

# The Effects of Outcome Expectations on Monetary- and Non-Monetary Rewarded Product Recommendations in Open- and Invitation-only Social Networking Sites: An Empirical Comparison of Facebook and ASmallWorld

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## ABSTRACT

Social networking sites experience huge growth in their number of members. For marketing purposes they are very beneficial to spread Word-of-Mouth in terms of product recommendations. A closer view detects that social networking sites can be divided in open- (OSNs) and invitation-only social networking sites (ISNs). Their members may behave different in contributing knowledge in terms of product recommendation depending in which social networking site they are currently remaining. We therefore first analyze if the members are willing to recommend products for either monetary or non-monetary rewards in their preferred social networking site as well as if they consider these recommendations in their purchasing decision and connect this to a member's personal- and community-related outcome expectations. Second we compare the results between ISN- and OSN-members to conclude in which type of social networking site a product recommendation should be monetary rewarded or not.

## Keywords

Social Networks, Online Communities, Web 2.0, Social Media, Outcome Expectations, Product Recommendation.

## 1. INTRODUCTION

Nielsen reported in their 2009 survey of global consumer trust in advertising, that 70% of all consumers trust consumer opinions posted online compared to 60% in 2007 [54] which is right behind the trust in the recommendations of friends (90%) on the

second rank. Newspapers, tests from experts or any kind of advertising do not reach this high amount of trust. In academic research several studies emphasize that user generated content in terms of consumer product reviews significantly influence the consumers purchasing decisions. Active electronic communities are developing which provide a rich repertory of information about products and services [4]. Aral and Walker [3] found that active-personalized Word-of-Mouth-messages, although less frequently used, are more effective in encouraging the adoption of a product among the peers of the recommender compared to passive-broadcast Word-of-Mouth-messages. The analysis of how to enforce consumers to execute active-personalized product recommendations is a relevant question which has to be solved.

An application in the Internet which affords both the connection to friends as well as to unknown consumers and, thus, may boost the spread of active-personalized Word-of-Mouth-messages in terms of recommendations or opinions about products, are social networking sites. Currently these networks are subject to a strong trend of increasing members. According to Comscore, Facebook, the world's most popular and well-known social networking site, was the fourth largest site worldwide with 340 million unique users in July 2009, right after Google, Microsoft and Yahoo [41] and is the number one website in the US as of March 2010 according to current usage statistics [26]. Consumers spend on average almost six hours per month within a social networking site, while the search on Google captures only around two hours of the consumers.

Social networking sites can be generally classified into two categories: open social networks (OSNs) and invitation-only social networks (ISNs). OSNs have no entry restrictions, whereas ISNs are more exclusive as they require an invitation and are limited in their membership base.

Previous research has found that qualitative and rich knowledge contribution is essential for a successful development of online communities and, thus, for social networking sites, which are defined as subgroup of online communities. Chiu et al. [20] suggest that knowledge contribution is influenced by social capital and outcome expectations. Social capital is the network of relationships possessed by an individual or a social network and the set of resources embedded within it. Outcome expectations

represent the expectations that an individual has towards the possible outcome of knowledge contribution within a social network for him/herself or for the social network as a whole. As product recommendations and opinions posted online can also be seen as knowledge contribution, it is important to know from a marketing perspective how members can be motivated to recommend products or services they like to their social network connections and, thus, influence the purchasing decisions of other members. A key aspect in this case is, whether or not recommenders receive monetary or non-monetary rewards.

At first glance, one may think that a monetary reward should generally increase a member's willingness to recommend products on her/his social networking site. However, a monetary reward may primarily attract users with high personal outcome expectations (e.g. earning money for their knowledge-contribution) and may be rejected by those users who register on a social networking site because of community-related outcome expectations (e.g. helping others in the community via knowledge contribution). ISNs have entry restrictions and are therefore smaller, which increases the cohesion amongst their members since relationships are based on authentic connections and true information. Thus, in ISNs product recommendations shall be expressed regardless of a monetary reward. Helping other is hypothesized to be in the focus of the members. In contrast, OSN-members usually have weaker connections and therefore, the cohesion in the network may be also weaker. It could be expected that some OSN-members only recommend products to gain monetary rewards without consideration of whether their input helps the receiver of their recommendation. OSN-members may be less trusting in product recommendations of other members, because they cannot easily distinguish between valuable and invaluable products recommendations. This results in a decreasing influence on the purchasing decision, making a monetary rewarded product-recommendation-system less successful than initially believed. We assume, that the share of members with strong personal outcome expectations is higher in OSNs than in ISNs, which may result in a different acceptance of monetary rewarded product recommendations within each type of social networking sites.

The scenario outlined above shows, that the decision about the implementation of monetary or non-monetary rewards for recommendations is not trivial and sometimes not intuitive as different setups may lead to different outcomes depending on whether it is an open or invitation-only social network. The aim of this study is to analyze the differences in the impact of two outcome expectation aspects elements [20] on monetary and non-monetary rewarded recommendations between OSNs and ISNs and to identify which kind of reward will be successful in ISNs or OSNs.

This article first defines open and invitation-only social networks and discusses previous research concerning the motivations for product recommendations in social networking sites as well as outcome expectations. Chapter 3 defines the research model and sets up our hypotheses. Chapter 4 empirically measures and compares factors which influence knowledge contribution in ISNs and OSNs.

## 2. THEORETICAL BACKGROUND

### 2.1 Social networking sites

Social networking sites are web-based services where members can create personal profiles, connect with other members, share personal connections and establish or maintain relationships with others [14]. Social networks are usually organized around a specific subject or general demographic such as friends or business contacts. Social networking sites are one type of online communities (also called virtual communities) [50, 58], which also include markets and auction sites, electronic bulletin boards, list servers, blog sites, gaming communities and shared interest web sites [37].

Previous research has analyzed social networking sites from many different perspectives. Boyd and Ellison [14] focused on the history and development of social networking sites and gave a detailed overview of the existing sites. Hargittai [37] analyzed the usage of social networking sites based on demographic characteristics and social surroundings and found that gender, race, ethnicity and parental education have an influence on the usage of social networking sites. Lampe et al. [47] reported that the use and perception of Facebook sometimes changed over time, likely due to changes in an individual's social context or an introduction of major features to the site. Privacy on social networking sites was examined by Gross and Acquisti [35] who quantified social networking site users', especially Facebook member's willingness to share personal information and concluded that users were unconcerned about privacy implications at that time. Research on social networks has also shown that social networking sites can be extremely useful for marketers to generate positive Word-of-Mouth-communication, e.g. product recommendations and, thus, enhance brand loyalty and increase sales [5, 36].

Social networking sites can generally be classified into two categories: open social networks (OSNs) and invitation-only social networks (ISNs).

ISNs are private social networking sites or a type of so-called niche communities that require an invitation and are limited in their membership base. They target a selected audience by restricting access and, thus, are more exclusive [14]. Most of these social networking sites have their focus on the exclusive groups of successful (e.g. Decayenne.com, Internations.org), rich (e.g. Affluence.org) or beautiful people (e.g. Beautifulpeople.com) and are setting their selection on variables like income or social connections. ASmallWorld (ASW), the ISN, which is analyzed in this study, is an invitation-only online social network, founded in 2004, which aims to help confidentially connecting an existing international community of people with similar backgrounds, interests and perspectives online. Members are already directly or indirectly connected by three degrees of separation [7], which means that (almost) every person is connected to every other person through three contacts (or less). The aggregated source of valuable information, advice and help from trusted members enables individuals to manage their private, social and business lives [7]. In order to build a trusted community and a reliable source of information, the membership is only granted via invitation. Only 10 to 20% of the community is authorized to invite new members. These trusted and loyal members have to fulfill certain criteria in order to achieve invitation rights [7-9, 33]. Members participate in different discussions and offer

information, help and advice. Most popular topics are business opportunities (e.g. "I have a client with 4 billion dollars looking to invest" with over 49,060 views and 500 posts) or "top" and "best"-lists (e.g. "Best club in your city" with over 22,600 views and 500 posts). Individuals also ask for travel advice, or product to buy next [8]. Thus, the ASW community is important to marketers because it provides a trusted environment for luxury-brand advertisement. Manufacturers can increase the awareness of their brands by reaching an influential and sophisticated membership base with more than 520,000 members, whom can be described as opinion leaders.

OSNs are online social networking sites that have no entry restrictions. The first social networking site founded in 1997 was SixDegrees.com, where members were allowed to create profiles and connect to their friends [14]. Amongst other well-known social networking sites, e.g. Friendster, LinkedIn, Xing or Myspace, Facebook is currently the most successful OSN. Thus, Facebook will be analyzed in this study as representative for OSNs. Facebook is an open social networking site, launched in 2004, which helps to maintain and develop social relationships among friends, family and coworkers [28, 29]. Members of this social networking site are connected by six or less degrees of separation [30]. Millions of members share content such as web links, news stories, blog posts, notes, photo albums and also product recommendations on a daily basis, further establishing and broadening these social relationships [30].

A closer look at the comparison of ISNs and OSNs shows that distinct differences between each other exist. They especially differentiate themselves with the number of members. OSNs usually have at least a few million members, whereas in ISNs the membership is kept small with less than a million members worldwide. The aim of OSNs is to help maintaining or developing social relationships with friends, family and co-workers and to share all kind of happenings with each other. ISNs want to connect an existing community of likeminded people who share similar backgrounds, interests and perspectives and to manage their private, social and business lives. In OSNs, you will be able to find a wide range of your offline networks, which are sub-communities by themselves. Due to the openness of OSN to everybody, (almost) every person is connected to every other person through six contacts (or less). In ISNs you have to be invited from a trusted member who fulfills different requirements to join the social networking site. Therefore, members are connected with any other person via two or three other members.

## 2.2 Product recommendations and Word-of-mouth-communication

Product recommendations have a variety of sources. Senecal and Nantel [60] translated the typology of information sources stated by Andreasen [2] into computer-mediated environments. The four product recommendation sources are: 1) Personal source providing personalized information or 2) Non-personalized information, 3) Impersonal source providing personalized information or 4) Non-personalized information. They grouped online product recommendation sources into the following categories: 1) other consumers such as relatives, friends and acquaintances, 2) human experts such as salespersons and independent experts and 3) expert systems such as recommender systems.

Word-of-Mouth (WOM) is the communication and mutual exchange of positive, neutral and negative information about products and services between individuals. Product recommendations are a positive form of WOM [1]. Several studies proved that WOM significantly influences the aspects of the consumer behavior, which will be discussed in the following.

Previous research recognized the importance of WOM and found it to be more effective than e.g. printed advertisement, radio advertisement and personal selling [39, 44]. Katz and Lazarsfeld [44] conducted the earliest study on the influence of WOM, and found that it is especially effective on the purchase of household goods and food products. Herr et al. [39] studied the effect of WOM on product judgments by analyzing vividly presented information and found that WOM had a stronger influence on individuals due to its vividness when compared to printed information. Arndt's [6] approach to WOM was to identify the specific factors that influenced a consumer's decision and found that positive WOM increased the likelihood of purchase, whereas negative WOM decreased it. Brown and Reinigen [16] investigated the strength of ties between the communicator and the decision-maker. They found that consumers tend to choose more similar personal sources of information for a referral flow.

The expansion of the Internet in the last decade has made electronic Word-of-Mouth (eWOM), also called Word-of-Mouse an important source of consumers' product evaluations. Consumers gather product information from other consumers by reading comments or by posting their own experiences with a product [38]. Senecal and Nantel [60] investigated the influence of eWOM on consumers' product choices, taking into consideration the different effects of online recommendation sources, product and website types. They found that recommender systems are the most influential source, despite the fact that human experts possess more expertise and other consumers are more trustworthy. Vallerand [68] came to the same conclusion. Aral and Walker [3] investigated that passive-broadcast WOM-messages are in sum more successful than active-personalized WOM-messages, because they are expressed much more frequently. Regarded per message active-personalized gains more attention of the receiver of the message. Forman et al. [31] showed that the value of user-generated content in terms of product recommendations strongly depends on the available extent of information about the recommender. The mining of recommendations can also be helpful for manufacturers, who want to gain more insights into the valuation of subjective attributes of hedonic products, which has been a difficult task in the offline world [4]. Smith et al. [61] outlined the importance of peer recommenders to the consumer. They found that product recommendations influence consumers in their product choices, in the amount of search effort in the decision-making process and in the level of user interest in sponsored advertisement. Peer recommenders are generally preferred over editorial recommendations.

Depending on the common interest of an online community, members are willing to participate and provide product and service related information. Individuals who are committed to an online community are more likely to show a positive attitude and commitment to the products and brands favored by other online community members. Community members can act as objective sources of information that also create new uses and benefits from the brand [46].

Social networking sites are becoming an increasingly more important channel for eWOM because they enhance the ability of the consumer to share and provide information and advice about products and services. The main objectives of social networking sites are to share experiences and establish or maintain relationships with others [14]. Active and constant communication with friends and acquaintances through different channels such as forums, blogs, groups and instant messaging may strengthen the relationship within personal social networks [34]. The variety of online communication channels in social networking sites, give consumers many options to do eWOM behavior and share their product-related experiences or seek advice. Despite the huge impact of eWOM on purchasing decisions and the accessibility of consumer generated product recommendations, there is only little research on eWOM behavior and the influence on decision-making in social networking sites. Brown et al. [15] analyzed how eWOM impacts decision-making and attitude formation in the context of social networking sites and explained the role of tie strength, homophily and source credibility in the evaluation of marketing information.

### 2.3 Outcome expectations

**Outcome expectations** lead to an individual's behavior towards more favorable outcomes [21]. The consequences of knowledge contribution an individual is expecting for him/herself are defined as *Personal outcome expectations*. *Community-related outcome expectations* stand for the expected consequences of knowledge contribution for the whole online community [20]. Positive outcomes are seen as benefits and negative outcomes are seen as costs [43]. According to the social exchange theory, individuals try to maximize their benefits and minimize their costs [51]. When people perceive that their incentive to contribute knowledge exceeds costs, knowledge contribution becomes more likely [45]. Benefits that motivate behavior during social exchange can be classified as either intrinsic or extrinsic [12, 24, 66]. Extrinsic rewards can be monetary [12, 13]. Intrinsic rewards can be more subtle non-monetary benefits such as status or respect [12], enhanced reputation [67], improved sense of self-worth [13], increased access to useful information and expertise, additional social relationships [17], or the enjoyment in helping others [43, 67].

Prior research has found mixed results about the importance of rewards. Contrary to Bock et al. [13]'s hypotheses, extrinsic rewards resulted in significant but negative effect on knowledge contribution. Extrinsic rewards may even impede favorable behavior toward knowledge sharing. Whereas, Nahapiet and Ghoshal [53] argue that no external incentives are required in case of strong pro-sharing norms, Kankanhalli et al. [43] posit that rewards are an important motivation for knowledge contribution in case of weak pro-sharing norms. A number of studies found that insufficient extrinsic and intrinsic rewards in return for the cost of knowledge sharing accrued are a barrier to knowledge sharing [22, 23, 40].

While Nahapiet and Ghoshal [53] examined knowledge contribution from the network level, Wasko and Faraj [67] argued on an individual level. Former theory states that an individual contributes knowledge with (1) the expectation that her/his behavior creates value for the collective and (2) the anticipation that it will then create value for oneself in the future.

Helping behavior is a voluntary action to help others without any expectation of reciprocity [63, 64]. Information sharing and knowledge contribution are the two dimensions contained in helping behaviors. Prior research shows that knowledge contributors achieve satisfaction stemming from their intrinsic helping behavior [13, 49, 67]. Moreover, enjoyment of helping can significantly impact knowledge contribution [43] and encourages reciprocity between members [57, 58].

## 3. RESEARCH MODEL AND HYPOTHESES

In this section the research model is being developed. This study investigates the influence of outcome expectations on product recommendations as a special kind of knowledge contribution in social networks and compares the influence of outcome expectations between ISNs and OSNs (see Figure 1). In this study ISNs are represented by ASmallWorld (ASW) and OSNs are represented by Facebook (FB).

Chiu et al. [20] followed a similar approach to analyze knowledge sharing in online communities in terms of quantity and quality. Their model is based on Nahapiet and Ghoshal's [53] three dimensions of social capital and outcome expectations on a personal and community level. There are three notable differences between Chiu et al.'s [20] approach and this study: (1) we focus on the influence of two aspects of outcome expectations, (2) we examine knowledge contribution from a marketing perspective in terms of giving product recommendations for both monetary and non-monetary rewards as well as considering product recommendations (product-related knowledge contribution) and (3) we compare to different types of social networking sites, which are ISNs and OSNs.

Based on the literature review, our hypotheses for recommendations with monetary and non-monetary rewards and considering recommendations for ISN and OSN will be postulated in the following section.

**Personal outcome expectations (POE)** in this study correspond to knowledge sharing about products and services in social networking sites. Strong *Personal Outcome Expectations* mean that users associate the sharing of recommendations with additional benefits for themselves. Some FB-members may care more about themselves than ASW-members. Not every member of both ASW and FB may associate personal outcome expectations with knowledge sharing about products and services. But if this is the case, *Personal Outcome Expectations* may have a stronger influence on *Considering Recommendations (REC)* and giving recommendations for *Monetary Rewards (MR)* and giving recommendations for *Non-monetary Rewards (NMR)* for FB-members than for ASW-members.

Members, who expect that knowledge sharing about products and services will add value to them, should support knowledge sharing in form of *giving recommendations for non-monetary rewards*. The well being of one is more important to FB-members than amongst ASW-members. Hence, we hypothesize:

*H1a. Personal Outcome Expectations have a stronger positive influence on Non-monetary Rewards amongst OSN-members compared to ISN-members.*

Rewards are helpful to generate more knowledge sharing. FB-members with strong *personal outcome expectations* should also

have a stronger willingness to *give recommendations for monetary rewards* compared to ASW-members.

*H1b. Personal Outcome Expectations have a stronger influence on Monetary Rewards amongst OSN-members when compared to ISN-members.*

Members, who are convinced that knowledge sharing is adding value to them, will expect that recommendations are honest and qualitative, so that they can use them without doubting in their purchasing decisions. Due to the assumption that FB-members are more focused of their own well being in contrast to the well being of the whole community, we hypothesize:

*H1c. Personal Outcome Expectations have a stronger influence on Considering Recommendations from other members amongst OSN-members when compared to ISN-members.*

**Community-related Outcome Expectations (COE)** in this study correspond to knowledge sharing about products and services in social networking sites. A high value means that users associate the sharing of recommendations with additional benefit for the community. It can be assumed that ASW-members care more about the communities' well being than FB-members but not every member may associate that with knowledge sharing about products and services. Therefore, *Community-related Outcome Expectations* should have a stronger relationship with *Considering Recommendations*, *Monetary Rewards* and *Non-monetary Rewards* on ASW than for FB.

Members, who expect that knowledge sharing will add value to the community, should support knowledge sharing in form of *giving recommendations for non-monetary rewards*. Since ASW-members are expected to behave more community-orientated, we hypothesize:

*H2a. Community-related Outcome Expectations have a stronger positive influence on Non-monetary Rewards amongst ISN-members compared to OSN-members.*

Rewards are helpful to generate more knowledge sharing. ASW-members with strong community-related outcome expectations should also have a strong willingness to *give recommendations for monetary rewards*. This effect should also be stronger for ASW-members than for FB-members.

*H2b. Community-related Outcome Expectations have a stronger positive influence on Monetary Rewards amongst ISN-members compared to OSN-members.*

Members, who are convinced that knowledge sharing is adding value to the community, will expect that recommendations are honest and qualitative, so that they can use them without doubting in their purchasing decisions. The effect is assumed to be stronger amongst ASW-members than amongst FB-members.

*H2c. Community-related Outcome Expectations have a stronger positive influence on Considering Recommendations from other members amongst ISN-members compared to OSN-members.*

## 4. RESULTS AND DISCUSSION

### 4.1 Research methodology

An online survey was conducted from December 2009 until January 2010 in order to evaluate the hypotheses. All potential participants were contacted via the internal messaging system of the respective social networking site. The partial least squares

(PLS) structural equation modeling approach was used to validate the construct measures (the measurement model) and test the hypothesized relationships (the structural model). PLS was chosen as the appropriate methodology because it has minimal demands about the normality of the data and the sample size relative to covariance-based approaches [18]. The conceptual model was tested with the software implementation SmartPLS [59].

At the beginning of the survey, participants were asked to which social networking site they belong to, FB, ASW or both, so that they were only asked questions about the social networking site that they are a member of. Afterwards an explanation about product-related knowledge contribution with examples of usage in the chosen social networking site followed. General questions about online- and social networking site usage followed and the items of the conceptual model were tested for that community. All items were customized for each social networking site, FB and ASW, which has to be answered along a seven-point Likert scale ranging from "completely disagree" to "completely agree". Questions for the demographic characterization concluded the survey. In December 2009, the survey was pretested with each 10 FB- and ASW-members.

The measurement items for *Personal outcome expectations* (6 items) and *Community-related Outcome Expectations* (4 items) were adapted from Chiu et al. [20] and modified to fit to the product recommendation context rather than solely on knowledge contribution.

Since this thesis wants to examine the influence of social capital on product recommendations, the dependent variables were self-developed items (following the procedure of Moore and Benbasat [52]) to assess the following three aspects:

1. *Non-monetary Rewards (NMR)* (1 item) measures the enjoyment of a member to help other members via giving product recommendations.
2. *Monetary Rewards (MR)* (3 items) measures the intention to give product recommendations if commissions, coupons or miles / points can be earned.
3. *Considering Recommendations (REC)* (3 items) measures the degree a member will consider a product recommendation of other members in her/his purchasing decision.

### 4.2 Description of the sample

305 completed questionnaires were submitted with 131 participants stating that they were ASW-members and 174 that they were FB-members. This leads to a response rate of 20% for ASW- and 70% for FB-members. Demographic details of the respondents for both samples are shown in Table 1.

Among the participants both samples were balanced with slightly more male than female respondents. The ASW-member samples are slightly older than the FB sample with a mean age of 32 (median = 32, standard deviation = 7.54) for ASW and a mean age of 30 (median = 29, standard deviation = 7.88) for FB. One obvious characteristic of the respondents is that the large majority is highly educated. 92% of ASW-members and 79% of the FB-members have a Bachelor's degree or higher education. The demographics also show that ASW-members are more affluent than FB-members. 40% of the ASW-members and 37% of the FB-members refused to indicate their income. The other results showed that 39% of the ASW-members have a net monthly household income of € 5,000 and more which is also the median.

Regarding the income the biggest groups amongst the FB respondents € 1,001 - € 2,000 (17%) and more than € 5,000 (21%), with a median between € 3,001 and € 4,000. The high income of ASW respondents matches with previous internal member survey of ASW where the yearly median of the household income was \$ 139,400.

**Table 1: Demographic profile of the sample**

Measure	Items	ASW	FB
		Freq. (%)	Freq. (%)
Gender	Male	75 (57%)	96 (55%)
	Female	56 (43%)	78 (45%)
Age	<25	7 (5%)	28 (16%)
	26-35	85 (65%)	108 (62%)
	36-45	34 (26%)	30 (17%)
	>45	2 (2%)	3 (2%)
	n/a	3 (2%)	5 (3%)
Education	High school or below	2 (2%)	13 (7%)
	Apprenticeship	4 (3%)	14 (8%)
	Bachelor's Degree	42 (32%)	48 (28%)
	Master's Degree	74 (56%)	79 (45%)
	Doctoral Degree	5 (4%)	10 (6%)
	Other	4 (3%)	10 (6%)
Income	< € 1,000	3 (2%)	11 (6%)
	€ 1,001 to € 2,000	6 (5%)	29 (17%)
	€ 2,001 to € 3,000	7 (5%)	18 (10%)
	€ 3,001 to € 4,000	6 (5%)	12 (7%)
	€ 4,001 to € 5,000	5 (4%)	3 (2%)
	> € 5,001	51 (39%)	37 (21%)
	n/a	53 (40%)	64 (37%)
<b>N</b>		131	174

This survey also indicated that the respondents usually find out about new products and services that are relevant to themselves among others through a friend (ASW: 77%, FB: 80%), a website (ASW: 70%, FB: 74%), an online forum or a social networking site (ASW: 35%, FB: 29%). Only 23% of ASW-members stated that the recommendations on SNS do not influence their purchasing decisions, compared to 55% of FB-members. ASW-members mostly are influenced by recommendations for dining out (61%), hotels and airline tickets (58%) and events (51%). FB-members mostly get influenced by recommendations for events (39%).

### 4.3 Common method bias analysis

Common method bias is a potential problem for internal validity and usually the key source for measurement errors. Especially, self-reported data in surveys conducted with the same measurement context is possibly leading to errors [56]. Following the procedure recommended by Podsakoff et al. [56] and Liang et

al. [48], a common method bias construct was integrated into the PLS research model with all the indicators used. The variances explained by the common method bias construct were computed relative to the variances explained by the substantive constructs. In our model the average variance explained by the substantive constructs is for ASW 0.612 and 0.681 for FB, while the average variance explained by the common method construct is 0.012 for ASW and 0.014 for FB. The method variance values are very low, which leads to the conclusion that the common method bias is not influencing the results of the research model.

### 4.4 Measurement model validation

All constructs in our model are measured in the reflective mode [42]. The quality of reflective constructs is determined by (1) convergent validity and (2) discriminant validity [10].

Convergent validity is assessed in two ways: (1) The indicator reliability and (2) the internal consistency. For the indicator reliability all indicators loaded significantly at least at the 0.01 level and all indicators met the suggested threshold of 0.707 [18]. Internal consistency is estimated by analyzing the composite reliability (CR), Cronbach's alpha and the average variance extracted (AVE) (see Table 2) [65]. All the values for CR and Cronbach's alpha exceeded the recommended threshold of 0.7 [55] and AVE the critical level of 0.5 [32]. A consolidated view indicated that the constructs fulfill all requirements for indicator reliability and internal consistency and therefore validate their convergent validity.

**Table 2: Convergent validity of the reflective constructs**

Construct (No. of Items)	CR	Cronbach's Alpha	AVE
ASW (FB)			
COE (4)	0.93 (0.95)	0.90 (0.94)	0.78 (0.84)
MR (3)	0.97 (0.99)	0.95 (0.94)	0.91 (0.88)
NMR (1)	1.00 (1.00)	1.00 (1.00)	1.00 (1.00)
POE (6)	0.95 (0.96)	0.94 (0.95)	0.76 (0.81)
REC (3)	0.91 (0.93)	0.85 (0.89)	0.77 (0.82)

Discriminant validity states to which degree a given construct differs from other constructs. It was analyzed by examining whether indicators load higher on their own constructs than on other constructs. Additionally, the square root of the AVE from the indicator should be higher than the correlations between constructs [62]. Furthermore, none of the correlations between a pair of constructs should be higher than the threshold of 0.9 [11]. Our model satisfies these criteria. Additionally the loadings of the indicators of the specific construct are always exceeding with this construct compared with others ) [65], which also confirms discriminant validity.

### 4.5 Structural model validation

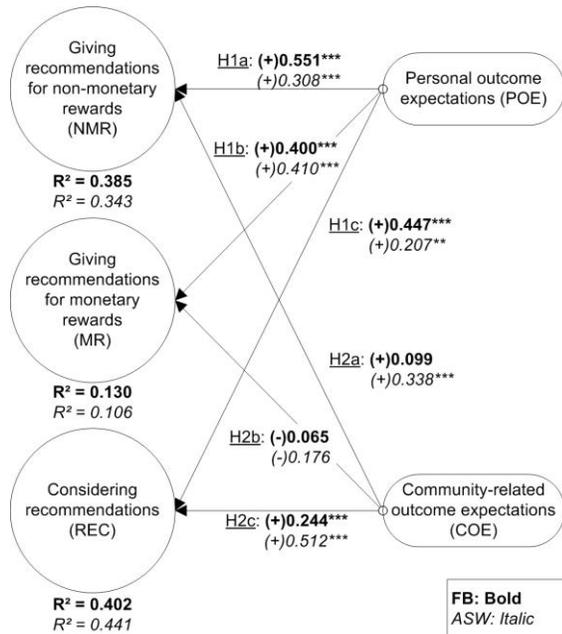
After assessing the measurement model, the explanatory power for each structural model was analyzed. The ASW-model explains 10.6% of the variance ( $R^2$ ) in *Monetary Rewards*, 34.3% in *Non-monetary Rewards* and 44.1% in the latent variable *Considering Recommendations*. Whereas the FB-model explains 13.0% of the

variance ( $R^2$ ) in *Monetary Rewards*, 38.5% in *Non-monetary Rewards* and 40.2% in the latent variable *Considering Recommendations*.

The theoretical model and hypothesized relationships were estimated using the bootstrapping procedure implemented in SmartPLS with 1,000 iterations. To examine the specific paths we assessed t-statistics for the calculated p-values based on two-tailed significance levels of 0.05. The results for ASW- and FB-members are summarized in Figure 1.

Four out of six paths for the ASW-model and five out of six paths for the FB-model exhibited a p-value less than 0.05 for bidirectional paths.

The ASW-model shows a positive and strongly significant influence of a members' *Personal Outcome Expectations* on all three dependent variables. The results display an insignificant path between members' *Community-related Outcome Expectations* and *Monetary Rewards*, while the path to *Non-monetary Rewards* (0.338;  $p < 0.01$ ) and *Considering Recommendations* (0.512;  $p < 0.01$ ) were both positive and high significant.



**Figure 1: Path model with results for ASW and FB** ( $***p < 0.01$ ,  $**p < 0.05$ ,  $p < 0.1$ )

The effect size  $f^2$  indicates the importance of each influencing factor (see Table 3). All significant constructs in this model have at least a weak effect [18].

**Table 3: Effect size  $f^2$  of the outcome expectations**

	$f^2$ REC		$f^2$ NMR		$f^2$ MR	
	ASW	FB	ASW	FB	ASW	FB
COE	0.27	0.06	0.10	0.01	0.02	0.01
POE	0.05	0.19	0.09	0.28	0.11	0.10

## 4.6 Comparison of path coefficients between OSNs and ISNs

The results of the structural model indicate that the influences of the independent constructs on the dependent latent variables differ between both models. To test whether there are the significant differences between the influencing constructs, a multi-group comparison is conducted by the PLS bootstrapping routine for each sub sample.

Chin et al. [19] argued that multi-group comparison with PLS is relatively naïve especially because of differences in path estimates for different sampled population, however, previous research applied multi-group comparison with PLS. Eckhardt et al. [27] analyzed the impact of social influence on IT adoption and non-adoption. Dibbern and Chin [25] evaluated a structural equation model and applied multi-group comparison for cultural differences in Germany and the USA. Based on these approaches, the hypotheses that there are different influencing factors for ASW- and FB-members to recommend products and services will be tested. 1,000  $\beta$ -coefficients for each sub-sample were generated with PLS bootstrapping and a t-test with the generated  $\beta$ -coefficients was performed to test for significant differences and to verify each hypothesis. The results of the t-test (see table 4) show significant differences on a  $p < 0.05$  level between ISNs and OSNs for all constructs.

The t-test for mean equality for the *Personal Outcome Expectations* model indicates significant differences in the influence on the constructs *Considering Recommendations*, *Monetary Rewards* and *Non-monetary Rewards*. For the constructs *Non-monetary Rewards* and *Considering Recommendations*, the t-test indicated that *Personal Outcome Expectations* have a significantly higher influence amongst FB-members than it is observable amongst ASW-members, supporting hypotheses 1a and 1c. In contrast, for the construct *Monetary Rewards* the results showed a significantly stronger positive influence amongst ASW-members, which leads to the rejection of hypothesis 1b.

**Table 4: T-test for mean equality**

	Levene-test (F-value)	Mean Differences	
COE → MR	10.789***	-0.114***	ASW>FB
COE → NMR	30.157***	0.234***	ASW>FB
COE → REC	17.141***	0.256***	ASW>FB
POE → MR	0.527	0.125***	ASW>FB
POE → NMR	34.219***	-0.237***	FB>ASW
POE → REC	11.264***	-0.231***	FB>ASW

\*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$

The t-test for mean equality for the construct *Community-related Outcome Expectations* shows significant differences in its influence on all of the three dependent constructs. The effect of *Community-related Outcome Expectations* on *Non-monetary Rewards* and *Considering Recommendations* is significantly stronger for ASW-members than for FB-members, supporting hypotheses 2a and 2c. As already shown in the structural model *Community-related Outcome Expectations* has no significant effect on *Monetary Rewards* for both ASW- and FB-members.

Taking a closer look at the path coefficients, it is observable that the tendency of influence additionally is negative and not positive as stated in hypothesis 2b. The t-test of mean equality results in a significantly stronger negative influence for FB-members than for ASW-members, which also controverts hypothesis 2b. Summarizing these results hypothesis 2b has to be rejected.

## 4.7 Discussion

Our research question was to identify whether a product recommendation system with monetary or non-monetary rewards should be implemented in OSNs and ISNs, which will be evaluated in the following.

The members' *Personal Outcome Expectations* show a highly significant positive influence for FB and ASW on all three constructs *Non-monetary Reward*, *Monetary Rewards*, as well as *Considering Recommendations*. The result regarding the positive influence on *Considering Recommendations* is in line with the results of Aral and Walker [3] who found that active-personalized Word-of-Mouth-messages effectively increase the attention of the receiver. Thus, one can argue, that a higher attention also increases the consideration of a recommendation in the receiver's purchasing decision.

The mean comparison supports that *Personal Outcome Expectations* have a stronger influence on *Non-monetary Rewards* and *Considering Recommendations* for FB-members compared to ASW-members, but surprisingly not for *Monetary Rewards*, which is contrary to the assumption in our hypothesis. In that case, ASW shows a stronger influence. Thus, ASW-members with high *Personal Outcome Expectations* demand a monetary benefit even more than FB-members. This result can be explained on the basis of the findings of Forman et al. [31] who showed that more information about the recommender increases the value of the recommendation for its receiver. The members of ISNs are in closer connection to each other, which implies that they better know their contacts in the ISN. The value of a recommendation increases and, thus, the recommender is in the position to demand a monetary reward without the risk of losing reputation.

*Community-related Outcome Expectations* strongly influence *Non-monetary Rewards* for ASW-members but show an insignificant (positive) influence for FB-members. The mean comparison supported that the influence of *Community-related Outcome Expectations* on *Non-monetary Rewards* is significantly stronger for ASW-member than for FB-members. Hence, ASW-members seem to care more about the well-being of the community and enjoy adding value by giving recommendations. Contrary to our expectations, *Community-related Outcome Expectations* had a stronger influence on *Monetary Rewards* for FB-members compared to ASW-members and both paths showed a negative but insignificant influence. One plausible explanation is that members who care for the well-being of the community dislike when members may only recommend for monetary rewards. The effect is stronger for FB than for ASW. *Community-related Outcome Expectations* strongly influence *Considering Recommendations* for the individual paths of ASW and FB and also support the stronger influence of this construct for ASW-members compared to FB-members. Hence, ASW-members regard product recommendations more as valuable and qualitative community-outcome, which will be considered in their purchasing decisions, than FB-members.

In case of product recommendations which are contributed only because of monetary benefit, we suggest, based on our results, to implement a product recommendation system with non-monetary rewards in both OSNs and ISNs. In case of authentic product recommendations, where other members can rely on, a monetary rewarded product recommendation system can successfully be implemented in ISNs. Here, trust between members is distinctively existent and the strong significant positive influences of *Community-related Outcome Expectations* on *Considering Recommendations* and *Personal Outcome Expectations* on *Monetary Rewards* can be capitalized.

## 5. CONCLUSION

Social networking sites have become very popular for Internet users and give marketers the chance to target a variety of demographic profiles easy and cost efficiently. Furthermore, consumers show increased trust in opinions posted in online channels. Most of the social networking sites rely on knowledge contribution of their members. The challenge is to identify the factors that lead to knowledge contribution in form of product recommendations and the underlying process that enables to direct their advertising strategies to the consumers. Chiu et al. [20] proposed, as a future research to analyze the usefulness and sort of reward systems, intrinsic or extrinsic, which motivates individual's to share knowledge in online communities. We examined non-monetary rewards such as enjoyment of helping as an intrinsic reward and monetary rewards such as commissions, coupons, miles or points as extrinsic rewards to share recommendations in social networking sites. The results of this study imply that regarding the two facets of outcome expectations (*Personal Outcome Expectations* and *Community-related Outcome Expectations*) individuals will behave with a different impact to achieve desirable outcomes depending on the type of social networking site they are using.

Our results show that for FB-members, *Personal Outcome Expectations* have a significant higher positive effect on *Non-monetary Rewards* and *Considering Recommendations* than ASW-members. In contrast ASW-Members show significant stronger influences in the impact of *Community-related Outcome Expectations* on all dependent variables and additionally in the influence of *Personal Outcome Expectations* on *Monetary Rewards*. In contrast *Personal Outcome Expectations* amongst FB-Members are stronger connected to *Considering Recommendations* and *Non-monetary Rewards* compared to ASW-members. Thus, FB-Members seem to have a more salient focus on their own benefits than on the benefits for their community. Due to the significant higher path coefficients between *Community-related Outcome Expectations* and the dependent variables, ASW-members seem to care more for the community instead of their own benefits.

Future studies may examine which minimum amount must be offered within a monetary-rewarded recommendation system to motivate the consumer to recommend products. Since consumers can also be member in OSNs as well as ISNs at the same time, it should be examined whether these members show a different response behavior in terms of their evaluation of the constructs of our research model depending on the social networking site.

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