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HENRIQUE DE BORBA, EDUARDO; TEZZA, RAFAEL
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ANALYSIS OF USERS' PERCEPTIONS ON MOBILE ELECTRONIC COMMERCE OF FASHION

**ANÁLISE DA PERCEPÇÃO DE USUÁRIOS SOBRE O COMÉRCIO ELETRÔNICO
MÓVEL DE ARTIGOS DE MODA**

**ANÁLISIS DE LA PERCEPCIÓN DEL USUARIO DEL COMERCIO ELECTRÓNICO
MÓVIL DE ARTÍCULOS DE MODA**

EDUARDO HENRIQUE DE BORBA

Master

Universidade do Estado de Santa Catarina – Brasil

ORCID: 0000-0002-0431-9145

eduardo.borba14@gmail.com

RAFAEL TEZZA

Doctor

Universidade do Estado de Santa Catarina – Brasil

ORCID: 0000-0002-6539-4608

rafael.tezza@udesc.br

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ABSTRACT

This study explores the dimensions of users' perceptions on mobile electronic commerce (m-commerce) of fashion items. This type of digital commerce leads the ranking when it comes to the volume of online sales in Brazil, and identifying the factors that impact on user's purchase intent is crucial for service providers in the area. The development of digital platforms is also essential. Due to the quantitative nature of this study, a questionnaire with 15 items was developed, and applied to a sample of 110 users. The results showed adapted dimensions of the UTAUT model and related to the area of fashion: Effort Expectancy, Performance Expectancy, and Perceived Satisfaction. This research adds an empirical work that uses UTAUT theory applied to fashion m-commerce. The managerial contribution is to identify the perceptual profile of its users, which is crucial for managing companies' marketing strategies. In the academic context, it contributes to the investigation of a theme that has been little explored, but that has great potential in the area of information and communication technology.

Keywords: M-commerce; mobile electronic commerce; UTAUT; fashion; satisfaction.

RESUMO

Este estudo busca explorar as dimensões da percepção dos usuários de comércio eletrônico móvel (*m-commerce*) de artigos de moda. Este tipo de comércio digital está no topo do *ranking* de volume de vendas *on-line* no Brasil, e identificar os fatores que impactam a intenção de uso de seus usuários torna-se crucial para os provedores de serviços na área, além do desenvolvimento das plataformas digitais. Devido à natureza quantitativa do trabalho, foi desenvolvido um questionário com 15 itens e aplicado a uma amostra de 110 usuários. Os resultados evidenciaram dimensões adaptadas do modelo UTAUT e relacionadas ao campo da moda: Expectativa de Esforço, Expectativa de Desempenho, além disso, a Satisfação Percebida. Esta pesquisa acrescenta um trabalho empírico ao uso da teoria UTAUT aplicada a *m-commerce* de moda. A contribuição gerencial em identificar o perfil perceptivo de seus usuários tem se mostrado crucial para o gerenciamento de estratégias mercadológicas de empresas. No contexto acadêmico, contribui para investigação de um tema pouco explorado, mas com grande potencial na área da tecnologia da informação e comunicação.

Palavras-chave: *M-commerce*; comércio eletrônico móvel; UTAUT; moda; satisfação.

RESUMEN

El estudio busca explorar las dimensiones de la percepción de los usuarios del comercio electrónico móvil (*m-commerce*) de artículos de moda. Este tipo de comercio digital no está en la cima del *ranking* de volumen de ventas en línea en Brasil, e identifica los factores que impactan y la intención de usar a sus usuarios se vuelve crucial para los proveedores de servicios en el área, además del desarrollo de plataformas digitales. Redujo la naturaleza cuantitativa del trabajo, se desarrolló un cuestionario con 15 ítems y se aplicó una muestra de 110 usuarios. Los resultados mostraron dimensiones adaptadas al modelo UTAUT y relacionadas con el campo de la moda: satisfacción percibida, expectativa de esfuerzo y expectativa de rendimiento. Esta investigación agrega trabajo empírico al uso de la teoría UTAUT aplicada al comercio móvil de moda. La contribución gerencial es identificar el perfil perceptivo de sus usuarios, lo que ha demostrado ser crucial para la gestión de las estrategias de marketing de las empresas. Y en el contexto académico, contribuye a la investigación de un tema poco explorado, pero con un gran potencial en el área de la tecnología de la información y la comunicación.

Palabras clave: M-commerce; comercio electrónico móvil; UTAUT; moda; satisfacción.

1 INTRODUCTION

Brazilian electronic commerce has expanded rapidly, as shown by the increase in the volume of orders and also in the financial indices, such as E-bit¹ reports, known as Webshoppers². The current highlight in this regard is mobile electronic commerce (m-commerce), which allows commercial wireless transactions using tablets and smartphones, bringing the benefit of practicality.

In 2018, m-commerce in Brazil recorded revenues of 16.7 billion reais. Compared to 2017, 41% growth was seen in the volume of orders via mobile devices³ (E-bit, 2019). Companies that use internet sales via mobile devices have a competitive advantage in creating business opportunities in the market. In Brazil, many domestic companies and internet retailers are expanding their services to include mobile platforms. In this context of expansion of m-commerce, the Fashion and Accessories sector had the highest volume of orders in m-commerce from 2013 to 2018 (E-bit, 2019). E-bit reports show that the fashion sector was 6th in the ranking of electronic commerce financial volume, representing 6.8% of all financial gains in online commerce.

Despite the importance of the Fashion and Accessories sector in electronic commerce, data from the 2017 Atlas E-commerce Radar report shows that online stores that sell clothing and footwear have an 82.9% “cart dropout rate” (Atlas, 2017). This is an indicator that represents the amount of actual purchases, compared to the number of customers who add products to their shopping cart in the online store but do not complete the purchase. Understanding the factors that prevent this high cart dropout rate is fundamental for a better understanding of m-commerce in the fashion industry.

Based on a systematic review of the subjects fashion and m-commerce in the SCOPUS®, WEB OF SCIENCE® and EBSCO® databases, it is clear that there is a methodological gap in this area. Although there have been several studies that link these two concepts (Kim, Ferrin & Rao, 2008; Ko et al., 2009; Kim, Ma & Park, 2009; Park, Kim & Fomey, 2006), when narrowing the search to the area of fashion m-commerce with a focus on Unified Theory of Acceptance and Use of Technology (UTAUT) and dimension of Enjoyment, addressed here in this study, no articles were found. Therefore, there is a lack of research that encompasses fashion m-commerce and the impact of new dimensions (such as enjoyment) and uses the UTAUT as a theoretical basis. There is a need to explore this area of electronic commerce, considering the particularities imposed. The proposal to add the dimension of perceived Enjoyment to the UTAUT is, therefore, a relevant contribution because it adds an element already known in the area of Information and Communications Technology (ICT), analyzed here in the fashion branch of Brazilian electronic commerce.

In order to generate evidence about the relationship between fashion market users and m-commerce, we seek to understand the perceptual factors that impact on behavioral intention to purchase in fashion m-commerce. The main goal of this research is to explore the following question: **What are the dimensions of users' perceptions in relation to fashion m-commerce?**

As mentioned by Kotler and Keller (2006), the consumer goes through a psychological process consisting of by different stages that influence the decision-making process. These range from recognition of a need, to the search and evaluation of alternatives and the use of technological tools. In this context, besides the dimensions that make up the UTAUT model, enjoyment proves to be an important precedent of the use of information technology (Hoffman, Novak & Duhachek, 2003) and of the internet via a mobile phone (Lee, Sin, Kim & Kong, 2002). Representing an affective and intrinsic benefit (Kim, Chan & Gupta, 2007), perceived enjoyment is understood as a component that represents the activity of using technology in a way that is interesting and pleasant.

¹ A company that has specialized in information on electronic commerce since 2001. E-bit has collected more than 18 million questionnaires from online shoppers after completing their purchases.

² A semi-annual report; analyzes the evolution of e-commerce, its trends and estimates, changes and consumer behaviors, as well as indicating the points to be improved in the sector. It uses information from E-bit surveys with more than 20,000 online stores, its e-consumer panel, ad hoc surveys, and other information (E-bit-2019).

³ Devices capable of connecting to the Internet; the main feature is that they are small enough to easily fit in the users' pocket or bag, enabling them to be carried around at all times. Basically, they consist of Smartphones and Tablets (Livingston, 2004).

In the search for ways to improve marketing strategies, marketers are paying special attention to the critical factors that lead individuals to adopt m-commerce (Hinman, 2012). Understanding the decisive elements in attracting and retaining customers in the web environment is one of the biggest challenges for virtual stores in any market segment. Thus, for the analysis of dimensions of users' perceptions in fashion m-commerce, and how these affect behavioral intentions, UTAUT theory provides a robust and widely used tool that has been used by current studies in the area of ICTs (Souza, 2016; Dulle & Minishi-Majanja, 2011; Sim *et al.*, 2018). Created by Venkatesh, Morris, Davis & Davis (2003), the structural model of UTAUT seeks to analyze the impact of dimensions of users' perceptions on the behavioral intention to use a technology, better describing the behavioral differences between different groups of people (Dulle & Minishi-Majanja, 2011).

Below, we give the results of a literature review in the area of fashion m-commerce, and a description of UTAUT theory and the perceptual dimensions used. We then address the methodology used and the analysis of the results. Some final considerations are presented at the end.

2 THEORETICAL REVIEW

This section gives a brief review of the different topics included in this article. The themes are fashion m-commerce and dimensions of fashion m-commerce users' perceptions.

2.1 FASHION M-COMMERCE

Mobile e-commerce services can be accessed while on the move, through mobile devices, smartphones and tablets, emphasizing specific modalities such as presentation, processing and interaction in retail (Ngai *et al.*, 2011). Depending on the characteristics of the mobile device, a series of functions can be enabled, such as tracking the user's location or accessing the microphone or camera, generating new features and creating entirely new service categories (Ngai *et al.*, 2011). According to Siau, Lin and Chen (2001), m-commerce operates in an environment conducive to market development, due to the characteristics inherent to mobile devices and wireless networks.

In relation to the m-commerce fashion industry, this has become one of the most profitable and highest generators of sales. In the first half of 2019, Fashion and Accessories and Perfumery and Cosmetics were the two sectors with the highest volume of e-commerce (E-bit, 2019). However, the fashion industry continued to lead the ranking in terms of volume of e-commerce sales from 2013 to 2017, according to the E-bit reports for those years, consolidating itself as an influential branch in the digital scope.

The fashion industry's share of online sales continues to increase (E-bit, 2019). According to the Webshoppers reports, in the first half of 2019, the Fashion and Accessories sector had an 18% share in the volume of orders for Brazilian online commerce. The sector represented 5.6% of all income from e-commerce in 2018 (E-bit, 2019). Fashion is the most sought after item on the international websites, representing 36% of all purchases made abroad in 2018. The report emphasizes that fashion is one of the five most influential sectors in Brazilian m-commerce, with a 59% increase in the volume of orders registered from 2017 to 2018 (E-bit, 2019).

In a context of shopping for fashion items using mobile devices, perceived enjoyment among m-commerce users is a highly relevant aspect of the decision the purchasing decision using mobile technology. People who experience immediate pleasure when using a technology, or perceive an activity as being enjoyable, will be more willing to adopt technology and to use it intensively (Davis, Bagozzi & Warshaw, 1992). Enjoyment is the degree to which the activity of using a product is perceived as pleasant (Davis, Bagozzi & Warshaw, 1992), thus representing an affective and intrinsic benefit. Research has shown that the benefits include perceived satisfaction, and not only perceived utility (Sweeney & Soutar, 2001). Sweeney and Soutar (2001) claim that enjoyment and fun have a significant positive effect on the acceptance of technology.

This study explores the already known dimensions of UTAUT (performance expectancy; effort expectancy) and the dimension of perceived enjoyment, given its importance in the context of ICTs. This subject is further explained in the following section.

2.2 DIMENSIONS OF USERS' PERCEPTION

This study focuses exclusively on the dimensions of fashion m-commerce users' perceptions, based on the independent variables of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Due to the existence of several models for analyzing acceptance of information technology, the difficulty in choosing the most appropriate model for application to research, and the lack of empirical validation of the existing models, Venkatesh, Morris, Davis & Davis (2003) elaborated the UTAUT model, which considers eight different theories. Its structure is composed of independent variables: effort expectancy, performance expectancy, social influence and facilitating conditions, and dependent variables: behavioral intention and use behavior. The model also introduces a series of moderating factors that relate to the dimensions: age, experience, gender and voluntariness of use. These moderating factors are used to better describe people's behavioral differences (Dulle & Minishi-Majanja, 2011). Venkatesh, Morris, Davis & Davis (2003) carried out empirical studies to validate the dimensions of the model, and confirmed the existence of direct determinants in behavioral intention and use behavior. The authors confirmed that the model accounts for 70% of the variance in behavioral intention, making it a very reliable tool for assessing the probability of success of a given technology.

Regarding the dimensions of perception in fashion m-commerce, it is argued, through the UTAUT structure, that performance expectancy and effort expectancy markedly affect users' acceptance of information technology (Dulle & Minishi-Majanja, 2011). Because the model considers several different theories, these two dimensions are not considered new or different, but are adapted from external factors. The dimensions analyzed in this study, based on the UTAUT, are Performance Expectancy, which is recognized as analogous to the category perceived usefulness in the Technology Acceptance Model (TAM) (Davis, 1989) and the a category in Innovation Diffusion Theory (IDT) (Rogers, 1995), and Effort Expectancy, which is consistent with perceived ease of use in the TAM and complexity in the IDT.

To implement the UTAUT model in different scenarios of information technology application, such as m-commerce, several changes and revisions need to be carried out, as highlighted by Venkatesh, Morris, Davis and Davis (2003). Also, as stated by Van der Heijden (2004), several behavioral adoption factors can result from different uses of information systems. With this in mind, we propose an adaptation to the UTAUT model, adding a new dimension: Perceived Enjoyment. This perceptual dimension is already commonly used in the field of Information Technology, but here, it is analyzed in a new context, based on a specific influential sector: fashion m-commerce.

According to Sweeney and Soutar (2001), Perceived Enjoyment was the most important factor of behavioral intention to purchase products. Enjoyment also proved to be an important antecedent for the use of technology such as the Internet (Hoffman, Novak & Duhachek, 2003; Sánchez-Franco & Roldán, 2005) and mobile Internet (Davis, Bagozzi & Warshaw, 1992; Lee, Sin, Kim & Kong, 2002; Nysveen, Pedersen & Thorbjørnsen, 2005). The characteristics of the dimensions of perception used in this research are described below.

- a) **Performance Expectancy:** reveals an improvement in performance when users implement a new technology (Venkatesh, Morris, Davis & Davis, 2003). It is also a key factor in explaining consumer behavior in m-commerce implementation surveys (Hong, Thong, Moon & Tam, 2008). Davis (1989) argues that the general perceived usefulness of a system can be explained as the degree to which people believe the new use of technology will improve the overall performance of given task. Subsequently, there has been much research in the field of Information Systems and m-commerce, which provides support for the perceived usefulness importance in the behavioral intention or use behavior (Davis, 1989; Kim, Ma & Park, 2009). This dimension examines the extrinsic characteristics of m-commerce and highlights the way in which mobile commerce can help users achieve goals related to the task, adding effectiveness (Wei, Marthandan, Chong, Ooi & Arumugam, 2009).
- b) **Effort Expectancy:** Venkatesh, Morris, Davis and Davis (2003) see this dimension as the degree of ease associated with the use of a system, which is comparable to the factor perceived ease of use in the TAM. According to (Davis, 1989), perceived ease of use in information and communication system context is the extent to which an individual believes that the use of a specific technology will be effortless. In this sense, perceived ease of use has been included as a fundamental aspect in the implementation of m-commerce (Wei, Marthandan, Chong, Ooi & Arumugam, 2009). If an individual considers m-commerce technology easy to use, then he will have a positive attitude towards the use of virtual commerce. Because services on mobile devices can be complicated and tedious, due to various physical restrictions, such as entering information on a small screen (Wei, Marthandan, Chong, Ooi & Arumugam, 2009).

- c) **Perceived Enjoyment:** Enjoyment proved to be an important antecedent for the use of technology such as the Internet (Davis, Bagozzi & Warshaw, 1992; Hoffman, Novak & Duhachek, 2003) and the mobile Internet (Lee, Sin, Kim & Kong, 2002). Representing an affective and intrinsic benefit (Kim, Chan & Gupta, 2007), perceived enjoyment is the extent to which the activity of using technology is viewed as pleasant. Kim, Chan and Gupta (2007) suggest that intrinsic benefit (for example, enjoyment) increases perceived value, which in turn, stimulates behavioral intentions. For consumers, interactive benefits in a product or service are fundamental to the creation of value in m-commerce (Kim, Chan & Gupta, 2007). According to Sweeney and Soutar (2001), emotional value was the most important factor of behavioral intention to buy products or services in the retail environment. Gupta, Hock Chuan & Hee-Woong, (2007) also found that users' perception affects behavioral intentions to use m-commerce.

3 METHOD

Based on a literature review, this study explores the dimensions of perception among fashion m-commerce users. Below, the research instrument, study population and sample are outlined, followed by an explanation of the data collection and analysis techniques used.

3.1 CREATION OF THE RESEARCH INSTRUMENT

Regarding the methodological framework, this is an applied research study, using a quantitative approach. Only primary data were used. The data collection procedure was a survey questionnaire, consisting of 21 items (see Appendix A), 15 items with a five-point Likert scale (strongly disagree, disagree, neither agree nor disagree, agree and, totally agree), and 6 demographic items. The aim of the question was to evaluate the respondent's profile and their perceptions in relation to fashion m-commerce. No distinction was made between purchases made on a mobile device using an app or a website.

Before starting the data collection, the questionnaire was shown to two specialists in Administration for their expert opinion. Next, a pretest was applied, in person, to 5 randomly-selected individuals in the city of Florianópolis. Based on the results, some minor adjustments were made to the questionnaire, then it was applied.

Regarding the items of the questionnaire, those referring to Performance Expectancy and Effort Expectancy were based on the studies of Venkatesh and Morris (2000); Venkatesh, Morris, Davis and Davis (2003) and Davis (1989), which explore the potential of a consumer technology adoption model by examining the structural relationships between the characteristics of electronic commerce. The items related to Perceived Enjoyment were based on the studies of Ko, Kim and Lee (2009); Kim, Ma and Park (2009) and Gupta, Hock, Chuan and Hee-Woong (2007), which examine the adoption of the mobile internet in different contexts of information and communication technology.

3.2 POPULATION AND SAMPLE

The study universe for this research is composed of Brazilian fashion m-commerce users over 18 years of age. The research sample basically consists of young people, mostly between 18 and 33 years old. The survey was conducted through Google Forms, and 110 responses were received in the period November 12 to November 23, 2018. With the aid of the software program GPower 3.1, using the method for Normal distributions, it was concluded that a sample of 110 individuals in this situation generates a statistical power of 85.5% with a significance level of 0.05, which is considered adequate by Normando, Almeida and Quintão (2011).

The research sample seeks to represent fashion m-commerce real users who, for the most part, are young people. The E-commerce Radar report, published by Atlas (2017), states that most electronic commerce users in the fashion category are aged between 25 and 34 years, and the age group of our sample corroborates this.

We chose to study young people because in the area of information systems, age is considered very relevant in the context of technology adoption (Venkatesh & Morris, 2000; Souza, 2016). According to Venkatesh and Morris (2000) young people are considered as the real users of technology associated with the computational area. The authors Dabholkar, Bobbit and Lee (2003) also observed the same fact in self-service systems linked to technology, with a sample of 350 users basically composed of young people.

3.3 COLLECTION AND ANALYSIS TECHNIQUES

As the target research population consists of Brazilian fashion m-commerce users, it was impossible to select a probabilistic sample of the population. Thus, the selected sample is non-probabilistic. The data collection strategy used was Snowball sampling. This is a technique based on a group of first participants (known as seeds) who recommend new ones, and so on, until the complete research sample is obtained (Goodman, 1961).

Initially, thirty-five emails were sent out to the network of professional and personal contacts of the researchers involved (contacts already known as fashion m-commerce users), asking them to answer the research questionnaire and to indicate one contact who was also a fashion m-commerce user, thus featuring a linear sampling. Four contact nodes were obtained to arrive at the research sample. In the first node, the initial group indicated thirty fashion m-commerce users, in the second, twenty-eight users were indicated, in the third, twelve users were indicated, and in the last node, five people were indicated, completing the sample of 110 users. The Snowball technique was used because it is an economical and simple process. Also, it requires few human resources, since the indication of new research participants is made by the respondents of the questionnaire. Pieve, Miura and Rambo (2007) claim that the Snowball sampling technique stands out from among the others due to the fact that it is easy to implement, and the short planning time needed.

The Snowball technique influences the properties of the research sample. In relation to the initial group, the characteristic of the researcher's network contacts, composed basically of young people, ends up facilitating the reach of fashion m-commerce real users. Rodrigues and Mustaro (2006) state that the use of this technique leads to a lack of control over how the sample will be constituted, as it relies on the respondents themselves to select new individuals for the research. And Baldin and Munhoz (2011) warn that like any non-probabilistic technique, the Snowball sampling does not guarantee a representative population, nor does it allow the degree of precision to be accurately known. However, Descriptive Sample Analysis is a way to generate confirmation of the population's reality.

The software program STATA 15.0 was used for the data organization and statistical analysis. This program was selected due to its ability to perform robust statistical analysis, to provide resources to work over the internet like almost no other statistical software, and to provide polychoric correlation analysis statistical package.

In to the proposed study, 15 items were used for exploratory factor analysis in order to explore the dimensions of perception of fashion m-commerce users. According to Hair, Black, Babin, Andersen and Tatham (2009), factor analysis is an interdependent technique, the main purpose of which is to define the inherent structure between the variables of the analysis. Factor analysis was chosen because it provides the appropriate tools to analyze the structure of the correlations in a group of variables, as well as defining the sets of variables that are strongly interrelated. These groups of variables, which will represent the user's dimensions of perception, are composed of highly interrelated items (Hair, Black, Babin, Andersen & Tatham, 2009).

Due to its investigative character, the use of the exploratory factor analysis fits correctly. The lack of previous studies dealing with dimensions of perception among fashion m-commerce users led to the move to an exploratory factor analysis in this study. This technique differs from confirmatory factor analysis, which is based on previously consolidated constructs (Hair, Black, Babin, Andersen & Tatham, 2009). The data collection instrument used here consists of ordinal scale items with more than three categories, for which Paiva, Costa, Paiva, Balestrassi and Ferreira (2010) and Tello, Moscoso, García and Abad (2010) indicate the use of a polychoric correlation matrix to extract the main components, followed by Varimax orthogonal rotation. This rotation fits better on the data analysis.

4 RESULTS AND DISCUSSIONS

The research results are presented here in two subsections: the first section presents the descriptive results inherent to the sample; the second presents the exploratory factor analysis for the dimensions of perception among fashion m-commerce users.

4.1 DESCRIPTIVE SAMPLE ANALYSIS

The sample consists of 110 fashion m-commerce users. Table 1 provides a statistical summary of age, level of education, mobile device operating system used, information search strategy and purchase frequency, divided by gender, as well as the total results for each stratum.

Table 1.
Statistical Summary of the Sample

Gender (%)	Female	Male	Total
Percentage	72.60	27.40	100
Age (years)			
Average	26.04	28.03	26.59
Median	24	26	24
Standard Deviation	6.75	7.99	7.14
Level of Education (%)			
Elementary School	0.90	0	0.90
High School	1.87	1.87	3.74
Incomplete University Education	34.58	9.34	43.92
Complete University Education	18.69	7.48	26.17
Post-graduation	15.89	9.34	25.23
Operational System (%)			
iOS	35.51	15.89	51.40
Android	35.51	12.15	47.66
Windows	0.93	0	0.93
Information Search strategy (%)			
Social Media	57.01	19.63	76.64
Search engines	34.59	17.76	52.15
Fashion Blogs	39.25	7.48	46.73
Friends/Family Opinion	22.43	11.21	33.64
Others	1.87	0.93	2.80
Purchase Frequency (%)			
Once a month	16.82	4.67	21.49
Once every 2 months	26.18	9.34	35.52
Once every 3 months or more	22.43	10.28	32.71
Two to three times a month	3.74	3.74	7.48
More than four times a month	1.87	0	1.87

Source: Primary data (2020).

Of the total sample, the majority (72.6%) were female, which corroborates the findings of E-bit (2019) that most purchases of fashion goods are made by women. In addition, according to the statistical analysis of the respondents' age, men had an average of 28 years, while women had an average of 26 years. In relation to level of education, 44% of the respondents had incomplete University Education, 26.17% had already graduated and 25.23% were taking Postgraduation studies. Regarding the operating system (iOS and Andoid), both are about the same percentage.

When asked about where they usually searched for information about fashion goods (in this item, the respondents could select more than one option, resulting in total percentages greater than 100%), most of the respondents (76.64%) said they searched in the social networks, such as Instagram, Facebook, Twitter, etc. for fashion information. This demonstrates the importance of retailers having online store profiles, in order to reach a wider audience. In terms of frequency of online purchases of fashion goods, 35.72% of m-commerce users said they made a purchase every two months and 32.71% made a purchase every three months or more, indicating that the act of buying fashion goods online may not be monthly, but has a certain frequency.

4.2 EXPLORATORY FACTOR ANALYSIS

The process of factorial analysis proposed in this study, considering its own rules and criteria, resulted in the factorial loads illustrated in Table 2 regarding the component items of the dimensions of perception of fashion m-commerce users. Using the software program STATA 15.0, the Kaiser-Meyer-Olkin (KMO) test presented a value equal to 0.8582 and, according to Hair, Black, Babin and Tatham (2009), it reveals that the data present a degree of adjustment that is considered good for factor analysis. Bartlett's test of sphericity obtained a level of significance lower than 0.001, indicating that the data matrix is feasible (Tabachnick & Fidell, 2007). Exploratory factor analysis pointed out the existence of three factors, considering the Kaiser criterion, i.e., an eigenvalue greater than 1 (Hair, Black, Babin, & Tatham, 2009). In addition, the percentage of variation explained by the dimensions stood at 74.12%. Table 2 highlights each dimension, with the items and their respective factorial loads.

The structure of our questionnaire is in line with Venkatesh, Morris, Davis and Davis (2003), who affirming that the dimensions of Effort Expectancy and Performance Expectancy are relevant for the fashion m-commerce users' perception. The dimension Perceived Enjoyment dimension is also confirmed as a relevant factor, as anticipated by Hoffman, Novak & Duhachek (2003). The authors state that enjoyment is an important antecedent of using the mobile internet. Furthermore, the items correctly represented each dimension, as expected. Table 2 summarizes the results found in the exploratory factor analysis; it shows the 15 items of interest, and each dimension of perception of fashion m-commerce users.

Table 2
Results of the Factor Analysis

Items	Factorial Loads and Dimensions		
	Perceived Enjoyment	Effort Expectancy	Performance Expectancy
1 – Fashion product recommendations			0.7235
2 – Custom fashion product order			0.7188
3 – Personalized fashion ads or promotions			0.7832
4 – Usefulness to obtain fashion information			0.6278
5 – Convenience in relation to a physical store			0.4923
6 – Preference for using a mobile device	0.6223		
7 – Ease of choosing sizes of fashion goods		0.6213	
8 – Ease of comparing image and fashion goods		0.7362	
9 – Easy to recognize image details		0.8201	
10 – Learning how to use the technology	0.6573		
11 – Fast checkout	0.7515		
12 – Good solution for buying fashion goods	0.7417		
13 – Nice to buy fashion goods over the mobile internet	0.8642		
14 – Satisfaction on impulse shopping	0.7250		
15 – Fun to seek information and buy products	0.7448		
Cronbach's Alpha	0.9348	0.7939	0.8025

Source: Primary data (2020).

The first dimension shown in Table 2 presented seven predominant items which, when analyzing the variables, were found to be the values that are related to Perceived Enjoyment. These items represent an affective and intrinsic benefit (Kim, Chan & Gupta, 2007). Perceived enjoyment is defined as the extent to which the activity of using technology is seen as pleasant. These items are related to the positive emotional consumers experiences while purchasing fashion goods through their smartphones or tablets.

The second dimension presents three items predominantly related to Expectation of Effort. These items reflect consumer's efforts to learn and use mobile shopping technology. Thus, the perception of effort expectancy is an important antecedent of perceived value for the adoption of new technology (Venkatesh, Morris, Davis & Davis, 2003).

The third dimension consists of five items that express Performance Expectancy, as these variables reflect the degree to which a person believes that the use of a given system would increase his performance (Davis, 1989). These items reflect the general utility of personalized marketing and fashion shopping via mobile internet. According to Liao, Li and Xu (2005), personalization in m-commerce helps consumers to find relevant services/products. The authors do not support the idea that performance expectancy is a separate concept from personalization, implying that consumers see utility benefits in personalized purchases. Based on the literature, it is also believed that performance expectancy of the mobile service can increase perceived value among users.

The finding that performance has powerful effects on user's perceptions is of special interest to managers. Online merchants may need to develop new products or services in m-commerce, particularly when it comes to implementing strategies that impact customers performance expectancy. Marketers must strike a balance between value and cost, offering positive value that meets extrinsic needs, primarily linked to user's enjoyment, while maintaining reasonable purchasing costs.

Going back to the research question about the dimensions of perception among fashion m-commerce users, the study showed three dimensions, as explained above: Performance Expectancy, Perceived Enjoyment and Effort Expectancy. This indicates that consumers perceive fashion m-commerce as a heterogeneous service, together with utilitarian and affective benefits. Cognitive components (performance and effort) are essential for encouraging consumers to adopt fashion purchases via mobile devices. However, in addition to these aspects, perceived enjoyment was also found to be a component in fashion m-commerce users' perception. This supports the role of enjoyment as a driver of favorable user perceptions. Table 2 shows that each dimension had a high Cronbach's alpha of above 0.79, indicating that they are statistically reliable. This coefficient, according to Hair, Black, Babin, Andersen and Tatham (2009), measures the correlation between the questionnaire items by analyzing the answers given by the respondents.

5 FINAL CONSIDERATIONS

The main objective of this study was to explore the dimensions of perception among fashion m-commerce users. The use of UTAUT theory was proposed, in order to better understand the factors that influence this perception. The research was based on two dimensions taken from the UTAUT model: Performance Expectancy and Effort Expectancy, with the addition of an external dimension to the model: Perceived Enjoyment.

Exploratory factor analysis revealed which items were aggregated to form a dimension of fashion m-commerce user perception. It was also found that all three perceptual dimensions affect the online fashion sector. The dimensions of Effort Expectancy and Performance Expectancy are fundamental for encouraging people to use fashion m-commerce, while the additional dimension of Perceived Enjoyment proved to be a relevant factor for users' perception, reflecting an affective and intrinsic benefit in which the activity of using fashion m-commerce is seen as pleasant. The dimension enjoyment generated a high Cronbach, indicating statistical reliability in the aggregate of items.

This study seeks to fill a methodological gap in the literature by including a new dimension to the group of already known factors of UTAUT theory: Perceived Satisfaction. It also adds to the discussion of a topic that has not yet been explored, but that has great commercial potential, given that the fashion industry is the biggest online retail industry in Brazil, in terms of the number of orders.

This study corroborates the findings of Davis, Bagozzi and Warshaw (1992), Hoffman, Novak and Duhachek (2003) and, Lee, Sin, Kim and Kong (2002), who state that enjoyment is an important antecedent for the use of information and communication technologies. The dimensions of Venkatesh, Morris, Davis and Davis (2003) also proved to be relevant in relation to user perception, in the context of Brazilian fashion m-commerce.

The study can assist managers of online fashion product providers, enabling a better understanding of users' perceptions and helping them to develop marketing strategies to encourage consumers to use digital platforms. The academic contributions are in the use of UTAUT theory in a Brazilian context, and in the fact that the dimensions used were well adapted to reality. Corroborating the idea of Venkatesh, Morris, Davis and Davis (2003), which is to understand, in practice, perceptual factors affecting the analyzed technology.

The lack of control over the final constitution of the sample appears as a limitation of the study. Since, in the Snowball method, the initial group of respondents indicates the new research participants, and for this, they use their own criteria for choice. Another limitation of the study is linked to the fact most of the questionnaire respondents were graduate or postgraduate students, due to the characteristic of the initial group used in the sampling composed by emails from State University of Santa Catarina students. So, an analysis of the sample's level of education is not feasible. Like any non-probabilistic sampling technique, the use of the Snowball technique itself is a limiter of the study, due to the lack of randomness in the selection of individuals. Also, the technique does not guarantee representativeness of the research population, nor does it indicate the degree of precision on results. However, the descriptive sample analysis appears to characterize the sample and generate a great comparison to the population.

Recommendations for future research would be to explore the reasons why some people do not use m-commerce to buy fashion goods. Also, other categories of relevance in m-commerce could be explored, such as Health/Cosmetics and Perfumery, which in 2018, had a sales volume comparable to that of the fashion sector, according to E-bit (2019). Other components could also be examined, such as innovation and perceived risk, to see how these variables influence the purchase decision in fashion m-commerce.

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APPENDIX A – QUESTIONNAIRE

Do you use a mobile device to buy fashion goods?

- ☐ Yes
- ☐ No

* The 15 items in Table 3 are scored on a five-point Likert scale:

1 (strongly disagree); 2 (disagree); 3 (neither agree nor disagree); 4 (agree) and 5 (totally agree).

Table 3.
Items and References

	Item	References
1.	When shopping on a mobile device, I get recommendations for buying fashion goods that I need.	Venkatesh <i>et al.</i> (2003); Davis (1989); Venkatesh e Davis (2000)
2.	I can order customized fashion goods through mobile devices.	Venkatesh <i>et al.</i> (2003); Davis (1989); Venkatesh e Davis (2000)
3.	When shopping using a mobile device, interesting, personalized ads or promotions for fashion goods are shown.	Venkatesh <i>et al.</i> (2003); Davis (1989); Venkatesh e Davis (2000)
4.	A mobile device is useful for obtaining information about fashion.	Venkatesh <i>et al.</i> (2003); Davis (1989); Venkatesh e Davis (2000)
5.	Buying fashion goods using a mobile device is more practical than going to a physical store.	Venkatesh <i>et al.</i> (2003); Davis (1989); Venkatesh e Davis (2000)
6.	I prefer to buy fashion goods using a mobile device than through a computer/notebook.	Ko <i>et al.</i> (2009); Kim. <i>et al.</i> (2009); Gupta <i>et al.</i> (2007)
7.	It is easy to choose sizes of fashion items (clothes, shoes, hats, etc.) that suit me using a mobile device.	Venkatesh <i>et al.</i> (2003); Davis (1989); Venkatesh e Davis (2000)
8.	The fashion items I receive at home look like the pictures I see on the mobile device.	Venkatesh <i>et al.</i> (2003); Davis (1989); Venkatesh e Davis (2000)
9.	The pictures of the fashion goods seen on a mobile device are sufficiently detailed and sharp.	Venkatesh <i>et al.</i> (2003); Davis (1989); Venkatesh e Davis (2000)
10.	It is easy to learn how to buy fashion goods using a mobile device.	Ko <i>et al.</i> (2009); Kim. <i>et al.</i> (2009); Gupta <i>et al.</i> (2007)
11.	Buying fashion goods using a mobile device allows me to complete my purchases more quickly.	Ko <i>et al.</i> (2009); Kim. <i>et al.</i> (2009); Gupta <i>et al.</i> (2007)
12.	A mobile device is a great option for fashion shopping.	Ko <i>et al.</i> (2009); Kim. <i>et al.</i> (2009); Gupta <i>et al.</i> (2007)
13.	It is nice to buy fashion goods using a mobile device.	Ko <i>et al.</i> (2009); Kim. <i>et al.</i> (2009); Gupta <i>et al.</i> (2007)
14.	I have already made unplanned purchases of fashion goods using a mobile device, and it was satisfactory.	Ko <i>et al.</i> (2009); Kim. <i>et al.</i> (2009); Gupta <i>et al.</i> (2007)
15.	I have fun searching information and buying fashion goods on a mobile device.	Ko <i>et al.</i> (2009); Kim. <i>et al.</i> (2009); Gupta <i>et al.</i> (2007)

Source: The author.

- a) Gender:
- ☐ Male
 - ☐ Female
- b) Age? _____
- c) Level of Education:
- ☐ Elementary School
 - ☐ High School
 - ☐ Incomplete University Education
 - ☐ Complete University Education
 - ☐ Postgraduation
- d) What is the operational system of the mobile device that you use to buy fashion goods?
- ☐ iOS/Apple
 - ☐ Android
 - ☐ Windows
 - ☐ I don't know.
- e) Where do you look for information about the fashion items you want to buy?
- ☐ Search websites (Google, Bing, Yahoo...)
 - ☐ Social media (Facebook, Instagram, Twitter...)
 - ☐ Fashion blogs
 - ☐ Family/Friends opinion
 - ☐ Other: _____
- f) On average, how often do you buy fashion goods via a mobile device?
- ☐ Once a month
 - ☐ Once every 2 months
 - ☐ Once every 3 months or more
 - ☐ 2 to 3 times a month
 - ☐ More than 4 times a month