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Willingness to pay for web-based movie services

by

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PREFACE

This report is part of the project ”Consuming Digital Adventure Oriented Media in Everyday Life: Content and Context”. Statens Institutt for Forbruksforskning (SIFO) is responsible for the main project. However, the Institute for Research in Economics and Business Administration is responsible for a sub-project related to consumers’ willingness to pay for digital adventure oriented services. This report is part of the sub-project related to willingness to pay.

Four researchers have been involved with the report. Professor Leif B. Methlie is the leader of the project. Professor Per E. Pedersen has arranged the web-based survey, supported the completion of the survey. He is also a co-author of the report. Associate professor Herbjørn Nysveen has completed the survey and has also written most of the report. Associate professor Helge Thorbjørnsen has been used as an advisor in methodological issues.

CONTENTS

ABSTRACT

The focus of this report is on consumers' willingness to pay for web-based movie services. First a review of four methods to measure consumers' willingness to pay is presented. They are 1)the transaction method, 2)the contingent valuation method, 3)the Vickrey auction, and 4)the Becker, DeGroot, and Marschak's method. We also argue for the importance of including variables related to willingness to pay (variables in the nomological network of willingness to pay) to get a broader understanding of why consumers use web-based movie services. Thus, theories supposed to belong to the nomological network of willingness to pay are introduced to the reader in chapter 3. They are diffusion theories, consumer behavior theories, and information system theories.

Based on a survey conducted among 200 users of www.sf-anytime.com, results related to consumers' willingness to pay for this web-based movie service and results indicating the most important antecedents for consumers' intention to use the service were revealed. The results show that on average, consumers are wiling to pay 36.15 Kroner for watching a movie at www.sf-anytime.com. Consumers' reference price seems to be an important antecedent for consumers' willingness to pay. Furthermore, the most important antecedents for intention to use the web-based movie service were revealed to be compatibility, observability, and perceived enjoyment. However, the importance of the antecedents for intention to use the service differs across gender, age, and education.

1 INTRODUCTION

The availability of digital services has increased the last years. Services as online education, electronic books, software rentals, online gaming, online movies, and online music are offered by content providers and operators. In addition to the availability of the services on computers through the Internet and on television through cable companies, digital services are also available on mobile devices as mobile phones and personal digital assistants (PDAs). According to Sage Research (2002), entertainment and adventure oriented services seem to be among the most popular digital services offered on the market. Furthermore, digital entertainment and lifestyle services are revealed to be the service category with the highest increase in consumers' spending (Online Publishers Association, 2002). According to existing studies, movies on demand (Sage Research, 2002; Myrio, 2003), concerts and cultural events (Sage Research, 2002), TV shows on demand (Sage Research, 2002; Myrio, 2003), and music download (Sage Research, 2002) seem to be the digital services with the relatively highest willingness to pay among consumers.

For providers of digital adventure oriented services, estimates of consumers' willingness to pay are of vital importance to understand the market potential of the services. Although a few studies report on consumers willingness to pay for digital adventure oriented services (Sage Research, 2002; Myrio, 2003), such studies have in general several weaknesses. *First*, the methodology used to estimate consumers' willingness to pay is typically based on the contingent valuation method. Several studies have revealed that the contingent valuation method generally overestimate consumers' willingness to pay for a product or a service (Lindsey and Knaap, 1999; Bothelo and Pinto, 2002; Neil, et al., 1994; Loomis, et al., 1996). *Second*, studies focusing consumers' willingness to pay for digital adventure oriented services do not include estimates based on variables in the nomological network of willingness to pay. By including variables revealed to positively correlate with consumers' willingness to pay, it is possible to validate the willingness to pay estimates revealed and to get a more nuanced understanding of the antecedents of consumers' interest and usage of the service studied. *Third*, although willingness to pay for digital adventure oriented services obviously will vary across segments and situations, only a few studies have included user characteristics and situational factors as moderating variables in their studies of willingness to pay for digital adventure oriented services.

Based on the shortcomings of existing studies pinpointed above, the purpose of this report is to study customers' willingness to pay for a web based movie service using a method shown to be more realistic than the contingent valuation method. Related to this purpose we also present results regarding complementary theoretical models in the nomological network of willingness to pay to validate the willingness to pay results revealed and to get a deeper and more nuanced understanding of consumers preferences for the service studied. Finally, consumer demographics and user context variables are scrutinized for potential moderating effects in the theoretical models.

In the next chapters we present methods used to measure consumers' willingness to pay and argue for the relevance of using more realistic and conservative methods for such estimations (chapter 2). We also discuss relevant variables and theoretical models related to the nomological network of willingness to pay (chapter 3) and discuss variables with a potential to moderate consumers willingness to pay (chapter 4). Based on the variables and theoretical perspectives discussed in chapter 2, 3 and 4, a description of an empirical study conducted to measure consumers' willingness to pay (and other constructs in the nomological network of willingness to pay) for a web based movie service is presented in chapter 5. The results of this study is presented and elaborated upon in chapter 6. Finally, we discuss possible implications of the results revealed from the study and ideas for future research (chapter 7).

2 WILLINGNESS TO PAY

Willingness to pay has been studied for a period of about 30 years. Briefly, willingness to pay reflects the amount consumers are willing to pay to buy a product or a service (Horowitz and McConnell, 2002), or "the maximum price a buyer is willing to pay for a given quantity of a good" (Werthenbroch and Skiera, 2002, p. 228). Mainly, four methods are used to estimate consumers' willingness to pay. They are the 1)transaction method, 2)contingent valuation method, 3)Vickrey method, and 4)Becker, DeGroot, and Marschak's method (Werthenbroch and Skiera, 2002). The methods differ in their incentives to reveal true willingness to pay and simulation of true point of purchase context. *Incentive compatibility* is referred to as the degree to which the methods provide an incentive for the respondents to reveal their true willingness to pay. *Point of purchase realism* refers to the degree to which the methods are used in an experimental context or in a real context (see Werthenbroch and Skiera, 2002).

2.1 Transaction method

The transaction method (Werthenbroch and Skiera, 2002) can be based on prices from real market transactions or from survey data on preferences for willingness to pay. When based on real market transactions the method is to some extent incentive compatible (because actual purchase of a product in a real purchase situation represents a situation where the price the consumer pays represents - at least - his willing to pay). Also, point of purchase realism is good because the data used are based on real market transactions and real purchase situations. However, studies of real market transactions do not reveal the highest price consumers are willing to pay. It only reveals that actual purchasers are willing to pay at least the demanded price and that non-purchasers willingness to pay is lower than the price demanded. In real market situations, the price range available for analyses is rather limited and often do not fully represent the variance of willingness to pay among the actual purchasers/respondents.

When the transaction method is based on survey data, respondents are typically given the possibility to buy a product at various prices. The prices are experimentally manipulated and the purchase situation is competitive as respondents are also offered alternative products to purchase within the product category. Although the method is competitive, respondents are recruited to take part in the survey. Thus, point of purchase realism is limited. Also, respondents are given a participation fee that they can spend on the products tested or they

can keep the money. The participation fee is partly positive and partly negative for incentive compatibility. The fee ensures that willingness to pay is not biased downward. However, it may bias willingness to pay upward as the consumers purchasing power is strengthen through this fee.

2.2 Contingent valuation method

In the contingent valuation method, a distinction is made between the open-ended and close-ended approach (Werthenbroch and Skiera, 2002). When using the close-ended approach, respondents choose whether to buy a product or a service among pre-specified price alternatives. With the open-ended approach, the respondents are asked to state their willingness to pay for the product/service studied. When applying the contingent valuation method, consumers are recruited to take part in a survey. First, they are introduced to a description of the product/service studied and the hypothetical circumstances under which it is made available (Wessells and Andreson, 1995). The contingent valuation method does not take place in a real purchase situation where respondents choose among real products. Thus, context realism must be considered rather weak when this method is used. Second, a potential problem with the contingent valuation method is that the subjective estimates of willingness to pay do not have any behavioural consequences for the respondents. There are no incentives given to the respondents to motivate them to reveal their true willingness to pay. Incentive compatibility must, therefore, also be considered as weak.

In conclusion, the contingent valuation method scores low on both context realism and incentive compatibility - criteria revealed to be important to estimate consumers' true willingness to pay (Werthenbroch and Skiera, 2002). The contingent valuation method is the most used method for measuring willingness to pay for digital adventure oriented services (Nysveen and Pedersen, 2004). Thus, other methods focusing context realism and incentive compatibility should be considered in future studies of willingness to pay for digital adventure oriented services.

2.3 Vickrey Auction

Typically, the Vickrey method is experimental, and respondents have to meet and make decisions regarding their willingness to pay in a research facility that differs from a real

purchasing context (Werthenbroch and Skiera, 2002). Because of the experimental setting, product/service availability is typically restricted. In Vickrey auctions, respondents take part in a sealed-bid auction. Each respondent submit one - and only one - bid. All of the bids are compared, and the respondent with the highest bid wins the auction and has to buy the product or service. However, the winner only pays the price of the second highest bid submitted (Nunes and Boatwright, 2004). The other participants do not receive any products or services and do not pay anything (Noussair, Robin, and Ruffieux, 2003).

Because the winner of the auction actually has to purchase the product or service, incentive compatibility must be considered rather good in Vickrey auctions, and the dominating strategy for respondents is to reveal their true willingness to pay for the product or service studied. Respondents do not dare to overestimate their willingness to pay because they then risk to be obliged to purchase the product or service for a price higher than their true willingness to pay. Also, respondents do not dare to underestimate their real willingness to pay because they then may miss the opportunity to buy the product/service (because of restricted availability of products/services). However, the usually limited stock of products/services available when using the Vickrey auction method may make respondents with special interests in the product/service studied overestimate their willingness to pay to ensure that they win the bid. If such private interests are present among the respondents, incentive compatibility is threatened when compared to a true market context with almost unlimited supply of products and services.

Vickrey auctions are typically conducted in an experimental context. Respondent have to meet at a research setting that do not resemble a real purchase situation. Furthermore, the auction bidding method do not resemble a real point of purchase decision-making process. Also, the restricted availability of products and services differs from the usual free availability of products and services at point of purchase (Werthenbroch and Skiera, 2002). Thus, point of purchase realism must be considered weak.

2.4 Becker, DeGroot, and Marschak's (BDM) method

The procedure for using the BDM method is rather complex and the respondents are typically informed about the procedure described below and its implications before they take part in the study/state their WTP.

When using the BDM method, the respondent is told that the price of the given product is not yet set, and that we (the researchers) want to know the highest price the respondent is willing to pay for the product. The respondent is then reporting his WTP. Then he is asked "If you drew a price that is (for example) 0,5 Kroner higher than the price you just stated, would you consider buying the product after all?" This question gives the respondent the possibility to revise his initial price offer and come to a final price offer. When the respondent has reported his final WTP, he draws a price from an urn. This price will be the actual transaction price. Thus, the actual transaction price is set randomly, and the actual transaction price is exogenous to respondents WTP. If the price is less or equal to his WTP (buying price < final price offer), the respondents are offered the opportunity to buy the product for the price drawn from the urn (which is equal or lower than his WTP). If the price he draws is higher than his WTP (buying price > final price offer), he will not be allowed to buy the product. If he reports a lower WTP than is true, he increases the risk of missing to buy a product at a price that equals or are lower than his WTP. If he overestimates his WTP, he increases the risk of having to buy a product at a price that is higher than his true WTP. Thus, the procedure ensures incentive compatibility - that the respondent reports his true WTP. The method is often based on "out-of-pocket transactions" (Werthenbroch and Skiera, 2002). This means that the respondents are not given any compensation for their participation, so they have to pay out of their own pockets - which should increase the truthfulness of their WTP estimates (high level of incentive compatibility). The procedure described above, and the consequences of underestimate/overestimate willingness to pay, are explained to the respondents before they take part in the study.

When the respondent has estimated his willingness to pay he draws a price from an urn. It is important that the respondents feel that they take part in a fair transaction. Thus, the distribution of the prices drawn from the urn must have a range which is perceived as fair. When using the BDM, various strategies can be used when choosing the range of prices available in the urn. A study by Bohm, Lindèn, and Sonnegård (1997) showed that the price range chosen may actually influence respondents' estimates of willingness to pay. In their study they used three methods for setting the price range. In the first method the price range was set from close to zero to a price just below the actual price of the product (market price). Respondents were informed about this price range. In the second method the price range was set from close to zero to a price much higher than the market price - and the respondents were

informed about the price range available in the urn. In the third method, the price range in the urn was not reported to the respondents. However, the respondents were informed that the prices available in the urn ranged from prices close to zero and that "The upper bound is equal to what we think is the maximum price any real buyer would be willing to pay" for the product (Bohm, Lindèn, and Sonnegård, 1997, p. 1082). Comparing the results of the three methods to a market situation study, the authors revealed that the method with an upper price level much higher than market price strongly inflated the willingness to pay estimates. No significant differences between results found in the first method (the upper price was set just below the actual price of the product) and results from the market situation study was revealed. Results from the third method (the respondents were informed that "The upper bound is equal to what we think is the maximum price any real buyer would be willing to pay") were not significant different from results revealed with the first method (the upper price was set just below the actual price of the product).

By using BDM, customers` willingness to pay can be estimated at the point of purchase and thus, vary according to purchasing context and competitive set. This is important, because customers WTP vary due to situational factors (Werthenbroch and Skiera, 2002). For example, customers` WTP for a cold beer depend on the point of purchase (WTP is higher at a fancy resort hotel than at a grocery store). Although the method can also be used in an experimental setting (Noussair, Robin, and Ruffieux, 2003), the BDM method has the potential to be very good on point of purchase realism.

2.5 Willingness to pay and reference price

Reference price is defined as "the consumer's perceived current price of the brand: it could be termed anticipated price, since it is the price a consumer expects to observe at the point of purchase" (Winer, 1986, p. 25). Another definition of reference price is "any price to which other prices are related" (Jacobson and Obermiller, 1990, p. 421). Several theories explaining the level of the reference price is put forth in the literature. First, budget restrictions may be one cause of a consumer's reference price. This means that a consumer's expected price is not related to actual price, but to the amount the consumer is able to pay (Puto, 1987). Second, reference price can be based on a consumer's experience with a products' price or with the price level in a product category. Gabor (1977) argues that it is the last price paid for a product that will be a consumer's reference price for the product. Other theories propose that

a consumer will remember the price paid for a product the last few times, and that the "modal price" for this product must be considered the reference price. Monroe (1973) argues that the average price paid for products within the product category will be used as a reference price when purchasing a product. A third approach state that consumers' expectations about future price for a product will be the reference price for the product.

The general effect of reference price on consumer behavior is that market prices higher than consumers' reference price will reduce the number of purchases while market prices lower than consumers' reference price will increase the number of purchases (Jacobson and Obermiller, 1990). The main point is that consumers' reference price for a service obviously has an impact on their willingness to pay for the service.

2.6 Summary of the methods

Willingness to pay studies are typically conducted when a new product is to be launched and the producer wants estimates of potential consumers' willingness to pay for such a product or service. For this purpose, using the transaction method based on real market transactions will not be possible. The transaction method based on survey data can be used, but with this methodological approach, point of purchase realism is low and incentive compatibility is somewhat limited. Although the contingent valuation method is easy to use, the method has several weaknesses both when it comes to incentive compatibility and point of purchase realism. The Vickery auction and the BDM methods are both fairly good on incentive compatibility, but only the BDM method fulfils the condition of point of purchase realism. Even products not yet launched on the market can be made available at the point of purchase for the purpose of the study and investigated in a real market context. Although both the Vickrey auction (Noussair, Robin, and Ruffieux, 2003) and the BDM methods (Werthenbroch and Skiera, 2002) have been revealed to be relatively good and trustworthy methods for the purpose of revealing consumers willingness to pay for products and services, the BDM method stands out as the best method of the four because the method takes into consideration both point of purchase realism and incentive compatibility.

3 NOMOLOGICAL NETWORK

As a supplement to pure willingness to pay studies, and to get a more nuanced understanding of consumers' preferences for a digital adventure oriented service, theories and models from several areas can be useful. First, digital services are in general still rather new on the market and must be considered as new and innovative services. Thus, theories explaining motives for adoption and/or diffusion of innovations stand out as relevant (Rogers, 1995). Second, studying consumers' willingness to pay for a service is about studying consumers' behavior towards a service. Using theories explaining consumers' behavior toward a service (Ajzen, 1991) is therefore relevant as a supplement to studies of consumers' willingness to pay. Finally, theories within information system theory are developed specifically to study antecedents of potential users' adoption of information systems and information technology (Davis, 1989). Digital adventure oriented services are very much related to traditional services based on information systems. Thus, theories explaining adoption of information systems are considered relevant in the nomological network of willingness to pay. In this chapter, theories from the three theoretical areas mentioned above will be discussed. The focus within the three theoretical areas will be on drivers of consumers'/users' adoption of new services; adoption defined as intention to use the services in the future. From such theoretical perspectives it is possible to reveal the main antecedents of consumers' intention to use digital adventure oriented services in the future.

3.1 Theory on diffusion of innovations

The innovation diffusion theory was developed and published by Rogers (1962). The theory is originally grounded in sociology, but is adapted and used to analyse diffusion of a variety of innovations, ranging from information systems (Moore and Benbasat, 1991) and organizational innovations to agricultural tools (Venkatesh, Morris, Davis, and Davis, 2003). In Rogers' (1983) survey of innovation studies, he revealed five generic antecedents of innovation diffusion. They were relative advantage, compatibility, complexity, observability, and trialability. According to Rogers (1995), these five antecedents explain between 49 and 87 percent of the variance in intention to use new innovations. However, other studies have found that only three of the antecedents proposed by Rogers (1995) - relative advantage, compatibility, and complexity - were consistently related to intention to use innovations (Chen, Gillenson, and Sherrel, 2004).

In their study of the adoption of a personal work station, Moore and Benbasat (1991) based their study on these variables and adapted the measures to fit studies on antecedents of information technology diffusion. In addition, they included image as an additional antecedent of intention to use the technology studied. Image - or social approval - was considered as part of the relative advantage construct by Rogers (1983). However, according to Moore and Benbasat (1991), research has revealed image to be different from relative advantage. Thus, relative advantage and image were included as two individual factors in Moore and Benbasat's (1991) model.

Furthermore, in many organizations, people feel that they are obliged to use technology implemented in the organization. Voluntariness of use is therefore also included in Moore and Benbasat's (1991) framework. This variable reflects pressure from colleagues and managers in an organization, pressure that is not present in the same way in a persons' home where he/she usually watch movies available on the Internet. Thus, the variable was considered to be of marginal relevance for this study and therefore not included in the model. Furthermore, Moore and Benbasat (1991) revealed that the observability variable introduced by Rogers (1983) was rather complex, containing observability of both the innovation itself and observability of results and implications of using the innovation. Thus, observability was divided into two constructs; result demonstrability (observability of the results of using an innovation) and visibility (observability of the innovation itself). However, observability of others using a technology was included as an item in the original measure of visibility by Moore and Benbasat (1991). Result demonstrability, defined as the results of using an innovation, is probably also more relevant for services used in a public context rather that for a service used within a family's home. Furthermore, the observability construct is also revealed to be among the most important antecedent of intention to use innovations (Chen, Gillenson, and Sherrel, 2004). Thus, we decided to use the observability construct in the original manner used by Rogers (1995).

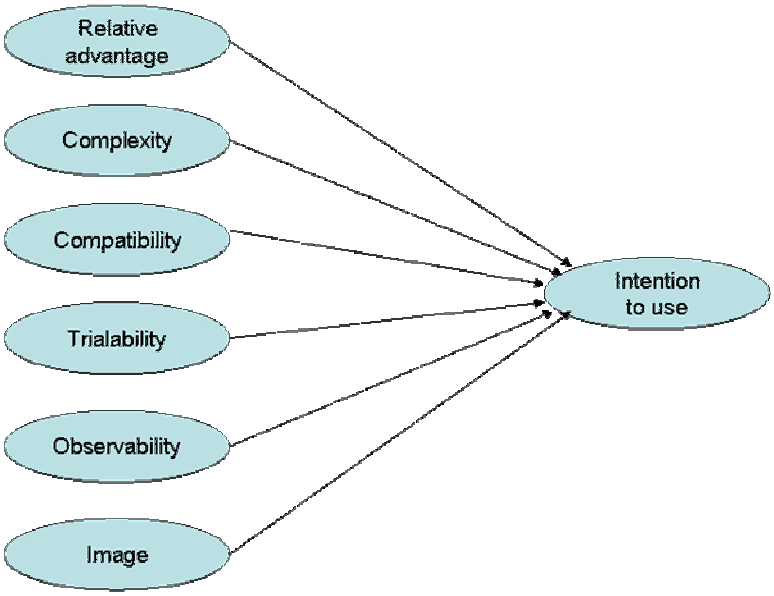

Figure 3.1: A theoretical perspective from the innovation literature.

As can be seen from figure 3.1, all of the variables are believed to have a direct effect on intention to use information system innovations. Except for Complexity, the effects are postulated to be positive. *Relative advantage* is defined as "the degree to which an innovation is perceived as being better than its precursor" (Moore and Benbasat, 1991, p. 195). *Complexity* is defined as "the degree to which an innovation is seen by the potential adopter as being relatively difficult to use and understand" (Slyke, Lou, and Day, 2002, p. 7). *Compatibility* is defined as "the degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters (Moore and Benbasat, 1991, p. 195). *Trialability* is based on adopters' perception of "the degree to which an innovation can be used on a trial basis before confirmation of the adoption must occur (Slyke, Lou, and Day, 2002, p. 7). *Observability* is "the degree to which the results of an innovation are visible to others" (Rogers, 1995, p. 16). *Image* was defined as "the degree to which use of an innovation is perceived to enhance one's image or status in one's social system" (Moore and Benbasat, 1991, p. 195). Finally*, intention to use* is based on Fishbein and Ajzen's (1975) definition of behavioral intention; "the strength of one's intention to perform a specific behavior" (p. 288).

3.2 Consumer behavior theories

From consumer behavior, three theoretical perspectives are often used to explain consumers' behavioral intentions. They are the multiattribute model, the theory of reasoned action, and the theory of planned behavior. The three perspectives build on each other, culminating in the theory of planned behavior including the elements of the multiattribute model and the theory of reasoned action.

The multiattribute model

The multiattribute model focuses on consumers' beliefs about innovation attributes. The main proposition in the theory is that consumers' evaluation of salient beliefs about the innovation studied causes the overall attitude toward the innovation (Fishbein and Ajzen, 1975).

The multiattribute model consists of two major elements, belief strengths (b_i) and belief evaluations (e_i). Formally, the model can be presented as shown below (Peter and Olson, 1996).

$$A=\sum_{i=1}^{n} b_i * e_i$$

where A = Attitude toward the innovation

b_i = The strength of the belief that the innovation has attribute i

e_i = The evaluation of attribute i

n = The number of salient beliefs about the innovation

As a result of the inclusion of b_i, this is a weighted multiattribute model. Often, unweighted multiattribute models are used, meaning that they are based only on the evaluation (e_i) element in the formal term presented above.

Although the multiattribute model only explains attitude toward the service studied, it is implicitly presumed that attitude toward the service has a positive effect on attitude toward using the service, and through this, a positive effect on intention to use the service and actual usage of the service.

Theory of reasoned action

In the theory of reasoned action it is recognized that attitude toward an innovation may not be the only predictor of behavior toward the innovation. Rather, behavioral intention toward the innovation is considered a more valid predictor of actual behavior toward the innovation. The model propose that behavioral intention is a function of attitude toward engaging in a specific behavior (attitude toward using the innovation) and subjective norm regarding whether other people want the consumer to engage in that behavior. Subjective norm focuses on consumers' perception of what other people want them to do (Peter and Olson, 1996). Formally, the model can be presented/defined as shown below.

$$SN = \sum_{j=1}^{m} NB_j * MC_j$$

Where SN = Subjective norm

NBj = Beliefs that relevant others think I should perform behavior B

MCj = Motivation to comply with relevant referents

m = Number of relevant others

In theory of reasoned action, intention to use an innovation (BI = behavioral intention) is predicted to be a function of consumers beliefs about the innovation (multiattribute evaluations) and how consumers perceive that their relevant others want them to behave toward the innovation (subjective norms).

BI = A + SN

As for the multiattribute model, subjective norm is often measured unweighted. This means that the belief about whether relevant others think I should use the innovation or not is used as a measure of subjective norm without considering consumers' motivation to comply with relevant others.

Theory of planned behavior

In the theory of planned behavior, the theory of reasoned action has been extended with perceived control. Perceived control is defined as "peoples' perception of the ease or difficulty of performing the behavior of interest" (Ajzen, 1991, p. 183). Perceived control

reflects two dimensions of behavioral constraints. They are 1)the individual users' economy and 2)the individual users' skill and experience with the service.

Theory of planned behavior can be illustrated as shown in figure 3.2. As can be seen, the theory of planned behavior builds on the multiattribute theory and on the theory of reasoned action.

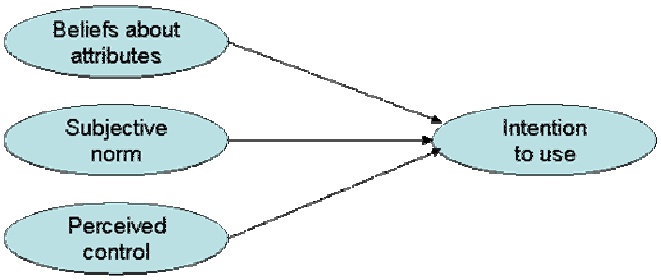

Figure 3.2: Theory of planned behavior (TPB).

The model postulates positive effects of consumers' beliefs about an innovations' attributes on intention to use the innovation. Furthermore, if a consumer feels that relevant others think they should use the innovation (subjective norm), this is postulated to influence intention to use positively. Finally, perceived control is proposed to have a positive effect on intention to use. This means that there is a positive relationship between consumers' economy and their use of the innovation and that there is a positive relationship between consumers' skill in using the innovation and their intention to use the innovation.

The multiattribute model proposes a positive effect of beliefs about innovation attributes on attitude to the innovation. Attitude toward the innovation is assumed to influence attitude toward using the innovation. Furthermore, attitude toward using the innovation is hypothesised to influence intention to use the innovation positively, and through this, actual use of the innovation. In the theory of reasoned action, subjective norm is proposed to positively influence intention to use, and through this effect, actual use of an innovation. In the theory of planned behavior, perceived control is proposed to influence actual use directly (not mediated by intention to use). However, the three antecedents included in figure 3.2 have all been used rather flexible in the literature when it comes to effects on surrogate measures of actual use. Nysveen, Pedersen and Thorbjørnsen (2005) studied direct effects of beliefs about

attributes, subjective norm and perceived control on intention to use. Venkatesh and Davis (2000) studied direct effects of both attributes and subjective norm on intention. A study by Taylor and Todd (1995) focused direct effect of attitude, subjective norm and perceived control on behavioral intention. Thus, the model proposed in figure 3.2 is in line with how the theories are used in the literature.

3.3 Information system theories

One of the most often used models explaining individuals' intention to use technology has been the technology acceptance model - TAM (Davis, 1989). The model has proven to explain technology adoption fairly well and is used to explain intention to adopt technology both within organizations and in an everyday life context. The original technology acceptance model predicted that individuals' intention to use a technology was a function of their beliefs about two technology attributes; perceived ease of using the technology and perceived usefulness of the technology.

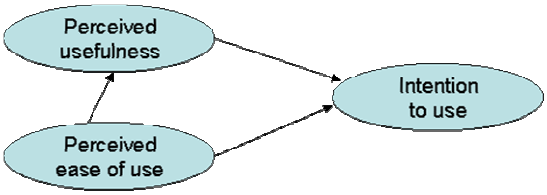

Figure 3.3: The technology acceptance model (TAM).

Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). As can be seen from the definition of perceived usefulness, the original work of Davis (1989) was adapted to a job related- and an organizational context. However, the model has been used in various contexts, and the measures of the constructs have been adapted to use of technology in an everyday life context (e.g. Nysveen, Pedersen, and Thorbjørnsen, 1995). Doll, Hendrickson, and Deng (1998) even modified the definition of perceived usefulness of an information system to the degree that the system "contributes to accomplishing the end-user's purpose" (p. 847) - to make the construct more useable in an everyday life context. The theory proposes positive effects of perceived

usefulness on intention to use and positive effects of perceived ease of use on intention to use. Furthermore, perceived ease of use is hypothesised to influence perceived usefulness positively. The argumentation for this relationship is that user friendly technology makes it easier to take advantage of the useful applications of a technology.

The technology acceptance model can be seen as a standardized version of the multiattribute model where perceived ease of use and perceived usefulness are two standardized attributes of a technology that influence individuals decision about using a technology or not. Thus, the original technology acceptance model also postulated a causal chain from beliefs about the attributes on attitude towards the technology, via attitude towards using the technology, via intention to use the technology, to actual usage (Davis, Bagozzi, and Warshaw, 1989). However, more and more studies have used the model as presented in figure 3; with direct effects of perceived ease of use and perceived usefulness on intention to use (Venkatesh and Davis, 2000; Nysveen, Pedersen, and Thorbjørnsen, 2005).

3.4 The combined model

According to Venkatesh and Davis (2000), the technology acceptance model typically explains about 40 percent of the variance in consumers' usage intentions. This is considered good for a simple model as TAM. However, several researchers have extended TAM to increase explained variance. Venkatesh and Davis (2000) - extending TAM with subjective norm, image, and voluntariness - explained between 34 to 52 percent of usage intention for information systems within organizations. Also, Nysveen, Pedersen, and Thorbjørnsen (2005) - extending TAM with subjective norm, perceived control, perceived expressiveness, and perceived enjoyment - explained 72.3 percent of consumers' intentions to use mobile services. When combining elements from the theory of planned behavior with the technology acceptance model, perceived ease of use and perceived usefulness (from TAM) are considered to be beliefs about technology attributes. Furthermore, Nysveen, Pedersen, and Thorbjørnsen (2005) included perceived enjoyment as an additional attribute of technology and revealed effects of perceived enjoyment on usage intention for four different mobile services. Koufaris (2002) found effects of shopping enjoyment on intention to revisit a website. Dabholkar and Bazozzi (2002) revealed positive effects of fun on attitude toward using a technology-based self-service. We therefore propose a model combining elements from the theory of planned behavior and the technology acceptance model. In addition, we extend the technology

acceptance model to include perceived enjoyment in addition to perceived ease of use and perceived usefulness. The model is illustrated in figure 3.4.

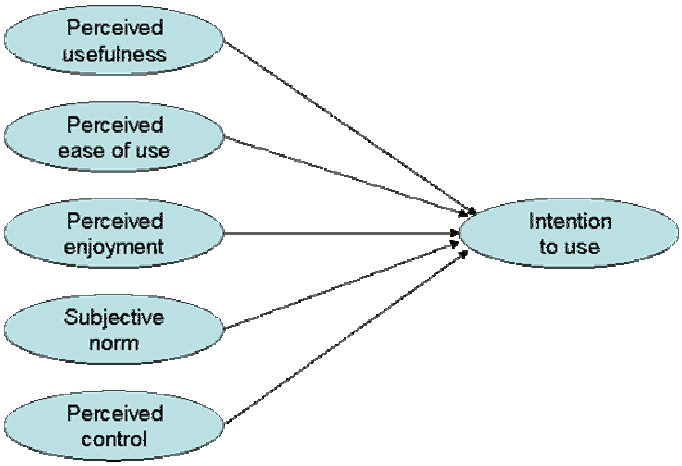

Figure 3.4: The combined model.

All of the antecedents of intention to use digital adventure oriented services are proposed to have positive effects.

3.5 Other antecedents of intention to use

Usage of a system is often associated with positive attitude toward the system and satisfaction with the service (Chen, Gillenson, and Sherrell, 2004). Furthermore, we include price/value as a driver of service usage. Attitude toward the service is defined as an "overall evaluation of a concept" (Peter and Olson, 1996, p. 157). Attitude is presumed to mediate effects of beliefs about attributes of a service, and thus, have effects on intention to use a service. Such an effect is included in the theory of reasoned action (Fishbein and Ajzen, 1975), the theory of planned behavior (Ajzen, 1991), and the technology acceptance model (Davis, Bagozzi, and Warshaw, 1989). Satisfaction with a service is defined as "the consumer's response to the evaluation of the perceived discrepancy between prior expectations and the actual performance of the product as perceived after its consumption" (Tse and Wilton, 1988, p. 204). Consumers satisfaction with products or services is revealed to influence consumers' behavioral intention toward products and services, measured as, for example, loyalty toward the product/service (Yi, 1990), intention to switch (Athanassopoulos, Gounaris, and Stathakopoulos, 2001), word of mouth communication (Athanassopoulos, Gounaris, and Stathakopoulos, 2001), and repurchase intention (Yi and La, 2004). Thus, consumers'

satisfaction with a digital service should be considered a significant predictor of consumers' intention to use the digital service in the future. Price/value builds on the definition discussed by Burton, Lichtenstein, Netenmeyer, and Garretson (1998, p. 294); "the ratio of quality perceived to price paid in a purchase". Dodds (1991) proposed positive effects of perceived value on willingness to buy. Durvasula, Lysonski, Mehta, and Tang (2004) reported positive effects of perceived value on willingness to recommend a service and intention to repurchase the service. Thus, perceived value - measured as the relation between the price paid and the perception of the quality of the product/service delivered - stands out as a relevant antecedent explaining intention to use services. In the empirical part of this study, the three variables discussed in this section will be used to supplement the models presented in the previous sections. Thus, we will investigate if these three variables add value to the more established models - the diffusion of innovation model and the combined model.

3.6 Summary of the models

In this chapter, theories in the nomological network of willingness to pay have been discussed. It is assumed that consumers' willingness to pay for a service positively correlates with their intention to use the service. These models will be used as supplementary perspectives in the analyses of consumers' preferences and behavior toward digital adventure oriented services.

4 MODERATING VARIABLES

Although much can be learned from studying the models discussed so far, a deeper understanding of consumers' behavior and preferences can be revealed by including moderating variables in studies of digital adventure oriented services. According to Dabholkar and Bagozzi (2002), variables related to consumer characteristics and situational characteristics should be included in studies focusing antecedents of consumer behavior towards technology-based self-services. Through the inclusion of moderating variables, consumer behavior in various segments and in various contexts/situations can be revealed, increasing our understanding of willingness to pay among different groups of consumers and willingness to pay in different purchase contexts and situations. Furthermore, by understanding the most important antecedents of consumers' intention to use digital adventure oriented services in various segments and in various purchase situations, services and advertising material can be adapted to specific segments and contexts to be as effective as possible in each and every situation.

In studies of willingness to pay for digital adventure oriented services, results presented by Coleago Consulting (2001) and Myrio (2003) indicate that age moderates consumers' willingness to pay for digital services. Results from both studies indicate that younger consumers have a higher willingness to pay for digital services than older consumers. Furthermore, consumers' stage in the adoption process (whether consumers are innovators or laggards) was found to influence consumers' willingness to pay by Nokia (2001). Their study found that willingness to pay for digital services was higher among early adopters and followers than among laggards. Finally, cultural factors are revealed to have an effect on consumers' willingness to pay. A study by Kim et al. (2002) found that willingness to pay for digital services was highest in countries characterized by high level of uncertainty avoidance and high level of masculinity. (For a more extensive review of moderating variables of willingness to pay for digital adventure oriented services, see Nysveen and Pedersen, 2004).

An additional point in this discussion is that consumers with the highest willingness to pay for digital services are also the consumers with the highest intention to adopt digital services (Coleago Consulting, 2001). This underlines the relevance of including information systems theories, theories of consumer behavior, and innovation theories to shed light on consumers' intention to adopt digital adventure oriented services. Furthermore, it points to the relevance

of using the same moderating variables as those found to have an effect on consumers' willingness to pay in studies explaining consumers' intention to use (adopt) digital adventure oriented services.

5 METHOD

In accordance to the theoretical part of this report, a study was conducted to measure consumers' willingness to pay for a web-based movie service. Furthermore, the study included measures of constructs related to the adoption models based on innovation diffusion literature, the theory of planned behavior, and the technology acceptance model. The purpose of testing the adoption models was to reveal results regarding antecedents of consumers' adoption of web-based movie services.

5.1 Web-based movie service

The service chosen was a real broadband based movie service available on the Internet. The name of the service is SF-anytime, and the service is available at www.sfanytime.com. Movies in various film categories can be purchased on the website, and the movies can be watched online at the screen of the computer immediately after the movie is paid for. Please notice that movies cannot be downloaded on the computer but has to be watched online. Consumers pay per view to watch the movies. Price per view varies depending on the movie category. Movies can be paid with Visa, Mastercard, or Payex.

5.2 Procedure

Respondents to the study were recruited through an advertisement attached to a newsletter among customers of SF-Anytime in Sweden and Norway. The newsletter is sent by e-mail to SF-Anytime customers. The advertisement of the study included a link to a questionnaire, and respondents could click on the link and answer the questionnaire online. The questionnaire used in the study was originally developed in Norwegian for Norwegian customers, and was translated to Swedish by a Swedish speaking researcher at Mittuniversitetet in Östersund. The first page of the questionnaire gave the following introduction to the respondents:

Hi!

And thank you for helping us with this study. Among the participators in this survey, 30 prices from www.sfanytime.com will be drawn. Each of the winners will receive a price valued 45

SEK[1] (53 NOK). If you want to take part in the lottery, please write down an e-mail address, your phone-number, or your postal address at the last page of this questionnaire.

First we want you to have a closer look at www.sf-anytime.com and explore the web site until you have a reasonable understanding of how the web site works. (If you already know the web site reasonable well from prior experience it is not necessary to explore the web site).

We also want you to choose a movie from www.sf-anytime.com that you would like to buy. You do not actually need to buy the movie (just choose a movie you would like to buy), and if you really want to buy the movie, please buy it after you have finished this questionnaire. When you feel that you have a reasonable understanding of how the web site works, and you have chosen a movie from the web site, you can start answering the questionnaire by clicking on the link below.

Please, start answering the questionnaire

After this introduction, the respondents answered questions related to the innovation diffusion model and the combined model.

Then, a special procedure - based on the BDM method (Werthenbroch and Skiera, 2002) - was used to reveal customers' willingness to pay. First the respondents were re-primed about the context described in the introduction of the questionnaire.

"We now want you to behave as if you are in a real purchase situation and choose a movie that you want to buy at www.sf-anytime.com. If you have not already chosen a movie, please revisit www.sf-anytime.com, choose a movie, and search for information about this movie."

The respondents were then *asked about the price for the movie they had chosen*. The price was chosen from a menu of available prices at www.sfanytime.com.

Thereafter, they were asked the following question: *In general, when purchasing a web-based movie, how much do you expect to pay per view?*

[1] SEK = Swedish Kroner/NOK = Norwegian Kroner.

Asking a question like this is more or less like using the contingent valuation method to measure willingness to pay. Although we prime the respondents to perceive them as being in a real purchase situation (to increase context realism) (Werthenbroch and Skiera, 2002), incentive compatibility must be considered rather weak.
To increase incentive compatibility (Werthenbroch and Skiera, 2002), an approach based on the BDM method was used. Respondents were given the following introduction to the method:

"In this part of the study we want to know how much you are willing to pay for the movie you have chosen (and that you want to buy) at www.sf-anytime.com.

Given this situation, how much would you be willing to pay to watch the movie you have decided to choose at www.sf-anytime.com? You have scrutinized the www.sf-anytime.com website and you know their prices. However, because the www.sf-anytime.com wants to study users' willingness to pay, the prices presented on their website may not be the actual prices. Rather, prices will be drawn randomly within a price interval as illustrated below. This is done to get a willingness to pay estimate from you that is as realistic and true as possible. When measuring your willingness to pay, we're also using a procedure to make you reveal your true willingness to pay. The procedure is as follows:

> *1)If you report a willingness to pay that is lower than your true willingness to pay, the risk that you will not be allowed to purchase a movie at the "service" increase (which will be a pity, because - according to the context described in the introduction of the questionnaire - you have decided to buy a movie at the "service").*
>
> *2)If you report a willingness to pay that is higher than your true willingness to pay you risk to pay a price for the movie that is higher than your true willingness to pay (and you don't want to pay a higher price than necessary - do you?).*

Thus, the best strategy for you will be to report your true willingness to pay for watching a movie at www.sf-anytime.com.

Then, a price interval – a "virtual urn" from which the actual price would be drawn from - where presented to the respondents. The prices for the movies available at the "service" ranged from 9 SEK (9 NOK) to 45 SEK (53 NOK). For respondents choosing movies within various price categories, the available price intervals are reported in table 5.1.

Table 5.1: Prices and price intervals.

Sweden		**Norway**	
Price	Price interval	Price	Price interval
9	2 - 30	9	2 - 30
14	10 - 50	15	10 - 50
19	10 - 50	25	10 - 50
29	10 - 50	35	10 - 50
39	10 - 50	45	20 - 90
45	20 - 90	53	20 - 90

Based on the argument in the BDM method that the distribution of prices drawn from the urn should have a range which is perceived as fair (Werthenbroch and Skiera, 2002), the price interval within which respondents could choose their willingness to pay was adapted to the price level of the individual movie - as illustrated in table 5.1. As can be seen, the highest price in the intervals is much higher than the actual price, meaning that the price interval given in the study may have inflated the willingness to pay estimate somewhat (Bohm, Lindèn, and Sonnegård, 1997).

The respondents were also reminded about the risks of reporting a willingness to pay that was lower or higher than their true willingness to pay. They were then given the opportunity to revise their initial willingness to pay or to keep to the willingness to pay that they just reported.

5.3 Sample description

In total, 200 respondents took part in the study. 168 of the respondents were from Sweden and 32 of the respondents were Norwegians. The sample demographics are presented in table 5.2.

Table 5.2: Sample demographics.

	Sample		
Gender	Total	Sweden	Norway
Male	57.9	58.1	57.1
Female	42.1	41.9	42.9
Age			
0 - 12 years			
13 - 19 years	10.3	10.9	6.9
20 - 29 years	17.8	16.0	27.6
30 - 39 years	30.3	28.8	37.9
40 - 49 years	25.9	29.5	6.9
50 - 59 years	10.3	9.0	17.2
60 and more	5.4	5.8	3.4
Education			
Primary	11.5	11.9	9.7
Secondary	39.8	41.9	29.0
University/College < 3 years	23.6	21.3	35.5
University/College ≥ 4 years	25.1	25.0	25.8
Income			
< 200.000 NOK	34.6	34.8	33.3
200.000 - 399.000	46.3	47.5	40.0
400.000 - 599.000	16.0	15.2	20.0
>600.000	3.2	2.5	6.7

The population data presented in table 5.2 reveals that the sample is somewhat biased when it comes to gender. The age distribution is also somewhat concentrated among people between 20 and 49 years old. There are some differences between the Norwegian and the Swedish sample in the age distribution. The Norwegian sample is also somewhat higher educated than the Swedish sample. About 80 percent has an income ranging from 0 to 399.000 Kroner The income level is somewhat higher among the Norwegian respondents than among the Swedish respondents.

The sample is not representative for the population as a whole - population defined as citizens of Sweden and Norway. It should, however, be noted that the present users of web-based movie services are what Rogers (1995) call innovators. According to Rogers (1995), innovators are active information seekers about new ideas. They have a high degree of mass media exposure, and they are able to cope with high uncertainty level about an innovation (Rogers, 1995, p. 22). Thus, the present users of web-based movie services are probably not

representative for the population in Norway and Sweden. The results presented in the Result section are, however, controlled for gender, age and education[2].

5.4 Measures

In the theoretical part of this report, three models were discussed as relevant supplementary perspectives on willingness to pay. They were the innovation diffusion model (see figure 3.1), the theory of planned behavior (se figure 3.2), and the technology acceptance model (see figure 3.3). As discussed in chapter 3, perceived ease of use and perceived usefulness can be considered as beliefs about attributes of a technology - one of the three main drivers of intention to use a technology included in the theory of planned behavior. Thus, we chose to integrate the two antecedents in the technology acceptance model into the theory of planned behavior - as is also done by Taylor and Todd (1995) and Nysveen, Pedersen, and Thorbjørnsen (2005). The model was also extended with perceived enjoyment. Thus, the two models tested in addition to willingness to pay are the innovation diffusion model (Figure 3.1) and the combined model (Figure 3.4).

Innovation diffusion model

The innovation model presented in figure 3.1 includes 7 variables; the independent variables relative advantage, complexity, compatibility, trialability, observability, image, and the dependent variable intention to use. These variables are mainly based on innovation studies and adoption studies from information systems research. Consequently, the construct validity of the variables is in general considered acceptable. All of the variables were measured with multiple item indicators. Respondents indicated their agreement with a set of statements using a five point scale ranging from “Strongly disagree” (1) to “Strongly agree” (5).

All of the measures used were based on prior studies, although adapted to the context of web-based movie services. Relative advantage, compatibility, trialability, and image were measured based on items from Moore and Benbasat (1991). Observability was measured based on the items used by Moore and Benbasat (1991) to measure visibility. Complexity was measured based on items used by Grover (1993) and Thompson et al (1991). Intention to use was based on measures used by Nysveen, Pedersen, and Thorbjørnsen (2005). All of the

[2] Education is assumed to correlate positively with income. Thus, we do not control for differences in income.

measures were translated into Swedish and Norwegian and adapted to the context of a web-based movie service. The items can be seen in Appendix 1. Unweighted measures were used.

A factor analysis was conducted with maximum likelihood extraction. Furthermore, an oblique rotation method was used because 1)it is more flexible because the factor axes do not need to be orthogonal, and 2)it is more realistic because the theoretically important underlying dimensions are not assumed to be uncorrelated with each other (Hair et al., 1998, p. 109).

The first factor analysis, using a maximum likelihood analysis and oblique rotation revealed five factors. The theoretical model presented in figure 3.1 includes six independent variables. According to Rust, Lemon, and Zeithaml (2004), parsimony, managerial usefulness, and psychological meaningfulness should be the guiding perspective when doing factor analyses (Rust, Lemon, and Zeithaml, 2004). Thus, the number of factors was set to six in the factor analysis, and the factor analysis was re-run. With a sample of 200 respondents, factor loadings as low as 0.40 should be considered significant at the 0.05 significance level (Hair et al., 1998, p. 112). Because of this, values below 0.40 are suppressed in table 5.3. The results of the factor analysis are presented in table 5.3.

Table 5.3: Innovation diffusion model - initial factor analysis.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Var. expl.	27.132	20.978	9.552	6.455	5.962	4.113
Eigenvalue	6.512	5.035	2.293	1.549	1.431	0.987
Reladv 1						.846
Reladv 2						.846
Reladv 3						.676
Reladv 4						
Compa 1		.932				
Compa 2		.996				
Compa 3		.625				
Compa 4		.693				
Complx 1			-.872			
Complx 2			-.826			
Complx 3					-.418	
Trial 1						
Trial 2					.834	
Trial 3					.608	
Trial 4					.769	
Observ 1				.819		
Observ 2				.912		
Observ 3				.860		
Observ 4						
Observ 5				.721		
Image 1	.873					
Image 2	.896					
Image 3	.977					
Image 4	.909					

Maximum Likelihood. Oblimin rotation. Values below 0.40 are suppressed. Items are presented in Appendix 1.

As can be seen from table 5.3, relative advantage 4 (reladv4) had a factor loading below 0.4 and was removed from the analysis. Complexity 3 (complx3) did not load on the factor it was supposed to, and the loading was also only marginally significant. Thus, this item was also removed from further analyses. Furthermore, trialability 1 (trial1) and observability 4 (observ4) were not included in further analyses because their factor loadings were not considered significant. Based on this evaluation of the first factor analysis, the analysis was re-run without the items reladv4, complx3, trial1, and observ4. The revised factor analysis is presented in table 5.4.

Table 5.4: Innovation diffusion model - final factor analysis.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Var. expl.	30.827	23.141	9.901	7.272	6.671	4.405
Eigenvalue	6.165	4.628	1.980	1.454	1.334	.881
Cr. Alpha	.957	.921	.881	.910	.781	.881
Reladv 1						.833
Reladv 2						.874
Reladv 3						.678
Compa 1		.940				
Compa 2		.981				
Compa 3		.621				
Compa 4		.682				
Complx 1			.929			
Complx 2			.804			
Trial 2					.765	
Trial 3					.632	
Trial 4					.799	
Observ 1				.825		
Observ 2				.920		
Observ 3				.874		
Observ 5				.725		
Image 1	.883					
Image 2	.895					
Image 3	.971					
Image 4	.904					

Maximum Likelihood. Oblimin rotation. Values below 0.40 are suppressed.

As can be seen from table 5.4, convergent and discriminant validity should be considered satisfactory. The factor loadings are in general much higher than the lower limit of 0.4. Furthermore, there are no cross-loadings revealed in the factor analysis that may threaten discriminant validity. Furthermore, values of Cronbachs alpha ranged between 0.781 and 0.957, indicating satisfactory reliability of the factors revealed.

The dependent variable in the model - intention to use the web-based movie service - was measure with two items (Cronbachs alpha = .65). Please see Appendix 1.

Combined model

The model combining theory of planned behavior and an extension of the technology acceptance model includes 5 variables; the independent variables perceived ease of use, perceived usefulness, perceived enjoyment, subjective norm, perceived control, and the dependent variable intention to use. These variables are based on adoption studies from

information systems research. Consequently, the construct validity of the variables is in general considered acceptable. All of the variables were measured with multiple indicators. Respondents indicated their agreement with a set of statements using a five point scale ranging from “Strongly disagree” (1) to “Strongly agree” (5).

All of the measures used were based on prior studies, although adapted to the context of web-based movie service. Measures of all of the variables in the model were based on items used by Nysveen, Pedersen, and Thorbjørnsen (2005). All of the measures were translated into Norwegian and Swedish and adapted to the context of a web-based movie service. The items are presented in Appendix 2. Unweighted measures were used.

Also for this model, a factor analysis was used to test for convergent and discriminant validity. The factor analysis revealed four factors with an eigenvalue above 1. The theoretical model presented in figure 3.4 includes five independent variables. According to Rust, Lemon, and Zeithaml (2004), parsimony, managerial usefulness, and psychological meaningfulness should be considered most important when doing factor analyses (Rust, Lemon, and Zeithaml, 2004). Thus, the number of factors was set to five in the factor analysis, and the factor analysis was re-run. The result of the factor analysis is presented in table 5.5.

Table 5.5: Combined model - initial factor analysis.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Var. expl.	39.718	18.700	8.428	7.294	5.390
Eigenvalue	7.149	3.366	1.517	1.313	0.970
Ease of use1	.796				
Ease of use2	.792				
Ease of use3	.988				
Ease of use4	.911				
Useful1			.855		
Useful2			.811		
Useful3					
Enjoy1					.716
Enjoy2					.828
Enjoy3					.906
Enjoy4					.712
Subj. norm1		.751			
Subj. norm2		.924			
Subj. norm3		.896			
Control1				.826	
Control2				.959	
Control3				.483	
Control4	.524				

Maximum Likelihood. Oblimin rotation. Values below 0.40 are suppressed. Items are presented in Appendix 2.

Based on the analysis, usefulness 3 (useful3) was removed from further analyses because the factor loading was lower than 0.40. Furthermore, the factor loading of behavioral control (control3) was considered to be too low to be included in further analyses. Behavioral control 4 (control4) loaded on the “ease of use” factor, while it theoretically was included as an item to measure behavioral control. Thus, behavioral control 4 (control4) was not included in further analyses. Based on this revision of the items, a new factor analysis was conducted.

Table 5.6: Combined model - final factor analysis.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Var. expl.	40.107	21.730	9.400	7.556	5.959
Eigenvalue	6.016	3.260	1.410	1.133	0.894
Cr. alpha	.934	.902	.871	.883	.901
Ease of use1	.797				
Ease of use2	.806				
Ease of use3	.969				
Ease of use4	.910				
Useful1			.852		
Useful2			.795		
Enjoy1					.730
Enjoy2					.838
Enjoy3					.907
Enjoy4					.698
Subj. norm1		.743			
Subj. norm2		.911			
Subj. norm3		.917			
Control1				.924	
Control2				.847	

Maximum Likelihood. Oblimin rotation. Values below 0.40 are suppressed.

As can be seen from table 5.6, convergent and discriminant validity should be considered good. The factor loadings are in general much higher than the lower limit of 0.4. Furthermore, there are no cross loadings revealed in the factor analysis that may threaten discriminent validity. Furthermore, values of Cronbachs alpha ranged between 0.871 and 0.934, indicating satisfactory reliability of the factors revealed.

Willingness to pay

Willingness to pay was measured based on the BDM procedure - as described in section 5.2. After the BDM procedure was explained for the respondents they were asked to reveal the price they were willing to pay for the movie they had chosen (WTP). They were then reminded about the two critical conditions in BDM - 1)the risk of paying too much if willingness to pay is to high and 2) the risk of not being allowed to purchase the movie if willingness to pay is too low. After this reminder, the respondents had the opportunity to revise their willingness to pay (WTP revised). The question used to measure willingness to pay and willingness to pay revised was: What is the maximum price you are willing to pay to watch the movie?

Reference price

Reference priced was measured by the following item; In general, when purchasing a web-based movie, how much do you expect to pay per view?

Other measures

Service satisfaction was measured by two items base on general satisfaction and confirmation of expectations (e.g. Fornell, 1992); 1)Totally, I'm very satisfied with "the service", and 2)The service was better than I expected (Chronbachs alpha = 0.838). Attitude toward the service was measured by four bi-polar scales based on measures used by e.g. Nysveen, Pedersen, and Thorbjørnsen (2005) (Bad - Good, Negative - Positive, Unfavorable - Favorable, and Unreasonable - Reasonable) with a Cronbachs alpha = 0.896. Finally, the price/value variable was measured by the to items 1)Based on the price I paid for the movie at "the service" I think I got a good deal, and 2)I think the purchase I did at "the service" was a good one (Cronbach alpha = 0.791). The first item measuring price/value was based on Patterson and Spreng (1997) - who only used this single item to measure the construct - while the second item was added by the authors.

6 RESULTS

In this chapter the results of the study are presented. First, results regarding measures of willingness to pay are presented. Second, results based on the innovation diffusion model and the combined model from the nomological network of willingness to pay is presented. Effects of gender, age and education will be illuminated and discussed along with the main results. Gender is divided into two groups; 1)men and 2)women. Age is divided into two groups; 1)from 0 to 39 years and 2)from 40 years and older. Education is also divided into two groups; 1)respondents without education at the university/college level and 2)respondents with education at the university/college level.

6.1 Willingness to pay

In the study, respondents reported the actual price of the movie they had chosen to purchase, the price they expected to pay for the movie when purchasing it at a web-based movie service (Reference price), their willingness to pay for such a movie in this context (WTP), and their willingness to pay for such a movie in this context after having the opportunity to revise their willingness to pay estimate (WTP revised). Descriptives of movie prices, reference prices, willingness to pay (WTP), and willingness to pay revised (WTP revised) are reported in table 6.1.

Table 6.1: Price and WTP descriptives.

	Price	Reference price	WTP	WTP revised
Total (n=200)				
Mean	38.52	33.65	35.53	36.15
Sd	8.93	26.45	12.77	13.16
Median	39.00	30.00	35.00	35.00
Max	53.00	200.00	95.00	95.00
Min	9.00	0.00	5.00	5.00
Women (n=77)				
Mean	37.57	32.32	35.19	35.71
Sd	10.01	20.15	13.55	13.41
Median	39.00	29.00	35.00	35.00
Max	53.00	159.00	95.00	95.00
Min	9.00	9.00	10.00	10.00
Men (n=105)				
Mean	39.30	32.92	35.76	36.37
Sd	7.97	24.46	12.41	12.91
Median	45.00	35.00	40.00	40.00
Max	53.00	198.00	75.00	75.00
Min	14.00	5.00	5.00	5.00
Age: 0 - 39 years (n=108)				
Mean	38.78	30.16	33.38	33.75
Sd	8.56	17.02	11.56	11.92
Median	39.00	25.00	30.00	30.00
Max	53.00	149.00	60.00	70.00
Min	14.00	5.00	5.00	5.00
Age: 40 - older (n=77)				
Mean	38.11	37.34	37.68	38.25
Sd	9.31	31.36	14.43	14.25
Median	39.00	30.00	39.00	39.00
Max	53.00	198.00	95.00	95.00
Min	9.00	9.00	10.00	10.00
Low education (n=98)				
Mean	37.68	32.71	36.01	36.82
Sd	9.52	25.05	12.93	13.17
Median	39.00	30.00	35.00	37.00
Max	53.00	198.00	95.00	95.00
Min	9.00	10.00	10.00	10.00
High education (n=92)				
Mean	39.47	33.70	34.47	34.73
Sd	8.05	22.75	12.74	12.92
Median	39.00	29.00	30.00	30.00
Max	53.00	159.00	75.00	75.00
Min	14.00	5.00	5.00	5.00

As can be seen from table 6.1, the average price for the movies chosen among the respondents was 38.52 Kroner[3], and the prices ranged from 9 Kroner to 53 Kroner. The reference price for a movie at the web-based movie service was 33.65 Kroner. However, the expected price ranged from 0 Kroner to 200 Kroner. Willingness to pay was nearly 2 Kroner higher than expected price and about 3 Kroner lower than the actual price while the corresponding numbers for WTP revised was about 2.50 Kroner higher than expected price and about 2.50 Kroner lower than the actual price. Willingness to pay and willingness to pay revised ranged between 5 Kroner and 95 Kroner. Thus, the perceived value of the service varies tremendously, reflecting that a steady price expectation is not established in the market for such services.

The results did not reveal any significant differences between the price (F=1.69 / p=0.20), reference price (F=0.03 / p=0.86), willingness to pay (F=0.09 / p=0.77), and willingness to pay revised (F=0.11 / p=0.74) of men and women.

The results were also compared across groups of age. Results revealed no differences in price for the movies chosen among respondents up to 39 years an respondents older than 39 years (F=0.26 / p=0.61). However, reference price (F=3.97 / p=0.05), willingness to pay (F=5.04 / p=0.03), and willingness to pay revised (F=5.43 / p=0.02) were revealed to be highest among the older respondents.

No differences in price (F=1.93 / p=0.17), reference price (F=0.08 / p=0.78), willingness to pay (F=0.68 / p=0.41), and willingness to pay revised (F=1.23 / p=0.27) were revealed between respondents with and without education at university/college level.

Table 6.2 presents results regarding differences between actual price, expected price, willingness to pay, and revised willingness to pay

[3] Please have in mind that 38.52 Kroner is based on a combination of respondents paying in SEK and NOK. However, SEK is the dominating currency among the respondents in the study.

Table 6.2: Prices and WTP. Paired samples t-tests.

	Df	Mean diff	Std.dv	t	p
Total					
Price - Reference price	197	4.88	27.41	2.51	.01
Price - WTP	198	3.14	14.66	3.02	.00
Price - WTP revised	198	2.52	14.93	2.38	.02
Reference price - WTP	197	-1.80	25.76	-0.99	.33
Reference price - WTP revised	197	-2.43	26.24	-1.30	.19
WTP - WTP revised	199	-0.62	3.32	-2.64	.01
Women					
Price - Reference price	76	5.25	21.30	2.16	.03
Price - WTP	76	2.38	16.73	1.25	.22
Price - WTP revised	76	1.86	16.53	0.99	.33
Reference price - WTP	76	-2.87	20.40	-1.24	.22
Reference price - WTP revised	76	-3.39	20.87	-1.43	.16
WTP - WTP revised	76	-0.52	3.77	-1.21	.23
Men					
Price - Reference price	104	6.38	25.62	2.55	.01
Price - WTP	104	3.82	13.22	2.96	.00
Price - WTP revised	104	3.21	13.62	2.42	.02
Reference price - WTP	104	-2.56	22.76	-1.15	.25
Reference price - WTP revised	104	-3.17	23.22	-1.40	.17
WTP - WTP revised	104	-0.60	2.64	-2.36	.02
Age: 0 - 39 years					
Price - Reference price	106	8.65	19.01	4.71	0.00
Price - WTP	107	5.40	12.47	4.50	0.00
Price - WTP revised	107	5.03	12.81	4.08	0.00
Reference price - WTP	106	-3.35	16.10	-2.15	0.03
Reference price - WTP revised	106	-3.72	16.90	-2.28	0.03
WTP - WTP revised	107	-0.37	2.13	-1.80	0.07
Age: 40 - older					
Price - Reference price	75	0.76	32.48	0.21	0.84
Price - WTP	75	0.79	17.55	0.39	0.70
Price - WTP revised	75	0.21	17.22	0.11	0.92
Reference price - WTP	75	0.03	31.08	0.01	0.99
Reference price - WTP revised	75	-0.55	31.17	-0.16	0.88
WTP - WTP revised	76	-0.57	3.52	-1.43	0.16
Low education					
Price - Reference price	97	4.96	26.50	1.86	0.07
Price - WTP	97	1.67	16.32	1.02	0.31
Price - WTP revised	97	0.86	16.38	0.52	0.61
Reference price - WTP	97	-3.30	23.37	-1.40	0.17
Reference price - WTP revised	97	-4.11	23.59	-1.73	0.09
WTP - WTP revised	97	-0.82	3.78	-2.14	0.04
High education					
Price - Reference price	90	5.81	24.09	2.30	0.02
Price - WTP	91	5.33	12.64	4.04	0.00
Price - WTP revised	91	5.07	12.75	3.81	0.00
Reference price - WTP	90	-0.59	22.95	-0.25	0.81
Reference price - WTP revised	90	-0.86	23.59	-0.35	0.73
WTP - WTP revised	92	-0.26	2.11	-1.18	0.24

In total, the results show that actual price is significantly higher than reference price (t=2.51 / p=0.01). The mean difference between actual price and consumers' willingness to pay/willingness to pay revised also shows that the price is higher than the respondents willingness to pay (t=3.02 / p=0.00)/willingness to pay revised (t=2.38 / p=0.02). The respondents' willingness to pay and willingness to pay revised do not differ significantly from their reference price. Finally, willingness to pay revised is significantly higher than willingness to pay (t=-2.64 / p=0.01). When revising their willingness to pay, the respondents were reminded about the risks of not reporting their true willingness to pay. If they underestimate their WTP, the risk is that they will not be allowed to purchase the movie they have chosen. If they overestimate their WTP, the risk is that the actual price may be higher than their true WTP. In this study it seems like the risk not to be allowed to purchase a movie is perceived as higher than the risk of paying a price somewhat higher than their true WTP.

As can be seen from table 6.2, the price is significantly higher than willingness to pay among the female respondents. None of the other comparisons presented in table 6.2 are significantly different for the female segment. Among men, price is significantly higher than expected price, willingness to pay and willingness to pay revised. Also, willingness to pay revised is higher than willingness to pay among men.

When it comes to age, price is significantly higher than expected price, willingness to pay, and willingness to pay revised among the young respondents. Also, willingness to pay and willingness to pay revised is higher than expected price among this group of respondents. However, the older respondents seem to have more realistic price expectations, and their willingness to pay is in line with actual price and expected price.

Among the respondents without higher education, willingness to pay, willingness to pay revised and expected price seem to be in line with actual price. However, the results indicate that willingness to pay and willingness to pay revised are lower than actual price among respondents with higher education.

6.2 The innovation diffusion model

The adapted model of Rogers (1995) (Figure 3.1) was used in this study to investigate effects of antecedents - revealed to influence peoples' adoption of new technology in several prior

studies - on intention to use the web-based movie services. The model was analyzed by the use of multiple regression. The independent variables were computed based on the factor analyze reported in table 5.4.

A precondition for multivariate analyzes is normal distribution of sample data. A normal distribution of the sample data is indicated by skewness values within the range of -1 to +1 (Hair et al., 1998). The distribution characteristics of the data are reported in table 6.3.

Table 6.3: Distribution characteristics of the variables (N = 198 - 200).

	Mean	Std.	Skewness		Kurtosis	
	Statistics	Statistics	Statistics	Std. err	Statistics	Std. err
Relative advantage	3.45	1.03	-0.33	0.17	-0.53	0.34
Compatibility	3.75	0.95	-0.58	0.17	-0.07	0.34
Complexity	2.40	1.14	0.42	0.17	-0.66	0.34
Trialability	3.94	0.83	-0.76	0.17	0.53	0.34
Observability	1.91	1.10	1.35	0.17	1.05	0.34
Image	1.75	1.10	1.48	0.17	1.22	0.34

Although two of the variables has skewness levels higher than 1, the main picture based on skewness and kurtosis reported in Table 6.3, is that the data are close to normal distributed.

Multicollinearity may also affect the accuracy of the standardized regression coefficients. A common test for multicollinearity is bivariate correlations (Berry and Feldman, 1985). According to them, bivariate correlations lower than 0.8 indicate that multicollinearity is not a major problem. Correlations between the independent variables in the innovation diffusion model are reported in table 6.4.

Table 6.4: Pearsons bivariate correlations.

	Reladv	Compat	Complex	Triala	Observ	Image
Relative advantage						
Compatibility	.69**					
Complexity	-.13	-.14*				
Trialability	.38**	.38**	-.26**			
Observability	.16*	.10	.18*	.17*		
Image	.25**	.22**	.28**	.12	.53**	

Based on the threshold value of 0.8 proposed by Berry and Feldman (1985), multicollinearity should not be a threat to multiple regression analyses in this study.

The potential problem related to multicollinearity was also controlled for by the use of VIF and Tolerance statistics, as shown in table 6.5. According to Hair et al. (1998), tolerance values should not be lower than 0.10 and VIF values should not exceed 10.

Table 6.5: Regression coefficients and collinearity statistics.

	Stand beta	t-values	Sign.	Collinearity statistics	
				Tolerance	VIF
Relative advantage	.04	.46	.63	.50	2.01
Compatibility	.36	4.27	.00	.50	2.00
Complexity	-.10	-1.45	.15	.82	1.22
Trialability	.11	1.60	.11	.77	1.30
Observability	.17	2.37	.02	.70	1.43
Image	.09	1.22	.23	.64	1.57

Based on the collinearity statistics presented in table 6.5, multicollinearity is not a problem among the independent variables in this study, and the preconditions for multiple regression should be fulfilled.

Effects of the six antecedents on intention to use the service are presented in figure 6.1.

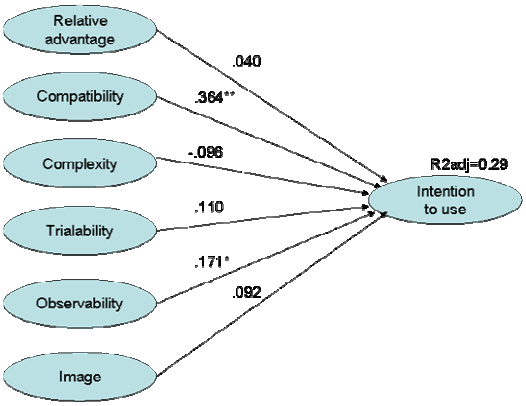

Figure 6.1: Results: The innovation diffusion model. Main effects.

The results shows that R^2adj = 0.29. Thus, the model explains intention to use the web-based movie service fairly good although somewhat weaker than reported by Roger (1995). (Roger reported that 49 to 87 percent of the variance in intention to use new innovations was explained by the five antecedents in his original model). Looking at the effect of the antecedents, compatibility and observability are the only antecedents with a significant effect on respondents' intention to use the "service". Thus, for people to adopt a service like the one studied here, it is important that the service is consistent with the existing values, needs, and past experiences of potential adopters (compatibility) and that the use of the service itself is visible and can be observed for potential adopters (observability).

The complexity of a web-based movie service is not very high, and most people will be able to use the service without difficulties. This may explain the lack of effect from complexity. Trialability was not revealed to have any effect on intention to use the service. In this study the respondents were already users of the service. All of the respondents had tried out the service thoroughly, and they knew the service very well. This may explain why the possibility to try out the service (Trialability) does not influence their intention to use the service in the future - although this may be an important antecedent for service usage intention among respondents that do not know the service very well. Also, because movie services like the one studied here so far are relatively unknown in the market, it is difficult for the respondents to make up their mind about image effects of this service. Thus, the effect of image may increase in significance when the knowledge and usage of the service increases.

The innovation diffusion model was also analyzed for men and women separately. For women, skewness values ranged between -0.93 and 1.36 while kurtosis values ranged between -0.88 and 1.33, indicating that the variables are satisfactory normal distributed. The correlation between relative advantage and compatibility is 0.78, and - according to Berry and Feldman (1985) - may indicate a multicolinearity problem. However, none of the tolerance values were lower than 0.35, and none of the VIF values exceeded 2.86, indicating that multicolinearity is not a problem for the "women model" reported in Figure 6.2. For men, skewness values ranged from -.70 to 1.68 and kurtosis values ranged from -.83 to 1.88, indicating that the variables are fairly normal distributed. The highest correlation was observed between relative advantage and compatibility (0.62). The lowest tolerance value observed was 0.55 and the highest VIF statistic was 1.80. Thus, multicollinearitet is not a problem for the model among the male respondents. The results are presented in Figure 6.2.

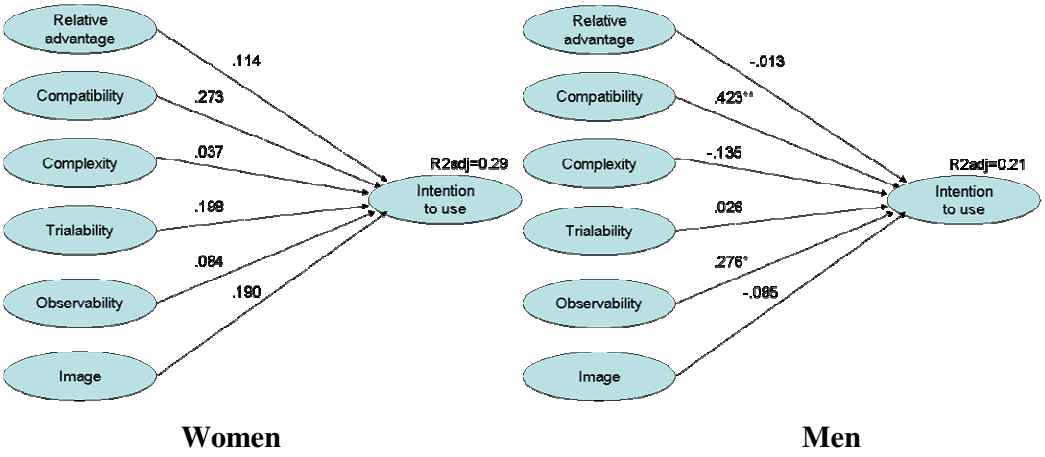

Figure 6.2: Results: The innovation diffusion model. Gender differences.

As can be seen from the Figure 6.2, none of the individual antecedents have a significant effect on intention to use the web-based movie service among the female respondents. Among the male respondents, compatibility and observability are significant antecedents of intention to use web-based movie services. Thus, the results indicate important motivational differences for using web-based movie services across gender.

The effects of the antecedents proposed in the innovation model were also analysed separately for young and older respondents. In the group of young respondents the lowest skewness value was -0.63 and the highest skewness value was 1.69 (image). Kurtosis values ranged from -0.79 to 2.03 (image). Thus, the variables were satisfactory normal distributed, with a

potential exception of image. The highest correlation value was observed between relative advantage and compatibility (0.72). However, the lowest tolerance value observed was 0.46, and the highest VIF value was 2.16, indicating that multicollinearity is not a problem. In the group of older respondents, skewness varied from -0.89 to 1.54 while the kurtosis values ranged from -0.90 to 1.29. Thus, we have to conclude that the data are satisfactory normal distributed. The highest correlation value observed was between relative advantage and compatibility (0.65). The lowest tolerance value observed was 0.53 and the highest VIF value was 1.88, indicating that multicollinearity is not a problem. The analyses for young and older respondents are presented in Figure 6.3.

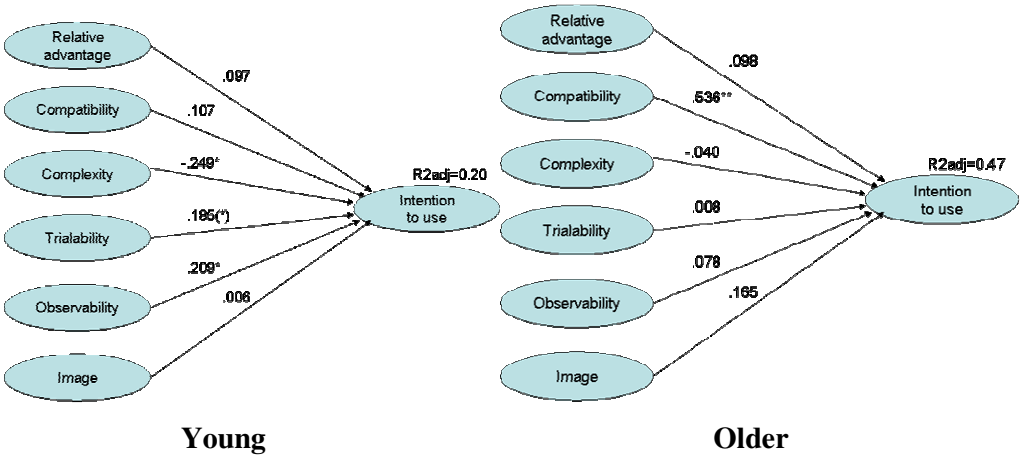

Figure 6.3: Results: The innovation diffusion model. Age differences.

The results reveal several interesting differences. Among the young respondents, complexity has a negative effect, indicating that the web-based movie service has to be easy to use to be adopted by people in the young segment. Furthermore, effects of trialability and observability indicate that the possibility to observe the service in use and the possibility to test the service are perceived as important antecedent for intention to use the service among young respondents. Among the older respondents the picture is totally different. Compatibility is the only significant antecedent of intention to use the web-based movie service among the old respondents, indicating that the service should be consistent with respondents existing values, needs, and past experiences to be used.

Finally, the innovation diffusion model was analyzed separately for respondents with low and high education. Among the respondents with low level of education, skewness values ranged from -.71 to 1.31 and kurtosis values ranged from -.89 to .60, indicating satisfactory normal

distributed variables. The correlation between relative advantage and compatibility was relatively high (0.73). The lowest tolerance value observed was 0.43 and the highest VIF value was 2.33, indicating that multicollinearity was not a significant problem. Among the respondents with high level of education, skewness ranged from -0.86 to 1.72 (image) and kurtosis varied between -0.50 and 2.00 (image). With a potential exception for image, the variables were satisfactory normal distributed. The highest correlation was observed between relative advantage and compatibility (0.64). The lowest tolerance value observed was 0.52 while the highest VIF value revealed was 1.93. Thus, multicollinearity is not a problem in the model for the older respondents. The analyses for respondents with low and high level of education are presented in Figure 6.4.

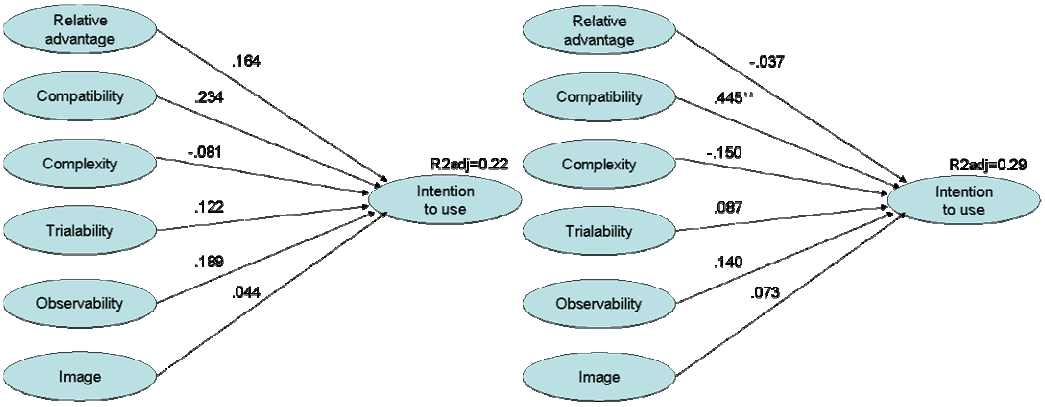

Figure 6.4: Results: The innovation diffusion model. Education differences.

Results from Figure 6.4 show no significant effects of any of the antecedents on intention to use among respondents with low level of education. Among the respondents with a high level of education, compatibility has a significant effect on intention to use. This is the same pattern of result as for the older respondents.

Attitude towards the service, satisfaction with the service, and the perceived price/value variable were also included in the model presented in Figure 6.1. When including these three variables in the model for the total sample, explained variance decreased from R2adj = .29 to R2adj = .28. Compatibility and observability remained significant antecedents of intention to use the web-based movie service. None of the three new variables had a significant effect on intention to use the service.

6.3 The combined model

Based on theories from information systems and consumer behaviour, the combined model was proposed as a useful tool to explain intention to use web-based movie services. The model was analyzed by multiple regression. The independent variables were computed based on the factor analyze reported in table 5.6.

Also for the combined model, the data were controlled for normal distribution and multicollinearity. A normal distribution of the sample data is indicated by skewness values within the range of -1 to +1 (Hair et al., 1998). The distribution characteristics of the data are reported in table 6.6.

Table 6.6: Distribution characteristics of the variables (N = 199).

	Mean	Std.	Skewness		Kurtosis	
	Statistics	Statistics	Statistics	Std. err	Statistics	Std. err
Usefulness	3.66	1.02	-0.38	0.17	-0.47	0.34
Ease of use	4.11	0.90	-0.98	0.17	0.62	0.34
Enjoyment	4.04	0.89	-0.77	0.17	0.21	0.34
Subjective norm	1.75	1.07	1.48	0.17	1.33	0.34
Behavioral control	4.83	0.57	-4.21	0.17	19.79	0.34

Except for the variable behavoiral control, the variables seem to be satisfactory normal distributed. Behavioral control deviates, however, strongly from a normal distribution based on both skewness and kurtosis. Thus, results related to the effect of behavioral control should be interpreted with caution in the following analyses.

Multicollinearity may also affect the accuracy of the standardized regression coefficients. According to Berry and Feldman (1985), bivariate correlations lower than 0.8 indicate that multicollinearity is not a major problem. Correlations between the independent variables in the combined model are reported in table 6.7.

Table 6.7: Pearsons bivariate correlations.

	Usefulness	Ease of use	Enjoyment	Subj.norm	Behav.control
Usefulness					
Ease of use	.40**				
Enjoyment	.57**	.54**			
Subj. norm	.26**	-.02	.20**		
Behav. control	.15*	.35**	.19**	-.38**	

Based on the threshold value of 0.8 proposed by Berry and Feldman (1985), multicollinearity should not be a threat to multiple regression analyses in this study.

The potential problem related to multicollinearity was also controlled for by the use of VIF and Tolerance statistics in the combined model. According to Hair et al. (1998), tolerance values should not be lower than 0.10 and VIF values should not exceed 10.

Table 6.8: Regression coefficients and collinearity statistics.

				Collinearity statistics	
	Stand beta	t-values	Sign.	Tolerance	VIF
Usefulness	.11	1.41	0.16	0.63	1.60
Ease of use	.07	0.87	0.37	0.63	1.59
Enjoyment	.34	4.02	0.00	0.54	1.85
Subjective norm	.13	1.97	0.08	0.74	1.35
Behavioral control	-.02	-0.31	0.76	0.72	1.39

Based on the collinearity statistics presented in table 6.8, multicollinearity is not a problem among the independent variables in this study, and the preconditions for multiple regression should be fulfilled.

The results of the regression analysis are visualized in Figure 6.5.

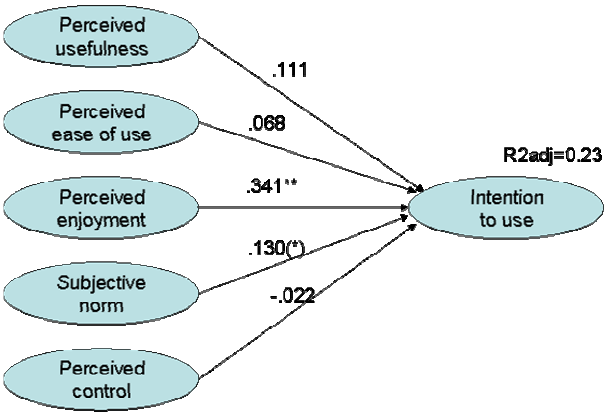

Figure 6.5: Results: The combined model.

As can be seen, the model explained 23 percent of the variance in intention to use, which is somewhat lower than the average variance explained in intention to use by the technology acceptance model (Venkatesh and Davis, 2000). Usually, a model combining elements of the theory of planned behavior with the technology acceptance model has a higher explanatory power.

The results reveal significant effects of perceived enjoyment on intention to use the web-based movie service. The implication of this result is that developers of web-based movie services should focus on including elements of fun and entertainment to recruit users of the service. The effect of subjective norm (although marginal) indicates that expectations from friends and relatives about using web-based movie services may influence individuals' intention to use such services to some degree. The lack of effect from ease of use may be explained by the simplicity of the service as argued above for the innovation model. Using web-based movie services is rather simple, and something most people are able to do. Thus, this variable does not influence peoples' intention to use web-based movie services. Finally, the lack of effect from perceived control may be attributed to the fact that respondents did not purchase movies in this study - and the fact that behavioral control did not fulfilled the assumption of normal distribution.

The combined model was also estimated for the samples of men and women separately. Among the female respondents, skrewness of the variables varied from -3.15 (behavioral

control) to 1.72 and kurtosis ranged from -0.11 to 9.63 (behavioral control). The assumption of normal distribution is not fulfilled for behavioral control. The highest correlation observed was between enjoyment and ease of use (0.67). The lowest tolerance value was 0.44 and the highest VIF value observed was 2.29. Thus, multicollinearity is not a problem in the analysis among female respondents. Among men, skewness values between 5.00 (behavioral control) and 1.38 were observed. Kurtosis values ranged between -0.52 and 29.26 (behavioral control). Thus, the assumption of normal distribution is violated for behavioral control. None of the correlations between the independent variables exceeded 0.54 (between enjoyment and usefulness). Tolerance values ranged between 0.61 and 0.71. The highest VIF value observed was 1.64. Thus, multicollinearity is not a problem for the analysis among the male respondents. The results are presented in Figure 6.6.

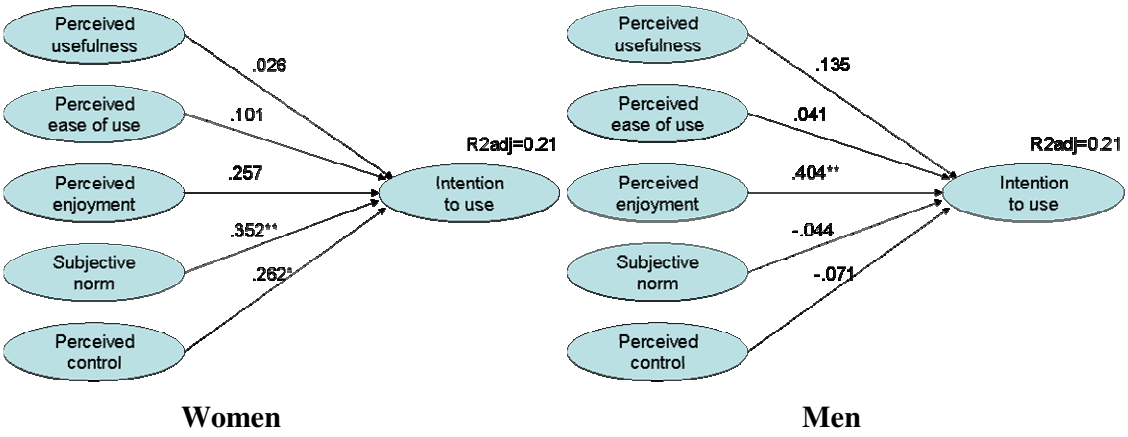

Figure 6.6: Results: The combined model. Gender differences.

The results revealed significant effects of subjective norm and perceived control on intention to use among the female respondents, while enjoyment is the only significant antecedent of intention to use the service among men. Thus, we can conclude that there are differences between men and women when it comes to antecedents explaining intention to use web-based movie services. For women, the most important motivations to use the web-based movie service are to be in control and to behave in accordance with expectations from friends and relatives. Research shows that women are more inclined to behave in accordance to other peoples' opinion than men (Becker, 1986; Eagly and Carli, 1981), and studies by Nysveen, Pedersen and Thorbjørnsen (2005) and Venkatesh, Morris, and Ackerman (2000) both revealed stronger effects of subjective norm on adoption of technology among women than among men. The results revealed in Figure 6.6 support this stream of research. Also, research

has found that perceived control is a stronger antecedent for intention to use technology among women than among men (Venkatesh, Morris, and Ackerman, 2000) - supporting the results revealed in Figure 6.6. However, the reader should have in mind that the assumption of normal distribution is violated for behavioral control in the analysis presented in Figure 6.6. Among men, perceived enjoyment is the most important antecedent for using the service. Existing research suggests that adoption of innovations among women are more intrinsically motivated than among men and that the adoption process of men are more based on extrinsic and instrumental motivations (Spence and Helmreich, 1980; Nysveen, Pedersen, and Thorbjørnsen). Thus, the result revealed in this study contrasts prior research.

Among the young respondents, skewness values for the independent variables varied from -3.15 (behavioral control) to 1.47 and kurtosis values ranged from -0.62 to 10.50 (behavioral control). Thus, the assumption of normal distribution is not fulfilled for behavioral control. The highest bivariate correlation observed among the independent variables was between enjoyment and usefulness (0.54). The lowest tolerance value observed was 0.62 and the highest VIF value was 1.62. Thus, multicollinearity is not a problem for the analysis of the combined model among the young respondents. Among the older respondents, the assumptions for normal distribution were fulfilled satisfactory for all of the variables with the exception of behavioral control (skewness = -7.75 / kurtosis = 63.35). The highest correlation was observed between enjoyment and usefulness (0.68). None of the tolerance values were lower than 0.42 and the highest VIF value was 2.41 - indicating that multicollinearity do not constitute a problem. Figure 6.7 present results of the combined model among young and older respondents.

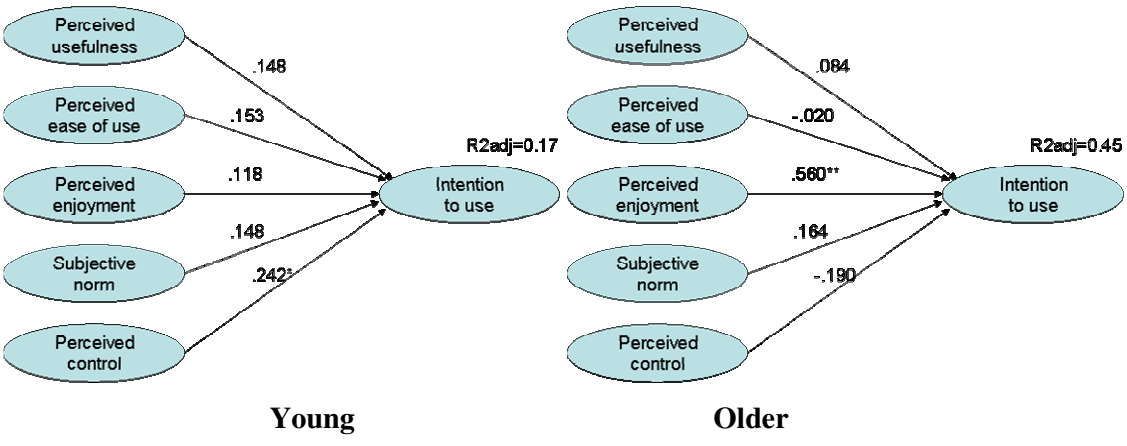

Figure 6.7: Results: The combined model. Age differences.

Among the young respondents, perceived control is the only significant antecedent of intention to use revealed in the model. Older people usually have a higher income level than younger people (Lu, Yu, Liu, and Yao, 2003). The effect of perceived control on intention to use among the young respondents may therefore be explained by a relative lower level of financial resources in this group. However, please have in mind that the assumption of normality is seriously violated for the variable behavioral control. Among the older respondents, enjoyment is the only antecedent for intention to use the web-based movie service studied. Because external limitations related to, for example, financial resources are of minor importance to older respondents, it seems reasonable that intrinsic motivation of enjoyment and fun are the dominating variables explaining intention to use web-based movie services in this group.

Finally, the combined model was also tested for potential differences based on level of education among the respondents. Also among the respondents with low level of education, the assumption of normal distribution was violated for behavioral control (skewness = -3.73 / kurtosis = 15.67). The highest correlation value was observed between enjoyment and usefulness (0.63). The lowest tolerance value was 0.49 and the highest VIF value was 2.06, indicating that multicollinearity is not a problem for the analysis among the respondents with a low level of education. In the group of respondents with a high level of education, skewness ranged from -5.93 (behavioral control) to 1.44 and kurtosis varied between 41.45 (behavioral control) and -0.40. Thus assumption of normality is violated for behavioral control. The highest correlation was observed between enjoyment and usefulness (0.54). The lowest tolerance value observed was 0.54 while the highest VIF value was 1.86. Thus, multicollinearity is not a problem for the analysis among respondents with a high level of education. The results based on analyses of the combined model for respondents with 1)high education and 2)low education is presented in Figure 6.8.

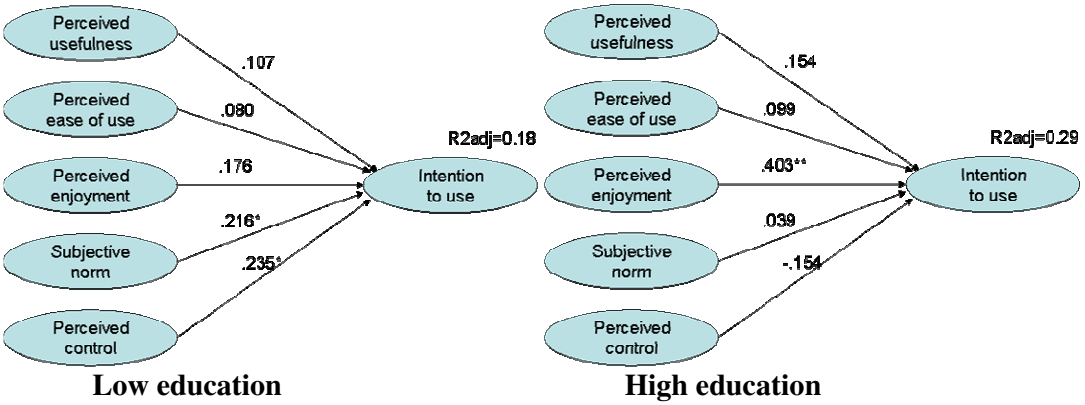

Figure 6.8: Results: The combined model. Education differences.

The results show effects of subjective norm and perceived control on intention to use among the respondents with a low level of education. The results indicate that these respondents use the service in part to behave in accordance with expectations from people that are close to them. Furthermore, users with a low educational level probably have a lower budget than respondents with high education, and this may explain the effect of perceived control on intention to use the service - presupposing a positive correlation between education and income level (the assumption of normal distribution is violated for behavioral control). Among highly educated respondents, enjoyment is the one and only significant antecedent of intention to use the web-based movie service.

The combined model was also extended with attitude toward the service, satisfaction with the service, and perceived price/value. Explained variance decreased from R2adj = .23 to R2adj = .22 when including these three variables in the model. The explanatory power of enjoyment remained significant in the model. None of the three new variables included in the model was revealed to have a significant effect on intention to use the service.

6.4 Effects of reference price

According to Jacobson and Obermiller (1990), reference price is assumed to influence consumers' purchase behavior. Below, we report on effects of reference price on consumers' willingness to pay, consumers' willingness to pay revised, and on consumers' intention to use

the service studied. In this study, reference price refers to the reference price of watching movies at a web-based movie service in general.

The first results presented are related to consumers' level of reference price. The median value of reference price was 30 Kroner[4]. Respondents with a reference price of 30 Kroner or lower were categorized as having a low reference price while respondents with reference prices above 30 Kroner were categorized as having a high reference price.

Table 6.9: Effects of reference price.

	Mean	n	F	p
Intention to use			0.006	.937
Low reference price	3.72	134		
High reference price	3.73	64		
WTP			68.172	.000
Low reference price	31.04	134		
High reference price	44.70	64		
WTP revised			54.763	.000
Low reference price	31.89	134		
High reference price	44.86	64		

Results presented in Table 6.9 show that level of reference price does not influence consumers' intention to use the service. However, consumers with a low reference price have a lower willingness to pay than consumers' with a high reference price. This result also applies to the revised willingness to pay estimate. The result indicates that consumers' reference price influence consumers' willingness to pay.

The analysis was also conducted for men and for women. The same pattern of result as revealed in Table 6.9 was found both among men and women.

Furthermore, a similar analysis was conducted among young and older respondents. Again, the results presented in Table 6.9 were revealed to be valid both among the young and older respondents.

Finally, the analysis presented in Table 6.9 was done among respondents with low level of education and high level of education. The results presented in Table 6.9 proved to be valid also across levels of education.

[4] Again, Kroner refer to a combination of SEK and NOK.

6.5 Effects of family/home context

Web-base movie services can be used in a family/home context - for example as a substitute for watching a movie at a cinema, watching a movie from the video/DVD rental or watching a broadcasted movie. These three alternatives are well domesticated, and routines are well established in the family/home context for these movie-watching practices. A family is a cultural entity with several values and priorities. Spending time together and socialization is usually important in a family. Because the service is new, access to a web-based movie service may threaten a family's routines for socialization, and family members' preferences for web-based movie services may therefore differ across context specific variables (Helle-Valle, 2003). For example, some of the family members may prefer to use web-based movie services in the living room while other family members may prefer to use such a service on individual basis in her bedroom. Results presented in Table 6.10 show effects of family/home context variables on intention to use the web-based movie service and willingness to pay for using the web-based movie service.

Table 6.10: Effects of family/home context

	MEAN INTENTION	MEAN WTP	MEAN WTP REVISED
Social situation	F=0.420 / p=0.794	F=2.167 / p=0.074	F=1.916 / p=0.110
Alone	3.68	33.90	34.65
Friends	3.72	30.88	31.19
Wife/cohabitant	3.73	35.93	36.46
Family and children	3.83	41.03	41.22
Other	3.25	33.75	33.75
Place/room	F=4.36 / p=0.002	F=0.290 / p=0.884	F=0.313 / p=0.869
Livingroom	3.87	35.87	36.53
Bedroom	3.72	33.75	34.14
Office	4.50	40.00	40.00
Kitchen	3.58	36.50	36.50
Other	3.08	34.88	35.50
Device	F=2.549 / p=0.081	F=4.853 / p=0.009	F=3.974 / p=0.020
Stationary PC	3.64	33.78	34.48
Portable PC	3.92	40.87	41.00
Interactive TV	4.03	33.80	34.13
Screen	F=3.083 / p=0.029	F=2.953 / p=0.034	F=2.348 / p=0.074
Stationary PC	3.60	33.62	34.45
Portable PC	3.65	37.19	36.81
TV	4.01	36.15	36.56
Projector	4.50	53.33	53.33
Time of day	F=0.594 / p=0.620	F=1.481 / p=0.221	F=1.801 / p=0.148
07.00 - 15.00	3.50	32.86	38.43
15.00 - 20.00	3.89	39.89	40.43
20.00 - 24.00	3.70	34.57	34.72
24.00 - 07.00	3.88	36.00	38.31

The results show no differences on intention to use or willingness to pay based on social situation for using the web-based movie service and/or the time of the day for using the service. Although a situation including family and children are revealed to have the highest WTP, the differences are not significant from the other social contexts tested.

Intention to use the service is higher in the office than in rooms in the house. It was not specified in the questionnaire whether office referred to home office or office at the job. However, the result indicates that intention to use the service may be higher outside the home.

Willingness to pay was revealed to be higher when using the service on a portable device than on a stationary device in the house. This may indicate that the service is most valued among people while they are away from their home. An alternative explanation is that portable devices are more common in high income groups, and thus, that these users have more financial resources available to pay for web-based movie services.

It is also interesting to notice that both usage intention and willingness to pay is highest among people who have the possibility to watch web-based movies by the use of a projector. By the use of a projector, watching the movie will be more like watching the movie at a cinema. Thus, an increase in the diffusion of portable computers and video projectors should have a positive effect on consumers' intention to use web-based movie services and their willingness to pay for such services. However, the same alternative explanation as mentioned in the section above may also be relevant here (video projectors are mainly bought among consumers in high income groups).

7. CONCLUSIONS

7.1 Conclusions - Intention to use

The main results regarding antecedents of intention to use the web-based movie services are summed up in table 7.1 (for the innovation diffusion model) and table 7.2 (for the combined model).

Table 7.1: Antecedents of intention to use the web-based movie service - innovation diffusion model.

	TOTAL	GENDER		AGE		EDUCATION	
		Women	Men	Young	Older	Low	High
Relative advantage							
Compatibility	**		**		**		**
Complexity				*			
Trialability				(*)			
Observability	*		*	*			
Image							

Table 7.2: Antecedents of intention to use the web-based movie service - combined model.

	TOTAL	GENDER		AGE		EDUCATION	
		Women	Men	Young	Older	Low	High
Usefulness							
Ease of use							
Enjoyment	**		**		**		**
Subj. norm		**				*	
Control		*		*		*	

The results show that Compatibility, Observability and Perceived enjoyment are the main variables explaining consumers' intention to use a web-based movie service. As discussed in chapter 6, it should also be pointed out that gender, age, and education moderate the effect of some of the antecedents in the two models.

Based on the results summed up in Table 7.1 and Table 7.2, a model is proposed in Figure 7.1 for explaining intention to use a web-based movie service. This adapted model takes notice of the results from the innovation diffusion model and the combined model, and include the antecedents revealed to be most influential in explaining intention to use a web-based movie service. Thus, Compatibility and Observability are included from the innovation diffusion model (Figure 6.1) and Perceived enjoyment is included from the combined model (Figure 6.5). The results are presented in Figure 7.1.

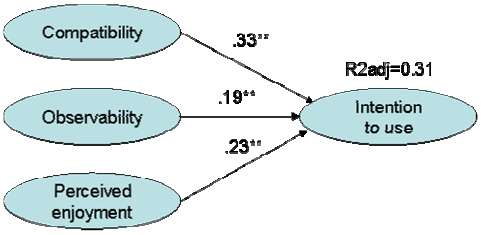

Figure 7.1: Adapted model for explaining intention to use a web-based movie service.

Compared to the innovation diffusion model (R2adj = 0.29 including six antecedents) and the combined model (R2adj=0.23 including five antecedents), the adapted model presented in Figure 7.1 seems to be a better model for explaining intention to use a web-based movie service. The model explains 0.31 percent of the intention to use the web-based movie service with only three antecedents. In future studies investigating antecedents of intention to use web-based movie services, Compatibility, Observability and Perceived enjoyment should be included as variables explaining usage intention.

7.2 Conclusions - Willingness to pay

Mean willingness to pay for movies available at the web-based movie service were revealed to be 36.15 Kroner. No differences were revealed in willingness to pay between men and women or across educational levels. However, older users (40 years and older) were found to have a significant higher willingness to pay than younger users (younger than 40 years).

7.3 Implications

Based on the results of this study, the average willingness to pay for a movie at the web-based movie service is about 36 Kroner. To comply with the consumers' estimate of a fair price for

watching a movie online, the “service” should price their movies with an average price around 36 Kroner. As revealed in the study, willingness to pay varied a lot, so a price policy where prices are differentiated based on the popularity of the movie and the age of the movie seems to be a reasonable pricing policy. Older respondents reported a higher willingness to pay than the younger respondents. A possible implication of this result is that movies typically targeted at an older segment could be priced a bit higher.

Based on the innovation diffusion model (Figure 6.1) the results indicated that compatibility and observability are the most important antecedent of consumers’ intention to use the web-based movie service. The effect of compatibility illustrates the importance of developing flexible web-based movie services that may be used in consumers’ everyday life without disturbing their daily media usage, their lifestyle, or other aspects of their life. In particular, strategies to stimulate compatibility seem to be important for web-based movie services targeting the male segment, older consumers, and/or consumers with a high level of education. Observability stands out as particularly important to stimulate adoption among young and male consumers.

Based on the combined model (Figure 6.5), perceived enjoyment appeared as a significant antecedent for intention to use the web-based movie service studied. The effects of perceived enjoyment emphasize the importance of including service attributes perceived to be entertaining and fun to use. In particular, perceived enjoyment has a significant effect among men, older respondents, and respondents with a high level of education.

The results show that reference price has an effect on consumers’ willingness to pay. Reference price can be based on the price paid for the service the last time a consumer purchased it, the average price paid for the service the past few times the service was purchased, or the price paid for services in this service category the past few times such services were purchased. Based on the theory that the reference price for web-based movie services are based on the price paid for similar services, as for example DVD rental prices or the price of watching a movie at the cinema, such prices will influence consumers’ willingness to pay for watching a movie at a web-based movie service.

7.4 Limitations

The results presented in this report are based on a sample recruited through a newsletter sent to registered customers of SF-Anytime. Participation in the study was - of course - optional. Thus, the recruitment of the respondents is based on self selection. Thus, the sample is not representative for the population of SF-Anytime users. Due to the self selection, and the mono-operationalization of the web-based movie service, the results revealed in this study should not be considered representative for web-based movie services in general.

Measures used in the study were based on validated measures used by other researchers. However, they were adapted to the context and service illuminated in this report. Although the final measures used in the analyses are adapted from the original measures (see Tables 5.3 - 5.6), convergent and discriminant validity should be considered satisfactory (see Table 5.4 and Table 5.6)

The price interval presented for the respondents ranged from much lower than the actual price for the movie chosen to much higher than the actual price for the chosen movie. According to the study reported by Bohm, Lindèn, and Sonnegård (1997), this may have inflated the willingness to pay estimate reported by the respondents. In future studies on willingness to pay, price intervals should rather range from much lower than actual price to just below actual price, or from much lower than actual price to "what we think is the maximum price any real buyer would be willing to pay" for the product or service (Bohm, Lindèn, and Sonnegård, 1997, p. 1082). Still, it is unlikely that this has influences the results for any of the analyses of differences in willingness to pay across user segments.

Respondents taking part in this study were not in a real purchase situation while reporting their willingness to pay for the web-based movie service. Both context realism and incentive realism suffer as a result of this. In the study, we asked the respondents to imagine a real purchase situation. The study was conducted among consumers who know the service and the context of the service. Thus, we argue that context realism was fairly good. Incentive realism was manipulated through a procedure recommended in the BDM method (Werthenbroch and Skiera, 2002). However, the manipulation did not have any influence of the real price the respondents had to pay for the movie they purchased - because they were not in a real purchase situation. In total, we have to conclude that future studies of willingness to pay for web-based movie services should strive to recruit respondents in a real purchase situation

where their reported willingness to pay actually has an effect on the price they have to pay for the movie they choose to purchase (to increase incentive realism).

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APPENDIX 1

Relative advantage
* Using “the service” makes it easier to watch movies
* Using “the service” enhances the effectiveness of watching movies
* Using “the service” makes it possible to start watching movies more quickly
* “The service” has a better quality than other movie services I know

Compatibility
* Using “the service” is compatible with other aspects of my life
* Using “the service” is completely compatible with my current situation
* I think that using “the service” fits well with my daily media usage
* Using “the service” fits my lifestyle well

Complexity
* I believe that “the service” is complex to use
* I believe that using “the service” involve a complex process
* Using “the service” is so complicated, it is difficult to understand what is going on

Trialability
* I know what to do to satisfactory try out various uses of “the service”
* “The service” was available for me to adequately test run various applications
* Before you decide to purchase a movie at “the service” you are able to properly try out “the service”
* I was permitted to use “the service” on a trial basis long enough to see what it could do

Observability
* I have seen other people using “the service” or similar services
* In my acquaintances I see many people using “the service” or similar services
* Outside my acquaintances I have seen many people using “the service” or similar services
* Others usage of “the service” or similar services are not very visible (reversed)
* It is easy for me to observe other in my acquaintances using “the service” or similar services

Image
* Using “the service” improves my image among friends and relatives
* People I know who use “the service” have more prestige than those who do not
* People I know who use “the service” have a high status
* Using “the service” is a status symbol among people I know

Intention to use
* I am planning to use “the service” during the next six months
* During the next half year, I am planning to use “the service” a lot.

APPENDIX 2

Perceived usefulness
* Using “the service” makes me save time
* Using the service improves my efficiency
* “The service” is useful to me

Perceived ease of use
* Learning to use “the service” is easy to me
* It is easy to make “the service” do what I want it to
* My interaction with “the service” is clear and understandable
* It is easy to use “the service”

Perceived enjoyment
* I find “the service” entertaining
* I find “the service” pleasant
* I find “the service” exiting
* I find “the service” fun

Subjective norm
* People important to me think I should use “the service”
* It is expected that people like me use “the service”
* People I look up to expect me to use “the service”

Perceived control
* I feel free to use the kind of movie service I like to
* Using “the service” is entirely within my control

Intention to use
* I am planning to use “the service” during the next six months
* During the next half year, I am planning to use “the service” a lot.