causes low levels of consumer engagement, but not the total disengagement with self-service technologies, such as m-banking (Meuter et al., 2003; Wolter et al., 2023). In addition, anxiety negatively influences individual perceptions of effort requirements and performance gains associated with the use of technology. The anxiety construct itself has been empirically illustrated to exert a direct negative influence on Behavior

Intention (BI) (Chiu & Wang, 2008). BI is an additive function of individual and social factors and a transition between cognitive and evaluative products and the use of technology.

Technology anxiety use and personal technology experience have shown an inverse relationship, which means that as technology experience increases, and the technology anxiety level decreases (Igbaria & Chakrabarti, 1995). This is because technology experience contributes significantly to the development of individual perceptions of self-efficacy related to technology, and these perceptions offset the negative emotional effect on cognitive effort like for example share their personal information's online (Brown et al., 2004; Škerháčková et al., 2022; Venkatesh & Davis, 2000).

Celik (2016) studied the influence of anxiety in the context of online shopping, contingent upon its study by age, gender, and experience, which provided practical implications for marketing strategies. The author proposed to integrate such a construct into the UTAUT model, also used by Venkatesh et al. (2003), whose results indicated that anxiety simultaneously exerts direct negative influences on performance expectation, effort expectation and intentions to use online shopping within the UTAUT framework. Studies also suggest that customer concerns about the implications of online shopping, such as identity theft, credit card fraud, privacy breach, unauthorized account access, misleading product promotions, and dispute resolution, increase anxiety levels about transactions with virtual vendors (Forsythe & Shi, 2003; Littler & Melanthiou, 2006).

Therefore, as technology anxiety increases, individuals demonstrate higher levels of avoidance of uncertainty and lower levels of propensity to engage in a computer-mediated task (Hasan & Ahmed, 2010). In addition, anxiety has been found to increase the effort required to perform the task and impede the cognitive ability required to produce the desired results (Brown, Fuller, & Vician, 2004). These findings were useful in the universe of m-banking transaction-specific studies and appear to be useful for a more comprehensive study of online transactions in general. Thus, technology anxiety negatively influences individual perceptions of effort requirements and performance gains associated with technology use (Celik, 2016).

Since anxiety, in this study understood as anxiety by technology use, possibly has a moderating effect between perceived risks and intended use, the following hypotheses were formulated based on the theory:

- H1a – Anxiety negatively moderates the effect of Psychological Risk reduction over use intention to conduct online transaction.
- H2a – Anxiety negatively moderates the effect of Social Risk reduction over use intention to conduct online transaction.
- H3a – Anxiety negatively moderates the effect of Financial Risk reduction over use intention to conduct online transaction.
- H4a – Anxiety negatively moderates the effect of Time Risk reduction over use intention to conduct online transaction.
- H5a – Anxiety negatively moderates the effect of Physical Risk reduction over use intention to conduct online transaction.
- H6a – Anxiety negatively moderates the effect of Performance Risk reduction over use intention to conduct online transaction.
- H7 – Anxiety negatively influences the use intention to conduct online transaction.

After we presented the theoretical framework of the study and the hypotheses, the next section aims to present the method used to evaluate the hypotheses of the study.

3. Materials and methods

The purpose of this study is to develop a model to explain how the perceived risk and anxiety affect the use intention to conduct online transaction. To achieve this goal, we adopted explanatory research (Creswell, 2017). This type of research aims to explain the correlations between variables, which usually follow a quantitative approach according to Selltiz et al. (2007). To make the data collection we used one intersectional survey through the adoption of a questionnaire containing three sections with 52 items, 42 items for the construction of observable variables of the model (Table 1).

Table 1 – Observable model variables

	ANX01 - I feel apprehensive about making financial transactions online.
	ANX02 - It scares me to think that I could expose my personal data when using online systems.

Anxiety (ANX) (Celic, 2016)	ANX03 – It scares me to think that I could expose my credit card information when using online systems.
	ANX04 - I'm afraid of using online financial transaction systems for fear of making mistakes that I can't fix
	ANX05 - Online financial transactions make me insecure
Use Intention (USIN) (Wu et al., 2015; Celik, 2016; Pavlou, 2003; Quintal et al., 2016)	USIN01 - I tend to do online financial transactions periodically
	USIN02 - The likelihood that I will perform online financial transactions is high.
	USIN03 - I want to perform my financial transactions preferably online.
	USIN04 - If I need to make a financial transaction I consider doing online.
	USIN05 – I intend to conduct my financial transactions only online in the near future
	USIN06 - I plan to conduct my financial transactions only online in the near future
Financial Risk (FIRI) (Dimitriadis & Kyrezis, 2010)	FIRI01 - I don't do financial transactions online because I fear my data will be exposed
	FIRI02- I only do financial transactions on sites that have bank security stamps
	FIRI03 - I believe existing technology ensures my security in online financial transactions.
	FIRI04 - I feel safe about making financial transactions on sites with security stamps
	FIRI05 - I always believe that my financial information used in online transactions will be secure.
	FIRI06 - I do not perform financial transactions online for fear of suffering any damage.
Psychological Risk (PSRI) (Secchi et al., 2012; Quintal et al, 2016)	PSRI01 - I think risky do financial transactions online for fear of failing to reverse them.
	PSRI02 - I don't do financial transactions online for fear of regret.
	PSRI03 - I don't do financial transactions online for fear of compromising my personal image.
	PSRI04 – I worry if the sites where I do my financial transactions are really safe.
	PSRI05 – I worry if the sites where I do my financial transactions really work correctly
Social Risk (SORI) (Celic, 2016; Kovacs & Farias, 2004; Secchi et al., 2012)	SORI01 - The indication of my friends influences me in conducting online financial transactions.
	SORI02 – I always trust in making financial transactions on websites that are referred by my friends.
	SORI03 – I don't do financial transactions online for fear of my personal data being exposed.
	SORI04 – I don't trust my personal data to be secure on websites that I do financial transactions.
	SORI05 – People I trust think I should do financial transactions online.
	SORI06 – People I trust are decisive for me to choose to conduct online financial transactions.

	SORI07 – I prefer online financial transactions to avoid embarrassment in contacts with people.
Physical Risk (FISR) (Jacoby & Kaplan, 1972)	FISR01 – I prefer to conduct financial transactions online for fear of being robbed.
	FISR02 – I prefer to carry out online financial transactions to avoid accidents during mobility.
	FISR03 - I prefer to do financial transactions online to avoid suffering physical harm to my person.
	FISR04 – I prefer to do online transactions because they are less dangerous to me than face to face.
Risk Time (TERI) (Jacoby & Kaplan, 1972; Secchi <i>et al.</i>, 2012)	TERI01 – I prefer online financial transactions to save time.
	TERI02 – I prefer online financial transactions to gain efficiency in my time.
	TERI03 – I worry about wasting time on face-to-face transactions and queuing.
	TERI04 – I perform online financial transactions because they are more convenient than face-to-face operations.
	TERI05 – I do online financial transactions for convenience.
Performance Risk (PERI) (Russell & Bradley, 1997; Jacoby & Kaplan, 1972)	PERI01 – I feel anxious to conduct financial transactions online for finding the complex systems.
	PERI02 – I feel anxious not to finalize online financial transactions.
	PERI03 – I feel unsure that an online financial transaction has been finalized.
	PERI04 – I am afraid that online financial transaction systems will not work properly

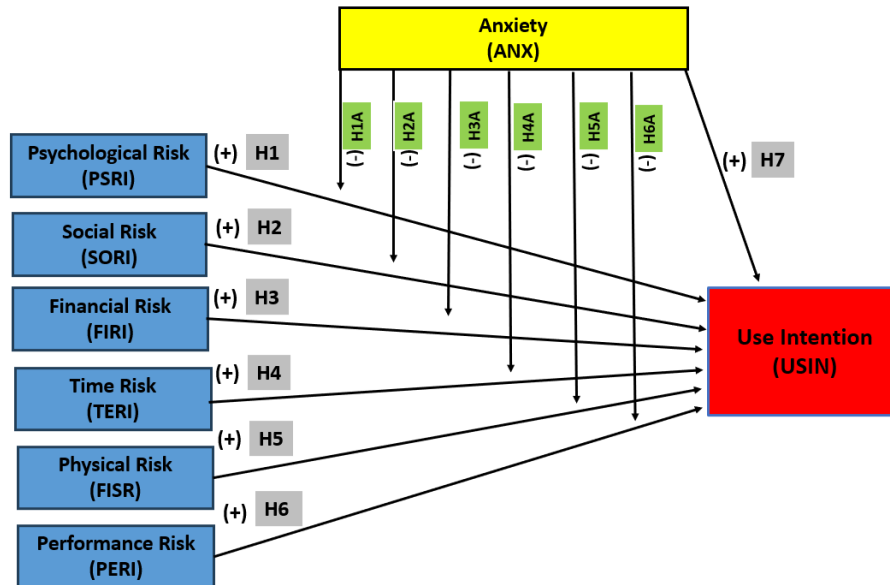
The first item aimed to qualify respondents as to whether to conduct online transactions. Depending on the answer, yes or no, it was sent to a 42-assertive section using a 7-point scale based on the Likert scale (Fowler, 2013; Malhotra, 2007). In addition to these items, we also had items to qualify respondents for their demographic's aspects. Data were collected using Google Forms, which was sent via social networks seeking a convenience sample.

We highlight that the research instrument was initially built based on scales already validated. As these scales were adapted, we sought semantic validation with 5 Ph.D. researchers. Thus, after the semantics validation process no amendments to the questionnaire was necessary. After this validation, we made the instrument validation via application by Google Forms with 20 respondents. After these two stages of validation to build the research instrument, we move to application through invitations in social networks (DeVellis, 2016). Data were collected within 2 months (Mar/Apr 2020) using social media such as: Facebook, LinkedIn, among others, and 303 responses were obtained, of which only 285 were validated. One thing noteworthy is the period of the data collection that happened during the pandemic crisis, which completely changed the people mindset about online transactions risk, because they were forced to change the form of buying things that they needed, reducing the resistance for online purchase intentions (Theodorou et al., 2023). The main reason for excluding answered questionnaires was that respondents completed only the first section leaving the model building items unanswered. It is worth mentioning that the moment of data collection was due to the increase in online transactions, as can be seen in the advancement of sharing economy platforms such as Airbnb, iFood, Uber, as well as a greater number of transactions in digital banks such as Inter and Nubank.

The significance of this sample was tested by using the G-Power software following the recommendations of Ringle et al. (2014) which are: (i) Power of explanation 0.85; (ii) Cohen effect size of 0.15; (iii) 1 predictor, which indicated that a significant sample should be larger than 89 responses. For the sample to be considered significant, it was decided to follow the recommendations of Hair et al. (2016) who recommend using twice the number recommended by the G-Power Software, which was 178 responses, validating the sample thus collected.

The research model of the study, along with its hypotheses, is shown in Figure 1.

Figure 1 - Theoretical Model Anxiety Transactions



The data were analyzed using the structural equation model using the SmartPLS 3.2.8 software using the PLS-PM model, because this approach has explanatory power, besides the fact that it needs small samples to create models (Chatelin et al., 2002; Henseler et al., 2009; Tenenhaus et al., 2005). Data were analyzed using confirmatory factor analysis (CFA), which was based on the theoretical model for data analysis (Ringle et al., 2015). The next section presents the results of this research.

4. Results

4.1. Sample description

The sample consisted of 285 valid forms. Respondents were classified as gender, age, income, and marital status (Table 2).

Table 2 - Demographic characteristics

Variable	Group	Frequency	Percentual
Gender	Feme	168	58.95
	Male	117	41.05
Age	15 to 18 years old	5	1.75
	19 to 20 years old	15	5.26
	21 to 25 years old	37	12.98
	26 to 30 years old	22	7.72
	31 to 40 years old	54	18.95
	41 to 50 years old	102	35.79
	51 to 60 years old	40	14.04
	Over 60 years	10	3.51
	Up to R\$1.000	26	9.12

Income	R\$ 1.001 to R\$ 2.000	35	12.28
	R\$ 2.001 to R\$ 3.000	28	9.82
	R\$ 3.001 to R\$ 4.000	19	6.67
	R\$ 4.001 to R\$ 5.000	17	5.96
	over R\$ 5.000	160	56.14
Marital Status	Married	184	64.56
	Divorced / Separated	16	5.61
	Single	82	28.77
	Dowager	3	1.05

As can be seen in Table 2, 58.95% of respondents are female. The age of respondents is mainly in the range of “From 31 to 40 years old” with 18.95%, “From 41 to 50 years old” with 35.79%, and “From 51 to 60 years old” with 14.04%. Respondents' salary represents an economically active population with money to carry out financial transactions. The sample presents predominantly with salaries above R\$ 3,000 (three thousand Reais), which represents something close to USD \$1,000/month. With respect to Marital status, the sample is predominantly married (Married 54.56%, Divorced/Separated 5.61%, and Dowager 1.05%).

4.2. Proposed model test

Data were analyzed using PLS analysis (Partial Least Squares), which in the first round the variable SORI06 = 0.096 of the “Social Risk” construct was eliminated because it presented a variable value below the recommended value > 0.5. For the same reason, the variable SORI07 = 0.121 of the “Social Risk” construct was eliminated in the second round. In the third round the variable SORI01 = 0.140, from the “Social Risk” construct, was eliminated. The variable SORI05 = 0.171 of the “Social Risk” factor was eliminated in the fourth round. In the fifth round, the variable SORI02 = 0.235 was eliminated from the “Social Risk” factor. After that, the variable PSRI05 = -0.192 of the construct “Psychological Risk” was eliminated in the sixth round. In the seventh round, the variable PSRI04 = 0.192 was eliminated. In the eighth round, the variable FIRI02 = 0.388 was eliminated from the construct “Financial Risk”. In the ninth round USIN05 = 0.449 of the “Use Intention” construct was eliminated, after that in the tenth-round variable USIN06 = 0.499 of the same constructs was also eliminated.

Later, in round 11, it was realized that the overall risk of the Financial Risk was 0.452, which is not good. Cronbach's Alpha was at 0.073, which is totally unacceptable. And the composite reliability was showing the value of 0.010. Based on this information, we decided to eliminate the “Financial Risk” construct altogether. In the twelfth round, it was decided to link the remaining factors directly to the Anxiety factor, and to reconstruct all existing moderations, as shown in Figure 2.

After the model was redesigned, the path analysis was performed through Bootstrapping analysis. In the first round it was decided to eliminate the path Social Risk -> Use Intention = $T = 0.232$; $p = 0.817$. In the second round, the path Anxiety x Time Risk -> Use Intention = $T = 0.476$; $p = 0.634$. The model was run again for the third time, the path Performance Risk -> Use Intention = $T = 0.713$ was eliminated; $p = 0.476$. The model was run again for the fourth time, the path was eliminated, Performance Risk -> Use Intention = $T = 0.713$, $p = 0.476$. We then moved on to another round in which the Physical Risk -> Use Intention = $T = 0.786$; $p = 0.432$. Already in the sixth round, the path Anxiety x Psychological Risk -> Use Intention = $T = 1.167$; $p = 0.244$. After eliminating this path, the model was stable and no longer presented T values below 1.96 and $p < 0.05$, as recommended by Hair et al. (2016). After these procedures, it was decided to include the moderations in the remaining factors, to use only valid paths, following the model shown in Figure 3.

Figure 2 – Model contemplating moderations

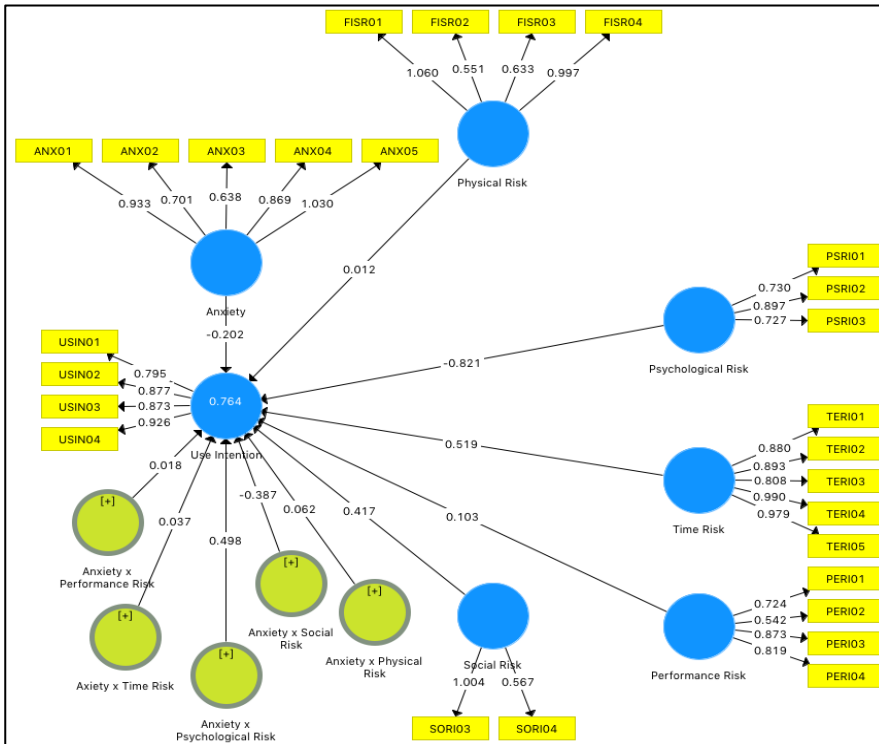
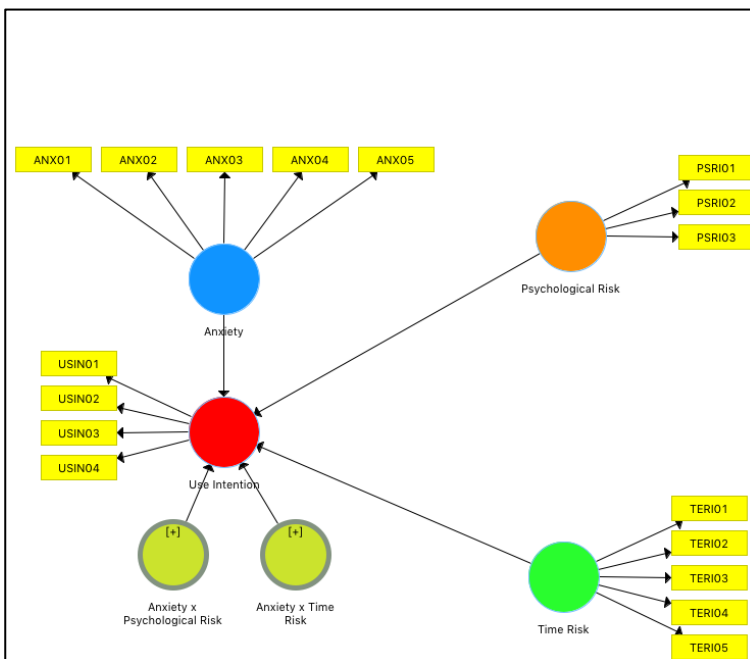


Figure 3 – Model after Validating Bootstrapping Paths



After verifying the reliability of the factors, we found that the moderations “Anxiety x Psychological Risk” and “Anxiety x Time Risk” presented values for Composite Reliability = 1.000, Cronbach’s Alpha = 1.000 and AVE = 1.000, indicating an excellent fit, which denotes a spurious relationship, that is, indicative of a problem perhaps caused by a data distribution, after this verification a second bootstrapping analysis was performed to verify if these paths were valid. The values presented by Anxiety x Psychological Risk -> Use Intention = $T = 1.442$; $p = 0.150$, and Anxiety x Time Risk -> Use Intention = $T = 1.059$; $p = 0.290$, indicating that there are no paths to these moderations, which made the choice to eliminate the “Anxiety x Time Risk” moderation first, as it presented worse adjustment values. After that, the model was presented with the following values: Anxiety x Psychological Risk -> Use Intention = $T = 1.162$; $p = 0.246$, indicating that there are no paths to this moderation, causing this path to be eliminated.

Based on the results of previous tests, it was inferred that the model presented acceptable values, which allowed us to start the analysis of model quality by using Pearson's Coefficient, whose construct Use Intention = $\beta=0.645$ was considered strong (Hair et al., 2016). Thus, having completed the Pearson R² Coefficient analysis, we then proceeded to the F² analysis which measures the size of the Cohen effect, whose values were as follows: Anxiety = 0.071 (small); Psychological Risk = 0.044 (small) and Time Risk (large) = 0.865, according to Cohen (1988) and Garson (2016), representing a small effect for the first two factors and large for the last one.

After the Cohen effect coefficient analysis, the first construct quality analysis was started, which is the analysis of extracted variance (AVE), which model values were: Anxiety = 0.777; Psychological Risk = 0.742; Time Risk = 0.865, and Use Intention = 0.815, which were higher than recommended by Hair et al. (2016) which is > 0.05 . The next factor reliability analysis was Cronbach's Alpha, which measures the internal reliability of the model, whose presented values were: Anxiety = 0.929; Psychological Risk = 0.825; Time Risk = 0.961 and Use Intention = 0.924 above the recommended by Pestana and Gageiro (2013), which is above 0.6. The last reliability analysis of the constructs was the composite reliability analysis, which needs to present values above 0.6 according to Hair et al. (2016). The values presented by the model were as follows: Anxiety = 0.946; Psychological Risk = 0.896; Time Risk = 0.970 and Use Intention = 0.946.

Subsequently, the factor quality analysis started the discriminant analysis, which aims to verify if the constructs are distinguished from the others, which implies checking if the constructs do not capture the phenomenon represented by another construct (Hair et al., 2016). Following the recommendations of Hair et al. (2016), Table 3 shows the cross-load values of the constructs.

Table 3 – Crossloads Matrix

	Anxiety	Psychological Risk	Time Risk	Use Intention
ANX01	0.904	0.494	-0.265	-0.451
ANX02	0.896	0.432	-0.178	-0.339
ANX03	0.857	0.397	-0.162	-0.308
ANX04	0.831	0.631	-0.285	-0.420
ANX05	0.917	0.583	-0.325	-0.498
PSRI01	0.673	0.822	-0.293	-0.446
PSRI02	0.489	0.913	-0.494	-0.548
PSRI03	0.366	0.846	-0.362	-0.444
TERI01	-0.250	-0.414	0.944	0.672
TERI02	-0.257	-0.419	0.939	0.681
TERI03	-0.206	-0.382	0.871	0.616
TERI04	-0.317	-0.443	0.933	0.755
TERI05	-0.293	-0.440	0.960	0.747
USIN01	-0.367	-0.470	0.621	0.850
USIN02	-0.412	-0.497	0.693	0.930
USIN03	-0.451	-0.484	0.680	0.908
USIN04	-0.462	-0.569	0.710	0.921

Based on the values presented in Table 3, it can be observed that all values of the variables present the highest loads in their respective constructs, which according to Chin et al. (2016) and Hair et al. (2016) demonstrates discriminant validity for this criterion and indicates that it is not necessary to change any construct variable.

The second discriminant analysis of the model was the criterion of Fornell and Larcker (1981), which compares the square roots of variables with the existing correlations between latent variables. The values are shown in Table 4.

Table 4 – Fornell and Larcker Criteria

	Anxiety	Psychological Risk	Time Risk	Use Intention
Anxiety	0.882			
Psychological Risk	0.588	0.861		
Time Risk	-0.287	-0.452	0.930	
Use Intention	-0.470	-0.560	0.750	0.903

Based on the values found in Table 4, it can be observed that the highlighted values (square roots of variables) are greater than the values of all existing correlations between latent variables, indicating that there is discriminant validity according to this criterion.

The last criterion of discriminant analysis is the value of the Heterotrait-Monotrait (HTMT) correlations, whose values were: Psychological Risk -> Anxiety = 0,661; Time Risk -> Anxiety = 0.289; Time Risk -> Psychological Risk = 0.498; Use Intention -> Anxiety = 0.492; Use Intention -> Psychological Risk = 0.636, and Use Intention -> Time Risk = 0.792, whose values are within the acceptance range where values should be below 0.9 (Garson, 2016; Hair et al., 2016; Henseler et al., 2015).

Having completed the model discriminant validity analysis using the three criteria suggested by Hair et al. (2016), the analysis of the general fit of the model was started using the SRMR criterion suggested by Henseler et al. (2015), and whose value was 0.073. This analysis was below the recommendation of Hu and Bentler (1999), who advocated that the value should be below 0.08, indicating that the model has adjustment by this rule. The value of $X^2 = 859.259$, and $NFI = 0.835$, which according to Byrne the closer to 1 the better.

After completing the adequacy analysis of the model, the bootstrapping analysis of the so-called inner model was performed to validate the paths and whose values were presented through Table 5.

Table 5 – Path Validation

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Anxiety -> Use Intention	-0.183	-0.183	0.056	3.258	0.001
Anxiety x Physical Risk -> Use Intention	0.061	0.061	0.046	1.319	0.188
Anxiety x Psychological Risk -> Use Intention	0.054	0.049	0.044	1.212	0.226
Physical Risk -> Use Intention	0.035	0.040	0.045	0.786	0.432
Psychological Risk -> Use Intention	-0.211	-0.212	0.061	3.451	0.001
Time Risk -> Use Intention	0.598	0.593	0.059	10.113	0.000

Based on the data presented through Table 5 and the previous validations the supported and unsupported hypotheses of the study were presented in Table 6.

Table 6 – Supported / Unsupported Study Assumptions

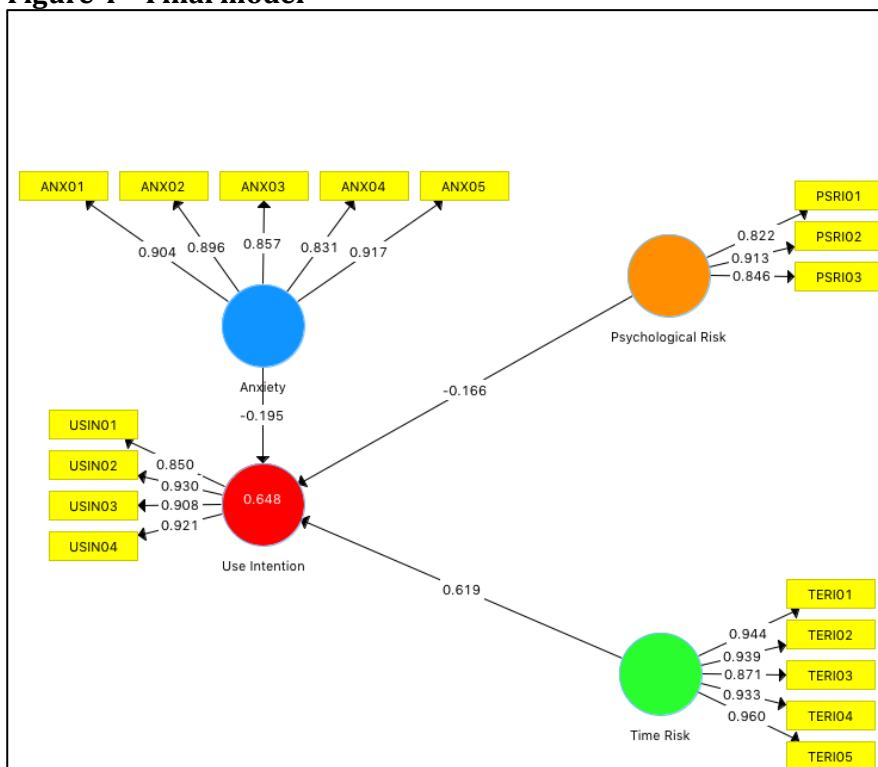
Hypothesis	Description of the hypothesis	Result
H1	Psychological risk reduction positively influences the use intention to conduct online transaction.	Supported

H1a	Anxiety negatively moderates the effect of Psychological Risk reduction over use intention to conduct online transaction.	Not supported
H2	Social risk reduction positively influences the use intention to conduct online transactions.	Not tested*
H2a	Anxiety negatively moderates the effect of Social Risk reduction over the use intention to conduct online transaction.	Not tested*
H3	Financial risk reduction positively influences the use intention to conduct online transaction.	Not tested*
H3a	Anxiety negatively moderates the effect of Financial Risk reduction over the use intention to conduct online transaction.	Not tested*
H4	Time risk reduction positively influences the intention to conduct online transactions.	Supported
H4a	Anxiety negatively moderates the effect of Time Risk reduction over use intention to conduct online transaction.	Not supported
H5	Physical risk reduction positively influences the use intention to conduct online transaction.	Not tested*
H5a	Anxiety negatively moderates the effect of Physical Risk reduction over use intention to conduct online transaction.	Not tested*
H6	Performance risk reduction positively influences use intention to conduct online transaction.	Not tested*
H6a	Anxiety negatively moderates the effect of Performance Risk reduction over use intention to conduct online transaction.	Not tested*
H7	Anxiety influences negatively use intention to conduct online transaction.	Supported

Note: * Hypotheses H2, H2a, H3, H3a, H5, H5a, H6 and H6a were not tested because the validity and reliability indicators of the corresponding constructs were not adequate.

Figure 4 shows the final model after quality check, discriminant, model fit, and outer model analysis, demonstrating the supported hypotheses.

Figure 4 - Final model



After the analysis, we can make some inferences from the discussions with previous studies. This discussion is presented in the next section.

5. Discussion

Based on the results presented in this study we can first say that social risk has no significant influence on PR for consumers in this sample. On the other hand, this relationship was true despite what Jacoby and Kaplan (1972), Roseli (1971), Ho and Ng (1994), Nuijten et al. (2023) and Russell and Bradley (1997) presented about the consumer feel embarrassed of social exposure arising from their incompetence in dealing with technologies to perform transactions. Otherwise, the constructs were not statistically validated in this study, due to validity and reliability flaws which do not invalidate the scales presented. Thus, the results only indicate that for this data set it was not possible to carry out such empirical tests. The results presented open an interesting discussion about whether there has been a change in consumer behavior. The same happened with other observable variables and factors. These changes to the initial model impacted the financial risk, social risk, physical risk, and performance risk constructs, which were eliminated from the final model (Figure 4).

Regarding the behavior evidenced in this sample, we can highlight that the greater use of technological equipment such as mobile phones, as well as the consumption of services such as Netflix, UBER, Cabify, among others, considerably affected the acceptability of technologies. Although the composition of factors presented in the model of Figure 1, the factors initially identified in the literature have some effect on PR. Because the fact this study focuses on financial online transactions, and as far as we concerned the massive investment in information security services, to deliver trustable services, maybe tends to reduce the perceived risk, turning an unperceived risk (Banerjee & Vidyasagar, 2021).

A relevant aspect of this study is that previous studies emphasize the influence of the factors eliminated here in PR, and consequently, in the intention to use technologies. While researchers such as Stone and Grønhaug (1993), Mitchell and Greatorex (1993), and Quintal et al. (2016) analyzed buying behavior, the intent to conduct online transactions not only related to the product to be purchased. Therefore, we emphasize that the product as an objective element is in this study replaced by an operation to hire a service that is not only intangible but is influenced by the subjectivity of risk perception (Celik, 2016).

The risks not validated in this study are mainly related to the purchase of a product that, consequently, generates consequences arising from the object of the transaction, which does not translate here physical, financial or performance losses to consumers. The intended use of online transactional means here removes the weight of product evaluation and leads consumers to think about how to purchase products, not the product itself. Thus, in the case presented here, the intention to carry out online transactions for the purchase of goods and services has a greater influence on emotional factors (psychological risk and anxiety), and on the time and convenience factor (Time risk).

As can be seen in Alcántara-Pilar et al. (2018), Celik (2011), and Loewenstein et al. (2001), emotional aspects overlap over rational aspects based on objective aspects. Therefore, the initially raised risks were not significant to explain the intention to conduct financial transactions online. Despite the relevance of these risks in this type of operation, anxiety and psychological risk were significantly more influential. In addition, aspects related to time lost with face-to-face transactions had a considerable impact on respondents' assessment. Thus, convenience is a relevant aspect when assessing risk when studying the intent to conduct online transactions. The convenience can be explained by the Nuijten et al. (2023) observation about the fact that companies must identify risks related to managing information technology to avoid adverse business consequences as important aspect of IT governance, which can reduce or turn unperceived the involved risks in financial online transactions.

We need to highlight here the relevance of respondents' assessments to the more constant use of electronic means to conduct transactions. Increased use of m-banking, internet shopping, and the use of mobile applications make people less sensitive to factors related to fear of losing data, money, or even being misled (Bensaou & Venkataman, 1996; Ring & Van de Vem, 1994; Pavlou, 2003). As already explained, the risk is a concept that involves consequences that can be minimally anticipated, which for respondents generates a decision situation that is more influenced by emotional and convenience issues. Noteworthy as this kind of risk were studied during the 1990 and at the beginning of year 2000, e.g., Venkatesh and Davis (2000) and Brown et al. (2004), the experience with computer developed by the users and the investments in information technology did by the banks, mainly in the internet

banking and m-bank service maybe reduced or eliminated the negative effect about the use and the risks involved during the financial transactional services (Škerháková et al., 2022).

Nonetheless this investments also reduced the computational anxiety presented in the users at the of 1990s and in the beginning of year 2000, combined by the gaining of experience of the ancient users and the preponderancy of the newcomers to use these technologies, which doubtless improved the acceptance of technology adoption, changing their mindset to adopt new technologies such as cryptocurrencies, digital money, QR codes transfers and payments and other kind of financial services through digital systems, using m-banking and internet banking (Alloulbi et al., 2022; Celik, 2011).

The reasons about why hypothesis H1a, H2, H2a, H3, H3a, H4a, H5, H5a, H6 and H6a weren't tested in this study need more explanation, what demands new research with qualitative research aiming to understand better the sample behavior, about these previous validated constructs.

6. Conclusion

At the end of this study, we can say that the goal was achieved, as we explain from applied research how related factors PR and anxiety affect the intention to conduct online transactions. The results indicate that psychological risks, time risks and anxiety have a significantly influence on the intention to conduct financial online transactions. We can also say that the level of maturity of the means of electronic trading, or even the equipment, makes consumers less sensitive to risks or anxious to purchase goods and services electronically. This situation interferes with the degree of fear or apprehension of making a financial online transaction.

A relevant aspect of this study is related to the adoption of electronic means to carry out financial online transactions. Therefore, the greater use of technologies has mainly impacted on convenience, and consequently increased emotional risks involved in this type of transaction. On the other hand, the benefits of using electronic means to conduct financial online transactions are noticeable in this research. Consumers sample in this research feel safer when doing financial online transactions, which could also interfere with decisions to join new products or services like digital wallets. This kind of behavior can also explain consumerism on digital platforms such as AliExpress, or digital banks like Inter or Nubank.

In this context, commemorative dates, or events like Black Friday, can stimulate consumers to shop anywhere on the planet. In addition to the propensity to consume for convenience, we can also say that the lower types of perceived risk factors, the greater the responsiveness to electronic advertising. We can infer that this last indication may stimulate studies on the effectiveness of online advertisements related to perceived risk.

The contributions of this study are mainly in the evidence that consumer behavior is less influenced by the acquired object, as addressed by some studies, e.g., Alloulbi et al. (2022), AlSoufi and Ali (2014), and Bagozzi and Warshaw (1990), than by the convenience of electronic media to do financial online transactions. The perception of risk related to the environment replaces the risks related to the object. We even point out that the risk time is more significant than the emotional factors. It is worth remembering that in online channels there is a challenge to convey the message to the target consumers, either due to the number of stimuli they suffer, or the failure in interpretations. In this sense, this research contributes by clarifying which factors have greater power of influence. Although the literature demonstrates that technology anxiety can catalyze perceived risks, this research found it did not affect the analyzed consumer sample. Thus, respondents positively feel safer when doing financial online transactions. This research advances discussions on consumers performing an online transaction facing emotional, physical, and financial risks. This conclusion was achieved, using the four essential elements to develop a theory: variables, constructs, factors, and theory, which were used to explain, how we achieve these considerations and why some constructs were eliminated, based on the limits and the theory (Whetten, 1989).

As managerial implications, the research results showed that the time factor is one of the relevant elements to stimulate online financial transactions. This study shows that consumer behavior has been less affected by emotional factors such as anxiety and risk perception arising from the use of digital technologies to carry out online transactions. A relevant aspect to be explored by managers and decision makers is to further explore the convenience factor in their actions, which will further reduce the effects of risk perception and anxiety conducting online transactions. In this sense, emotional factors have less influence than convenience, which can make managers work with a platform with information and communication channels that enable positive behaviors towards these factors. Because if they know how the consumers behaves during an online transaction, they can improve the actions to favor a successful transaction.

One of the limitations of this study is its application, which apparently portrays the behavior of Brazilian consumers. Other limitations can be observed by the low number of respondents, or by the

non-use of control variables to test the results of this research and the fact that the academic background of the respondents is unknown, which can explain some data variations. We can also include the fact there is a huge number of hypotheses, that weren't supported and tested, which can be explained in this research, and demands new qualitative research, to understand better the population behavior. These aspects also become an opportunity for future research, since the comparison between the behaviors of different countries would allow a better understanding of the researched phenomenon. In the same sense, a larger base of respondents allows the use of control variables to carry out a multigroup analysis.

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