

Master Thesis

Improving the Word-of-Mouth Effect on Social Media sites by increasing actual sharing



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Abstract

The purpose of this research was to identify factors which lead to actual sharing on a social media site. By examining existing literature on the Technology Acceptance Model factors were identified which might lead to actual sharing. These factors were used to construct an extended Technology Acceptance Model. A survey was spread among Facebook users to collect data which was used to validate this model. Although not all of the collected data was useful some conclusions were drawn. First the relationship between intention to share and actual sharing appears to be very strong which means that barriers for actual sharing are quite low. Second subjective norm, perceived enjoyment and perceived risk were significantly related to intention to share. Furthermore trust was significantly related to perceived risk. Finally sharing behaviour seems to be different for different groups of Facebook users.

Preface

This Master thesis completes the Master program Information Management at Tilburg University. I am very happy to have taken this master program because it contained a lot of unknown, interesting and challenging topics for me. I have enjoyed being at Tilburg University for most of the time.

I want to thank Dr. B.A. Van de Walle for his guidance during the writing of my master thesis. I know he is a busy man but I am grateful that he found the time to help me with finishing my master thesis. I also want to thank Dr. X. Ou for giving me some guidance during the last steps of my data analysis.

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1. Introduction

Nowadays consumers are overwhelmed by marketing messages spread through the internet. The low cost of spreading these additional stimuli results in an enormous amount of advertising internet users are exposed to and engulfed by continuously. To find their way through this marketing maze, people rely on friends and colleagues for product information more than ever. “Because messages from friends are likely to have more impact than advertising and information spreads rapidly over the Internet, viral marketing is a powerful marketing communication tool that may reach many customers in a short period of time” (De Bruyn and Lilien 2008). According to Dobele et al. (2005) viral marketing has three main advantages. First, viral marketing has very low cost. Second, forwarding electronic messages containing advertising is voluntary and thus may be viewed more favourably by the recipient. Finally, those forwarding the messages will be more likely to know which of their friends, family members, and work colleagues have similar interests, which leads to more effective targeting.

Viral marketing does not happen automatically though. “Marketers need to actively manage the viral process to facilitate the spread of information” (Kalyanam et al. 2007). To effectively manage this process marketers must understand which factors play a role in the viral marketing process. One of the most important factors for viral marketing to be successful is volume (Amblee and Bui 2007, Liu 2006, Godes and Mayzlin 2004, Davis and Khazanchi 2008). “In fact, the more conversation in the form of online comments there is about a product, the more likely someone will be informed about it because there is increased awareness of the product” (Godes and Mayzlin 2004). Message distribution is often compared to the infection rate of a disease. “However, unlike in an epidemic the infection rate in viral marketing campaigns is generally smaller than one, which means that the spread of information dies out quickly” (Watts and Peretti 2007). “In such situations, marketers should influence the viral process by (1) increasing the campaign’s infection rate or (2) increasing the number of seeded customers” (Van der Lans et al. 2010). This research will focus on how managers can influence the campaign’s infection rate. A campaign’s infection rate is subject to several factors. This research will focus on identifying and testing these factors. So the research question is:

Which factors have a significant effect on actual sharing of users on a social media site?

By answering this question marketers will gain a better understanding of how volume on social

media sites can be increased so they can improve their social media marketing strategy. This is important because, as described above, volume is one of the essential factors in viral marketing success.

For finding an answer to this research question, three sub-questions are investigated.

SQ1: What is the state of current literature on factors which are expected to be significantly related to actual sharing?

Existing literature will be examined to construct an extended technology acceptance model to look for factors which are expected to have a significant relationship to actual sharing. Actual sharing refers to the frequency of sharing of a respondent. This literature review can be found in section 2 of this paper together with literature on word of mouth and the Facebook environment that will be used to validate the extended technology acceptance model. An extended technology acceptance model by Noor et al, (2005) was found to be closest to the one that is searched for in this research. Therefore sub-question two is as follows:

SQ2: How should the Noor et al (2005) model be extended for answering the research question in this research?

By answering this sub-question factors which are expected to be significantly related to actual sharing are identified. Whether these factors actually do have a significant effect on actual sharing has to be tested. Therefore the third sub-question is as follows:

SQ3: Which of the factors that are expected to have a significant relationship with actual sharing do indeed have a significant relationship with actual sharing?

Data was collected by spreading a survey among Facebook users. Regression analysis was performed on this data to look for significant relationships among these factors. These two methods will be described in section 3. Section 4 contains the raw data that was found and the results from performing data analysis. Section 5 contains a discussion of the findings. In the final section an answer to the research question will be formulated and suggestions for future research will be done. This section will also contain the limitations of this research.

2. Literature Review

The purpose of this research is to look for variables which have a significant relationship to actual sharing on social media sites. The term actual sharing contains the word 'actual' to differentiate between actual sharing and intention to share. Intention to share does not lead to actual sharing in every case. Actual sharing refers to the word-of-mouth effect on social media sites. Therefore this literature review starts with reviewing previous literature on word-of-mouth and social media sites. This will be followed by reviewing literature on the traditional technology acceptance model and an extended technology acceptance model by Noor et al. (2005). This section concludes with a review of variables which are expected to have a significant relationship to actual sharing.

2.1 Word-Of-Mouth and Social Media

This research focuses on increasing Word-of-Mouth publicity on social media sites. Therefore these two subjects will be described first.

2.1.1 Word-Of-Mouth

Word-of-mouth (WOM) has received a lot of attention since the 1950's. "It refers to informal communication, both positive and negative, between individuals about characteristics of a supplier and/or his products, and services" (Tax et al. 1993). WOM was found to be especially useful for marketing purposes and gained in popularity for several reasons. The most important reason is probably because messages from friends are likely to have more impact than advertising and therefore people rely on their friends and network for consumer information more and more. "One of the reasons for this is that forwarding a message is voluntary rather than a mass add campaign and thus may be viewed more favourably by the recipient. Another advantage of WOM in the early days was the low cost since the individual passing on the message carries the cost of forwarding the message" (Dobele et al. 2005). However, this advantage has decreased in relevance since by using the Internet the costs of sending an additional add is minimal. A third advantage according to Dobele et al. (2005) is more effective targeting. This happens because people are more likely to forward messages to friends who they think can benefit from the product or service. This helps to get the message to the right audience and to avoid people getting frustrated by receiving too much marketing stimuli for products in which they are not interested. Recall that consumers who are

overwhelmed by marketing messages will pay less attention to additional messages. So companies can benefit from better targeting.

“In the beginning most literature suggested that negative WOM was more likely to appear than positive WOM” (Solomon 2011). Now more and more authors question this. “The widespread belief in a high degree of word of mouth by dissatisfied customers may be unwarranted. In fact, in a sizeable proportion of cases, the difference between the two is probably not significant and positive WOM is more common than negative WOM” (East et al. 2007). However, the relative incidence of positive and negative WOM should still be monitored because of the differences between product categories. Some product categories will still be subject to a relative high percentage of negative WOM. So whereas this research focuses on increasing volume, the differences in volume between positive WOM and negative WOM should be monitored. The relative incidence between positive and negative WOM is often referred to as valence. “Whether valence has cognitive consequences for the intention to buy is subject to debate in current literature” (Davis and Khazanchi 2008).

A good WOM campaign can benefit the company in a great way. Dobele et al. (2005) suggests what makes a WOM campaign a good WOM campaign. “A key part of viral marketing success is the development of an engaging campaign that encourages consumers to pass the message along” (Dobele et al. 2005). According to Dobele et al. (2005) engaging messages are messages which (1) capture the imagination by being fun or intriguing, (2) are attached to a product that is easy to use or highly visible, (3) are well targeted, (4) are associated with a credible source, and (5) combine technologies. The right people to target are of course people who are interested in the product category and who are open to innovation. But most of all, the right people to target are people with a certain social position like opinion leaders or early adopters. They are willing to share their thoughts by forwarding marketing messages. When consumers are encouraged to pass the message along volume increases. This research focuses on which factors have a significant effect on consumer's willingness to share, so in fact this research focuses on how consumers are encouraged to participate.

Since the introduction of the Internet WOM has become even more interesting for marketers than before. “The nature of the Internet allows marketers to use many different forms of communication such as videos, games, and interactive websites in their viral campaigns” (Van der Lans et al. 2010). By using the Internet marketers also have more control over their WOM campaigns. Before the introduction of the Internet marketers were spreading messages to a group of opinion leaders hoping

that they were willing to forward these messages. By using the Internet marketers can monitor their WOM campaigns and interfere if necessary. This research should contribute to improving their WOM campaigns by identifying factors leading to consumer's willingness to share, which now can be influenced by marketers.

2.1.2 Social Media Sites

“Social media has become a major factor in influencing various aspects of consumer behaviour including awareness, information acquisition, opinions, attitudes, purchase behaviour, and post-purchase communication and evaluation” (Mangold and Faulds 2009). Furthermore, consumers are turning away from the traditional sources of advertising: radio, television, magazines, and newspapers and are turning more frequently to various types of social media to conduct their information searches and to make their purchasing decisions (Rashtchy et al. 2007; Vollmer and Precourt 2008; Lempert 2006). “Especially youth is hard to reach with conventional media” (Solomon 2011).

Social media also offers great opportunities for marketers who use WOM for product promotions. “Social media is perceived by consumers as a more trustworthy source of information regarding products and services than corporate-sponsored communications transmitted via the traditional elements of the promotion mix” (Foux 2006). So marketers cannot deny social media in their marketing strategy.

This research will focus on the social media site Facebook because according to Zarella (2010) Facebook has the most features to offer for marketers. “Essentially Facebook is one of the more complex social networking environments, but potentially very rewarding when businesses have its strengths and weaknesses in mind” (Clapperton 2009). Social network sites like Facebook are defined by Boyd and Ellison (2008) as web-based services that allow individuals to (1) construct a public or semi public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. The building blocks of a social network are user pages, known as profiles. The profile page includes all kinds of information about the person. Profiles are for real people, and companies use specific pages or groups for their company information. “Customizing the different pages and profiles is a good way of reflecting your personality and brand” (Zarella 2010). So users can join social media sites by making their own profiles. Then they can start sharing so called User-generated Content which can be seen as an equivalent of the traditional word-of-mouth. According

to Solomon (2011) user-generated content is probably the biggest marketing phenomenon this decade. A major advantage of user-generated content is that content is shared much faster by using social media than before, which offers great possibilities for marketers when they use social media in the right way.

“Social media also allows companies to contact consumers at lower cost and higher efficiency than traditional media” (Kaplan and Haenlein 2010). Another big advantage of social media sites is that companies can built their own site where User-generated Content will be created. Therefore companies can influence the discussion and improve the word-of-mouth effect. An extended TAM will be used to examine which factors lead to an increase in volume which depends on the consumer's willingness to share. Although TAM was originally constructed to investigate a user's willingness to use a new information system, existing literature has shown that an extended TAM can be used to measure user's willingness to participate. The next section describes the original TAM and will be followed by an extended TAM used by Noor et al. (2005) and an extension of this Noor et al. (2005) model.

2.2 Technology Acceptance Model

2.2.1 The original Technology Acceptance Model (TAM)

TAM, introduced by Davis (1986), is an adaptation of Theory of Reasoned Action (TRA) (Ajzen and Fishbein 1980; Fishbein and Ajzen 1975) specifically tailored for modelling user acceptance of information systems. At that time huge investments in IS did not always pay off as users did not accept the new technology in all cases. TAM was found to be very useful in predicting the user acceptance of new technology upfront.

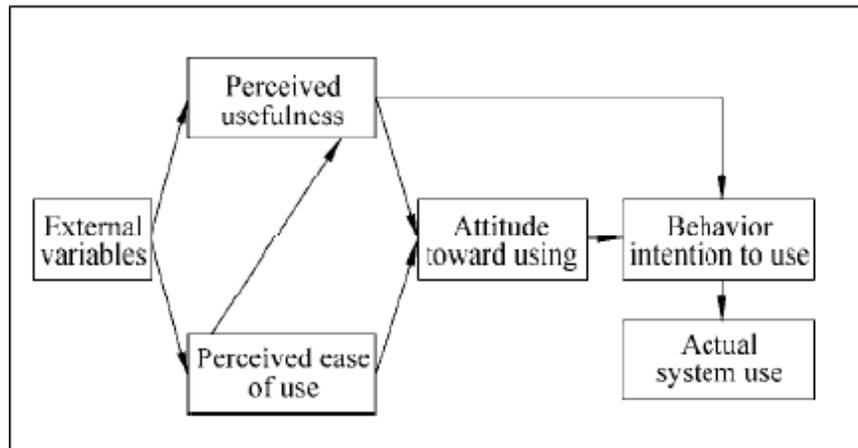


Figure 1: Original Tam by Davis (1989)

According to TRA actual behaviour, in this case actual system usage depends largely on behaviour intention (BI), in this case behaviour intention to use a system. BI is the trend of the user’s cognition about likes or dislikes to use the information system (Li et al 2008). This cognition of likes and dislikes makes the user decide whether to use or refuse to use the system and leads to actual system use or not. BI consists of attitude towards the behaviour, in this case attitude towards using, and the subjective norm which refers to the person's perception that most people who are important to him think he should or should not perform the behaviour in question (Fishbein and Ajzen 1975).

“Similar to TRA, TAM postulates that computer usage is determined by BI, but differs in that BI is viewed as being jointly determined by the person's attitude toward using the system and perceived usefulness, with relative weights estimated by regression” (Davis et al.1989). Attitude is the user’s feeling about something. So attitude towards using is a user's feeling about using the system. Subjective norm is one of least understood aspects of TRA (Fishbein and Ajzen 1975). “Because of its uncertain theoretical and psychometric status, subjective norm was not included in TAM” (Davis et al. 1989).

“According to TAM, attitude is jointly determined by perceived usefulness (PU) and perceived ease of use (PEOU), with relative weights statistically estimated by linear regression” (Davis et al. 1989). “PU is defined here as the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis 1989). When a new system is introduced users should be convinced that this system will improve their job performance. Note that the actual usefulness of a system can be higher or lower than the usefulness as perceived by the user. The

same holds for PEOU which is "the degree to which a person believes that using a particular system would be free of effort" (Davis 1989). All else being equal an application perceived to be easier to use than another is more likely to be accepted by users. "Improvements in PEOU may also be instrumental, contributing to increased performance" (Davis et al. 1989), so PEOU is expected to be related to PU.

External variables are variables which cannot be influenced by the user of the system. Note that they can be influenced by others such as the company that introduces the new system. Since these external variables can affect PU and PEOU they are important factors in explaining and improving user acceptance of new technology. Therefore external variables are included in TAM.

So according to Davis et al. (1989) actual system usage depends for the most part on the three constructs BI, PU and PEOU. The relationships among these constructs were further tested by Davis (1989). The major conclusion was that PU is a major factor in explaining actual system use, whereas PEOU is only related to actual system usage indirectly through PU.

The original TAM is a good starting point for predicting actual system use. However, the original TAM has some limitations. Davis (1989) writes: "Although certainly not the only variables of interest in explaining user behaviour they do appear likely to play a central role" suggesting that there are other variables which are expected to explain user behaviour. Legris et al. (2003) concludes after reviewing 22 articles from six MIS leading journals that TAM only explains about 40 percent of system usage. This also suggests that there are other variables which may be included in TAM. For example, the effect of the subjective norm which was included in TRA but not in TAM should be further investigated. Furthermore PU and PEOU are meant to be fairly general determinants of user acceptance (Davis et al. 1989). So TAM should be extended to fit specific technologies, especially since there are technologies that are not just meant for increasing job performance, like hedonic systems and systems that are used for social purposes. Therefore many authors have tested extended TAM's which are adapted to fit these specific technologies. They found that there are more significant determinants of system use than PU and PEOU only and PU and PEOU are not always significantly related to actual system use. The next section explains an extended TAM by Noor et al. (2005) which measures the relationship strength between determinants of intention to share and intention to share. This extended TAM is chosen because the research of Noor et al. (2005) has some similarities with the research in this paper. These will be described in the next section as well. Because of these similarities the Noor et al. (2005) model is a

good starting point for this research.

2.2.2 Noor et al's Extended Technology Acceptance Model

Noor et al.'s (2005) extended technology acceptance model is included in this paper because analysing this model is an important step in transforming the original TAM model to the extended TAM which will be tested in this research due to important similarities between Noor et al.'s (2005) research and this one. Although extended TAM's are mostly used to predict actual system use the extended TAM presented by Noor et al.(2005) shows that it can be used to measure actual sharing as well which is exactly what this research is about. The extended TAM introduced by Noor et al. (2005) was useful in predicting actual sharing for users of a tourism website. It was validated by analysing knowledge sharing on this website. This comes close to word-of-mouth communication on social media sites. Therefore the Noor et al. (2005) model seems a good starting point for this research. This model will be referred to as ETAM in the remainder of this paper.

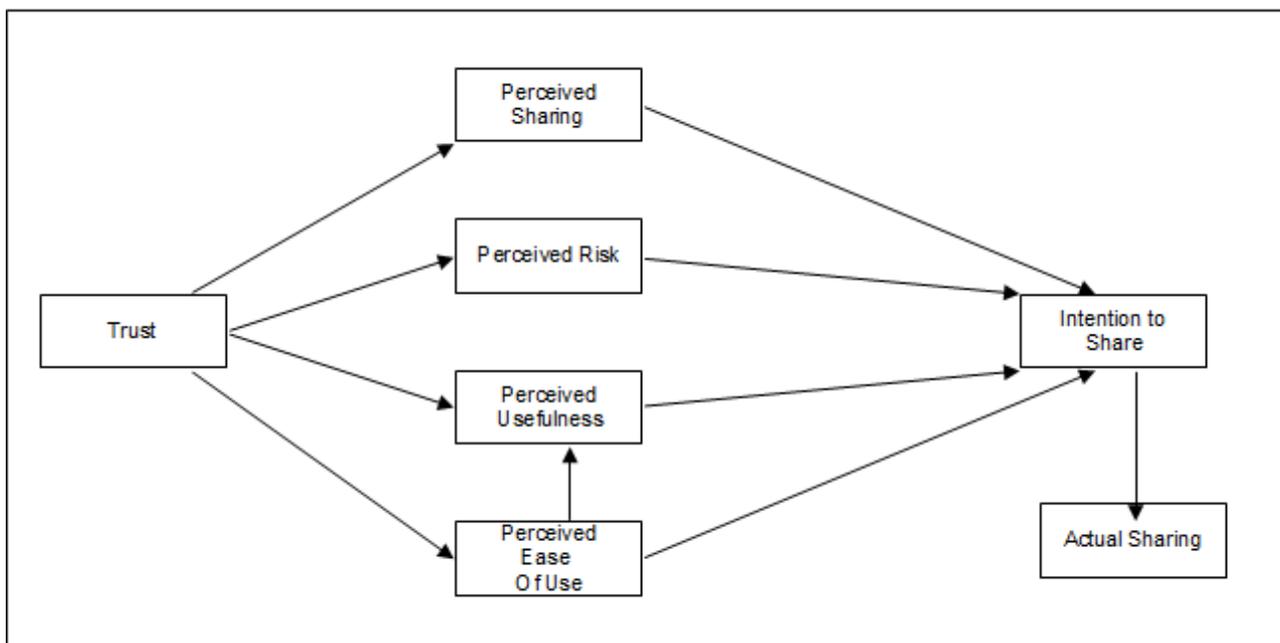


Figure 2: ETAM Constructed by Noor et al. (2005)

Noor et al. (2005) proposed three additions to TAM so it would fit knowledge sharing in the tourism and travelling industry. They expected the perception of trust, perceived risk (PR) and perceived sharing (PS) to be significantly related to intention to share on a C2C travel and tourism website. In fact ETAM is an extension of an extended TAM constructed by Pavlou (2003) where trust was found to be significantly related to PU, PEOU, PR and intention to transact. PU and PR were found to be significantly related to intention to transact and PEOU was found to be significantly related to

PU.

“Trust has been identified as the barrier for several knowledge sharing applications” (Levina 2001). “The importance of trust is elevated in e-commerce due to the high degree of uncertainty and risk present in the online transaction thus making the role of trust of a fundamental importance for adequately capturing consumer behaviour in e-commerce” (Pavlou 2003). PR can be defined as consumers’ uncertainty about loss or gain in a transaction (Murray 1991). PS was added by Noor et al. (2005) to the Pavlou (2003) model because of the nature of the technology, a knowledge sharing website versus a transactional website. Attitude towards using was not included in ETAM, so Noor et al. (2005) assumed that PS, PR, PU and PEOU were directly related to BI. A reason for this could be that intentions to share may be based on anticipated consequences of actual sharing regardless of overall attitude. So a user might share although he dislikes sharing because he thinks that sharing is useful. Furthermore a lot of TAM-research found that only a weak relationship can be expected between attitude and the performance of the behaviour.

Noor et al's study was conducted on the C2C tourism website, virtualltour.com. Regression analysis showed that PS and Trust are significantly and directly related to intention to share. Trust is also indirectly and significantly related to intention to share through PS. PU, PEOU and PR were not significantly related to intention to share. “This implies that website users are not influenced by the usefulness and ease of use of the C2C travel and tourism website” (Noor et al. 2005). PR was not significantly related to intention to share which implies that people are still willing to share when they are at risk. In the Pavlou (2003) model PR was significantly related to intention to transact. Obviously a transaction is different from sharing which probably explains the difference in significance in both models.

Since there are a lot of extended TAM's where PE and PEOU are significantly related to BI and Noor et al.'s research is limited because they have used only one website which only contains travelling information, PE and PEOU are still included in this research.

The research environment of this research has important similarities with the Noor et al. (2005) research environment so ETAM will serve as a starting point for this research. Since PS and Trust were found to be related to intention to share, the model used in this research will include these factors. Both the original factors of ETAM and two additional factors will be further explained in the next paragraph.

2.3 Proposed additions to Noor et al's model

Despite of the similarities between Noor et al.'s (2005) research environment and the one that is used in this research there are two important differences between a website and a social media site and therefore two additional determinants of BI are introduced. The first major difference is the social aspect that is added by a social media site. Whereas a tourism site is useful for sharing of thoughts about destinations it is not commonly used for communication with friends, colleagues and family. Users simply visit these sites to gather information, share memories or complain about their holidays. In contrast to that social media is all about communication with friends, colleagues and family. Therefore a social determinant of B

I, referred to as subjective norm (SN) is added to ETAM. SN is the individual's perception of social pressure to engage (or not) in the target behaviour (Fishbein and Ajzen 1975). Since social media are about interaction between users this social pressure is assumed to play a role in user's intentions to share. Another fact about social media sites is that users see what their friends are sharing all the time which makes them want to participate (or not). Note that SN was included in TRA (Ajzen and Fishbein 1980; Fishbein and Ajzen 1975) but dropped by Davis et al. (1989) in TAM.

Another major difference between a website and a social media site is the user's purpose for visiting; goal-directed versus experiential or hedonic. Although users can visit a tourism website just for fun, most of the time they are visiting for other purposes like gathering information or complaining about a destination. Social media sites are usually visited just for fun, therefore another determinant of BI is expected to be perceived enjoyment (PE). "This concept is defined as the extent to which the activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (Davis et al. 1992). So PE captures the fun part of using a social media site and is assumed to be related to BI.

So the following determinants are expected to have a relationship to *Actual Sharing* (AS) through *Behaviour Intention to Share* (BI) on a social media website: *Perceived Usefulness* (PU) (Davis 1989. Davis et al. 1989), *Perceived Ease of Use* (PEU) (Davis 1989. Davis et al. 1989. Teo and Pok 2003) *Subjective Norms* (SN) (Hartwick and Barki 1994. Taylor and Todd 2005. Venkatesh 2000. Nysveen et al. 2005), *Perceived Risk* (PR) (Bensaou and Venkataman 1996. Pavlou 2003), *Perceived Enjoyment* (PE) (Moon and Kim 2001. Van der Heijden 2004. Saeed et al. 2005. Nysveen et al. 2005. Venkatesh 2000) *Perceived Sharing* (PS) (Noor et al. 2005) and *Trust* (TRUST) (Gefen et al. 2003. Pavlou 2003).

2.3.1 Perceive Usefulness

As mentioned earlier perceived usefulness (PU) was defined as the degree to which a person believes that using a particular system would enhance his or her job performance by Davis (1989). In this research is tested which factors are significantly related to actual sharing so that volume of a social media marketing campaign can be increased. Therefore PU is defined here as the degree to which a person believes that sharing is useful. This usefulness can come from different reasons. For example people can be rewarded by companies for sharing their content or people may be willing to share content to gather additional information.

The relationship between PU and BI was significant in most TAM research. For example Schepers and Wetzels (2007) who did a meta-analysis of TAM found 38 significant relationships between PU and BI versus zero non-significant relationship. However, Li et al (2008) who did a review on existing literature about relationships among TAM variables found three significant relationships between PU and BI versus three non-significant relationships. The differences in relationship strength are explained for most part by the nature of the system which is studied. For example Hsu and Lu (2004) found a non-significant relationship between PU and BI in the use of online games. It is expected that people will play games for fun rather than for usefulness. Nysveen et al. (2005) explain this difference by distinguishing goal-directed services from experiential services. “There are stronger direct effects of perceived usefulness on intention to use goal-directed mobile services (in which instrumental orientation and utilitarian benefits are important) than on intention to use experiential mobile services (in which ritualistic orientation and hedonic benefits are more important)” (Nysveen et al. 2005).

2.3.2 Perceived Ease of Use

Perceived ease-of-use (PEOU) is defined as the degree to which a person believes that using a particular system would be free of effort by Davis (1989). It can be seen as an equivalent of complexity, although in the other direction. “Complexity is the degree to which an innovation is difficult to understand, learn or operate” (Rogers 1983). From these definitions it is concluded that PEOU will be more important for new and complex technologies (Schepers and Wetzels, 2007). According to Teo and Pok (2003) PEOU is different for different groups of people. They argue that younger people are expected to be more IT-savvy and therefore BI is expected to be less effected by PEOU for these people.

According to Nysveen et al. (2005), as an effect of an intrinsic motivation, the user-friendliness of a service may increase consumers' intentions to use a service even if they do not have a positive attitude towards the service itself. However, they argue that this effect is larger for goal-directed services than it is for hedonic services. People are using goal-directed services to come to an expected outcome. The service is used to come to this outcome as effectively as possible. On the contrary hedonic systems are used for enjoyment. When a service is too user-friendly people can be expected to get bored. According to Nysveen et al. (2005) people should be challenged to play against the system. Facebook is used as a goal-directed service as well as a hedonic service. In this paper it is assumed that it is used as a hedonic system most of the time.

So there are reasons to expect that PEOU is not significantly related to BI. Firstly Facebook is not new and complex. Secondly Facebook is expected to be used by a group that is at least a little IT-savvy. And thirdly Facebook is expected to be used as a hedonic system most of the time. However Moon and Kim (2001) found that PEOU was the strongest of the three predictors (PU, PEOU and perceived enjoyment) of attitude toward using the Internet and Van der Heijden (2004) found that compared to PU, PEOU has approximately twice as much predictive value to explain BI for hedonic systems. Although existing literature does not agree on the relationship strength between PEOU and BI this relationship is expected to be significant in the research model used in this study because Schepers and Wetzels (2007), who did a meta-analysis of TAM found 40 significant relationships between PEOU and BI versus zero non-significant relationship, and Li et al. (2008), who did a review on existing literature about relationships among TAM variables found twelve significant relationships between PEOU and BI versus two non-significant relationships.

While it is often found that PEOU is directly related to BI it is also commonly found that PEOU is indirectly related to BI through PU. This relationship was found to be significant in the original TAM (Davis 1989). In fact it is quite straightforward that PEOU is related to PU. Recall that usefulness is the degree to which a person believes that using a system would enhance his or her job performance. Job performance will improve when a system is easier to use, because a user has to make less effort using the system. Li et al. (2005) found 28 significant relationships between PEOU and PU versus zero non-significant relationships and Schepers and Wetzels (2007) found nineteen significant relationships between PEOU and PU versus two non-significant relationships.

2.3.3 Perceived Risk

Perceived risk (PR) is defined by Bauer (1960) as the consumer's subjective belief of suffering a loss in pursuit of a desired outcome. PR depends on reputations, earlier experiences and frequency. In this research reputations are the reputations of people who see the things you share. Earlier experiences deal with past experiences regarding the sharing of information. For example, when somebody suffered from misuse of information he or she shared, he or she will perceive a higher risk while sharing in the future. When frequency is high people see a lot of sharing which make them perceive a lower risk, because they see that other people are sharing as well.

According to Bensaou and Venkataman (1996) PR is subject to behavioural and environmental uncertainty. According to Pavlou (2003) examples of opportunistic behaviour by Web retailers include product misrepresentations, false identity demonstrations, private information leaks, misleading advertising, and denunciations of warranties. Therefore, behavioural uncertainty primarily creates

1. Economic risk, because of the possibility of monetary losses
2. Personal risk, because of potentially unsafe products and services
3. Seller performance risk, because of imperfect monitoring
4. Privacy risk, because of the opportunity to disclose private consumer information (Pavlou 2003).

Environmental uncertainty exists mainly because of the unpredictable nature of the Internet, which is beyond the full control of the Web retailer or the consumer (Pavlou 2003). It contributes to economic and privacy risk. The first three risks are only relevant for this research when Facebook is actually used as a distribution channel. Although this sometimes is the case it lies beyond the scope of this research. So only privacy risk is of concern for this research. People might perceive risk when they share information which can be misused by other parties.

As will be explained in section 2.3.5 PR is expected to be strongly related to trust.

2.3.4 Perceived Sharing

Perceived sharing (PS) was introduced by Noor et al. (2005) and is not clearly defined. Furthermore there is no existing literature on perceived sharing. To establish what Noor et al. (2005) actually mean by PS the survey they used to measure PS needs to be examined. The questions which the respondents had to answer on a 7-point Likert scale were as follows:

1. I am willing to share my photos from my travelling trips for others to review.
2. I don't mind to write my travel journey experiences.
3. I am willingly to tell others about the benefit of using www.virtualltourist.com.
4. I would not hesitate to provide information about my experience to www.virtualltourist.com.

When comparing these questions to questions used in other surveys, especially those of Davis et al. (1989) and Taylor and Todd (1995) whose surveys are often adapted and used by other researchers, it was found that questions like 'willing to use', etc. were used to measure BI. So what Noor et al. (2005) actually did was measuring the effect of BI on BI. This makes PS meaningless in ETAM. Since there is no other literature on PS and there is no evidence of an existing relationship between PS and BI, PS is dropped from the model constructed for this research.

2.3.5 Trust

“Trust is defined as an expectation that others one chooses to trust will not behave opportunistically by taking advantage of the situation” (Gefen et al. 2003). Gefen et al. (2003) showed that trust is instrumental in the acceptance of Internet technologies. Trust is of importance when an activity involves social uncertainty and risk. Therefore it is especially useful in TAM research concerning e-commerce. The reason for this is that trust is generally crucial in many of the economic activities that can involve undesirable opportunistic behaviour (Fukuyama 1995) and in situations where vendors can easily take advantage of online consumers (Jarvenpaa and Tractinsky 1999). However trust is at the heart of relationships of all kinds so it should not be exclusively used in e-commerce research.

Trust can be seen as a reducer of risk, social uncertainty and social complexity. Perceived risk is described in section 2.3.3 of this paper. “In general, when there is social uncertainty as to how others will behave, trust is a prime determinant of what people expect from the situation in social interactions” (Blau 1964). Trusting people will therefore decrease social uncertainty. Social uncertainty can play an important role in deciding what to share on Facebook because of uncertainty about how people will respond. “Trust is also a central aspect in many economic transactions because of a deep-seated human need to understand the social surroundings, that is, to identify what, when, why, and how others behave” (Gefen et al. 2003). “By trusting, people reduce this perceived social complexity through a belief that may, at times, be irrational, and that rules out the risk of undesirable but possible future behaviours on the part of the trusted party” (Luhmann

1979). A Facebook environment can be seen as such a complex environment in which people can see what you share.

According to Pavlou (2003) trust consists of trust in a specific party and trust in a medium that is used for interaction with this party. In a Facebook environment the specific parties are the people who are seeing the things that are shared by the user. The medium that is used is Facebook. So trust in this environment depends on trusting other users and the trustworthiness of Facebook. The recent case of Amazon.com sharing its database of customer activity is a good example of a typical trust issue in online interaction. In this research it is investigated if people trust Facebook and its users especially in these kind of privacy issues and if this trust is related to actual sharing on Facebook.

Pavlou (2003) found that the effect of trust on perceived usefulness, perceived ease of use and perceived risk was significant in an e-commerce setting.

2.3.6 Subjective Norm

“Subjective norm (SN) is defined as a person's perception that most people who are important to him think he should or should not perform the behaviour in question” (Fishbein and Ajzen 1975). “The rationale for a direct effect of subjective norm on intention is that people may choose to perform a behaviour, even if they are not themselves favourable toward the behaviour or its consequences, if they believe one or more important referents think they should, and they are sufficiently motivated to comply with the referents” (Venkatesh 2000). In this research the behaviour is actual sharing. SN is expected to be related to BI through the theory of conformity as well as to PU through the internalization effect. The internalization effect represents the human tendency to interpret information from important others as evidence about reality (Schemers and Wetzel 2007).

The theory of conformity is the underlying theory for describing the relationship between SN and BI. “Theories of conformity in social psychological have suggested that group members tend to comply with the group norm, and moreover that these in turn influence the perceptions and behaviour of members” (Lascu and Zinkan 1999). Other underlying theories are reference group theory, group influence processes and social exchange theory. “According to reference group theory individuals may develop values and standards for their behaviour by referring to information, normative practices and value expressions of a group or another individual” (Bearden and Etzel

1982). “According to group influence processes an individual attempts to adopt the behavioural norms of the group to strengthen relationships with its members, since he or she desires to be closely identified with the group” (Goodwin 1987). “According to social exchange theory, individuals usually expect reciprocal benefits, such as personal affection, trust, gratitude, and economic return, when they act according to social norms” (Blau 1964).

“Social norms consist of two distinct influences: informational influence, which occurs when a user accepts information obtained from other users as evidence about reality, and normative influence, which occurs when a person conforms to the expectations of others to obtain a reward or avoid a punishment” (Deutsch and Gerard 1995).

SN was included in TRA but excluded from TAM. However, a lot of research was conducted to measure the influence of SN on PU and BI. The results are far from consistent for reasons which will be explained next. For example Li et al (2008) who did a review on existing literature about relationships among TAM variables found four significant relationships between SN and BI versus four non-significant relationships. Schepers and Wetzels (2007) who did a meta-analysis of TAM found 22 significant relationships between SN and PU versus two non-significant relationship and 19 significant relationships between SN and BI versus three non-significant relationships.

Different results occur mostly because of differences in the research environment, the technology studied and the participants of the research. Hartwick and Barki (1994) investigated the difference between voluntarily use and mandatory use of a system. They found that SN significantly relates to BI in the case of mandatory users, whereas it has only a marginal relationship with BI for voluntary users. Venkatesh (2000) also investigated the difference between mandatory and voluntarily use in four cases. He found that the relationship between SN and BI was significant for both mandatory cases. However this relationship was non-significant for both voluntarily cases. In this research we expect that most people are using Facebook voluntarily.

Hartwick and Barki (1994) also concluded that, although SN has a significant effect on intentions prior to system development, the effect becomes non-significant three months after system implementation. The reason for this is that during system development people have to rely on opinions from others because they have not enough information to form intentions. When the system is in place for a while they are able to form intentions themselves. Taylor and Todd (2005) also found differences in relationship strength between SN and BI due to differences in prior

experiences from users. SN was found to be more important for users without prior experiences.

Nysveen et al. (2005) points out the difference in relationship strength between SN and BI for machine-interactive and person-interactive services. Machine-interactive services are often used in an anonymous and non-public context. Therefore BI for these systems is less strongly related to SN than for person-interactive services which are systems that are used in a public context in which a person's interaction is observed by other people; thus, the person must adapt to other people's form of communication. Another factor which can contribute to differences in relationship strength is cultural differences. Schepers and Wetzels (2007) concluded that SN had a bigger impact on BI in Western studies.

The use of Facebook is expected to be voluntarily in most cases and most users are expected to have more than three months of experience in using Facebook. Therefore it could be argued that SN will not be significantly related to BI or PU. However it is expected that other things have a bigger influence on the relationship between SN and BI/PU. First Facebook, which is used in this research, is considered as a person-interactive service. In fact Facebook is a social media site, which is in fact all about sharing content with others, therefore it is hypothesized that SN is positively related to BI. Users are expected to be willing to share content because they think that their friends and peers are expecting them to do so.

2.3.7 Perceived Enjoyment

“Perceived enjoyment (PE) is defined as the degree to which performing an activity is perceived as providing pleasure and joy in its own right, aside from performance consequences” (Venkatesh 2000). “It is an example of an intrinsic motive, whereas perceived usefulness is an example of an extrinsic motive” (Moon and Kim 2001). Igarria et al. (1996) found that system usage is affected by both extrinsic motivation and intrinsic motivation.

Most literature on PE is based on Csikszentmihalyi's (1975) flow theory wherein flow is defined as the holistic sensation that people feel when they act with total involvement. When in the flow state, a person may have more voluntary interaction with his or her environment and they will find the interaction intrinsically interesting. “This means they are involved in the activity for pleasure and enjoyment rather than for extrinsic rewards” (Moon and Kim 2001).

According to Nysveen et al. (2005) an intrinsic motivational factor, such as perceived enjoyment, has a stronger effect on consumers' intentions to use experiential mobile services than for using goal-directed services. Van der Heijden (2004) defines hedonic information systems as systems which aim to provide self-fulfilling rather than instrumental value to the user, are strongly connected to home and leisure activities, focus on the fun-aspect of using information systems, and encourage prolonged rather than productive use. He found that PE has twice as much predictive power to explain BI for hedonic systems as for goal-directed systems. The relationship between PE and BI is found to be significant for websites (Moon and Kim, 2001), mobile services (Nysveen et al. 2005) and second life (Saeed et al. 2008).

2.3.8 Behavioural Intention to Share

Behavioural intention (BI) is defined as the strength of one's intention to perform a specified behaviour by Fishbein and Ajzen (1975). It is an important mediator between behaviour and other factors as PU, PEOU, SN, etc. For example Pavlou (2003) found that the direct effect of the four major predictors trust, usefulness, ease of use, and perceived risk on actual transaction behaviour was insignificant, suggesting that these independent variables only influence actual behaviour indirectly through transaction intentions, as originally conceptualized. Schepers and Wetzels (2007) found 9 significant relationships between BI and system use versus zero non-significant relationships while Li et al. (2008) found 10 significant relationships between BI and system use versus zero non-significant relationships.

2.3.9 Actual Sharing

Actual sharing (AS) is the factor that completes the proposed model. All other factors are assumed to be related to actual sharing through BI. Although it is assumed that the relationship strength between determinants of actual use and actual use is the most important outcome of TAM research, these relationships are often not measured in previous research. In many cases only the relationship between the determinants and BI was measured. Because the purpose of this research is to measure which factors are significantly related to actual sharing it has to be included in this model.

The next section starts with the proposed research model and is followed by the methodology to validate this model.

3 Methodology

3.1 The Research Model and Hypotheses

The research model of interest for this research, further referred to as ETAM2, is shown in figure 3 along with the hypotheses that will be tested.

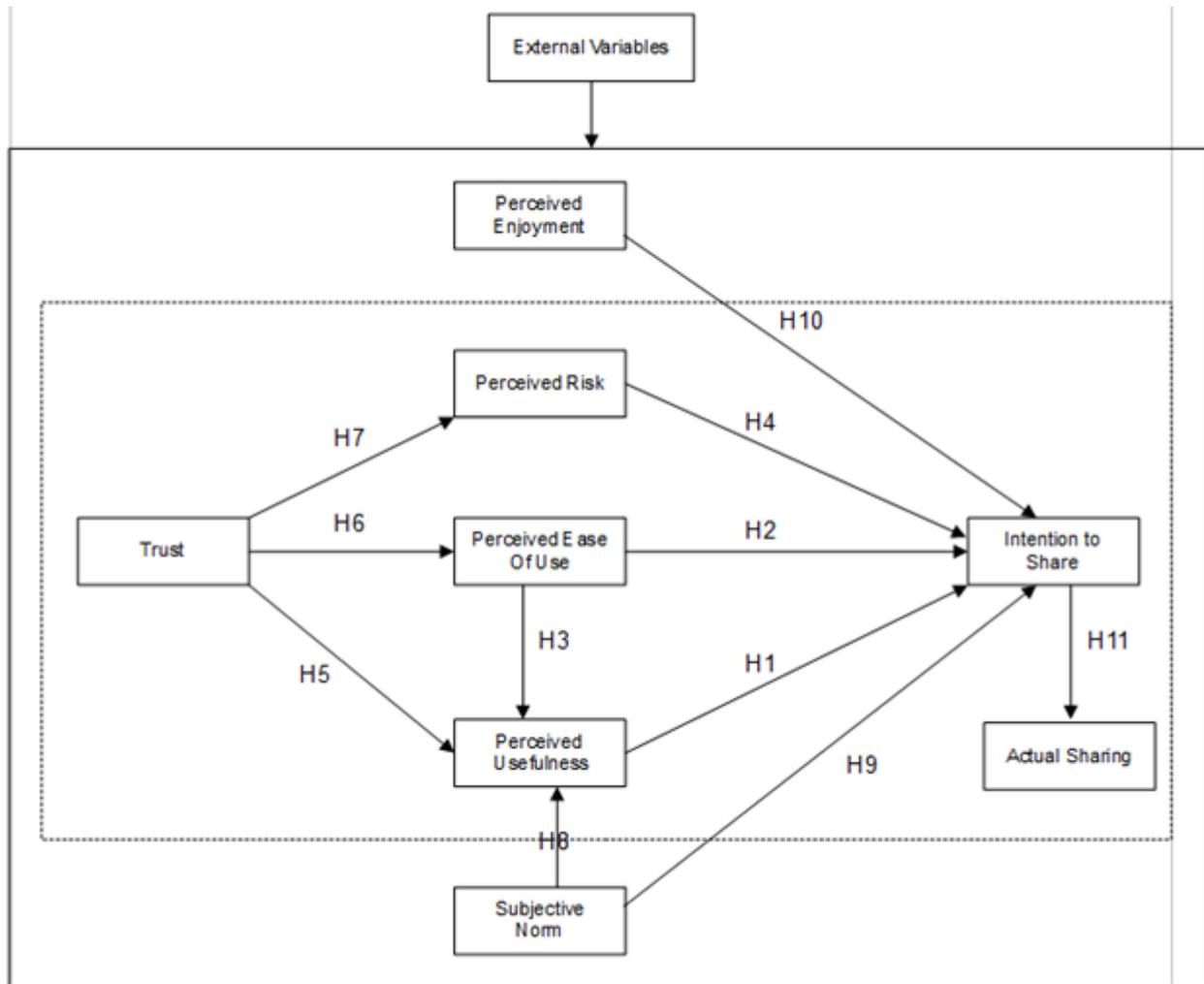


Figure 3: ETAM2

The part within the dotted rectangle was used in previous research on sharing on a tourism website (Noor et al. 2005) and transacting on an e-commerce site (Pavlou 2003) where intention to share and actual sharing were replaced by intention to transact and actual transaction.

Facebook can be used for goal-directed services as well as for experiential services; however it is expected that it is used for experiential services for most part. As described in section 2.3.1 PU has a stronger relationship with BI for goal directed services. Therefore it is hypothesized that PU is

significantly and positively related to BI, but this relationship will have less strength than for goal-directed services.

H1: Perceived Usefulness is significantly and positively related to Behavioural Intention to Share.

Because Schepers and Wetzels (2007) and Li et al. (2008) found that PEOU was significantly related to BI in most TAM studies it is hypothesized that PEOU is significantly and positively related to BI. However this relationship strength is expected to be weaker than for pure goal-directed services for reasons which are described in section 2.3.2. It is hypothesized that PEOU is significantly and positively related to PU for the same reasons.

H2: Perceived Ease-Of-Use is significantly and positively related to Behavioural Intention to Share.

H3: Perceived Ease-Of-Use is significantly and positively related to Perceived Usefulness.

As described in section 2.3.3 people who share on Facebook are subject to privacy risks. When this risk is high they might not be willing to share at all, therefore it is hypothesized that PR is significantly and negatively related to BI.

H4: Perceived Risk is significantly and negatively related to Behavioural Intention to Share.

Chircu et al. (2000) found significant relationships between trust and both PU and PEOU. When trust is low people fear they may suffer a loss in sharing something which makes it less useful to share because it can actually harm them. So in this research it is hypothesized that trust is positively related to PU because it is expected that people find it more useful to share things with people they trust.

H5: Trust is significantly and positively related to Perceived Usefulness.

Trust is hypothesized to be positively related to PEOU because when people have trust they have the feeling that they have to understand less of the environment in which they are active.

H6: Trust is significantly and positively related to Perceived Ease-Of-Use.

Jarvenpaa et al. (2000) extended the inter-organizational trust literature into consumer behaviour in order to show that trust in an Internet store reduces the risks of buying from that store. So trust is hypothesized to be negatively related to PR because trusting people is expected to decrease the risk that people perceive from sharing with these people.

H7: Trust is significantly and negatively related to Perceived Risk.

As described in section 2.3.6 the internalization process of SN represents the human tendency to interpret information from important others as evidence about reality (Schepers and Wetzel 2007). Therefore it is hypothesized that SN is significantly and positively related to PU through this internalization process. Furthermore “According to social exchange theory, individuals usually expect reciprocal benefits, such as personal affection, trust, gratitude, and economic return, when they act according to social norms” (Blau 1964). So it might be useful to share when there are reciprocal benefits.

H8: Subjective Norm is significantly and positively related to Perceived Usefulness.

It is also hypothesized that SN is positively related to BI, because it is expected that users will have more intentions to share when they think that their friends and peers expect them to. This refers to theories of conformity.

H9: Subjective Norm is significantly and positively related to Behavioural Intention to Share.

The relationship strength between PE and BI depends mainly on the purpose of the system. Relationship strength is higher for hedonic systems as it is for goal-directed systems. In this research Facebook is expected to be used as a hedonic system. Therefore it is hypothesized that PE is significantly and positively related to BI. In fact PE can still contribute to BI even if Facebook was assumed to be goal-directed. For example Koufaris (2002) found a significant relationship between PE and BI in an online shopping case which can be seen as a more goal-directed service.

H10: Perceived Enjoyment is significantly and positively related to Behavioural Intention to Share.

Because BI is defined as the strength of one's intention to perform a specified behaviour by Fishbein and Ajzen (1975) and the relationship between BI and actual sharing was found to be

significant in most TAM research it is hypothesized that BI is significantly and positively related to actual sharing in this case.

H11: Behavioural Intention to Share is significantly and positively related to Actual Sharing.

This model will be tested for overall model fit and significance of relationships among the factors in the model by methods described in section 3.3. First the data collection method will be described.

3.2 Data Collection

Data was collected by spreading a survey among Facebook users. A 7-point Likert scale was used to measure user's perception of the constructs in ETAM2. This scale was used because it is appropriate for descriptive calculations like mean values and standard deviations. It also allows linear regression to be performed. The questions which were asked were taken from other TAM studies. Most surveys in TAM research consist of fairly the same questions, so it makes sense to use the questions that are mostly used in previous TAM research. However some questions that are used in TAM research on actual use are not translatable to TAM research on actual sharing. Therefore some of the questions used are less common in previous TAM research. After the collection of the survey questions they were translated from questions adapted to a model that measures actual use to questions adapted to a model that measures actual sharing. The principles for constructing web surveys (Dillman et al. 1998) were kept in mind while constructing the final survey. The complete survey can be found in Appendix A.

A Dutch version of the survey will be shared on Facebook because the survey will be spread mostly among Dutch Facebook users.

3.3 Data Analysis

Before data analysis the data collected from the survey has to be transformed to values for the factors in ETAM2. This will be done by calculating Cronbach α 's to determine which questions in the survey might be dropped to assure construct validity. Factor analysis will be performed to calculate values for the variables in ETAM2 from the answers given by respondents in the survey. When the values of the factors are determined the data can be analysed.

The first step in data analysis is calculating descriptive statistics to come up with some preliminary conclusions. The second step is to measure overall model fit of ETAM2 which will be done by using the statistical software Lisrel. The third step is testing the hypotheses which were introduced in section 3.1 to see which variables have a significant relationship. The fourth step consists of further analysing the relationships among the factors in ETAM2 and a comparison of different models. These models will also be tested for overall model fit using Lisrel.

3.3.1 Cronbach α 's and Factor Analysis

Cronbach α is commonly used as a measure of internal consistency. The value of α indicates for what amount a couple of items measure the same underlying construct. For example in this research the questions PU1, PU2 and PU3 are expected to measure the same underlying construct PU. Cronbach α indicates if they really do measure the same underlying construct PU. A survey with Cronbach α of 0.70 or higher for each factor is acceptable. When Cronbach α is lower than 0.70 additional actions should be taken to increase Cronbach α . This is often done by dropping items from the survey which are the cause of the low Cronbach α .

The Cronbach α test identifies which items should be included to determine the actual value of the factors in ETAM2. The next step is to determine this value which will be done by performing a factor analysis. Factor analysis is often used for data reduction because it determines one unobserved variable from a group of observed variables. For example factor analysis determines the value of the unobserved variable PU from the values of a group of observed variables which consists of PU1, PU2 and PU3.

3.3.2 Descriptive Statistics

While the focus of this research is on the relationship between factors it is still important to see how Facebook actually scores on these factors. Therefore the mean is calculated for each factor. A score of 4 means the factor scores average. Standard deviations will also be calculated. High standard deviations show that data is unequally spread around the mean which suggests that the factors score is different for different people which may depend on personal characteristics. Both mean values and standard deviations will be calculated by using SPSS.

3.3.3 Overall model fit of ETAM2

Tests for overall model fit measure how good a model fits the actual observed data. Several tests will be done to measure the overall model fit of ETAM2. “A chi-square test tests the proposed model against the general alternative where all variables are correlated” (Hartwick and Barki 1994). With this index, significant values indicate poor model fit, whereas non-significant values indicate good fit. The second test is a chi-square/degrees of freedom test. This test provides an indication of the fit of the model per degree of freedom used. For this statistic, smaller values indicate better fit. Two thresholds for reasonable fit have been proposed in the literature: 5 or less (Wheaton et al. 1977), and 3 or less (Carmines and MacIver 1981). Because a chi-square test is almost always significant for a large sample size a non-normed fit index (NNFI) test which is a transformation of a chi-square test will also be performed. This index reflects fit relatively well at all sample sizes (Hartwick and Barki 1994). With this index, values typically range from 0 to 1, with larger values indicating better fit. Values larger than 0,9 are considered to reflect reasonable model fit. Another index which reflects fit relatively well at all sample sizes is the comparative fit index (CFI). As NNFI, CFI values range from 0 to 1, with larger values indicating better fit. Again, values larger than 0,9 are considered to reflect reasonable model fit. It is argued that CFI provides a more stable estimate than NNFI (Hartwick and Barki 1994).

These four tests will be done by performing a linear regression by using Lisrel. The most important reason for using Lisrel is that Lisrel separates variables in exogenous and endogenous variables instead of separating them in dependent and independent variables. Exogenous variables are the variables which are sending out arrowheads in figure 3 without receiving any arrowheads. A variable which receives an arrowhead is always an endogenous variable. So with Lisrel a variable can be both a dependent and an independent variable in the same model. In ETAM2 the variables

PU, PEOU, PR and BI are variables which are both dependent and independent, because they are expected to have an effect on other variables as well as they are expected to being effected by other variables. Lisrel is used because it has the possibility to easily specify a model by using drawing tools. Lisrel will automatically perform regression and the overall model fit tests described above.

3.3.4 Hypotheses Testing

In section 3.1 hypotheses about the relationship between the factors were introduced. The significance of these relationships will be tested using Lisrel. Lisrel will automatically estimate the beta's in the specified model, which was constructed using Lisrel's drawing tools. While a beta shows relationship strength between variables it does not automatically show whether two variables are significantly related. Therefore the p-values of these relationships are used. The beta's and p-values will be calculated and presented in section 4.3. Relationships with a p-value larger than 0.05 are concluded to be non-significant which is a common method in statistical procedures. These relationships will be eliminated from ETAM2 to construct a model which only contains significant relationships.

3.3.5 Further Analysis

The new model containing only significant relationships will be tested for overall model fit using the same tests as described in section 3.3.3. On the hand of these tests choices have to be made to decide which model is most appropriate. For example, when the new model does better on these tests it becomes the most appropriate model because it contains only significant relationships and scores better on model fit. However, when the new model scores worse on these tests it may be better to include some of the (slightly) non-significant relationships to see whether including these will improve overall model fit. Section 4.5 is all about testing different models to search for the best model.

4 Data Analysis

Data was collected by spreading a survey among Facebook users. Respondents were asked to share the survey as well to reach more potential respondents. The survey was online for three weeks. Each week the survey was shared again to reach more potential respondents. In the last week the survey was shared in some Facebook groups, for example a student association group. At the end of the three week period 124 people had responded to the survey. Appendix B gives an overview of the collected data. To perform data analysis on the data collected from these respondents the data must be checked for construct validity first. This will be done by calculating Cronbach α . The next step is transforming the data to fit ETAM2 by performing a factor analysis. Data analysis consists of analysing descriptive statistics, measuring overall model fit, hypotheses testing and further analysis.

4.1 Cronbach α and Factor Analysis

Each factor in ETAM2 consists of several items which were measured by the questions in the survey. Each survey question represents one item. For example the factor PU consists of 3 items which were represented by the survey questions PU1, PU2 and PU3. Cronbach α was calculated for each factor to measure if the items used in the survey are internally consistent for this factor. For surveys Cronbach α should be higher than 0.7 and higher values are always better as was described in section 3.3.1. Table 1 shows the values of Cronbach α for the factors in ETAM2.

	Cronbach's α	Items Deleted	Cronbach's α if item deleted
PU	0,545		
PEOU	0,265	PEOU3	0,591
SN	0,789		
PR	0,610		
TRUST	0,493	TRUST2	0,536
PE	0,839		
BI	0,937		
AS	0,859		

Table 1: Cronbach α 's

Table 1 shows that there are no problems with the variables SN, PE, BI and AS. However there

are problems with the variables PU, PEOU, PR and TRUST which means that the items used to measure these variables are not internally consistent. Especially PEOU and TRUST have very low Cronbach α 's. However Cronbach α increased for both variables by deleting the items PEOU3 and TRUST2 respectively. Unfortunately PU's and PR's Cronbach α could not be increased by deleting items. Note that Cronbach α for PEOU, TRUST, PU and PR remains below 0,7. In section 5.1 possible explanations for these low scores are provided.

Factor analysis is a method to reduce the number of variables in a model. In this research the items in the survey should be reduced to the variables in ETAM2. Table 2 shows the output of a factor analysis for the items of all factors. Only numbers which are relevant for this research are shown.

Rotated Component Matrix^a

	Component							
	SHARE	PE	SN	PR	PU	PEOU	7	TRUST
PU1					,593			
PU2							,844	
PU3					,861			
PEOU1						,809		
PEOU2						,788		
SN1			,816					
SN2			,855					
SN3			,754					
PR1				,777				
PR2				,453				
PR3				,762				
TRUST1								,346
TRUST3								,816
PE1		,782						
PE2		,691						
PE3		,700						
BI1	,850							
BI2	,849							
BI3	,840							
AS1	,845							
AS2	,824							

Table 2: Output of Factor Analysis

Table 2 shows the strength with which the items collected from the survey are related to these factors. Note that the items for BI and AS are collected in a single factor called SHARE. This means that the items which measure BI and AS are internally consistent. In section 5.2 an explanation for this will be provided. Because the items for BI and AS are internally consistent the remainder of this paper will focus on the relationships between BI and the other factors. In fact a lot of previous TAM research is about the relationship between BI and other factors only. So AS will be excluded from further research. Therefore another factor analysis was performed where the items AS1 and AS2 are excluded. TRUST1 and PR2 were also excluded from further analysis because they have a low score for measuring the factor they suppose to measure. Note that the only item for measuring TRUST left is TRUST3 which makes the measurement of TRUST quite unreliable. PU2 was also excluded from further analysis because it does not measure PU. Table 3 shows the results of the factor analysis. Only relevant results are shown.

Rotated Component Matrix^a

	Component						
	BI	SN	PE	PEOU	PR	PU	TRUST
PU1						,699	
PU3						,844	
PEOU1				,839			
PEOU2				,763			
SN1		,825					
SN2		,856					
SN3		,768					
PR1					,792		
PR3					,784		
TRUST3							,855
PE1			,819				
PE2			,694				
PE3			,698				
BI1	,872						
BI2	,861						
BI3	,856						

Table 3: Output of Factor Analysis

Because some items were deleted Cronbach α had to be calculated again. The results are shown in table 4. Note that TRUST consists of only one item so Cronbach α can not be calculated for TRUST.

	Cronbach's α
PU	0,530
PEOU	0,591
SN	0,789
PR	0,540
TRUST	N/A
PE	0,839
BI	0,937

Table 4: Cronbach α 's

A number of factors still have a Cronbach α smaller than 0,7. However if these factors are excluded from further analysis the remaining research model will consist of the factors SN, PE and BI only. This model will hardly provide any information. Therefore all factors are used in the reminder of this research.

So all factors are used for further analysis. Appendix C shows how the values of these factors are calculated. The next section contains descriptive statistics about these factors. The following sections describe overall model fit of ETAM2, hypotheses testing and finding the most appropriate model.

4.2 Descriptive Statistics

In this section mean values are calculated to see how Facebook actually scores on the factors in ETAM2. Standard deviations are included to see if the factors' values are equally or unequally spread around the mean. The results are shown in table 5.

	MEAN	STANDARD DEVIATION
PU	5,88	1,44
PEOU	6,51	0,77
SN	3,21	1,56
PR	5,26	1,29
TRUST	3,68	1,52
PE	6,60	1,42
BI	4,59	1,83

Table 5: Mean Values and Standard Deviations

SN is the only variable which scores below average which means that people are not feeling a strong social pressure to be on Facebook. TRUST scores about average which means that respondents nor trust nor distrust being on Facebook. PU and PR score slightly above average. So respondents perceive some usefulness from being on Facebook, while they are also perceiving some risk from being on Facebook. Furthermore BI scores slightly above average which means that respondents are willing to share above average. However, the standard deviation for BI is quite high which means that there is a lot of difference between respondents intentions to share. PEOU and PE scores are high which means that respondents are finding it easy to use Facebook and they are enjoying being on Facebook.

4.3 Overall Model Fit of ETAM2

Regression analysis was performed by using Lisrel to see which variables are significantly related to each other and to measure overall model fit. This section focuses on overall model fit while section 4.4 focuses on relationship strength between the variables. The output from the regression analysis is shown in figure 4.

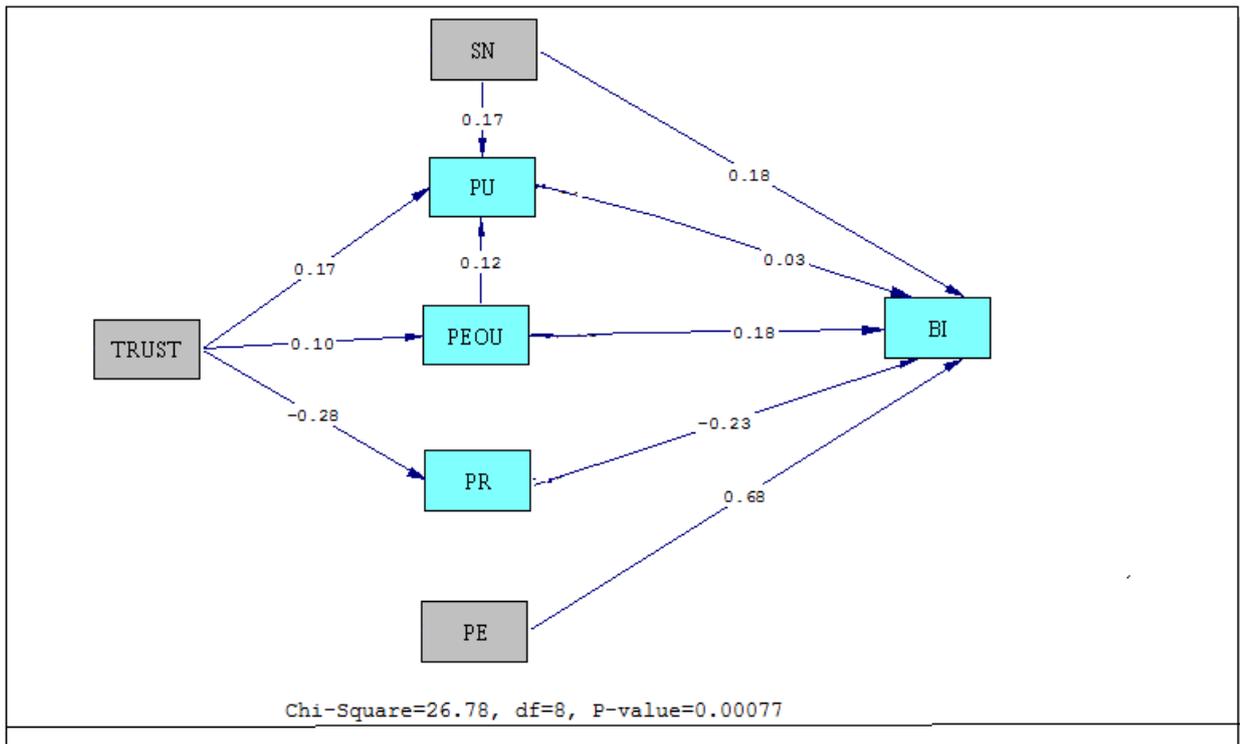


Figure 4: Regression Analysis of ETAM2

Figure 4 shows the beta's for ETAM2 which are indicators for relationship strength between the variables. In section 4.4 the relationship strength will be tested for significance. This section will describe the overall model fit of ETAM2. Table 6 shows how ETAM2 scores on different tests for model fit. R^2 was included because it shows how much of BI is explained by the other factors.

	TRESHOLD VALUE	VALUE
Chi-square	$P > 0,05$	28,79 ($P = 0,00035$)
Chi-square/Degrees of Freedom	< 3 or < 5	3,60
NNFI	$> 0,9$	0,72
CFI	$> 0,9$	0,89
R^2		0,45

Table 6: Results of Overall Model Fit Tests

R^2 is 0,45 which means that 45% of BI is explained by ETAM2 which is acceptable. But the Chi-square/Degrees of freedom test is the only test which has an acceptable value. By removing non-significant relationships from ETAM2 overall model fit might increase.

Therefore hypotheses testing will be done to see which relationships are actually significant. In section 4.5 overall model tests of different models will be compared to search for the best model.

4.4 Hypotheses Testing

Table 7 shows the results of testing the hypotheses which were introduced in section 3.1.

Relationships with a p-value larger than 0.05 are concluded to be non-significant. Note that after factor analysis H11 is not relevant any-more, because AS was already removed from the model.

	B	P-Value	
PU → BI	0,03	0,712	H1 was rejected
PEOU → BI	0,18	0,293	H2 was rejected
PEOU → PU	0,12	0,468	H3 was rejected
PR → BI	-0,23	0,024	H4 was supported
TRUST → PU	0,17	0,05	H5 was supported
TRUST → PEOU	0,10	0,025	H6 was supported
TRUST → PR	-0,28	0,000	H7 was supported
SN → PU	0,17	0,039	H8 was supported
SN → BI	0,18	0,038	H9 was supported
PE → BI	0,68	0,000	H10 was supported

Table 7: Results of Hypotheses Testing

The relationships among PU, PEOU and BI have such high P-values that it does not make sense to include them in the final model. Note that in Noor et al's (2005) ETAM PU and PEOU also were not significantly related to BI. Also note that in sections 2.3.1 and 2.3.2 some reasons were given for why both might not be significantly related to BI. So PU and PEOU being not significantly related to BI is not totally unexpected. Figure 5 shows ETAM2 with significant relationships only.

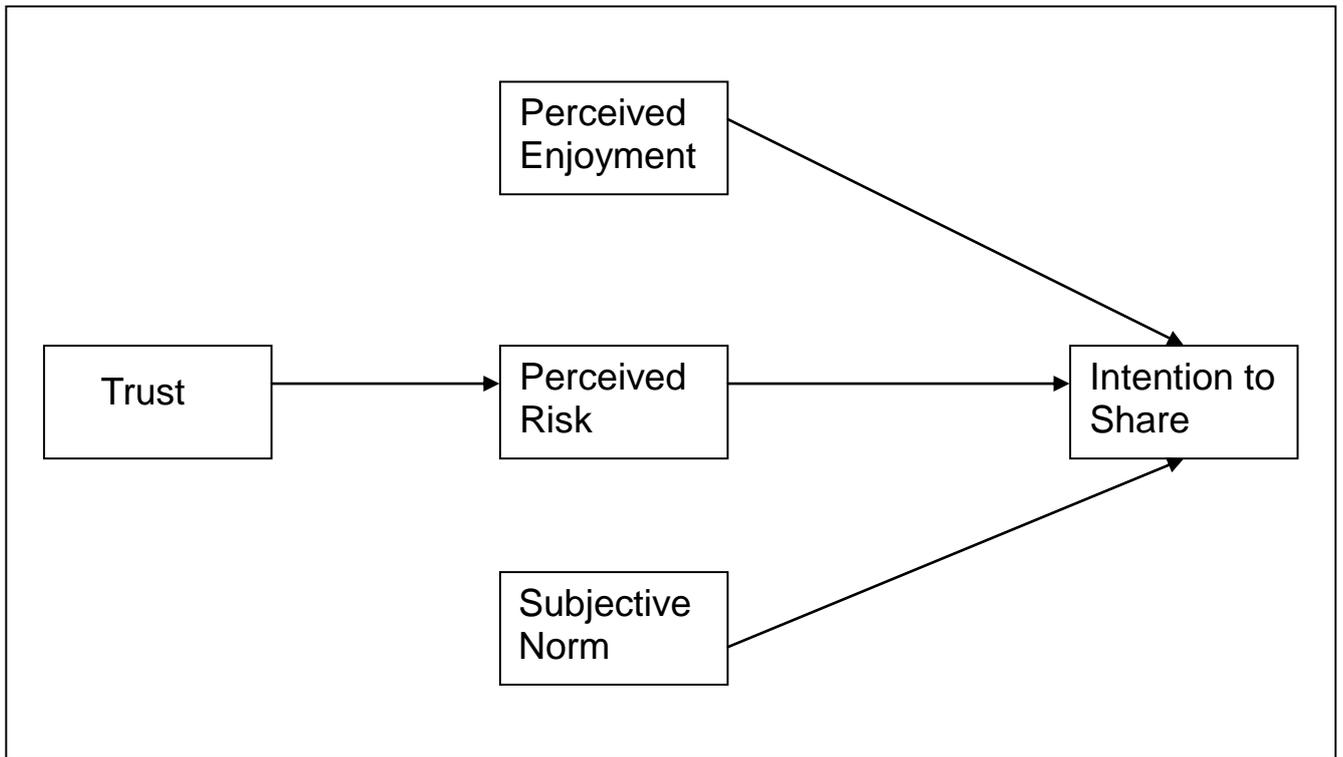


Figure 5: ETAM2 With Significant Relationships Only

This model will be tested for overall model fit in the next section. The results will be compared to the overall model fit of ETAM2.

4.5 Finding the Most Appropriate Model

In this section the reduced ETAM2 model will be tested for overall model fit. If this model scores better than ETAM2 on these tests it is more appropriate for predicting intention to share. Regression is performed by using Lisrel. Figure 6 shows the results.

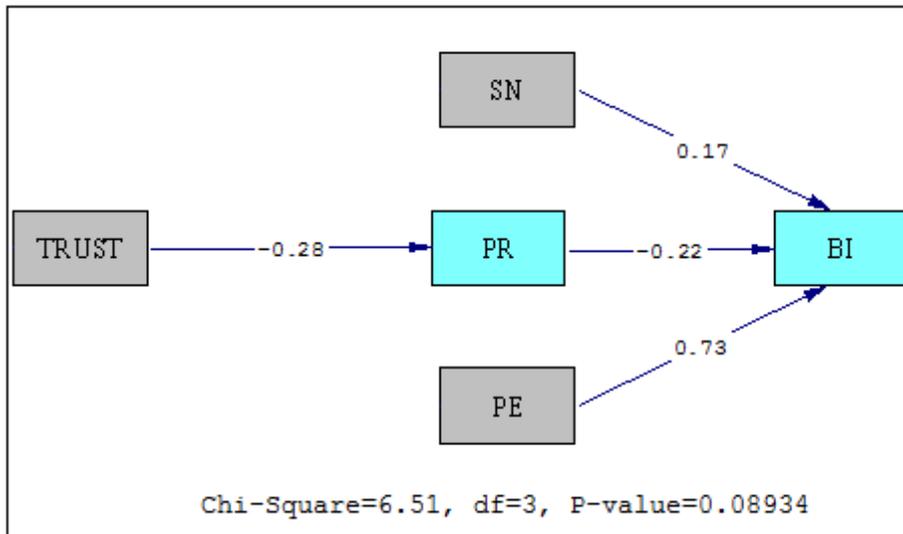


Figure 6: Regression Analysis of Reduced ETAM2

Figure 6 shows the relationship strength between the factors in the reduced ETAM2. Table 8 shows the results of overall model fit tests.

	TRESHOLD VALUE	VALUE
Chi-square	$P > 0,05$	6,51 (P = 0,089)
Chi-square/Degrees of Freedom	< 3 or < 5	2,17
NNFI	$> 0,9$	0,91
CFI	$> 0,9$	0,97
R^2		0,46

Table 8: Tests for Overall Model Fit of Reduced ETAM2

R^2 is 0,46 which means that 46% of BI is explained by the reduced ETAM2. This means that the reduced ETAM2 explains about 1% percent more of BI than ETAM2. All overall model fit tests have acceptable values which means that the model fits the data well. Hypotheses testing was done to test if the relationships are still significant. Results are shown in table 9.

PR → BI	-0,22	0,025	H4 was supported
TRUST → PR	-0,28	0,000	H7 was supported
SN → BI	0,17	0,044	H9 was supported
PE → BI	0,73	0,000	H10 was supported

Table 9: Results From Hypotheses Testing for Reduced ETAM2

Table 10 shows a comparison of ETAM2 and the reduced ETAM2. Numbers in red indicate poor model fit and relationships shown in red are non-significant.

	ETAM2	Reduced ETAM2
Chi-square	28,79 (P = 0,00035)	6,51 (P = 0,089)
Chi-square/Degrees of Freedom	3,60	2,17
NNFI	0,72	0,91
CFI	0,89	0,97
R ²	0,45	0,46
Relationships	PU → BI	PR → BI
	PEOU → BI	TRUST → PR
	PEOU → PU	SN → BI
	PR → BI	PE → BI
	TRUST → PU	
	TRUST → PEOU	
	TRUST → PR	
	SN → PU	
	SN → BI	
	PE → BI	

Table 10: Comparison of ETAM2 and the Reduced ETAM2

So the reduced ETAM2 explains more of BI, scores better on tests for overall model fit and exists of relationships which are all significant. Therefore the reduced ETAM2, shown in figure 5 becomes the final model of this research. Note that the limitations of this model are the low Cronbach α for PR and the fact that the factor TRUST only exists of one item. However by eliminating these factors the model will become to straightforward and will lose his explanatory power. In fact when TRUST and PR are eliminated the final model will consist of SN, PE and BI only. By testing this model it was found that SN and PE were significantly related to BI. The model did well on tests for overall model fit, due to the low complexity of this model. So in fact from this small model the same conclusions can be drawn about the

relationships between SN, PE and BI as from reduced ETAM2. Reduced ETAM2 adds more information by adding TRUST and PR to this small model, although this information should be interpreted more carefully. Therefore in this research the choice is made to include the factors PR and TRUST in the final model, regardless of the limitations it adds to this research.

5 Discussion

Unfortunately analysing Cronbach α and performing factor analysis had a big impact on this research. In section 5.1 some possible explanations will be given for these low scores. However some important conclusions can still be drawn from this research. After performing factor analysis it was concluded that the items for BI and AS can be captured in one factor, SHARE. Therefore an important conclusion can be drawn about the relationship between BI and AS which will be done in section 5.2. Finally some conclusions can be drawn from the reduced ETAM2 which will be done in section 5.3. In short, while low Cronbach α scores represent a major limitation on this research, still some important conclusions can be drawn from the remaining data.

5.1 Explanation for low Cronbach α

A low Cronbach α score can have several different causes. First a low Cronbach α score can be the result of a bad survey design where questions asked in the survey which should measure the same underlying construct are not really related to each other. Second a low Cronbach α score may be caused by large differences in personal characteristics of respondents. And thirdly a low Cronbach α score can be caused by the medium which is studied, in this case Facebook.

The survey questions and their answers are examined for each factor to look for signals of a bad survey design. The question PU2 can cause some problems because it says “sharing on Facebook will be of no benefit for me”. The word “no” can be overlooked and may be confusing to the respondents. In fact 16 from the 124 respondents gave exactly the opposite answer on PU2 as on PU1 and PU3. The questions PU1 and PU3 are answered with approximately the same score quite often. This seems straightforward because PU1 asks to rate usefulness of Facebook and PU3 asks to rate advantages of Facebook. So it seems that these questions are well related to each other. However, the raw data from the survey sometimes shows large differences between the answers on PU1 and PU3 which suggests that some respondents do not see the link between usefulness and the advantages of a system. Furthermore the mean values of the three questions are 4,54, 4,52 and 4,82 which is quite close to each other. So while the survey design could be increased by transforming PU2, the

low Cronbach α is expected to be caused for most part by an insufficient sample because some respondents were not reading PU2 well while others did not see the link between usefulness and advantages of a system.

The low Cronbach α for PEOU was caused especially by PEOU3 which says “sharing on Facebook does not require a lot of mental effort”. When PEOU3 was deleted Cronbach α increased significantly which shows that PEOU3 does not measure PEOU well and should be excluded from the survey. The answers on PEOU1 and PEOU2 are except for four respondents within one point from each other and quite often they are the same. Unfortunately Cronbach α stays below 0,7. By adding a PEOU3 which captures the perceived ease-of-use of a system well Cronbach α can be increased. Therefore the low Cronbach α for PEOU is concluded to be caused by bad survey design.

From the factors which have a Cronbach α which is too low, PR has the Cronbach α closest to 0,7, suggesting that some small improvements can get PR's Cronbach α to rise above 0,7. When the survey questions are examined it is seen that respondents are asked to rate risk in general and to rate privacy risks in particular. Some respondents do rate risks in general and privacy risks quite different which suggest that some people may feel risk of sharing on Facebook but this does not necessarily mean that this risk comes from privacy risks. Therefore risk in general and privacy risks do not have to be related to each other. So by better defining risk for sharing on Facebook the survey can be improved and Cronbach α can be increased so that PR can be accurately measured. Note that section 2.3.3 gives an overview of different kinds of risk. PR should consist of privacy risks or risk in general but not of both at the same time.

For TRUST the same holds as for PR. TRUST is measured by TRUST1 and TRUST2 which measure trust in general and TRUST3 which measures trust in the context of privacy. Furthermore TRUST1 measures trust while TRUST2 measures predictability. So in the survey it is assumed that predictable results are necessarily trustworthy which does not have to be the case. So by defining TRUST more properly the survey for this research can be improved.

So from the fact that Cronbach α for a couple of factors was not appropriate for this research some important conclusion can be drawn. Firstly a random sample from Facebook users may

not be appropriate for researching sharing behaviour due to differences in personal characteristics. This can also be concluded from the high standard deviation of BI which means that people in a random sample rate BI quite differently. Therefore future research should focus on subgroups of users, for example students between 20 and 26, students between 14 and 18 or adults above 26. By doing this kind of research it can be identified which kind of people are actually sharing the most. Furthermore the factors which are related to this sharing behaviour may be different for these different groups of people. For future research the survey items should also be fine-tuned to improve measurement of the factors in ETAM2. Especially risks and trust of Facebook should be defined more clearly to improve measurement for these two factors. From this research it is concluded that privacy risks and risk in general are not necessarily related to each other. Therefore there should be other risks for sharing on Facebook which should be a subject for further research.

5.2 Relationship between BI and AS

As explained above factor analysis is a data reduction method which captures items which are internally consistent in one factor. In this case it was expected that the items collected from the survey would be captured in the factors which they should measure. However when factor analysis was performed the items for BI and AS were found to be measuring the same underlying construct. Although unexpected this leads to an important conclusion about the relationship between BI and AS for sharing on Facebook.

So the items which measure BI and the items which measure AS are internally consistent. This means that there are no significant differences between scores for BI and AS which means that intention to share leads to actual sharing in most cases. Therefore it is concluded that the barriers for sharing on Facebook might be low. In fact most people are able to share on Facebook whenever and wherever they are by using mobile devices.

From this it is concluded that the best way for marketers to increase actual sharing is by increasing intention to share. How intention to share can be increased is explained in the next section.

5.3 Relationships for Reduced ETAM

By performing regression analysis some conclusions can be drawn about the relationship between PE, SN, PR, TRUST and BI. First the factors PE, PR and SN are significantly related to BI. Second the relationship between TRUST and PR is also significant. And third PE, SN, PR and TRUST explain about 46% of BI.

The relationship between PE and BI appears to be very strong with a beta of 0,73 and a P-value below 0,000. Therefore it is concluded that someone is more willing to share content when he enjoys sharing this content. Recall from the literature review on WOM that Dobele et al. (2005) also found that funny messages are more engaging than other messages and people who are in the flow state, which may occur when they are enjoying the things they do, have more voluntarily interaction with their environment. So marketers should design messages which are fun to share. Madden et al. (1988) found that marketing messages are more effective when the consumer has to pay little attention to these messages. Therefore marketing messages should be inserted in games and funny pictures or movies instead of appearing as a banner. “The nature of the Internet allows marketers to use many different forms of communication such as videos, games, and interactive websites in their viral campaigns” (Van der Lans et al. 2010). So Facebook offers a lot of opportunities to do this properly.

The relationship between SN and BI was also found to be significant with a beta of 0,17 and a P-value of 0,044. Therefore it is concluded that if people feel social pressure to share on Facebook they are actually willing to share more often. This social pressure can be caused by the feeling that other people are expecting you to share certain messages. For example a great fan of Apple who shared lots of information in the past about Apple may feel that other people expect him to continue sharing about Apple in the future. Marketers might try to reach these people so the marketing message will be spread more effectively. So they have to target the right people to ensure that the message will be spread in the future. Dobele et al. (2005) also found that a good WOM campaign needs good targeting.

PR is negatively and significantly related to BI with a beta of -0,22 and a P-value of 0,025. This means that when people perceive more risk from sharing they are less willing to share. Remember that Perceived Risk was defined as the consumer’s subjective belief of suffering a loss in pursuit of a desired outcome by Bauer (1960). In this case this means that when people

belief they will suffer a loss from sharing on Facebook they are less willing to share on Facebook.

TRUST is negatively and significantly related to PR with a beta of $-0,028$ and a P-value less than $0,000$. This means that when Trust increases Perceived Risk will decrease. So when people trust sharing on Facebook they have less believe in suffering a loss from sharing. So marketeers should design messages which are trustworthy.

Together PE, SN, PR and TRUST explain about 46% of BI. This means that by increasing the level of enjoyment, targeting the right people and designing messages which are trustworthy intention to share can be increased significantly. This is probably the most important conclusion from this research.

6 Conclusion and Future Research

In this section answers to the research questions introduced in section 1 will be formulated. Because this research was intended to look for ways to increase volume of marketing messages on social media sites implications which follow from answering the research questions will also be given. Finally limitations of this research and subjects for further research will be discussed.

By examining previous literature on TAM it was found that the research by Noor et al. (2005) is very similar to this research. Noor et al. (2005) identified factors which lead to actual sharing on a tourism website. These factors are perceived usefulness, perceived ease-of-use, perceived risk, perceived sharing, trust and behavioural intention to share. Perceived sharing was dropped from the model used in this research immediately because it was not clearly defined by Noor et al (2005). Due to the hedonic and social nature of Facebook perceived enjoyment and subjective norm were added to the new model, ETAM2.

By spreading a survey among Facebook users and performing data analysis it was found that intention to share leads to actual sharing in most cases. Perceived enjoyment, subjective norm and perceived risk were significantly related to intention to share. Trust was significantly related to perceived risk. The significance of the relationships between the factors PE, SN, PR, TRUST and BI can be seen as the most important contribution of this research. This resulted in the model reduced ETAM2 which is shown in figure 5. Unfortunately Cronbach α for PR was too low and the factor TRUST consists of only one item. This was unexpected and puts a major limitation on this research.

The fact that intention to share leads to actual sharing in most cases tells that marketers can simply focus on increasing intention to share. This can be done by designing messages which are fun to share. Facebook offers the opportunity to use games, applications, photos and movies to share marketing messages. Marketers should find the best way to use this variety of media to construct messages which are fun to share.

Another factor which increases intention to share is social pressure to conform to expectations from others. So actual sharing can be increased by targeting people who are sharing a lot on

one subject. These people may feel social pressure to keep sharing on this subject. Effective targeting is already a hot item for marketers. By using Facebook marketers might be more successful in finding the right people to target.

Furthermore intention to share depends on perceived risk. When people perceive more risk from sharing they are less willing to share. However, by increasing Trust the perceived risk of sharing can be decreased. So marketers should design messages which are trustworthy. Further research should focus on what kind of messages are perceived as enjoyable and trustworthy for Facebook users and on how marketers should target the right people by using Facebook.

The limitations of this research also give some directions for further research. In section 4.1 it was concluded that a random sample of Facebook friends might not be an appropriate sample for researching sharing behaviour. Furthermore the sample used in this research was very small compared to how many Facebook users there are all over the world. Therefore further research should focus on different groups of people to investigate sharing behaviour of these groups. Results might be different for these different groups of people. Furthermore future research should focus on defining risks and trust of Facebook and their relationship to actual sharing, because Cronbach α was low for these factors in this research. Another subject for further research might focus on monitoring WOM on a social media site because WOM can be negative as well as positive. So increased WOM can actually harm a company's reputation. Note that PE, SN, PR and TRUST are influenced by external factors. Which external factors are significantly related to these factors should be subject for further research as well.

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Appendices

Appendix A

This appendix contains the questions that were used in the web survey. The questions were supposed to be answered with: I very strongly disagree, I strongly disagree, I disagree, I nor disagree nor agree, I agree, I strongly agree or I very strongly agree (except when given differently). The number in the last column of the table tells how often a question is used in previous TAM research which was used in the literature review of this research.

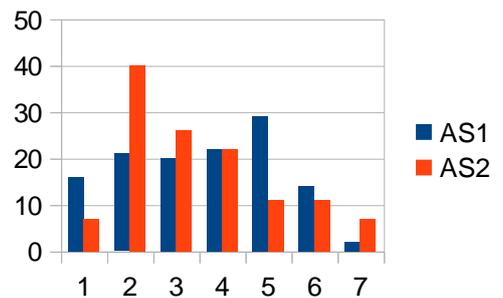
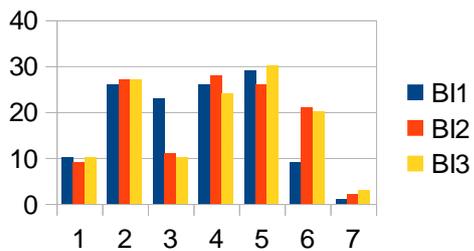
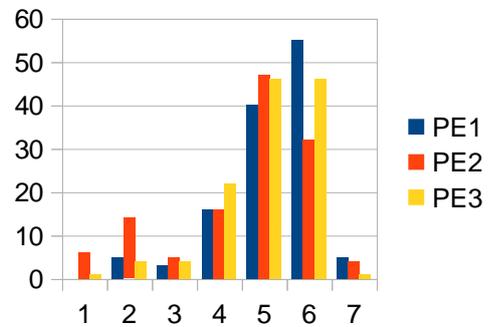
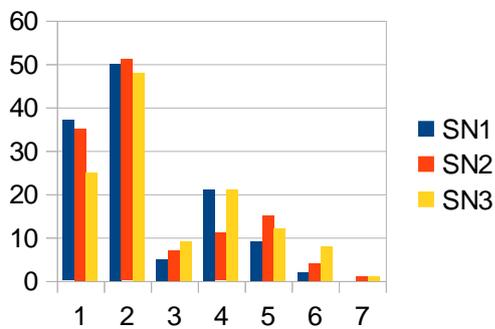
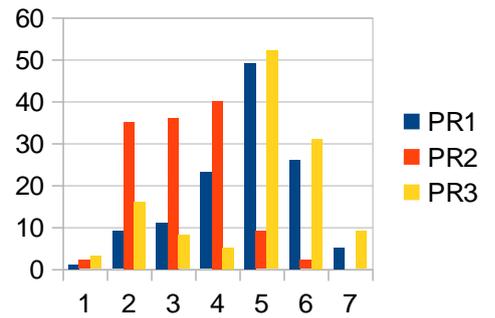
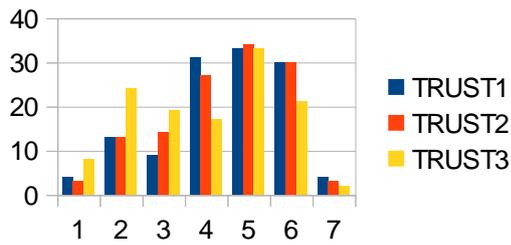
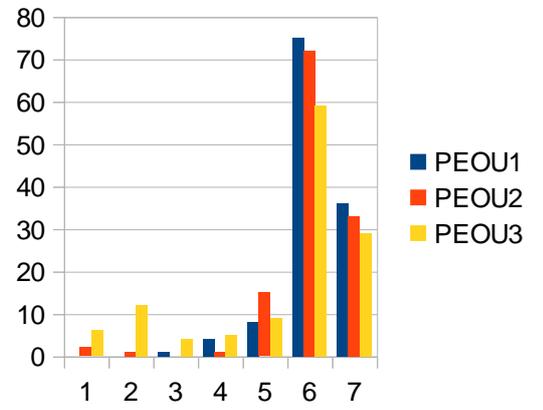
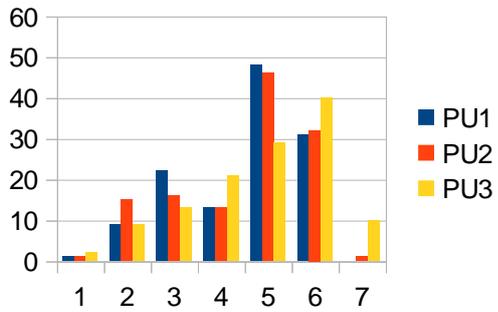
Item	Question	No
PU1	I find sharing on Facebook useful	6
PU2	Sharing on Facebook will be of no benefit for me	1
PU3	The advantages of sharing on Facebook will outweigh the disadvantages	1
PEOU1	I find sharing on Facebook easy to do	7
PEOU2	Learning to share on Facebook is easy for me	7
PEOU3	Sharing on Facebook does not require a lot of mental effort	4
SN1	People who influence my behaviour think that I should share on Facebook	5
SN2	People who are important to me think that I should share on Facebook	5
SN3	It is expected that people like me share on Facebook	1
TRUST 1	Based on my experience with sharing on Facebook in the past, I know it is trustworthy	1
TRUST 2	Based on my experience with sharing on Facebook in the past, I know the consequences are predictable	1
TRUST 3	I am confident over the privacy aspects of sharing on Facebook	0
PR1	How would you characterize the decision to share on Facebook? (Significant risk/insignificant risk)	1
PR2	How would you characterize the decision to share on Facebook? (Very negative situation/Very positive situation)	1
PR3	I have the feeling that my privacy can be violated by sharing on Facebook	0

PE1	I have fun while sharing on Facebook	3
PE2	Sharing on Facebook provides me with a lot of enjoyment	2
PE3	I find sharing on Facebook ... (very boring/very interesting)	2
BI1	I intend to share on Facebook (infrequently/ frequently)	1
BI2	I will share on Facebook frequently in the future	1
BI3	I expect to share on Facebook in the near future	1
AS1	How frequently do you share on Facebook (infrequently/frequently)	2
AS2	How many times do you share on Facebook during a week? (Not at all, Less than once a week, About once a week, 2 or 3 times a week, Several times a week, About once a day, Several times each day)	2

Appendix B

This appendix shows the answers on the questions from the survey. The table shows how many times each answer was given for each question. The graphs show the differences in the answers that were given for each separate factor.

	1	2	3	4	5	6	7
PU1	1	9	22	13	48	31	0
PU2	1	15	16	13	46	32	1
PU3	2	9	13	21	29	40	10
PEOU1	0	0	1	4	8	75	36
PEOU2	2	1	0	1	15	72	33
PEOU3	6	12	4	5	9	59	29
SN1	37	50	5	21	9	2	0
SN2	35	51	7	11	15	4	1
SN3	25	48	9	21	12	8	1
TRUST1	4	13	9	31	33	30	4
TRUST2	3	13	14	27	34	30	3
TRUST3	8	24	19	17	33	21	2
PR1	1	9	11	23	49	26	5
PR2	2	35	36	40	9	2	0
PR3	3	16	8	5	52	31	9
PE1	0	5	3	16	40	55	5
PE2	6	14	5	16	47	32	4
PE3	1	4	4	22	46	46	1
BI1	10	26	23	26	29	9	1
BI2	9	27	11	28	26	21	2
BI3	10	27	10	24	30	20	3
AS1	16	21	20	22	29	14	2
AS2	7	40	26	22	11	11	7



Appendix C

This appendix shows how the values for the factors in ETAM 2 are calculated after factor analysis was performed. The table below shows the component score coefficient matrix after factor analysis. Only coefficients which are relevant for this research are shown.

Component Score Coefficient Matrix

	Component						
	BI	SN	PE	PEOU	PR	PU	TRUST
PU1						,545	
PU3						,707	
PEOU1				,595			
PEOU2				,475			
SN1		,425					
SN2		,432					
SN3		,406					
PR1					,572		
PR3					,545		
TRUST3							,938
PE1			,541				
PE2			,395				
PE3			,393				
BI1	,443						
BI2	,384						
BI3	,396						

These coefficients are used to calculate the values of the variables as shown in the table below.

BI	$0,443BI1 + 0,384BI2 + 0,396BI3$
SN	$0,425SN1 + 0,432SN2 + 0,406SN3$
PE	$0,541PE1 + 0,395PE2 + 0,393PE3$
PEOU	$0,595PEOU1 + 0,475PEOU2$
PR	$0,572PR1 + 0,545PR3$
PU	$0,545PU1 + 0,707PU3$
TRUST	$0,938TRUST3$