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**Mestrado em Estatística e Gestão de Informação**

Master Program in Statistics and Information Management

**Measuring the impact of enjoyment on the usage  
continuance intention of video-on-demand services.**

Rita Daniela Loureiro Pereira

Dissertation presented as partial requirement for obtaining  
the Master's degree in Statistics and Information  
Management

NOVA Information Management School  
Instituto Superior de Estatística e Gestão de Informação  
Universidade Nova de Lisboa

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**MEASURING THE IMPACT OF ENJOYMENT ON THE USAGE  
CONTINUANCE INTENTION OF VIDEO-ON-DEMAND SERVICES**

by

Rita Daniela Loureiro Pereira

Dissertation presented as partial requirement for obtaining the Master's degree in Information Management, with a specialization in Marketing Research and CRM.

**Orientador/Coorientador:** Carlos Tam Chuem Vai

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## **ABSTRACT**

This study examines the behavioural intentions of video-on-demand (VoD) consumers to continue using the service and further examines the influence of enjoyment over the intention to continue to use. To explore the usage continuance, we adopt the expectation confirmation model (ECM) for information technology and integrate it with the hedonic system adoption model. Specifically, we measure the influence of enjoyment over the behavioural intention to continue to use. The results suggest that satisfaction is the greatest predictor of the usage continuance intention and enjoyment strongly impacts satisfaction. In fact, our model explains 48.1% of the variance of the usage continuance and 53.8% of the satisfaction.

## **KEYWORDS**

Video-on-Demand; IS Continuance; Expectation-Confirmation Model; Hedonic System Adoption Model; Intrinsic Motivation; Enjoyment;

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## LIST OF ABBREVIATIONS AND ACRONYMS

<b>VoD</b>	Video-on-Demand
<b>ECM</b>	Expectation Confirmation Model
<b>TAM</b>	Technology Acceptance Model

# 1. INTRODUCTION

The evolution of technology mainly the information and communications technology (ICT) during the last decade has shifted the TV paradigm toward a convergent blend with internet, creating new ways of consuming media content. The increasing numbers of internet penetration all over the globe and the escalating market competition between cable and OTT(over-the-top) services will create by 2021 a demand for video-on-demand (VoD) services twice the size of what we are seeing these days (Cisco, 2015). However, by looking at the European statistics (Eurostat, 2017a) and comparing the consumption of those types of services in 2016 there are significant differences. While the average percentage of the EU individuals that use VoD is 17%, Norway has the highest score with 52% and Portugal scores below the average with 6%. Consequently, there may be different behaviours toward the VoD platforms, not only in the adoption process but, most importantly for this study, in the usage continuance. Furthermore, this difference may have different sources; it can be caused by social, economic, or political variables that influence individuals' choices. Inevitably, for companies it is important to understand the differences of each market, because it will shape the business. It influences how they acquire new consumers and how they retain the existing ones. Specifically, the subscription based ICT business relies heavily on consumers' monthly fees (Hong et al., 2006). In fact, according to a study about web loyalty, increasing customer retention by 5% could result in an increase of 25% to 95% in profits (Reicheld and Schefter, 2000; Sharma & Sharma, 2019). *"For the subscription based businesses, the primary source of future cash flows is customers"*(McCarthy et al., 2017,p. 17).

Nevertheless, there is a lack of research about VoD services and its consumers, namely in the stage of post-adoption. For example, Wang et al. (2017) studied how to predict user' watching behaviour and preferences by applying machine learning methods. Dogruel (2018) studied the cross-cultural differences in movie selection in different countries. Chuah et al. (2016) studied the drivers of smartwatch adoption, as did Ha and Yook, (2009); and Chae, (2010) the IPTV adoption. In order to address this gap, we created a model that joins two of the most used theories in consumer behaviour research: the technology expectation confirmation model of information systems continuance (ECM-IT) (Bhattacharjee, 2001), based on the expectation confirmation theory (ECT) (Oliver, 1980), and the hedonic system adoption model (Heijden, 2004).

The contribution of this work is twofold. First, to the best of our knowledge there are no studies that analyse the usage continuance intention of the VoD services. Despite of the growing research about the consumer post-adoption behaviour on IS technology, none explores specifically the VoD technology. Second, we expect that by adding the variable enjoyment, we will shed light on why users intend to continue to use the VoD services as well how the VoD providers can increase the user experience and user retention.

The rest of the paper proceeds as follows. The second section explains what a VoD platform is and how this type of service is being consumed in Europe. It also describes the expectation confirmation model, followed by the importance of the technology acceptance model (TAM) in influencing the hedonic motivation systems theory. The third section describes the research model and hypotheses. The fourth section describes the methodology used to test the research model. The fifth section presents the results of the analysis. Finally, the results are discussed, including the implications, limitations, and possible further research directions.

## 2. LITERATURE REVIEW

### 2.1. DEFINITION OF VIDEO-ON-DEMAND (VoD)

VoD concept was born from the media industry and it is related with how the video content is delivered. The general concept is about a technology that stores all the content that can be accessed any time. It can be paused, rewound, skipped, or even downloaded. It is a very different approach when compared with traditional TV, in which the content is available only during the streaming time of that programme (Nielsen, 2016; Abreu et al., 2017). A very common and old example of VoD services is the video services in a hotel, where guests pay to have access to a range of channels from which they can pick (Lee, 2002).

With the evolution of the internet and its increasing importance in the world, leading media companies had to rethink their approach to their delivery channels. In fact, media companies all around the globe whose core business is to deliver content through cable or satellite (like Comcast (USA), MEO (Portugal), and Sky (UK) or video rentals like Netflix) saw the benefits of implementing this technology (Yu et al. 2006). Others saw the opportunity to build successful business models based exclusively on providing VoD services, like TiVo or even Netflix after 2007 (Allen et al. 2014).

To access a VoD platform it is necessary to have a device with internet connection or a media set-top box. In the first case to have access to the content it is necessary to have a device with the internet connection such as smart TV, computer/laptops, mobile devices such as smartphones, tablets, etc., and in addition, it is necessary to pay a fee or a subscription, which can be a monthly fee or a fee for specific content such as movies, like Amazon with Prime TV and Amazon Video (Amazon, 2018).

Another way to have access to VoD services is by the set-top box, which can be acquired from a media company (Sky, Roku, Amazon). In Portugal most of the media companies still rely on the set-top box to provide the service like MEO and NOS (ANACOM, 2016). Choosing this option, the costs can be higher when compared with the first option. With a set-top box there are two other main options. The first, is to acquire the set-top box (e.g. Roku) and after that subscribe to one or several media providers from their partners, (Amazon, Hulu, etc.). Another option (and the most common in Portugal) is that the consumer pays a “regular” media monthly package with a set of channels in which the box is included in the final price. In fact, ANACOM (2017) reports 3.72 million consumers subscribing to a monthly TV package, in the second semester of 2017.

Regarding the consumption of VoD services, there are some differences between countries. When comparing the percentage of individuals who watch VoD content, Norway leads with 52%, the UK scores 32%, and Portugal 6%, against the 17% EU average (Eurostat, 2017a). Another important indicator to consider is the level of internet access by household. While the Euro Area stands at 87%, the Netherlands and Denmark have 98%, the UK 94%, and Portugal 77% (Eurostat, 2017b).

In summary, the VoD platform is a technology that has been developed by different media players all around the globe and room for further development exists (Nielsen, 2016). In fact, the evolution of the technology, especially the IS, during the last decade has shifted the TV paradigm toward a convergent blend with internet, creating new ways of consuming media content. The traffic on the VoD services platforms will double by 2021 in the EU region (Cisco, 2015). Furthermore, the same report forecasts a twofold increase in traffic equivalent to a 14% compound annual growth until 2021

for the UK and a threefold increase in traffic equivalent at 25% compound annual growth for the rest of the western European countries until 2021.

## **2.2. EXPECTATION CONFIRMATION MODEL (ECM)**

The expectation confirmation or disconfirmation model is a framework used in studies related with consumer behaviour. It is based on the notion that a repurchase intention relies strongly on consumer satisfaction. The original model, expectation and confirmation theory (ECT) (Oliver, 1980), establishes five variables for the acceptance process based on expectations. For this study it is important to distinguish acceptance and continuance processes. They are conceptually and temporally different, the second happens only after the first (Bhattacharjee and Lin, 2014). Acceptance is highly dependent on satisfaction and on the confirmation (disconfirmation) of the initial expectations.

Conversely, in the post-adoption stage, behavioural intention to continue to use is determined by the sum of previous judgments of outcomes, or in other words, the previous experience shapes satisfaction and the future expectations (Lu et al., 2018). Bhattacharjee and Lin (2014) capture this effect by the satisfaction and the expected benefits from future usage's perceived usefulness. In this context, the variable confirmation (or disconfirmation) already accommodates the changes of the initial expectations occurred after the first interaction with the IS.

In this model, expectation plays an important part because it determines the future re-purchase intention or the usage continuance. Oliver (1980) identified three factors that can influence expectations. The product itself and its characteristics, including brand connotations and symbolic elements, and previous experience; the second concerns the communication of the product, and lastly, the individual characteristic. However, in a post-adoption stage the initial expectations are replaced by the confirmation (disconfirmation) of the initial expectations. In other words, following Oliver (1980) and Bhattacharjee (2001), the confirmation is the result of the difference between the real performance of the IS and the initial perceived performance.

Moreover, the initial expectations work as a baseline to which the real performance is compared, and several outcomes can arise from this assessment. Oliver (1980) and Bhattacharjee and Lin (2014) reported that there can be a positive confirmation or a negative confirmation (disconfirmation). The first happens when the initial expectation is exceeded with the interaction/use of the technology. The disconfirmation is the opposite and happens when the actual performance is lower than the initial expectation. Oliver (1980) and Bhattacharjee and Lin (2014) also identified a neutral or indifferent outcome that happens when the performance is equal to the initial expectation.

The assessment of the confirmation (disconfirmation) will directly impact satisfaction or affective response. Citing Bhattacharjee (2001, p.354), "Both definitions underscore a psychological or affective state related to and resulting from a cognitive appraisal of the expectation performance discrepancy (confirmation)". Although there are many definitions for satisfaction, for the continuance intention behaviour analysis, Bhattacharjee (2001) and Bhattacharjee and Lin (2014) contextualize satisfaction as the result of the confirmation of the expectations from prior technology usage. In spite of not being very clear how satisfaction influences usage continuance, Bhattacharjee and Lin (2014), and Lu et al. (2018) assume satisfaction as an emotion that can directly drive intention.

Besides the impact of confirmation, perceived usefulness is also reported to impact satisfaction (Hong et al., 2006). In fact, while interacting with IS the expectations are shaped in accordance with the experience, which will also impact the future expectations about the IS performance (Bhattacharjee, 2001; Lu et al., 2018). If a user is accustomed to interacting with a system in a certain way and if for some reason the system changes the interaction, it will have an impact on satisfaction (positively or negatively).

The ECM perceived usefulness, based on the Technology Acceptance Model (TAM), is the strongest predictor of the usage continuance intention (Davis et al., 1989). Following Bhattacharjee (2001) and Hong et al. (2006) it consistently influences the user intentions across temporal stages. However, the original theory had some limitations that Bhattacharjee (2001) contemplates in his model. The first, is that it ignores the change of expectations during the usage process. Secondly, it does not show how those changes can impact the subsequent cognitive processes (Bhattacharjee, 2001; Hong et al. 2006). Since ECM is an expectation-based model, it can suffer from vulnerabilities. The first is in the pre-acceptance stage, when the initial expectations are based mainly on the exterior stimulus, and when one of the risks is being influenced by others' opinions, as Oliver (1980) pointed out, which can result in biased expectations. The other moment is the adoption stage, when the user has the first experience with a technology. The interaction or experience with the technology will adjust the initial expectations. As a result, the initial expectations will be replaced by the adjusted expectations. It is the notions of time and experience that the original expectation-confirmation theory did not accommodate before (Bhattacharjee, 2001).

In summary, the main changes done by Bhattacharjee (2001) on the original model are (1) the effects of pre-acceptance are captured by the confirmation and satisfaction constructs; (2) it includes post-expectations not included in the original ECT. The reason to include it is because expectations can change over time and with the level of experience; (3) post-expectation is represented by perceived usefulness. Due to perceived usefulness being a cognitive belief that influences technology usage; it is also consistent with the ECM's original definition (Zhihuan and Scheepers, 2012).

In a broader context, ECM assumes that expectations - initial expectations and/or the post-expectations (future benefits) captured by perceived usefulness about the technology have a strong influence on satisfaction. Despite this perspective being widely accepted, it is restricted to the confirmation/disconfirmation of expectations and future expected benefits from the IS use. It is focused on the performance aspect, leaving behind other aspects (Venkatesh et al., 2011), like motivations, which will be discussed in the next section.

### **2.3. HEDONIC INFORMATION SYSTEM (HIS) & TECHNOLOGY ACCEPTANCE MODEL (TAM)**

One of the most important models on consumer adoption behaviour, widely used across different industries, is TAM. It stipulates that intention to adopt a technology is a good predictor of its actual usage (Davis et al., 1989; Hong et al., 2006). The initial model from Davis et al. (1989), hypothesized two major variables that influence intention of adopting of a technology. Those variables are perceived ease of use and perceived usefulness. Following the author's definitions, perceived ease of use is the extent to which users believe that learning how to use a technology will be relatively free of effort; and perceived usefulness is the extent to which individuals believe that using a technology will enhance their job performance.

Years after the first TAM model the same authors developed a new model with a new variable, perceived enjoyment (Davis et al., 1992). Following the authors' definition, enjoyment "refers to the extent to which the activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated..." (Davis et al., 1992 p.1113). They proved the importance of enjoyment on the user acceptance of a computer in a workplace. Consequently, this new variable brought a clarification on why in some studies related with the World Wide Web (WWW), perceived usefulness and usage intention show a weaker association when compared to perceived ease of use (Heijden, 2004). In fact, Heijden (2004) studied the determinants of usage intention of different types of IS. The results show that in certain cases, where the IS is more pleasure oriented (hedonic), the variable perceived usefulness loses its predictive power to other variables like enjoyment. This is also noted by Davis et al. (1992), Zhihuan and Scheepers (2012), Lowry et al. (2013), and Wu and Lu (2013).

It is important to note that many authors use TAM to explain pre-adoption behaviour (Bhattacharjee, 2001; Chuah et al., 2016; Ha and Yook, 2009). Others show the potential of TAM to predict consumer's usage continuance behaviour. In particular, Hong et al. (2006) identify several studies that adopt TAM to study post-adoption behaviour. This is because, according to Davis et al. (1989), perceived usefulness is the only cognitive belief that consistently influences user intention across temporal stages. If the user does not perceive the IS as useful, he/she will not use it anymore.

Heijden (2004) demonstrated the need to have different approaches when studying user behaviour for different types of IS. He differentiates two types of IS, hedonic and utilitarian. He draws the line that separates these two types of technology, based on behavioural motivations to use, and the goals that users want to achieve by interacting with the system. Regarding the goals, they can be related with increasing task performance (utilitarian tasks), for example using SAS software to create a report for the company, or seeking a self-fulfilling experience (hedonic), for example watching a film on a VoD platform. In the first case we can associate the motivation with achieving an external goal, and in the second case the goal is no other than to satisfy an internal necessity to be entertained via the interaction with the system (Lin and Lu, 2011; Heijden, 2004; Wu and Lu, 2013).

Wu and Lu (2013) mention an additional type of IS, the dual-purposed IS. The definition given is not accurate, because it is hard to measure the utilitarian and the hedonic component of an IS. The authors give an explanation on how to determine if an IS is hedonic or utilitarian. They apply a rule of thumb whereby if 80 percent of the time users interact with the system to have a relaxed and fun experience, then the IS is classified as hedonic, otherwise the IS is utilitarian. A system is classified as dual when the above conditions are not met. Because this definition is not precise, it may not be suitable for every IS that does not fit in the two main categories. For example, an email can be used for both utilitarian (i.e. send a work report) and hedonic purposes (i.e. send an invitation to a party) and the same happens with half of the WWW (like google search).

Another argument from Heijden (2004) is that technology acceptance is determined by motivations. It assumes that individuals actively initiate behaviours to satisfy their needs (Lu et al., 2018). Essentially, the real behaviour arises from motivations, and can have different sources: internal (intrinsic) or external (extrinsic) (Wu and Lu, 2013; Lin and Lu, 2011). Following Wu and Lu (2013), Lin and Lu (2011), and Heijden (2004), extrinsic motivation is defined as a performing behaviour based on goal-driven reasons, and depends upon on the external environment. This type of motivation is

separable from the behaviour itself, e.g. performing a task to achieve monetary goals. Conversely, intrinsic motivations are those whose goal is the behaviour itself. This type of behaviour is related with satisfaction that arises from the experience itself and is tied with the individual's interests (Wu and Lu 2013). For example, most people watch TV and listen to music for leisure purposes.

In this respect, and following the results of Wu and Lu (2013) and Heijden (2004), extrinsic motivations are related with utilitarian IS and intrinsic motivations are related with hedonic IS. By looking at the first study's results and considering the definitions of perceived usefulness and perceived ease of use, both from TAM, one is related with increasing job performance and the other with the job efficiency, respectively. That is, the motivations increase job performance and efficiency is related with achieving external goals (Wu and Lu, 2013; Lu et al., 2018). Heijden (2004) and Lin and Lu (2011) also identified several success factors for the utilitarian system. The utilitarian IS should have the right functionalities that can perform specific tasks with different levels of requirements and provide the least distraction as possible and focus on productivity.

Intrinsic motivations are related with benefits (positive reactions) that arise from the experience and are highly associated with the activity itself, which fits with the goals of hedonic IS (Heijden, 2004; Wu and Lu, 2013; Lu et al., 2018). Recalling what was said about perceived enjoyment, this variable measures the extent of fun derived from using a system. Intrinsic motivations are therefore related with hedonic IS (Heijden, 2004). In fact, Hong et al. (2006) show that user's perception over instrumental goals, such as gaining productivity or recognition (perceived usefulness) explains only part of satisfaction. For hedonic IS, Heijden (2004) and Lin and Lu (2011) suggest that the system should focus on the ability to offer a pleasant experience at the same time as encouraging users to prolong the experience by focusing on the visual appeal.

Considering the VoD providers, it is easy to understand that each of them has their own unique way to deliver the content. It can be related with the use of the platform - layout of the webpage, colours, sounds and images, how the content is shown, (most popular content or similar content or unusual content, etc.), search functionality in the main page, or in the content. For example, Amazon Prime x-ray feature enables users to have information about actors, characters and a great deal of information about the movie, and in some scenes it is even possible to have an explanation about a specific dialogue between characters.

Consequently, it is a more complex environment when compared with watching traditional TV. The users not only are watching the content, but are searching it at the same time, and possibly they are doing this on different platforms (TV and smartphone)(Abreu et al., 2018). As such, we need a model that can accommodate a more complex behaviour and explain the influence of the motivations. And by conceptualizing the difference between utilitarian and hedonic IS we can infer the motivations that attract users to VoD platforms. Thus, considering the VoD nature, in this study we assume that the platform is a hedonic IS technology. And because most people use the VoD platforms for the fun that comes from the experience of watching the content (i.e. entertainment purposes), the focus will be on the intrinsic motivators. Thereby, we aim to capture the influence of enjoyment over the continuance intention of the VoD users.



### 3. RESEARCH MODEL AND HYPOTHESES

Different studies show how the motivators (intrinsic and extrinsic) influence the information system-usage behaviour (Lowry et al., 2013; Heijden, 2004; Wu and Lu, 2013; Zhihuan and Scheepers, 2012). This study's fundamental contention is that from a motivational perspective, users of VoD services will continue to use the services because they are internally motivated by the platform capabilities to deliver the content, and that internal motivations are expressed in enjoyment arising from the experience. To validate these statements, we created and tested several research hypotheses. The research model is depicted in Figure 1.

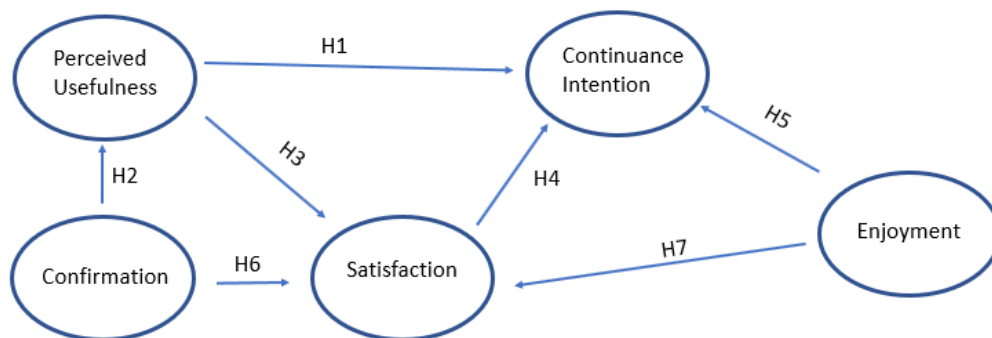


Figure 1 – Research Model

It is important to note that this study is focused on current active users, or in other words on the post-adoption stage. Therefore, considering ECM, in this stage the initial expectations and performance were already accessed during the adoption stage. In his study, Bhattacharjee (2001) accommodated changes from the original model to capture that initial experience. The initial expectations of the performance are captured by the confirmation construct and the post-expectations or future expectations are captured by perceived usefulness. Therefore, the model can capture the changes of the expectations occurring over time with the gain of experience (Hong et al., 2006).

TAM studies demonstrate that perceived usefulness is one of the main drivers of the usage intention (Bhattacharjee and Lin, 2014; Davis et al., 1989;1992). This attitudinal belief, perceived usefulness, captures the instrumentality of the IS use, and impacts attitude/intentions substantively and consistently over time. Indeed, TAM studies demonstrate that perceived usefulness is the strongest determinant of intention because with time and experience the effect of perceived ease of use tends to wear out (Heijden, 2004; Brown, Venkatesh, and Goyal, 2012; Bhattacharjee and Lin, 2014;). Therefore, we posit:

**H1: The user perceived usefulness about the VoD services positively influences the continuance usage intention.**

Perceived usefulness in a post-adoption stage captures future expectations (Davis et al., 1989; Bhattacharjee, 2001). As a matter of fact, perceived usefulness is the baseline of reference against which the confirmation of the expectations is measured (Hong et al., 2006; Bhattacharjee, 2001). Therefore, the level of confirmation will influence how the user perceives the VoD platform. If the initial expectations about the VoD platform are positively met or exceeded by the performance of the platform, the level of confirmation will be positive (Brown et al., 2012), and this condition shapes user's future expectations. In fact, the higher and more realistic are the expectations, the higher the satisfaction level will be (Hong et al., 2006; Venkatesh and Goyal, 2010). If the expectations about the usefulness of the platform are very low, this means that users do not have a meaningful reason to continue to use the VoD services, which in turn will result in disappointment (Brown et al., 2012). Thus, we posit:

**H2: The user level of confirmation with VoD services positively influences perceived usefulness**

**H3: The user perceived usefulness about the VoD services positively influences satisfaction.**

Several studies validate how satisfaction is related with the user's continuance intention. Bhattacharjee (2001, 2014) shows that satisfaction is the strongest predictor of user's continuance intentions. In fact, in the literature the consumer's level of satisfaction is the main driver of the repurchase decision – same as the usage continuance (Hong et al., 2006; Sharma & Sharma, 2019) "Per ECT, users IS continuance intention is determined primarily by their satisfaction with prior IS use" (Bhattacharjee, 2001, p.355). As such we formulate that:

**H4: The user satisfaction with VoD services positively influences continuance intention.**

The effect of perceived enjoyment on usage intention was first validated on the TAM model (Davis et al., 1992). Heijden (2004) and Wu and Lu (2013) show the importance of distinguishing between utilitarian and hedonic IS. For this study, hedonic IS, intrinsic motivators (like enjoyment) play a strong role in determining the usage intention. Also Wu and Lu (2013) show a strong correlation between perceived enjoyment and behavioural intention. Therefore, we posit that:

**H5: The user's enjoyment while using the VoD platform positively influences continuance intention.**

Moreover, the level of satisfaction is predicted by the level of confirmation/disconfirmation (Venkatesh and Goyal, 2010; Bhattacharjee, 2001; Bhattacharjee and Lin, 2014). The level of confirmation is measured by the difference between expectations and the real performance of the IS. In other words, the expectations formed after the first usage can be positive, negative, or indifferent (Bhattacharjee and Lin, 2014; Oliver, 1980). In another study related with mobile Apps, the variable confirmation was a stronger predictor of the users' satisfaction (Tam et al. 2018), which is also consistent with Bhattacharjee (2001). Therefore, we posit the following:

**H6: The user level of confirmation with VoD services positively influences satisfaction.**

The work of Lowry et al. (2013) and Wu and Lu (2013) underscore the idea that intrinsic motivation is the most consistent human predictive behaviour. The behaviour is performed for its own sake out of pleasure and inherent satisfaction (Agarwal and Karahanna, 2000). In fact, Davis et al. (1992) and Hong et al. (2006) show that perceived usefulness is not the major determinant on the user's satisfaction with computers in the workplace and on mobile internet, respectively. We state that the higher is the level of enjoyment, the higher will be the satisfaction. Thus, we posit:

**H7: The user's enjoyment while using the VoD platform positively influences satisfaction.**

## 4. METHODS

### 4.1. MEASUREMENT INSTRUMENTS

All measurement items (Appendix A) were adapted from Bhattacharjee (2001), Lee (2010), Vila and Kuster (2011), and Lowry et al. (2013) with some modifications. From the literature, perceived usefulness (PU) came from Bhattacharjee (2001); IS continuance intention (CONT) and confirmation (CONF) came from Bhattacharjee (2001) and Lee (2010); satisfaction (SAT) from Vila and Kuster (2011); and enjoyment (JOY) from Lowry et al. (2013). The data were collected using an online survey conducted via a survey website. All items were measured by a seven-point Likert scale, anchored from totally disagree (1) to totally agree (7).

### 4.2. DATA COLLECTION

The online context was chosen because of the nature of the technology under study. VoD services are provided through the internet and most users share content related on the social media platforms. Therefore, for this survey we use Facebook and LinkedIn, and we also emailed personal contacts. This decision is related with the wide nature of the VoD platforms, which is used across age, gender, and profession.

The survey was initially developed in English, based on the literature, and the final version was translated into Portuguese by a professional translator and then back into English to ensure translation consistency (Brislin, 1970). The data were collected using an online survey conducted via a survey website between February 2018 and June 2018. To test the instrument and refine the questions, a pilot survey was conducted gathering 27 valid surveys, which were not included in the main survey. The most significant changes were in the items of enjoyment (Joy) which led us to add three more questions from Lowry et al. (2013).

The main survey link was shared on different online platforms. Of the 248 responses 205 were valid (82.66 percent), 32 did not use the VoD platforms (12.90 percent), and 43 responses were removed due to incompleteness (17.34 percent). Of the 205 valid responses, 113 respondents (55.12%) are women, 126 are between 18-55 years old (61%), 78 (38.05%) have a master's degree, and 55 are students (26.83%).

Table 1 - Demographic data of responses

n=205

Age	Gender		Education				
18-25	68	33.17%	Female 113	55.12%	Secondary or Vocational Education	42	20.49%
26-35	58	28.29%	Male 92	44.88%	Bachelor	77	37.56%
36-45	34	16.59%			Master	78	38.05%
46-55	34	16.59%			PhD	8	3.90%
56-65	11	5.36%					

## 5. RESULTS

To estimate the model we used the partial least squares (PLS) method based on the variance. The decision for the PLS method was because some items in the data are not distributed normally ( $p < 0.01$  using the Kolmogorov-Smirnov test). In order to analyse the relationships proposed in the theoretical model we use Smart PLS v. 2.0 software.

### 5.1. MEASUREMENT MODEL

To test the construct reliability we use the composite reliability coefficient. As demonstrated in Table 2, the Cronbach's alpha values of all constructs are above 0.7, which assures that the constructs are reliable (Straub, 1989). Cronbach's alpha reliability coefficient varies between 0 and 1, with lower values indicating lower levels of reliability considering 0.60-0.70 as minimum acceptable values for an exploratory research.

Table 2 - Means, standard deviations, correlations, and reliability and validity measures (CR, CA, and AVE) of latent variables

Constructs	Mean	SD	CR	CA	CONF	PU	SAT	JOY	CONT
CONF	4.677	1.156	0.893	0.839	<b>0.822</b>				
PU	3.839	1.409	0.916	0.887	0.511	<b>0.827</b>			
SAT	5.626	1.003	0.926	0.893	0.643	0.337	<b>0.872</b>		
JOY	5.164	1.073	0.931	0.912	0.677	0.476	0.691	<b>0.833</b>	
CONT	5.966	1.191	0.936	0.897	0.456	0.298	0.689	0.468	<b>0.910</b>

\*The square root of AVE values are shown on the diagonal and printed in bold.

For the indicators we follow the indicator reliability criteria, which postulates that the loading of each indicator should be above 0.7 and if below 0.4 should be excluded (Henseler et al. 2016). As shown in Table 3, the loadings (in bold) are greater than 0.7, showing a good indicator reliability. To test convergent validity we followed Fornell (1981) and Henseler et al. (2016) criteria. The average variance extracted (AVE) of each construct should be higher than 0.5 so that the latent variable explains more than 50% of the variance observed on its indicators. We can see in Table 2 that all constructs have an AVE higher than 0.5, meeting this criterion.

For the discriminant validity of the constructs we used Fornell-Larcker criteria and cross-loadings. The first criterion hypothesizes that the square root of AVE for each construct should be greater than the correlations between constructs (Fornell, 1981). The second criterion is that the loading of each indicator should be greater than all cross-loadings (Chin, 1998; Tenenhaus et al., 2005). As seen in Table 2, the square roots of AVEs (diagonal elements) are higher than the correlation between each pair of constructs (off-diagonal elements). Due to a low loading we had to exclude CONT2. After eliminating item CONT2, Table 3 shows that all construct indicators have a loading greater than cross-loading. Hence, both criteria are met.

In this respect, after assessing the construct reliability, indicator reliability, convergent validity, and discriminant validity the results show that the constructs can be used to test the conceptual model.

Table 3 - PLS loadings and cross-loadings

Constructs		CONF	PU	SAT	JOY	CONT
Confirmation	CONF1	<b>0.821</b>	0.517	0.463	0.508	0.371
	CONF2	<b>0.870</b>	0.463	0.452	0.492	0.274
	CONF3	<b>0.801</b>	0.312	0.665	0.625	0.512
	CONF4	<b>0.794</b>	0.392	0.520	0.592	0.327
Perceived Usefulness	PU1	0.416	<b>0.824</b>	0.337	0.441	0.269
	PU2	0.461	<b>0.815</b>	0.320	0.390	0.309
	PU3	0.443	<b>0.858</b>	0.337	0.451	0.333
	PU4	0.410	<b>0.837</b>	0.167	0.336	0.135
	PU5	0.356	<b>0.802</b>	0.157	0.303	0.099
Satisfaction	SAT1	0.479	0.342	<b>0.772</b>	0.493	0.777
	SAT2	0.532	0.301	<b>0.922</b>	0.635	0.608
	SAT3	0.602	0.229	<b>0.920</b>	0.641	0.506
	SAT4	0.627	0.293	<b>0.864</b>	0.637	0.488
Enjoyment	JOY1	0.658	0.392	0.674	<b>0.858</b>	0.514
	JOY2	0.551	0.420	0.564	<b>0.871</b>	0.367
	JOY3	0.411	0.424	0.475	<b>0.795</b>	0.337
	JOY4	0.405	0.524	0.355	<b>0.703</b>	0.262
	JOY5	0.604	0.352	0.612	<b>0.879</b>	0.356
	JOY6	0.666	0.350	0.673	<b>0.876</b>	0.437
Continuance Intention	CONT1	0.452	0.257	0.671	0.464	<b>0.899</b>
	CONT3	0.339	0.229	0.564	0.336	<b>0.912</b>
	CONT4	0.444	0.323	0.637	0.465	<b>0.920</b>

## 5.2. STRUCTURAL MODEL

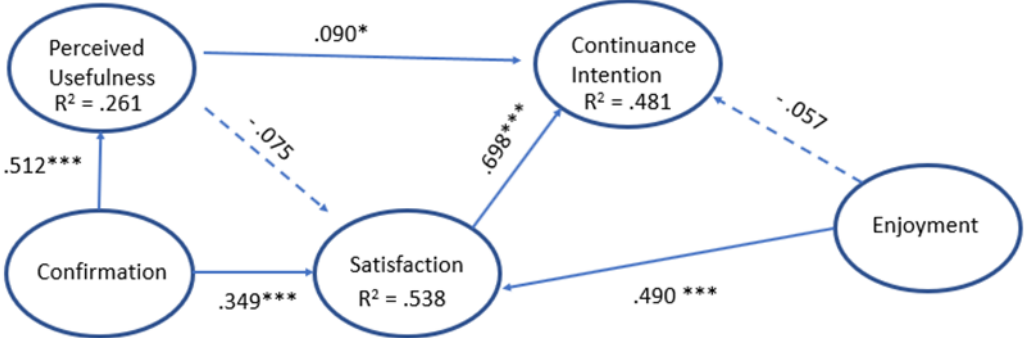
To estimate the structural model we examined the explained variance ( $R^2$ ) and the level of significance of the path coefficients. Figure 2 shows the model path coefficients and path significances. The  $R^2$  of dependent variables are 0.261, 0.538, and 0.481 for perceived usefulness, satisfaction, and continuance intention, respectively. To assess the significance of the path coefficients we used a bootstrapping procedure (Henseler et al., 2016) with 5000 iterations of resampling (Chin, 1998; Tenenhaus et al., 2005). Figure 2 also shows the path coefficient results.

Perceived usefulness is explained through confirmation ( $\hat{\beta} = .512$ ;  $p < .01$ ), which is statistically significant and explains 26.1% of the variation in perceived usefulness. Therefore, hypothesis H2 is confirmed.

The model explains 53.8% of the variation in satisfaction, and the variables confirmation ( $\hat{\beta} = .349$ ;  $p < .01$ ) and enjoyment ( $\hat{\beta} = .490$ ;  $p < .01$ ) are statistically significant in explaining the satisfaction, thus confirming H6 and H7. The perceived usefulness is not statistically significant, and consequently H3 is not confirmed.

Finally, the model explains 48.1% of the variation in continuance intention. The satisfaction ( $\hat{\beta} = .698$ ;  $p < .01$ ) and perceived usefulness ( $\hat{\beta} = .090$ ;  $p < .10$ ) are statistically significant in explaining the

continuance intention, thus confirming H1 and H4. The enjoyment is not statistically significant, and consequently H5 is not confirmed.



Note:

\*p<0.10; \*\*\*p<0.01;

Figure 2 – Model with Results

## 6. DISCUSSION

### 6.1. THEORETICAL IMPLICATIONS

This study reports several findings that are of potential interest for future research on VoD usage continuance intention. The results show that theoretically, perceived usefulness and satisfaction increase the predictive power of the ECM model in explaining the continuance intention.

In the original model of Bhattacharjee (2001), perceived usefulness (PU) and satisfaction (SAT) explain 41% of the usage continuance intention variance, which is below our 48.1% of variance explained but consistent with the theory. Another finding is that the variable enjoyment from Heijden (2004) increases the predictive power of satisfaction by 20.8 p.p on variation when compared with the original model, thus providing better explanatory power. However, the statistical significance of enjoyment to predict usage continuance was not proved in our model, in contrast with Heijden's (2004) findings. The addition of the variable enjoyment to the ECM model is very significant in the context of the VoD technology, but it is also an extension from general IS use to the VoD technology. It is also important to note that of the seven hypotheses tested five were statistically confirmed. Leaving, only two hypotheses that our model did not support.

In line with Bhattacharjee (2001), the effects of satisfaction (SAT) and perceived usefulness (PU) on continuance intention (CONT) were consistent. That is, for VoD users considering the intention to continue the use, satisfaction is more important than perceived usefulness. Another consistency was the effect of enjoyment on satisfaction already captured by Davis et al. (1992) and present in the definition of enjoyment given by Lowry et al. (2013, p.620) and Bhattacharjee (2001, p.354), respectively: *"Joy, or perceived enjoyment (PE), is the extent to which using a system is perceived to bring pleasure and fulfilment for their own sake..."*; *"...satisfaction is an evaluation of that emotion (i.e., whether a consumption experience was as pleasurable as expected)"*.

The effect that intrinsic motivators, such as enjoyment, have on satisfaction shows the importance of the theory that is often disregarded in the context of IS continuance. The fact that perceived enjoyment is statistically significant in explaining satisfaction indicates that enjoying/having fun while using a VoD platform is important to keep the users satisfied. On the other hand, the results show no statistical significance between enjoyment and usage continuance contradicting the literature (Lowry et al., 2013; Zhihuan and Scheepers, 2012) but consistent with Chuah et al. (2016).

Although, some studies examine the role of intrinsic motivators like enjoyment to predict behavioural intention (Agarwal and Karahanna, 2000; Lin and Lu, 2011; Zhihuan and Scheepers, 2012; Lowry et al., 2013), none of them explore the impact in a VoD technology context. Nevertheless, intrinsic motivation is more than the variable enjoyment. As Lowry et al. (2013), Agarwal and Karahanna (2000), Jennett et al. (2008), Ryan and Deci (2000), and Lu et al. (2018) show, there other intrinsic motivators that can affect usage intention and that together create the variable enjoyment.

### 6.2. MANAGERIAL IMPLICATIONS

This study's findings have implications for practitioners. This research reveals that satisfaction is important to determine continuance usage intention, but also that enjoyment has a great impact on satisfaction, indirectly impacting continuance intention. Therefore, in order to retain VoD users,



providers need to focus on satisfaction (Bhattacharjee, 2001) and keep them motivated (Heijden, 2004; Lowry et al., 2013). As we have seen, the effort should be on perceived usefulness, satisfaction to determine continuance intention, and enjoyment to increase satisfaction. A VoD platform that delivers on its promise increases the level of confirmation and therefore the level of satisfaction (Chuah et al., 2016; Sharma & Sharma, 2019). Moreover, the confirmation of the expectations will also affect how the users perceive and use the platform. It will shape their future expectations about the technology.

The platform should have a consistent functionality and it should meet user expectations, thereby increasing the user intention to continue using the VoD service. Also, the platform should allow the user to enjoy the content without spending too much effort on the interaction, which will positively impact the level of satisfaction (Ericsson, 2017). This leads to the innovation factor and its importance on retaining users. For example, the Smart Downloads on Netflix are a feature that automatically deletes downloaded episodes after being watched and automatically downloads the new available episodes when the device is connected to the internet (Wolfe, 2018). Another example is the Netflix update, which gives users the possibility of customizing their profile with famous shows' icons (Wittmer, 2018).

VoD companies should focus on developing a service that fits users needs with the specific characteristics and functions. Moreover, the platform should be designed in a way that users can easily use it and gain experience effortlessly; for example Amazon's Fire TV streaming device, which allows users to watch the content even when they have no cable or satellite TV connection (Smith, 2018). Users can watch content anywhere without the need to subscribe to an additional service. Furthermore, this device can be connected with Alexa, which means that the user can interact with the platform via voice commands. But for VoD it is important to have a clear marketing strategy concerning the consistency of the service. Creating unreal expectations or drastically changing the functionality of the platform can have a strong negative impact on the user retention (Sharma & Sharma, 2019).

Lastly, another important element is the content, which needs to suit users' profiles so that they can be engaged and enjoy the experience. This means having content shaped to the different market segments and even different countries. Providing a good and consistent service relies on creating reachable expectations, assuming that users needs are met. The new Netflix deal with Bollywood aims to create original content on each continent shaped for specific audiences (Reuters, 2018). It is a good example of a service that fits the target users.

### **6.3. LIMITATIONS AND FUTURE RESEARCH**

This study suffers from several limitations. First, because people are not used to the thinking about VoD as a technology different from normal TV, their responses might not reflect the opinion toward VoD, but rather toward normal TV. The reverse problem, assuming that VoD is a completely different technology may have deterred users from answering the survey.

Second, because the respondents were current users of the VoD platforms, the impression they have of the service providers also impacts the experience and the perception about the technology. If they had a bad experience or a problem not solved it will negatively impact their expectations and the enjoyment of the experience, thus resulting in a more negative response to the survey.

Third, the use of enjoyment as an intrinsic motivator is very narrow. There are other motivators that can influence motivation, such as immersion (Jennett et al., 2008), control, curiosity, etc. (Lowry et al., 2013). Therefore, by using only one variable to capture such a complex effect might have influenced the results. Perhaps introducing other intrinsic variables would have resulted in a richer theoretical framework. In future research other intrinsic variables should be considered to study VoD users' intrinsic drivers of the continued technology usage.

Fourth, because this is a cross sectional study, it might not capture all of the intended behaviour of the VoD services, especially any changes that might occur in satisfaction or enjoyment. Therefore, future research should consider a longitudinal study, in order to capture and compare changes in the usage continuance intention over time.

Fifth, we conducted this research in a single country. It would also be of interest to compare the VoD usage continuance intention between countries and further analyse other factors like social, economic, political, etc.

## **7. CONCLUSIONS**

IT continuance is a topic that recently has been drawing more attention, especially because of the great impact it has on users' IS retention. The topic of VoD services, to the best of our knowledge, has not been previous studied in an IS context. This study addresses the gap, contributing with a model that combines ECM with the hedonic system adoption model. Satisfaction and perceived usefulness were found to have a great impact on continuance intention, while enjoyment had a strong impact on satisfaction – confirming the ECM theory and the hedonic system adoption model. By combining these two models we increased the predictive power of the ECM.

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## 9. APPENDIX A - QUESTIONNAIRE

Constructs	Items	Adapted from
Continuance intention	<p>CONT1. I intend to continue using VoD services rather than discontinue its use.</p> <p>CONT2. My intentions are to continue using VoD services than to use any alternative means (Traditional TV).</p> <p>CONT3. I will use the VoD services on a regular basis in the future.</p> <p>CONT4. I will frequently use the VoD services in the future.</p>	(Bhattacharjee, 2001); (Lee, 2010)
Satisfaction	<p>SAT1. I think I made the correct decision in using the VoD services.</p> <p>SAT2. Experience of VoD platform has been satisfactory.</p> <p>SAT3. I am satisfied with the VoD services.</p> <p>SAT4. I am satisfied with the service provided by VoD providers.</p>	(Vila & Kuster, 2011)
Confirmation	<p>CONF1. My experience with using VoD services was better than what I expected.</p> <p>CONF2. The service level provided by the VoD providers was better than what I expected.</p> <p>CONF3. Overall, most of my expectations from using VoD services were confirmed.</p> <p>CONF4. The VoD services can meet demands in excess of what I required for the service.</p>	(Bhattacharjee, 2001)
Joy	<p>JOY1. I found using the VoD services to be enjoyable.</p> <p>JOY2. I had fun using the VoD services.</p> <p>JOY3. Using the VoD services was boring.</p> <p>JOY4. The VoD services really annoyed me.</p> <p>JOY5. The VoD experience was pleasurable.</p> <p>JOY6. The VoD services left me unsatisfied.</p>	(Lowry et al., 2013)
Perceived Usefulness	<p>PU1. The VoD services decreased my stress.</p> <p>PU2. The VoD services helped me better pass time.</p> <p>PU3. The VoD services provided a useful escape.</p> <p>PU4. The VoD services helped me think more clearly.</p> <p>PU5. The VoD services helped me feel rejuvenated.</p>	(Bhattacharjee, 2001)