Decision Support Systems 47 (2009) 185–203

Contents lists available at ScienceDirect

Decision Support Systems

journal homepage: www.elsevier.com/locate/dss

Virtual communities: A marketing perspective ☆

Kristine de Valck [a,*], Gerrit H. van Bruggen [b], Berend Wierenga [b]

[a] HEC School of Management, Paris, France
[b] Rotterdam School of Management, Erasmus University, The Netherlands

ARTICLE INFO

Available online 4 March 2009

Keywords:
Consumer decision process
Interpersonal influence
Marketing
Netnography
Virtual communities of consumption
Virtual community members
Virtual community participation
Word-of-mouth

ABSTRACT

Increasingly, consumers interact through the Internet to share their knowledge, experiences, and opinions. Consequently, 'word-of-mouse' has become a significant market force that influences consumer decision-making. On the basis of extensive quantitative and qualitative research, the authors sketch how consumers make use of virtual communities as social and information networks, and how this affects their decision-making processes. We present three studies that address (i) determinants and effects of virtual community influence on the consumer decision process; (ii) virtual community participation patterns; and (iii) discussion practices of the most active community members. Key implications for managers, marketers, and market researchers are discussed.

1. Introduction

It has been more than a decade since Hoffman and Novak [41] laid out the conceptual foundations of marketing practice in computer-mediated environments. In their article, they introduce marketers to the revolutionary changes that may occur in the way companies interact with their customers due to the rise of the Internet. The article stresses the Internet's unique many-to-many communication model, i.e., both companies and consumers may (1) provide and access online content, and (2) communicate through the medium. Indeed, Hoffman and Novak's assertion that "the consumer is an active participant in an interactive exercise of multiple feedback loops and highly immediate communication" [41, p. 66] reflects present-day reality. Consumers have embraced the Internet to communicate and transact with businesses. Besides, marketers have to deal with consumers who increasingly interact with each other through electronically based discussion forums, bulletin boards, list servers, chat rooms, newsgroups, email, personal Web pages, social networks, and blogs. Rather than being mere recipients of the information that is disseminated by marketers, a rising number of consumers use the Web 2.0 to express and disseminate their knowledge, experiences, and opinions about products and services [81,90].

Although the phenomenon of word-of-mouth recommendations in itself is not new to marketers [34,46], the Internet has revolutionized the speed and the scope. Information can be transmitted instantly all over the world at virtually no cost [33]. What is more, the Internet has facilitated the development of specialized consumer knowledge reservoirs in the form of virtual communities of consumption, i.e., "affiliative groups whose online interactions are based upon a shared enthusiasm for, and knowledge of, a specific consumption activity or related group of activities" [51, p. 254]. Within these communities, participants may not only exchange information, but they may also develop friendships on the basis of their common interest or passion. Various research papers suggest that virtual communities may act as important reference groups for their participants [8,19,53]. When making a purchase decision, participants may turn to the virtual community to gather information, to ask for advice, or to review the opinion of an expert user. Post-purchase, they may communicate their own experiences with the consumption activity to the community. Subsequently, virtual communities of consumption represent substantial social networks of consumer knowledge and companionship that affect consumer behavior.

Information exchange between consumers on the Internet continues to grow exponentially due to the success of social networking sites like MySpace, YouTube, Facebook, and Wikipedia. Thus, spheres of interaction and influence become more and more virtual. Marketers are challenged to cater to this development. To respond to managers' need for systematic knowledge about the virtual community phenomenon, marketing research efforts have mainly centered on three issues. The first stream of research addresses managers' need for insight in how to elicit consumer input by investigating what motivates people to participate in and contribute to online communities [5,22,37,99]. The second stream of research shows how companies can use online consumer conversations to extract marketing knowledge, for example, for new product development [80]. Some researchers take a quantitative approach [10,32]; others have developed and propagated the method of netnography based on ethnographic research techniques to gain insight in the drivers of consumer behavior by analyzing the discourse within

☆ This article is based on the first author's dissertation about virtual communities of consumption.

* Corresponding author.
E-mail addresses: devalck@hec.fr (K. de Valck), gbruggen@rsm.nl (G.H. van Bruggen), bwierenga@rsm.nl (B. Wierenga).

0167-9236/$ – see front matter © 2009 Elsevier B.V. All rights reserved.
doi:10.1016/j.dss.2009.02.008

virtual communities [16,50,53]. The third stream of research focuses specifically on brand communities [2,51,52,57,64,65]. These studies have set out to untangle the nature of brand communities and their effect on consumer behavior.

Altogether, a decade of marketing research into online platforms that facilitate consumer-to-consumer interactions has generated useful insights in the functioning and exploitation of virtual communities as marketing tools. Nevertheless, many knowledge gaps still exist [33]. Research efforts to date have specifically advanced our understanding of the antecedents and the effects of virtual community participation, i.e., why do consumers get involved in virtual communities and what are the consequences of doing so. However, what happens in between, i.e., the way they make use of the community, and interact with other members, remains obscure. If we consider the acclaimed importance of virtual communities as reference groups, and if we consider the number of consumers that make use of them during their purchase decision processes [42,74], it is surprising how little is known about the role that virtual communities play in information search, information processing, and consumer decision-making. The objective of this paper is to shed light on what is going on inside virtual communities.

Based on a large-scale survey ($N = 1007$), and a three-year netnographic study of members of a virtual community, this paper aims to provide an in-depth insight into how consumers participate in, and are influenced by online social information networks. Our focal research site is a virtual community dedicated to culinary matters. Its topics of interest include recipes, restaurants, kitchen utensils, food products, wine, dieting, and culinary events. The community consists of a central homepage, numerous sub-communities, discussion forums, a chat room, and a large database with recipes, reviews, and articles. The community has been online since 1998, and it is managed by an independent company. Revenue is generated through advertisements and direct marketing activities. At the time of investigation, the community counted approximately 160,000 members. It is important to note that the community's content is entirely user-generated. The administrators take care of the infrastructure, but the members provide all the content.

Our paper is organized as follows. Section 2 discusses theories about interpersonal influence and the extent to which they can be applied to an online setting. Specifically, we review articles that have addressed the issue of reference group influence, and word-of-mouth communication in the context of virtual communities. This discussion brings forth specific research questions that have served as the starting point for our investigations reported in Sections 3–5. Section 3 presents a study that examines the extent to which consumers are affected in their decision-making regarding consumption activities by the ongoing process of interpersonal influence and word-of-mouth recommendation within virtual communities. We explore which factors are associated with virtual community influence, and we examine its effect on the various stages of the consumer decision process. Our insights allow us to point out how the organizational structure of virtual communities may reinforce their potential as online knowledge reservoir and platform of interpersonal influence. After having sketched the big picture of the role of virtual communities in consumer decision-making, Section 4 zooms in on member participation behavior. We present a classification of community members on the basis of how they make use of the community, and, consequently, how they are influenced by it. Our classification enables us to formulate marketing strategies that fit the profile and particular way in which each member type participates in the virtual community. Finally, Section 5 focuses on the most active virtual community members and their discussion practices. Here, we discuss the findings of our netnographic study that has given qualitative insights in the functioning of virtual communities as information source and social network. Specifically, we address the strategies and tactics that are employed by forum discussants to communicate with, and influence each other. Our aim is to show how market researchers can use the netnographic method to develop insights in the processes that underlie the buying decisions of the community members. We conclude this paper by addressing the relevancy and implication of our findings in light of the fast-pacing developments in social networking systems.

2. Theoretical background: interpersonal influence

2.1. Reference group influence

In general, consumers attach importance to the opinion of others while making purchase decisions. They talk about their purchase intentions to family members, relatives, friends, and colleagues and maybe ask for their advice. As a result, consumers presumably are influenced in their decision-making because they interact and communicate with others. A reference group is any person or group of people who significantly influences an individual's behavior [6]. The essential difference between virtual and traditional reference groups is that involvement in virtual communities is a voluntary and conscious choice, whereas membership in traditional reference groups may be imposed, among other things, by chance of birth or proximity of residence [5]. People are free to join the virtual community of their choice and choose to do so, for example, because they find like-mindedness among its members. This may make the virtual community a much more influential reference group than traditional communities that one does not necessarily feel deeply connected to.

What do we know about the functioning of virtual communities as reference groups? First, we would like to know why people adhere to them. In this respect, Bagozzi and Dholakia [5] examine what drives people to become a virtual community member and act as an agent of the community in concert with other members. More formally stated; they investigate how so-called “we-intentions” determine virtual community participation. They find two mediated antecedents for we-intentions, namely positive anticipated emotions and social identity (i.e., self-categorization, affective commitment, and group-based self-esteem). Positive anticipated emotions are an individual-level motive, whereas social identity is a group-level motive [5]. In a follow-up paper, Dholakia et al. [22] introduce five specific, individual-level, value perceptions and model these as antecedents to various group-level variables, which in turn influence community participation. Furthermore, they discern between virtual communities that are small group-based; members usually interact with the same group of people (e.g., multi-user dungeons and chat rooms) versus virtual communities that are network-based; members usually interact with different individuals or groups of people (e.g., email lists, bulletin boards, and newsgroups). They find that the main reason for participation in small group-based communities is social benefits, whereas informational and instrumental value is the main reason for participation in network-based communities. In both types of community, social identity and group norms are positively related to we-intentions that underlie participation behavior. In short, people have specific reasons to participate in specific types of communities. Besides, they are likely to increase their participation if they identify with the group and internalize its norms.

Neither of the above-mentioned studies investigates the influence of community participation on consumer decision-making. Thus, taking into account the existing knowledge about traditional reference group influence, what can we say about the kind of influence exerted by virtual communities? Traditional reference group influence is based on the perceived norms and overt behavior of the reference group. Normative reference group influence operates through a reward and punishment system that is contingent upon the visibility of one's own behavior and the expected reactions of the reference group upon the behavior that is displayed [69,72]. In the

context of virtual communities, influence among group members takes place via online interaction. Offline behavior is not visible, unless interaction also takes place in real life. Therefore, in an online environment reference group influence is based on communicated norms and self-reported behavior. One's actual behavior outside of the virtual community is not necessarily visible for the other community members; thus, a reward and punishment system for displayed behavior has little value. Moreover, virtual communities tend to be characterized by low entry and exit barriers. If a member does not agree with the group norms, the easiest option is to leave the virtual community and join another that is more similar in beliefs and behavior. In traditional reference groups, this option to leave and withdraw from group pressure to conform to norms is less available. Hence, we expect that normative reference group influence on offline behavior is less likely to occur with respect to virtual communities.

Note that this expectation especially refers to virtual reference group influence on *offline* behavior. With respect to reference group influence on *online* behavior, the concept of normative influence is relevant. Research efforts have indicated that group norms with respect to online behavior emerge whenever there is prolonged, computer-mediated interaction and communication between people [58,71]. This conformity shows itself, for example, in a specific email writing style or length of messages. Moreover, online communities ensure that participants conform to group norms by reproaching offenders. McLaughlin, Osborne and Smith [60] conducted a study investigating the various reproaching techniques used within Usenet groups. They found that reproaches ranged from a mild correction to truly vicious email attacks on the offender. Community managers build on this tendency to enforce group norms by facilitating community members with rules and tools that allow them to establish and maintain an amiable ambiance in the community. Many communities have a code of conduct that specifies community standards with regard to behavior, language, content, identity, commercial use, et cetera. Oftentimes, community members point out the code of conduct to each other, so that manager interference to enforce the rules is not necessary [48,92].

In contrast to normative reference group influence, the concept of informational reference group influence is very appropriate to explain the interaction between online and offline interpersonal effects among virtual community members. Informational reference group influence is a process of internalization of the perceived norms and opinions of the reference group as evidence about reality. In case of face-to-face interaction, this internalization process is reinforced by the observation of the reference group's behavior. Virtual community members are generally not exposed to each other's offline behavior, but sharing information about opinions and experiences is usually what it is all about; many members actively seek information and advice from other members. The most important source characteristic that determines the internalization process is credibility, i.e., the source's expertise and trustworthiness. Internalization is likely to occur when a receiver perceives the sender to be knowledgeable about a subject and free of personal gain as a motive to communicate about a product of service [70].

Bickart and Schindler [8] have investigated the effect of informational reference group influence on consumer behavior in the context of online bulletin boards. Based on the existing literature they assume that online information produced by other consumers is perceived as more credible and relevant, and results in more empathy than marketer-generated information. Consequently, they hypothesize that bulletin board content results in greater interest in and purchase intentions for the product categories that are discussed. They test this in an experimental setting with 61 undergraduate students that are asked to look at either corporate web pages or online consumer discussions related to specific product categories. Their study confirms that the participants who are exposed to the online consumer discussions report more product interest than the participants who are exposed to the corporate web pages. However, behavioral effects on purchase likelihood and the amount of money that the participants expect to spend in the various product categories are inconclusive.

Although Bickart and Schindler's study indicates that consumer-generated online information results in stronger product interest than marketer-generated online information, it does not directly examine the underlying reason. Okleshen and Grossbart's [68] study on Usenet groups, however, sheds some light on this issue. By means of an online survey among participants in 37 Usenet groups, they examine the antecedents and consequences of perceived membership in virtual communities. With respect to the consequences, they hypothesize that if consumers view themselves as members, Usenet groups will be more apt to influence their behaviors. Moreover, they hypothesize that if consumers view the online information as valuable, accurate, and reliable, it is more apt to change their behaviors. The results show that the strength of a consumers' perception of being a member is positively related to the degree to which he or she values the information in the discussions, which is positively related to the extent of change in their behavior. There is no *direct* relationship between membership perception and behavioral changes. This result is consistent with the idea that virtual communities act as informational reference groups rather than normative reference groups that exert social influence.

2.2. Word-of-mouth communication

In order to better understand the actual mechanisms of interpersonal effects in an online environment, we need to focus on the way information flows from one member to another within virtual communities. Here we introduce the second stream of research that we use to build our theoretical framework: word-of-mouth communication. Word-of-mouth is the informal transmission of ideas, comments, opinions, and information between two or more individuals, neither one of which is a marketer [9]. Virtual communities can be considered word-of-mouth *networks*, i.e., consisting of multiple dyads. Multiple dyads occur with one source and several receivers, as well as with several sources and one receiver [11]. The impact of word-of-mouth communication within virtual communities depends on both the structural and the interactional characteristics of the network [45]. The structural characteristics include factors such as the size of the network, number of connections between one person and all others, and the number of actual relationships relative to the potential number, whereas the interactional characteristics include tie strength and degree of homophily among members of the network [11]. The potential impact of virtual communities is large; recommendations can be made at virtually no costs, and they can spread quickly within and outside the virtual community network. Moreover, virtual community members share an interest, which produces affinity and creates a bond. These social network qualities coupled with the perceived credibility of consumer evaluations, make the virtual community a powerful platform for exploiting consumer-to-consumer recommendations, for example, by means of viral marketing campaigns, i.e., using online consumer-to-consumer referrals as a means of multiplying the popularity of a brand, product, or company [24,84].

Several researchers have investigated what motivates consumers to make contributions to the online knowledge reservoirs that virtual communities constitute. Hennig-Thurau et al. [37] find evidence for eight different motivations that largely correspond to motivations found for engaging in word-of-mouth communication in the traditional, face-to-face setting: (1) venting negative feelings, (2) concern for other consumers, (3) self-enhancement, (4) advice seeking, (5) social benefits, (6) economic incentives, (7) platform assistance, and (8) helping the company. Hennig-Thurau et al., furthermore, examine to what extent the frequency of visits, as well as the number of comments written, are a function of these eight motivations. It is social benefits that motivate consumers most strongly, both to visit the platform and to articulate themselves. Finally, the authors develop a motivation-based segmentation of electronic word-of-mouth senders that distinguishes self-

interested helpers who are driven by economic incentives, consumer advocates who act out of concern for other consumers, true altruists who are motivated to help both other consumers as well as companies, and multiple-motive consumers.

Wiertz and De Ruyter [99] investigate contribution behavior to firm-hosted commercial online communities, in which customers interact to solve each other's service problems. They extend a model of social capital based on Wasko and Faraj [96] to examine the direct impact of commitment both to the online community and the host firm, as well as reciprocity, on quality and quantity of knowledge contribution. They test their framework using self-reported and objective data from 203 members of a firm-hosted technical support community. Surprisingly, their results indicate no relationship between members' perception of the norm of reciprocity and contribution behavior. Also, they do not find a significant relationship between commitment to the firm and quantity and quality of contributions. Instead, this study shows that consumers who contribute most in terms of quantity and quality are driven by their commitment to the community, which is another indicator of the power of virtual communities as networks of companionship. Besides commitment to the community, Wiertz and De Ruyter find that member's online interaction propensity (i.e., a prevailing tendency of an individual to interact with relative strangers — people they have never met offline — in an online environment), and the informational value s/he perceives in the community are the strongest drivers of knowledge contribution.

Other researchers have focused on the effects of online word-of-mouth communication. Chatterjee [17] reports the results of an experiment that examines the effect of negative online reviews. This study shows that existing theories about interpersonal influence in the traditional setting also apply to the online context; consumers are more likely to search for and accept (negative) online word-of-mouth communication in a situation in which they lack information and experience, as well as in a situation in which risk is higher [39,77,78]. Chevalier and Mayzlin [18], as well as Dellarocas et al. [21], address the value of online word-of-mouth recommendations in terms of their financial impact and their revenue forecasting potential. Chevalier and Mayzlin show that the number of online consumer reviews about a book is related to book sales. Besides, they find that negative reviews have a stronger effect than positive reviews; this effect has been shown before in the offline context [76]. Dellarocas et al. show that online consumer reviews about movies are representative of the movie-going audience at large, and that the online consumer reviews are better forecasters of movie revenues than professional critic reviews. Together, these findings support the viewpoint that online forums function as alternative and influential sources of information.

The existing literature about virtual communities and interpersonal influence gives a first insight in the functioning of virtual communities as reference groups and word-of-mouth networks, but many questions remain. In the following sections, we start with answering the most basic ones. Section 3 examines the determinants and effects of virtual community influence on consumer decision-making. Our research framework is based upon existing theories of interpersonal influence and word-of-mouth recommendation. We explore in what respect these theories can be extended from the traditional context to the computer-mediated context of virtual communities.

3. Virtual community influence on the consumer decision process

In this section, we focus on the question to what extent membership characteristics, community interaction characteristics, and general consumer characteristics are associated with perceived virtual community influence on the consumer decision process (Fig. 1). The premise of the framework in Fig. 1 is that the level of community influence is associated with membership related factors, i.e., members' attachment to the community in terms of topical and social

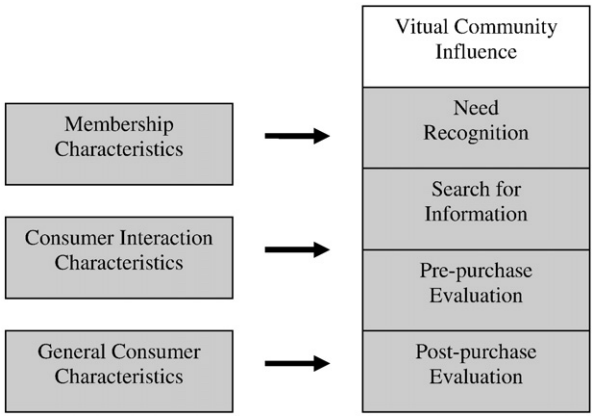

Fig. 1. Community influence on the consumer decision process.

involvement and membership length, as well as factors related to members' actual interaction behavior with the community, i.e., the frequency and duration of community visits as well as the activities undertaken while online. Of course, general consumer characteristics such as age and education as well as members' Internet proficiency, their orientation towards others, and their opinion-leadership and expertise may also impact the level of community influence on the consumer decision process. Together these factors determine how members use and value the virtual community as a reference group during decision-making regarding consumption activities related to the community's topic of interest.

3.1. Research model

3.1.1. Consumer decision process

Virtual community influence on the consumer decision process is a broad concept. Consumers generally go through seven major stages when making purchase decisions; (1) need recognition, (2) search for information, (3) pre-purchase evaluation of alternatives, (4) purchase, (5) consumption, (6) post-purchase evaluation, and (7) divestment [9]. Virtual community membership may affect each of these phases. In our study we focus on the phases that are most relevant in the context of interaction and interpersonal influence based on information exchange between virtual community members, i.e., *need recognition*, *search for information*, *pre-purchase evaluation*, and *post-purchase evaluation*.

The core concern of the community we study is recipe exchange between members. The community's recipe database contains more than 200,000 recipes. Recipes are used to guide the cooking process. Decisions commonly made with respect to cooking include decisions about what to cook and how to put together a meal, as well as decisions about which ingredients to use, how to prepare food products, and the cooking time. For all these instances, the community offers its members multiple opportunities for assistance. Therefore, we have chosen the cooking decision process to examine relationships between the constructs in our conceptual framework.

For community influence on the need recognition phase, we study the perceived influence on cooking frequency. In this respect, we ask participants whether they cook more often due to their community membership. For community influence on the information search phase, we study the perceived influence on recipe knowledge. This includes knowledge about dishes, cuisines, ingredients, and food preparation. For community influence on the pre-purchase evaluation phase, we study the perceived influence on recipe choice. We ask participants whether they choose for other dishes and courses due to their community membership. For community influence on the post-purchase evaluation phase, we study perceived influence on satisfaction with cooking results. Have participants become more satisfied with their cooking results due to their community membership?

We expect that virtual communities influence is dissimilar in magnitude for each of the four phases of the consumer decision process. Specifically, we argue that community influence is largest for the information search phase. Virtual communities owe their existence to information exchange between members [35,75]. Whether members participate in the community for its topical content or to socially connect with other members, contact is made by producing and processing textual or graphical member contributions. Interpersonal influence occurs through these contributions that are produced, noticed, comprehended, accepted, and stored in memory. In other words, any influence due to community membership is caused by information exchange that first leads to cognitive and affective responses, which in turn might be translated into behavior [28]. Community influence on the frequency of engaging in the consumption activity, on choices made from the alternatives, and on satisfaction with the decision outcome is, therefore, most likely smaller than the influence on information search leading to increased knowledge.

Theoretically a vast number of variables has been identified that may be related to community influence on the consumer decision process. Our study aims to explore which factors are most strongly associated with perceived community influence per phase of the consumer decision process. In several cases, we have formulated specific expectations for each phase separately. However, generally, theory does not give us reason to formulate specific expectations per phase of the decision process. When we refer in our discussion to community influence on the decision process, this should be understood as community influence on the four phases of the consumer decision process. For reasons of completeness, we include an analysis of the average overall influence on the four phases.

3.1.2. Membership characteristics

When people first enter a virtual community they are not familiar with the environment, the other members, and the rules of the game [53]. Knowledge on these aspects accumulates over time [79]. Therefore, in the first stages of getting acquainted, members engage themselves in informational and instrumental activities, while in later stages they may become more involved in symbolic exchanges that are aimed at the creation of intimacy and relational cohesiveness [3]. Compare in this respect Walther's [94] meta-analysis of computer-mediated communication, which shows that Internet users progress from initially a-social information gathering to increasingly affiliative, social activities. More experienced members may therefore use and/or value the virtual community very differently from less experienced members in the context of purchase decision-making. Therefore, we include a measure of *membership length* to catch possible differences between short time and long-time members.

Following Kozinets [51], we furthermore assume that virtual community members display different interaction profiles as a result of their orientation towards the community's topic of interest versus the social relationships among the members. Highly topically involved members are seriously dedicated to the consumption activities that the virtual community focuses on. Supposedly, most of them have quite some experience with these consumption activities; others are probably better characterized as enthusiastic novices in the field [53]. In either case, the virtual community offers an environment in which these topically involved members can satisfy their demand of culinary information exchange. They have joined the virtual community with the aim to increase their knowledge, to share experiences, or, simply, to express their interest in the community's subject matter. Thus, we expect that *topical involvement* relates to receptiveness to the virtual exchange of information and online communication about relevant consumption activities. Prior research has demonstrated that experience with a decision process lessens the need for information, and, consequently, reduces receptiveness to opinions and experiences of others [1,85]. However, the deliberate action of pursuing the virtual community as a reference group that has expertise on the members' topic of interest renders it likely that *topically involved* members are influenced by the community in their knowledge and behavior regarding the consumption activities that are the central topic of the community. Furthermore, we know that the impact of reference group influence and word-of-mouth recommendation depends, among other things, on tie strength. Strong tie sources have more impact on consumer behavior than weak tie sources [34,45]. Therefore, we expect that high *social involvement* in the community corresponds to high perceived impact on knowledge and behavior.

3.1.3. Community interaction characteristics

The frequency with which someone visits the virtual community and the amount of time spent during each visit are likely to affect the extent of community influence. Regular and extended visits to the virtual community imply a high level of exposure to information and communication about consumption activities that are discussed among community members. Even when members are not actively searching for information, they will passively be informed about culinary issues during their visits [41]. Evidence from both advertising and television news research makes clear that incidental exposure usually is not enough for consumers to recall information. Instead, repetition is necessary before information is retained and leads to learning of any significance [66,98]. The positive effect of exposure frequency on awareness and knowledge is also found for online advertising and news on the World Wide Web [12,88]. In line with these findings we argue that members who engage in frequent or lengthy community visits are more likely to be affected than members who engage in occasional or swift visits. We, therefore, expect that *frequency and duration of visits* are positively related to community influence on the consumer decision process.

Besides frequency and duration of visits, members' interaction profile is also determined by the kind of activities they undertake while online. We distinguish between three types of online behavior relevant to virtual community influence on the consumer decision process, i.e., retrieve, supply, and discuss information. These activities determine the information flow between virtual community members as receivers and senders in a word-of-mouth network [11,47]. Community members may be engaged in all three types of online behavior, thus switching between the roles of information receiver and information sender. Both receivers and senders in the word-of-mouth process presumably gain from information exchange. Receivers obtain information about behavior and choices of others, and get feedback about their own behavior and choices [9]. As a result, the act of retrieving information from the community may influence the consumer decision process in various ways. Both the goal-directed search for specific information, as well as in general obtaining information about the behavior, choices, and opinions of other members may induce enthusiasm for engaging in the community's consumption activities, it may increase members' knowledge reservoir, it may alter their preferences, and it may reduce cognitive dissonance, which could lead to more satisfaction with the decision outcomes. Hence, we expect a positive relationship between the extent to which members *retrieve information* from the community and community influence on the consumer decision process.

Senders share their positive and negative experiences out of a desire to help others make better decisions, to decrease doubts about their own behavior, or to experience feelings of prestige and power [23,29,38]. Thus, we expect that the act of *supplying information* to the community is related to community influence on the post-purchase evaluation phase. Being able to express oneself about a positive consumption experience may boost enthusiasm for and satisfaction with the decision outcome [77,87]. Alternatively, talking to others about disappointing experiences may relieve negative feelings and reduce dissatisfaction [27,87]. When members *discuss information* with others they are actively involved in knowledge exchanges

between members. Their active participation may deepen their experience with and emotional devotion towards the consumption activity of interest, thereby indirectly affecting their decision-making processes.

3.1.4. General consumer characteristics

Besides various demographic and socioeconomic variables, we include consumers' Internet profile, their orientation towards others, and their opinion leadership and expertise with respect to the community's topic of interest as independent variables in our model. The number of years someone has used the Internet and the number of hours someone spends online are a measure of *Internet proficiency*. How is the level of Internet experience related to behavior in the virtual community and consequently to the impact of the community on consumer decision-making?

Sociability and influenceability are consumer traits related to someone's orientation towards others. Both could play an important role in explaining community influence on the consumer decision process. Arndt [4] has found that sociable persons are more likely to engage in word-of-mouth communication than those who are less sociable. Sociable persons are outgoing, they enjoy being with others, and they have a participative temperament, thus they actively take part in social networks and are influenced by these networks as a result. Besides *sociability* as a general trait, we need to take into account someone's base level of influenceability, i.e., how receptive one is to opinions and experiences of others [59]. After all, this will determine to a large extent how the virtual community is used and valued as a reference group, thus affecting community influence on the consumer decision process. Bearden, Netemeyer and Teel [7] have established that susceptibility to interpersonal influence consists of two components; it is manifested through either normative or informational influence. *Susceptibility to normative interpersonal influence* is the tendency to conform to the expectations of others [14]. It is motivated by a desire to identify oneself with another or to gain rewards or avoid punishments by complying with group norms [6,69]. *Susceptibility to informational interpersonal influence* is the tendency to accept information from others as evidence about reality [20]. It operates through a process of internalization, which occurs when information from others increases a person's knowledge about some aspects of the environment [7].

Finally, we expect that the extent to which people are *opinion leaders/seekers* in relation to the community's topic of interest affects their membership and interaction profile. Opinion leadership is associated with giving information to, sharing experiences with, and influencing others [36,78]. The more involved opinion leaders are in a certain topic of interest, the more likely it is they talk to others about it [91]. The question is to what extent these interactions affect their own decision processes, given the fact that they have a good command of cooking and know a lot about culinary matters in general. In the same manner, their *level of expertise* relative to real life reference groups and their level of expertise relative to the other virtual community members may also affect how the community is used and valued as a reference group.

3.2. Methodology

To empirically examine the relationships between the constructs in our research model we collected data by means of an online survey. In our questionnaire we used multi-item measurements where appropriate, and we used existing scales where possible. We developed some new measurements to fit the specific context of our study. We fine-tuned the questionnaire on the basis of insights gained from our ongoing netnography [53] consisting of observations and interviews of community members. The survey population consisted of nearly 30,000 members that visited the community during the period of data collection. Recruitment was realized through an announcement on the community's central homepage containing a direct link to the online survey site. Halfway through the data collection period, the community's newsletter was spread through electronic mail among all 170,000 registered members, containing a similar announcement with a direct link to the survey. The questionnaire was designed by means of standard software that ensured an easy-to-access survey site and an easy-to-navigate survey interface. To ensure that less frequent visiting members also had a chance of being in the sample, the survey has been online for four weeks, generating 1007 usable responses.

3.3. Key findings

For our data analyses, we used the following linear regression models that each describes community influence on the consumer decision process as a function of membership characteristics, community interaction characteristics, and general consumer characteristics. The fifth model describes the overall influence on the four phases of the cooking decision process.

$$\left.\begin{array}{l}(1)\ \text{COOKING FREQUENCY} = \\ (2)\ \text{RECIPE KNOWLEDGE} = \\ (3)\ \text{RECIPE CHOICE} = \\ (4)\ \text{COOK. SATISFACTION} = \\ (5)\ \text{OVERALL INF.} =\end{array}\right\} \left\{\begin{array}{l}\beta_0 + \beta_1\text{TOPICAL INVOLVEMENT} + \beta_2\text{SOCIAL INVOLVEMENT} + \\ \beta_3\text{MEMBERSHIP LENGTH} + \beta_4\text{VISIT FREQUENCY} + \\ \beta_5\text{VISIT DURATION} + \beta_6\text{RETRIEVE INFO} + \beta_7\text{SUPPLY INFO} + \\ \beta_8\text{DISCUSS INFO} + \beta_9\text{SOCIABILITY} + \beta_{10}\text{SUSC. NORM. INF.} + \\ \beta_{11}\text{SUSC. INFO. INF.} + \beta_{12}\text{OPN. LEADER} + \beta_{13}\text{OPN.SEEKER} + \\ \beta_{14}\text{OFFLINE EXPERTISE} + \beta_{15}\text{ONLINE EXPERTISE} + \\ \beta_{16}\text{WEB YEARS} + \beta_{17}\text{WEB HOURS} + \beta_{18}\text{AGE} + \beta_{19}\text{GENDER} + \\ \beta_{20}\text{EDUCATION} + \beta_{21}\text{INCOME} + \varepsilon\end{array}\right\}$$

The R^2 of the models varies from 0.20 (adjusted $R^2 = 0.17$/F statistic = 7.18) for community influence on cooking frequency, as well as community influence on recipe choice (adjusted $R^2 = 0.17$/F statistic = 7.12), to 0.29 (adjusted $R^2 = 0.27$/F statistic = 11.95) for overall community influence on the cooking decision process.

First of all, we are interested in examining the relative influence of the virtual community on each phase of the decision process. Table 1 contains the mean scores of community influence on the decision process. We expected community influence to be strongest in the information search phase compared with the other three phases. Indeed, we find that the mean score of the perceived influence on recipe knowledge is highest. *T*-tests indicate that community influence on search for information is significantly ($p<0.01$) higher than community influence on need recognition and post-purchase evaluation. Community influence is not significantly different between the information search and pre-purchase evaluation phases ($t = 1.89$, $p = 0.06$). Thus, in case of the cooking decision process, community influence is most profound in the information search phase, while influence on members' pre-purchase alternative evaluation forms a close runner-up.

The results of our regression analyses are reported in Table 2. In the rest of this section, we discuss the most noteworthy results.

The first interesting result pertains to the relationship between member's topical and social involvement in the community and its influence on their decision-making. The regression results in Table 2 indicate that there is no significant relationship between involvement in the community's topic of interest and the community's influence for any of the phases of the consumer decision process. Since respondents have

Table 1
Community influence on the various phases of the cooking decision process.

	Mean scores
	$N = 1007$
Need recognition — perceived influence on cooking frequency	2.3 (1.4)
Search for information — perceived influence on recipe knowledge	3.2 (1.1)
Pre-purchase evaluation — perceived influence on recipe choice	3.1 (1.4)
Post-purchase evaluation — perceived influence on satisfaction with result	2.8 (1.4)
Overall influence — average overall influence on four phases	2.9 (1.1)

Mean scores are measured on 5-point rating scales (1–5). Standard deviations are annotated in parentheses.

Table 2
Regression results for community influence on the cooking decision process.

	Need recognition	*Search for information*	*Pre-purchase evaluation*	*Post-purchase evaluation*	*Overall influence*
	Perceived influence on cooking frequency	Perceived influence on recipe knowledge	Perceived influence on recipe choice	Perceived influence on satisfaction with result	Average overall influence on four phases
Membership characteristics					
Topical involvement	−0.02 (0.68)	0.01 (0.87)	−0.06 (0.28)	−0.04 (0.48)	−0.04 (0.47)
Social involvement	**0.12 (0.05)**	**0.18 (0.00)**	**0.13 (0.03)**	**0.15 (0.01)**	**0.17 (0.00)**
Length of membership	0.05 (0.25)	**0.10 (0.01)**	−0.01 (0.74)	**0.10 (0.01)**	0.07 (0.07)
Community interaction characteristics					
Frequency of visits	**0.13 (0.01)**	**0.12 (0.01)**	**0.22 (0.00)**	**0.21 (0.00)**	**0.21 (0.00)**
Duration of visits	0.05 (0.23)	−0.01 (0.88)	0.05 (0.22)	−0.01 (0.88)	0.03 (0.46)
Retrieve information	0.05 (0.30)	**0.22 (0.00)**	**0.11 (0.01)**	**0.09 (0.03)**	**0.14 (0.00)**
Supply information	−0.01 (0.91)	−0.04 (0.49)	−0.07 (0.19)	−0.01 (0.84)	−0.04 (0.46)
Discuss information	0.01 (0.78)	**−0.11 (0.02)**	−0.04 (0.38)	−0.07 (0.13)	−0.06 (0.19)
Orientation towards others					
Sociability	−0.02 (0.66)	−0.00 (0.91)	0.05 (0.22)	0.00 (0.97)	0.01 (0.79)
Susc. to norm. infl.	**0.20 (0.00)**	**0.16 (0.00)**	**0.12 (0.00)**	**0.16 (0.00)**	**0.19 (0.00)**
Susc. to info. infl.	0.07 (0.11)	**0.08 (0.04)**	0.03 (0.49)	0.03 (0.49)	0.06 (0.12)
Opinion leader	**−0.17 (0.00)**	−0.01 (0.92)	−0.10 (0.07)	**−0.18 (0.00)**	**−0.15 (0.00)**
Opinion seeker	**0.12 (0.01)**	**0.10 (0.02)**	**0.17 (0.00)**	**0.14 (0.00)**	**0.16 (0.00)**
Offline expertise	0.08 (0.08)	0.07 (0.08)	0.02 (0.70)	0.05 (0.23)	0.07 (0.11)
Online expertise	−0.04 (0.28)	−0.06 (0.11)	−0.02 (0.56)	−0.02 (0.62)	−0.04 (0.25)
Internet proficiency					
Webyears	0.01 (0.88)	−0.07 (0.06)	−0.07 (0.09)	−0.04 (0.37)	−0.05 (0.19)
Webhours	0.02 (0.65)	0.01 (0.77)	−0.02 (0.62)	−0.04 (0.31)	−0.01 (0.77)
Demographics & Socioeconomic variables					
Age	**−0.12 (0.01)**	**−0.08 (0.05)**	−0.07 (0.10)	−0.03 (0.44)	**−0.09 (0.02)**
Gender	**0.09 (0.04)**	0.05 (0.23)	0.03 (0.42)	0.03 (0.49)	0.06 (0.12)
Education	−0.06 (0.12)	**−0.19 (0.00)**	−0.06 (0.18)	**−0.08 (0.04)**	**−0.11 (0.00)**
Income	0.02 (0.65)	−0.01 (0.72)	0.05 (0.21)	0.03 (0.54)	0.03 (0.48)
R^2 (total model)	0.20	0.28	0.20	0.21	0.29
Adjusted R^2 (total model)	0.17	0.26	0.17	0.18	0.27
F-statistic (total model)	7.18	11.46	7.12	9.35	11.95

The table contains standardized regression coefficients with *p*-values annotated in parentheses.
Values printed in bold are significant ($p \leq 0.05$).

reported a rather high mean for topical involvement (4.0 on a 1–5 rating scale with a standard deviation of 0.7), we may not conclude that topical involvement is unimportant. If consumers are not interested in the community's topic of interest, they simply don't subscribe as a member. The group that subscribes is (fairly) interested in culinary matters. Presumably, variance in their topical involvement is too small to result in a significant relationship with community influence. However, we do find a positive relationship between social involvement and community influence on all four phases of the cooking decision process. This finding extends traditional theories about interpersonal influence in face-to-face situations to the computer-mediated context of virtual communities. The degree to which people are tied in a social relationship is an important determinant of interpersonal influence between consumers both in real life as well as in virtual settings. The stronger the tie, the higher is the level of interpersonal influence.

The second interesting result is related to the activities that members undertake while they visit the community. We find support for our contention that retrieving information from the community is positively related to influence on the consumer decision process. Members who retrieve a lot of information report a fairly strong community influence on their recipe knowledge, their recipe choices, and their satisfaction with their cooking results. There is no significant relationship between retrieving information and community influence on cooking frequency. Maybe, respondents' engagement in cooking activities is not so much influenced by the amount of culinary information retrieved from the community, but by everyday necessity and routine. Furthermore, we find no relationships between supplying and discussing information and community influence. Being involved in the active supply of information and participation in discussions with other members does not significantly affect community influence on consumer decision-making.

A noteworthy result is the significant negative relationship between discussing information and community influence on search for information. The more members are engaged in chat sessions and discussion forums, the less community influence they experience on their recipe knowledge. This could mean two things; it could be that merely culinary experts participate in the community's chat room and discussion forums. Having a high initial level of culinary knowledge would decrease the learning effect resulting from participation in discussions. Although we find a correlation of 0.21 ($p<0.01$) between online culinary expertise and discussing information in the community, this is not high enough to substantiate this explanation. Another explanation could be that information exchange within the community's chat room and discussion forums has a predominant social character, i.e., information is not factual, aimed at exchanging knowledge, but it is more experiential, aimed at socializing and recreation. Indeed, the correlation between social involvement and discussing information reaches a value of 0.50 ($p<0.01$).

In Section 2, we discussed our expectations regarding the functioning of the virtual community as a reference group. We anticipated that, in the computer-mediated context of virtual communities where one does not easily notice whether members conform to group standards and customs in real life, susceptibility to informational interpersonal influence would be more relevant to explain community influence than susceptibility to normative interpersonal influence. This expectation, however, is not

confirmed. Members who are receptive to information from others and accept this as evidence about reality benefit from their community membership in terms of culinary facts and figures, i.e., their recipe knowledge increases. But this relationship is not as strong as the relationship between susceptibility to values and norms of others and community influence. It is this disposition to identify oneself with others that increases the likelihood of community influence on all phases of the cooking decision process. Thus, even without mechanisms to control behavior and punish deviations, the community exerts such influence that members who are sensitive to group norms, see it as an example of what they should know and how they should behave with respect to cooking.

Finally, we address the role of opinion leadership and expertise in the context of virtual communities and their influence on consumer decision-making. Respondents who consider themselves culinary opinion leaders report that their community membership has not influenced their cooking frequency. Likewise, their community membership has not increased their satisfaction with their cooking results. Possibly, they are such cooking enthusiasts that they already prepare most meals and they do this to their full satisfaction. When opinion leaders have become true, overall experts, their need for information exchange with other consumers eventually decreases [62]. Therefore, we could expect that culinary expertise is even negatively related to community influence on decision-making, however, we do not find such a strong effect.

3.4. Implications

Looking at our findings regarding community influence on the cooking decision process, we conclude that virtual interpersonal influence does not profoundly differ from interpersonal influence in traditional face-to-face settings. In both cases, an important determinant of interpersonal influence is the social tie to the reference group. The more someone is socially involved in the virtual community, the more likely it is that community influence occurs. Likewise, we find that the frequency of visits to the community increases the likelihood that virtual interpersonal influence is experienced. This reflects the functioning of traditional reference groups, for which it is shown that the regularity with which people find themselves in the sphere of influence of the group enhances its impact on their knowledge, attitudes, and behavior. But, whereas participation in reference groups such as a personal circle of family and friends, or a professional, religious, or neighborhood community cannot easily be avoided, participation in the virtual community is chosen by one's own volition.

Virtual communities join together (highly) topically involved individuals, many of whom have considerable expertise on the community's topic of interest. Compared with traditional reference groups, virtual communities, thus, represent an enormous specialized knowledge reservoir that one may use according to one's inclination. People actively seek advice and information from the community whenever they want. Traditional reference group influence, on the other hand, may be exerted beyond one's will. The fact that respondents who are susceptible to normative interpersonal influence report the highest degree of community influence indicates that the virtual community as a reference group is valued and taken into account, even though its influence could be easily discarded. It is clear that (some) members turn to the community as a norm-setting source of information. We may even argue that its norm-setting influence is presumably larger than that of traditional reference groups, because the community contains extended and expert information that is sought after on purpose and out of free will. The fact that it is especially the younger and less-educated members who are influenced in their consumer behavior by the community, furthermore, pinpoints the importance of virtual reference groups for particular consumer segments.

Besides social involvement, frequency of visits, and susceptibility to normative interpersonal influence, several other factors are important as determinants of community influence on the cooking decision process. In general, culinary opinion leaders are less likely to experience community influence, whereas culinary opinion seekers report profound levels of community influence. Also, the extent to which members retrieve information from the community is in general positively related to community influence. Although these findings are not really surprising, they do underscore that virtual communities are actively used, valued, and taken into account as information sources for consumer decision-making.

What do marketers have to keep in mind when turning to virtual communities as marketing tools? We already mentioned the importance of social involvement and frequency of visits as factors that are strongly related to community influence. Thus, community managers should invest in functionalities that facilitate member contact, they should safeguard a social atmosphere, and they should organize the community in such a way that regular visits are attractive and beneficial. These directions are not new [13,35,48,63], but to date no research has actually shown the relationship between social involvement and regular visits on the one hand and community influence on consumer behavior on the other. Our research also brings to light that factors that are generally considered important for developing and maintaining a thriving community, i.e., increasing membership length, duration of visits, active supply of information, and participation in discussion forums, have no relationship with community influence on consumer decision-making. This is not to say that community managers should disregard these factors, because that could indeed jeopardize the sustainability of the community as an online meeting platform. However, when marketers want to use the community for marketing purposes they should focus on other factors instead.

This section has taken a top-down perspective on the issue of interpersonal influence within virtual communities of consumption by making use of existing theories about interpersonal influence in the traditional setting and examining their relevance in a virtual context. As a result, our study has investigated a wide range of factors that could explain community influence on consumer decision-making. Despite the many factors considered, the explanatory power of all our models is not very high. This means that many other factors are related to community influence on decision-making. Further research is needed to arrive at a more complete picture of the aspects that explain community influence on various consumer decisions. Further research should also overcome the most noteworthy limitation of this study, namely the use of self-reports about community influence on decision-making instead of actual behavioral data.

We now turn our focus from determinants and effects of virtual community influence to the underlying process of virtual community participation. Instead of the theoretical, top-down approach taken in this section, in the next section, we follow a data-driven, bottom-up approach. We investigate the various patterns of participation that can be discerned between community members to better understand how they take part in the ongoing process of information exchange. By doing so, we build on this section's findings about community participation and its effect on the consumer decision process in general and connect it to insights in community member types, their participatory role in the community, and the influence they have on other members.

4. Patterns of participation: a classification of community members

It is generally asserted that consumers vary in the way they make use of virtual communities. A simple way to classify community participation behavior is to distinguish between members who contribute content, and members who read the posts of others without making a contribution themselves. This dichotomy between *posters* and *lurkers* has been widely adopted by managers and academics, because of its straightforward and broad applicability across various online environments [35,49,73,75,82]. The merit of a distinction based on contribution behavior lies in its easy implementation based on log file data of member behavior. Besides, the distinction has proven useful in

predicting differences between community members in, among other things, online buying behavior [13], and perceived membership and community influence on behavior [68].

However, the poster–lurker dichotomy also has a major shortcoming. It may be too simple. Conventional wisdom suggests that posters make up roughly 20% of any virtual community, while as much as 80% of the members only lurk [51]. Community sizes vary greatly, but may amount to hundreds of thousands of users [67]. How can one develop a marketing strategy that effectively appeals to such large segments? Just taking into account who posts and who does not, does not tell the whole story of community participation. The question is: can we find other differences in members' participation behavior that bear significant meaning for marketers? The answer is yes. Various researchers have started to investigate what these differences constitute.

In Section 2, we have already discussed research by Bagozzi and Dholakia [5] and Dholakia et al. [22] in which virtual community participation is conceptualized as intentional social action. They show that the amount of community participation (defined as the product of the frequency and duration of community visits) is driven by so-called we-intentions, i.e., intentions to participate together as a group. Community members are likely to increase their participation if they identify with the group and internalize its norms.

The process of identifying with the community and internalizing its norms takes time [93,94]. Therefore, differences in community participation have also been conceptualized as stemming from progressive stages of member involvement. In this respect, both Kim [48] and Alon et al. [3] put forward the concept of a membership life cycle. Kim describes five archetypical member roles based on increasing levels of participation, responsibilities, and power in the community, i.e., (1) visitors, (2) novices, (3) regulars, (4) leaders, and (5) elders. Alon et al. show that in the first phases of the membership life cycle, members engage in informational and instrumental activities to learn about the community's topic of interest. These activities allow them to get acquainted with the community environment, its members, and its rules, so that, in later stages, they may become more involved in symbolic exchanges that are aimed at the creation of intimacy and relational cohesiveness. Relationship life cycle models describe this process in terms of establishment and commitment to the relationship [25,40]. At one point in time, relationships may loosen again, and eventually cease to exist. According to Kim, elders still actively participate, but they have already given up some responsibilities and power. Alon et al. [3] have demonstrated that in this separation phase members focus on individual needs. Their membership becomes once more information and instrumental oriented.

Also Kozinets [51] acknowledges that community members differ in their orientation of participation. However, instead of adopting a dynamic perspective, Kozinets distinguishes among community members based on their topical and social involvement in the community at a given point in time. He discerns four member types: (1) tourists have a vague or passing interest in the community's topic of interest, and lack strong social ties with other members, (2) minglers maintain strong social ties, but are only superficially interested in the central topic, (3) devotees are opposite to this: they maintain a strong interest in and enthusiasm for the community's central topic, but have few social attachments to the group, and (4) insiders have a strong interest in the community's topic, as well as strong social ties with other members. Because tourists and devotees are not interested in maintaining social relations with other members, their participation behavior will be predominantly aimed at factual information exchange. In contrast, minglers and insiders tend to be much more social and relational in their participation behavior.

Kim's member typology is not based on empirical research. Just like the lurker–poster dichotomy, it is meant to have direct appeal to practitioners by offering a simple representation of community dynamics. Alon's et al. and Kozinets' distinctions between member types and their roles in the community arise from ethnographic investigations. However, they are not developed beyond a conceptual level. We set out to develop a virtual community member typology based on empirical research that builds on the insights of the existing typologies in participation behavior, thereby focusing on behavioral dimensions alone.

4.1. Conceptual framework

Our classification variables include *visit frequency* and *visit duration*. They not only indicate the total level of participation, but also how it is shaped (e.g., frequent, short visits versus infrequent, long visits). We have included these variables in our typology to account for the differing levels and varying shapes of engagement in the community in line with Kim's and Alon's et al. conceptualization of increasing levels community involvement. However, different from these authors, we do not focus on the dynamic development of community membership, but examine differences in the level and the shape of participation between members. Furthermore, our classification variables include three activities that are related to the exchange of information in a public arena that are most relevant from a marketing perspective, i.e., *retrieving information from* and *supplying information to* the community's database of reviews, articles, and other factual documents, and *discussing information* in the community's forums and chat room. The relative extent to which a member is involved in each of these activities gives a more relevant insight in participation behavior than merely establishing if a member contributes content or not. Besides, by distinguishing contributions in the form of factual documents from interactive encounters, we capture Kozinets' conceptualization of functional and social interaction orientations.

4.2. Methodology

Data for this study were collected by means of the survey ($N = 1007$) discussed in Section 3. The typology based on the five classification variables is developed with the use of a two-step cluster analysis. We performed a hierarchical cluster analysis as an exploratory step to identify a candidate number of clusters to be used in a non-hierarchical clustering procedure. Given the size of the sample, hierarchical clustering of the entire data set was not practical, because of data storage limitations. Thus, we have drawn a series of ten randomly selected sub-samples (each 20% of the entire sample) that we have analyzed separately [15,56]. In this initial hierarchical cluster analysis, we applied the Ward minimum variance method of clustering, using the squared Euclidean distance measure. Because this criterion is scale dependent, we first standardized the variables to *z*-scores [97].

Based on the results of the hierarchical analyses, we decided to execute a non-hierarchical clustering procedure for a three-, four-, five-, and six-cluster solution. To determine the cluster seeds, we performed a non-hierarchical, *k*-means cluster analysis with a 50% sub-sample of the original sample, taken at random. In the *k*-means clustering procedure, distances are computed using the simple Euclidean distance measure. Using the initial seed points determined by this training sample as input, we performed a second non-hierarchical, *k*-means cluster analysis based on the entire sample. We repeated this procedure three times for each cluster solution using different ordering of the cases, because in non-hierarchical clustering the solution may depend on the case order in the dataset [55]. After determining the stability and internal validity of the four different cluster solutions, we found that a classification of six distinct member types fits our data best. Another validity check suggested by Milligan [61] to assess relative validity of the six cluster solution yielded satisfactory results.

4.3. Six member types

The result of the cluster analysis is a classification of the respondents into six clusters. Between the clusters there is a maximal difference and within the clusters there is a maximal homogeneity in terms of participation patterns. To facilitate the interpretation of the member

Table 3
Member type profiles[a].

	6%	10%	14%	17%	28%	25%	$N=1007$	ANOVA
	Core members	Conversationalists	Informationalists	Hobbyists	Functionalists	Opportunists	Sample mean	F-statistic (p-value)
Frequency of visits[b]	6.3	4.7	4.5	5.3	2.9	2.5	3.8	**241.9** (0.00)
Duration of visits[c]	4.5	2.2	2.7	3.4	2.3	1.9	2.6	**143.2** (0.00)
Retrieve information[d]	3.6	3.2	3.6	2.5	3.0	2.0	2.8	**293.4** (0.00)
Supply information[d]	3.5	2.7	2.7	1.9	1.4	1.3	1.9	**313.4** (0.00)
Discuss information[d]	3.0	2.5	1.2	1.2	1.1	1.1	1.4	**713.9** (0.00)

[a] The table contains unstandardized mean values and ANOVA results. F-values in bold are significant ($p \leq 0.05$).
[b] Values range from 1–7 (1 = less often; 2 = 2-3 × p/month; 3 = 1 × p/week; 4 = 2-3 × p/week; 5 = 4–5 × p/week; 6 = 5–6 x p/week; 7 = several times p/day).
[c] Values range from 1–6 (1 = <15 min; 2 = 15<30 min; 3 = 30<60 min; 4 = 60<90 min; 5 = 90<120 min; 6 = ≥120 min).
[d] Values range from 1–5 (1 = I never do it; 5 = I do it very often).

types, we report in Table 3 the unstandardized mean values of the five clustering variables for each member type. The ANOVA results indicate that all five variables are significantly different between the member types. Table 3 also reports the number and percentage of respondents in each cluster. Cluster sizes vary from 59 respondents to 281 respondents.

4.3.1. Core members (1)

The respondents in the first cluster, the smallest of the clusters, represent the hard core of most active participants within the community. They score far above the mean on all variables. Compared with the other clusters, they are the community's most frequent visitors and their visits are also the most extended, i.e., they visit the community daily for about one and a half hour. They make extensive use of the community's knowledge reservoir by retrieving information. At the same time, they are frequent suppliers to this knowledge reservoir by submitting recipes, articles, and reviews. Furthermore, they participate actively in forum discussions and chat sessions. We label them, therefore, the community's *core members*. In total, six percent of all respondents in our sample belong to this group of community leaders.

4.3.2. Conversationalists (2)

The respondents in the second cluster make frequent, but short visits during which they participate to a relative high degree in supplying and discussing information. They visit the community three to four times a week for approximately half an hour. The respondents in this cluster retrieve and supply information, but not to such a high extent as the core members. It is especially their relative high level of engagement in forum discussions and chat sessions that characterizes their participation pattern. Therefore, we label them the community's *conversationalists*. About 10 percent of the respondents make up this second cluster.

4.3.3. Informationalists (3)

The respondents in the third cluster score relatively high on both retrieving information from and supplying information to the community, whereas they score low on discussing information. This group's visit frequency and duration is comparable to that of the conversationalists. However, they tend to visit the community somewhat less frequent, but they spend more time per visit. Together with the core members, they are the community's most extensive retrievers of information. They show reciprocity in their behavior by also supplying information to the community, although they do this to a lesser extent compared with the core members. This group's participation in the community's forums and chat rooms is low, which forms a sharp contrast to the core members and conversationalists, who are highly engaged in discussing information within the community. We label the respondents in this cluster the *informationalists*, because of their focus on retrieving and supplying information. The group takes up about 14% of the respondents in our sample.

4.3.4. Hobbyists (4)

This cluster stands out, because its members visit the community frequently for an extended time, but they score relatively low with respect to the amount of information retrieved and supplied, and the extent to which they participate in forum discussions and chat sessions. After the core members, they are the community's most frequent visitors with long duration visits, i.e., they visit the community almost daily for about one hour. As said, their online activities are not primarily focused on the retrieval, supply, or discussion of information. Instead, they are engaged in updating and maintaining their personal page within the community and in writing guest book messages; activities that usually involve playing around with techniques such as uploading music, pictures, illustrations, and cartoons.[1] Therefore, we label this group the *hobbyists*. This group is about the same size as the group of informationalists, representing 17% of the respondents.

4.3.5. Functionalists (5)

The largest group in our sample is formed by the respondents in the fifth cluster. They score on four out of five variables below the sample mean. Only for the extent to which they retrieve information from the community, their score is higher than average. The respondents in this cluster visit the community approximately once a week for about 15 min. Because of their profound interest in retrieving information, we label this cluster the *functionalists*. About 28% of the respondents belong to this group.

4.3.6. Opportunists (6)

The respondents in the sixth cluster form the second-largest group. They score far below the mean on all five clustering variables. They are the community's least frequent visitors and their visits usually do not last long, i.e., they visit the community on average less than once a week for no more than 15 min. While they are online, they are mainly engaged in retrieving information in the form of recipes, not articles or reviews. They hardly supply any information, nor do they join forum discussions and chat sessions. This group represents the community's least active and least regular participants; therefore, we label them the *opportunists*. This final group contains about 25% of the respondents. The respondents in Cluster 6 score low on all variables. Thus, they mainly differ from the respondents in Cluster 5 in that these are much more eager retrievers of information. Although, the visit frequency and visit duration of both groups fall below the average, Cluster 5 has a smaller negative deviation.

Table 4 summarizes the participation patterns of the six member types. Besides, it gives some background information based on the profiling of the clusters on additional variables related to membership characteristics and general consumer characteristics (see Section 3). Data for these variables were collected in the same survey.

[1] This conclusion is drawn after examination of the scores on various items representing online activities undertaken within the community. Besides retrieving, supplying, and discussing information, we have asked respondents about the extent to which they participate in, among others, writing guestbook messages and updating and maintaining their personal webpage. The respondents in Cluster 4 are relatively more engaged in these last activities than in the retrieval, supply, and discussion of information.

Table 4
Virtual community member types: participation patterns and background variables.

Core Members (6%)	*Hobbyists (17%)*
Visits 5–6 times a week for about 1 h.	Focus: personal web page and guest books
Visits daily for about one and a half hours.	Socially involved
Focus: retrieve, supply, and discuss information.	Substantial percentage of seniors (40+)
Highly socially involved	Education level is relatively low.
Longtime members	
Culinary opinion leaders	
Culinary experts in offline and online context	
Heavy internet users	
Large percentage of seniors (40+)	
Education level lowest of all clusters	
Conversationalists (10%)	*Functionalists (28%)*
Visits 3-4 times a week for about half an hour.	Visits once a week for about half an hour.
Focus: discuss information	Focus: retrieve information (recipes, articles, reviews)
Socially involved	Not socially involved
Mature members	Education level highest of all clusters
Most susceptible to normative influence	
Culinary experts relative to family & friends	
Informationalists (14%)	*Opportunists (25%)*
Visits 3-4 times a week for about half an hour.	Visits less than once a week for about 15 min.
Focus: retrieve and supply information.	Focus: retrieve information (recipes).
Socially involved	Not socially involved
Mature members	No culinary opinion leaders and seekers.
Culinary experts relative to other members	No culinary experts relative to other members.

The lurker–poster dichotomy could be compared to the most extreme clusters of our classification, the opportunists versus the core members. The opportunists only consume information for personal gain without showing any reciprocity in their behavior. This translates to the lurker, whose label has a negative connotation. In contrast, the core members invest a large portion of their energy and time in various aspects of community life, such as giving and taking information, as well as bonding with other members. They are the ultimate posters. However, we find that in between these two opposites a range of other member roles may be discerned.

What can we learn from our classification of six member types compared to the existing typologies? Let us consider Fig. 2, which contains three illustrations of a virtual community's member constellation. Illustration A consists of an inner circle and an outer circle. This is the classic depiction of the lurker–poster dichotomy. Posters can be found in the core, whereas lurkers are found in the periphery. Thus, in terms of our typology, we find the functionalists and the opportunists in the outer circle, because these member types hardly supply the community with information. We find the other member types in the inner circle, since they are the ones who make all sorts of contributions. This depiction blurs all the differences between the member types apart from whether they are contributors or not.

In contrast, illustration B allows the representation of (some of) these insights. Contributing content to the community does not make members automatically part of the community's core. It is only when members are truly immersed in the community that they belong to the core member group. The conversationalists, informationalists, and hobbyists circle around the core members. All these member types are socially involved in the community. The conversationalists and informationalists are put a bit closer to the core than the hobbyists, because they have been community members for a longer time and they are also to a larger extent involved in retrieving and supplying information. The functionalists and the opportunists are put in the community's periphery. These member types are not socially involved, they hardly make any contributions, and (together with the hobbyists) they are relatively novice members. The opportunists, who merely come to retrieve recipes, are put further from the community's core than the functionalists, who have a genuine interest in increasing their culinary expertise. The circling line within illustration B depicts the dynamic nature of community membership that is characterized by shifts in focus and an evolving pattern of participation; the position of the member types roughly represents in which order members move from one role to the other. In contrast, the lurker–poster dichotomy results in a static representation of community membership consisting of two closed circles: insight in how community membership evolves in terms of focus of participation, frequency and duration of visits, social involvement, and length of membership is lost.

To push things even further, our member type constellation allows us to specify three characteristic orientations of member involvement in the community (see illustration C). We distinguish between a factual, interactional, and recreational orientation that are respectively depicted by a discontinuous line, a continuous line and a dotted line. The core members are found in the overlap between all three lines, combining a factual, interactional, and recreational orientation. The opportunists, functionalists, and informationalists share a preference for factual information in the form of recipes, reviews, and articles. Conversationalists stand out for their participation in the community's forums and chat rooms, thus their orientation can be labelled interactional. The hobbyists are characterized by their recreational orientation aimed at playing around with technical functionalities.

Comparing our empirical-based typology to the conceptual virtual community member typologies of Kozinets [51], Kim [48], and Alon et al. [3] yields some interesting insights. Kozinets discerns members on the basis of the dimensions social and topical involvement, which can be either high or low. We find considerable variance with regard to social involvement, ranging from a mean value of 1.5 for the opportunists to a mean value of 4.0 for the core members (measured on a scale from 1–5). However, they all report high topical involvement. Only the opportunists score significantly lower than the other member types, but their topical involvement still reaches a mean value of 3.8 (1–5 scale). This finding calls into question whether it is useful to discern community members on the basis of their topical involvement. If people are not interested in the community's topic of interest, they have no reason to join the community. Since the study reported in Section 3 already made clear that topical involvement is not related to community influence on consumer decision-making, in contrast to social involvement that turned out to be an important explanatory variable, we may conclude that the relative difference in topical involvement among community members is too marginal to be meaningful.

Kim and Alon et al. base their membership life cycle on membership length connected with increasing levels of involvement in the community. The member types of our typology that have more recently joined the community are the opportunists, functionalists, and the hobbyists. The conversationalists and informationalists represent the segment of mature members, whereas the core members are longtime members. Our member type profiles make clear that we can specify their generic label of 'involvement' to the amount of participation, the amount of reciprocal behavior in terms of contributions to the community's content, as well as the level of social involvement. Moreover, it shows that, for example, the 'regulars', i.e., the informationalists and the conversationalists, share a similar level of involvement in the community, but that the orientation of involvement differs significantly. Thus, it adds nuance to the existing conceptualization of the membership life cycle.

4.4. Implications

Virtual communities can be used in a myriad of ways by a myriad number of consumers. Tracking how these consumers make use of the

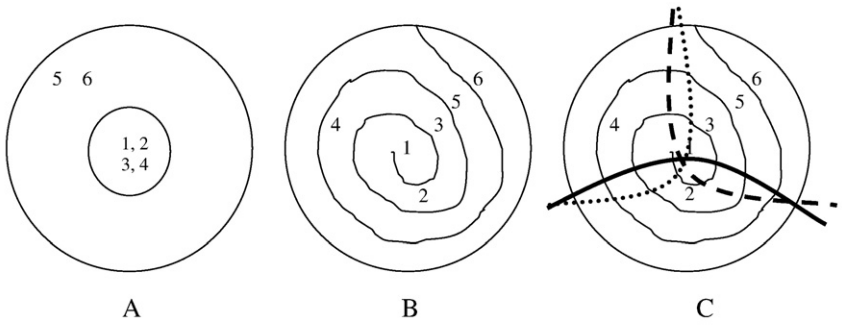

Fig. 2. Picturing the Constellation of Member Types.

community and understanding what the drivers and effects of their participation is key to the cultivation of the community as a marketing tool. Merely knowing who contributes, and who does not, is not enough to locate interesting target member segments. Our member typology, based on five behavioral dimensions that capture member participation behavior, has demonstrated that we can systematically and meaningfully distinguish between more member types than the two suggested by the lurker–poster dichotomy. It allows marketers to distinguish the community's true influentials from other contributors to the community's content, and it sets the lurkers that are really interested in increasing their knowledge about the community's topic of interest apart from those lurkers that pass by without a real motivation to do so.

Insight in these differences is helpful in making strategic decisions about whom to target and how to do that. The core members are the community's ultimate experts. Presumably, they are mostly influenced by other core members in their decision-making, because it is only these members that match their culinary expertise. To reach the core members, marketers have to catch their attention with new products or product improvements that offer added value to their existing level of expertise and experience. Marketers should aim at them directly. Information and practices that reach them through the other members might be discarded as unworthy for true experts and opinion leaders. When the core member group is enthusiastic about a product, service, or company they are likely to spread the word, thus marketing efforts directed as this small group can have a much larger impact.

The conversationalists, informationalists, and the hobbyists are culinary enthusiasts, but they have not yet reached the level of expertise as the core members. Thus, they are likely to be susceptible to information about and promotions for less-advanced culinary products and experiences. Conversationalists focus on interaction with other members in the forums. They are likely to take an interest when people talk about a product, service, or company and they can join the conversation. Therefore, to reach them, marketers could create a buzz or start a viral marketing campaign in the community's forums. Informationalists, on the other hand, concentrate on factual information retrieval and supply. Thus, they could be fed with background information about a product, service, or company in the form of articles. The attention of the hobbyists, who participate in the community for recreational entertainment related to the exploration of technical functionalities, may be attracted by an online contest or poll. This will appeal to their aim for relaxation and recreation, while at the same time informing them about a product, service, or company. This last group is less involved in supplying the community with recipes, reviews, and articles, as well as participating in the discussion forums, thus the potential influencing power of this group within the community is smaller than that of the conversationalists and informationalists.

Although they do not contribute content to the community, the functionalists and the opportunists are important member types forming 50% of the respondent sample. The functionalists and opportunists have no influencing power in the community, because they hardly make any contributions. However, their impact outside the community could be considerable. They are the audience that takes in information that is being communicated within the community. In terms of Granovetter's [34] theory on 'the strength of weak ties', these two member groups serve as bridges over which information flows from one clique to the other, i.e., from the community of culinary experts and enthusiasts to the broader community of ordinary, everyday cooks and consumers. Functionalists are a more interesting target group for marketers than the opportunists, since they are truly interested in expanding their culinary knowledge. Consequently, the group of functionalists is probably more susceptible to marketer-generated and commercial information than the opportunists. Because of their focus on factual information retrieval, their attention could be attracted by background information. Their short, half-hour-visits to the community call for information that is offered in a compact, concise manner.

Although this study offers directions to marketers wanting to exploit virtual communities on the basis of the participation patterns of their members, there are some important limitations that should be taken into account. Our classification of community members is based on the results of self-reports retrieved by a survey in a specific community. Because not all community members participated in the survey, we might have over- or underestimated the relative sizes of the clusters. Moreover, in other communities not all member types might be found. Communities that are organized around serious subjects concerning, for example, health issues, are less likely to contain members who focus on recreational activities such as playing around with technical functionalities. The percentage of highly socially involved members might also be much larger compared to the community under study, since these types of communities tend to create strong emotional bonds between the members [54]. It is also not inconceivable that more, or other, classes of members can be found in other types of virtual communities. Thus, rather than suggesting that marketers take our typology normatively, we advice them to be aware of members' differential usage of the community, which can be unobtrusively tracked by means of log file data, and to use this information to their advantage.

The self-reports that we used in this study are less accurate than data about actual online behavior. The advantage of our method is that

it enabled us to relate the member types to other membership characteristics and general consumer characteristics. An obvious avenue for further research would be to arrive at a classification based on records of actual online behavior, and compare results with our classification based on survey data.

Furthermore, future research could make a more refined distinction between the activities undertaken while members visit the community. The hobbyists stand out, because they are not so much involved in retrieving, supplying, and discussing information, but because they engage (also) in other types of activities. Systematic insight in more encompassing participation patterns, including activities such as maintaining a personal web page, enables marketers and community managers to develop more specific and targeted strategies that meet the needs of the varied member database.

Now that we have gained insight in the various member types that can be discerned within the community, we turn our focus to the most dedicated, and in a sense the most valuable, member group, i.e., the core members. Because of their extensive participation, this group of members plays an important role in defining the community's character and content. Because of their central stage in the community, their involvement in sharing information, and their culinary opinion leadership, core members determine to a large extent the valence of the community as a reference group. To truly understand the process of interpersonal influence within online communities, it is necessary to examine what the core members communicate to the community and how they communicate it. Therefore, in the next section, we take up the method of netnography to study ongoing member discussions within the community's forums. We investigate what topics are addressed, how they are addressed, and in what ways the discussants influence each other. Because forum contributions mainly come from core members and conversationalists, it allows us to peek into the community's central character and content and learn about the norms, values, perceptions, and attitudes that underlie consumer decision-making about the community's topics of interest.

5. A netnographic analysis of online discussion practices

The previous two sections have provided us with insight into the way consumers value and use virtual communities as a medium to share information with other consumers. However, what still lacks is a deeper understanding of that what is actually being shared in these communities. What do consumers talk about online? And how do they try to influence each other in a virtual environment? Information can be exchanged in various ways. In the community under study, members contribute recipes, reviews, articles, tips, and they engage in forum discussions and chat sessions. This section focuses on online forum discussions, because their unique and expressive content allows us to peek unobtrusively into actual word-of-mouth communication and ongoing interpersonal influence in its naturalistic and real-time setting.

5.1. The method of netnography

It is increasingly recognized, among researchers and marketing practitioners alike, that online communities organized around market-related topics form apt research sites [16,30,43,50,51,53,57,64,65,89,95]. After all, these communities contain detailed descriptions about the way consumers behave and their motivations to do so. Monitoring online communities has several advantages over the traditional qualitative methods that are used to study the drivers of consumer behavior, such as focus groups, personal interviews, and market-oriented ethnographies. First, member interactions can be observed in a context that is neither created nor directed by the researcher; we may peek into naturally occurring information exchange and influencing strategies among the community members, and listen in on how they talk about food and other culinary matters. Second, the community can be observed without any invasion of privacy or interference with its activity. Focus groups, personal interviews, and traditional ethnographies cannot be conducted unobtrusively. Finally, online communities can be examined from behind the researcher's desk. They are accessible 24/7. Thus, in contrast to traditional ethnographies of consumer communities, online community research is less time consuming, less costly, and timelier, because of continuous access to informants [53].

Various researchers have addressed the specific techniques needed to perform Internet-based consumer research [16,44,50,83,89]. In 2002, Kozinets has formally introduced the method of netnography for marketing research in the *Journal of Marketing Research*. Netnography can be defined as a written account resulting from fieldwork studying the culture and communities that emerge from online, computer-mediated, or Internet-based communications. Both the fieldwork and the textual account are informed by the qualitative methods utilized in consumer research, cultural anthropology, and cultural studies. Kozinets' article provides researchers with a rigorous methodology that is adapted to the unique characteristics of online communities [53, p. 62]. We have based our netnography on the guidelines described by Kozinets. Successively, we address (1) research objective, (2) entrée and data collection, (3) analysis and interpretation, and (4) research ethics.

We have applied the method of netnography to investigate interaction dynamics between the core members of the culinary community under study. The main goal of our study is to analyze how these members communicate with and influence each other in forum discussions. The second goal is to gain insight in their discourse with respect to the community's focal consumption activity. Our results are not only interesting for managers, policy makers, and other decision makers in the culinary sector, but as an illustration of discussion practices and word-of-mouth processes within virtual communities of consumption our study bears relevance for community managers, marketers, and researchers in general.

To get to know the community and its members under study, the first author followed forum discussions, monitored contributions, read articles, and visited member pages as part of ongoing research. She also participated in an offline community gathering, and performed in-depth interviews with several participants and the community's administrators. After building a knowledge base for three years, she intensified her monitoring of the forums by systematically reviewing all topics discussed in the forums during a twelve-month period. Based on this systematic review we shortlisted 94 interesting discussion threads. As the investigation narrowed onto the discourse surrounding cooking and eating, 53 relevant discussion threads were downloaded in their entirety. These threads were purposefully chosen for their rich content, descriptiveness, relevant topic matter, and conversational participation by a range of different community members. The total research volume consists of 3163 postings that are generated by 82 distinct contributors. Forty-one percent of these contributors filled in the online survey (see Sections 3 and 4), allowing us to examine to which member type they belong. Almost all (96%) belong to the two most central groups of members of the community (see Fig. 2): 54% are core members, 42% are conversationalists, whereas the remaining 4% are informationalists, hobbyists, and functionalists. Conversationalists are clearly less represented considering their higher base rate (10% versus 6% for the core members), thus, we may conclude that our selection of discussion threads indeed captures the discourse of the group of most dedicated and involved members.

Our conclusions are based on an iterative content analysis. We amassed, coded, compared, and collapsed postings to form themes and categories [31]. To advance the interpretation of the data, we compiled an e-profile of the 82 contributors to the discussion threads selected for analysis by reviewing their personal web pages within the community. All personal web pages contain a record of the member's contributions (recipes, reviews, articles) to the community. Furthermore, all members have a guest book attached to their personal web pages via which they may write messages to one another. Finally, the personal web pages

afford the community members the opportunity to represent and express their self-concepts. Pages may contain personal information, like age, place of residence, profession, marital status, and hobbies. The e-profiles have helped us to better understand the ongoing discussions and individual postings in light of the contributors' more or less cultivated identities, their culinary expertise, and their mutual relationships. The e-profiles also enabled us to determine the boundaries of the group that we have studied.

The netnography is based on archived discussion threads. These are stored on the community's site and publicly accessible. The community's policy states that all content may be downloaded, stored, printed, and distributed for non-commercial purposes. Besides, it is specifically mentioned that all contributions may be used unrestrictedly and indefinitely by the administrators who gave us permission for our study and cooperated where possible. According to the ethics propagated by the Association of Internet Researchers, these circumstances lessen the obligation to protect individual's privacy, confidentiality, and right to informed consent [26,86]. Nevertheless, we have followed Kozinets' conservative guideline about ensuring confidentiality by indicating all quoted forum participants with a pseudonym. Since our observation of postings did not take place simultaneously with the production, forum participants could only be informed about the research in hindsight. This has been done by means of an announcement in the three forums from which postings have been selected for analysis. The first author's personal web page within the community presented background information about the research goal, method, and ethics. Furthermore, the evolving netnography has been posted in its entirety to the virtual community to elicit member feedback. In total, sixteen members (active discussants and lurkers) reacted. All reactions were positive and affirmed the analysis and interpretation.

5.2. Key findings

The netnographic research method described above has revealed four main frames of discussion, which classify the communicative acts that the discussants engage in according to their overall goal: (1) sharing knowledge, (2) negotiating norms, (3) opposing values, and (4) celebrating similarities. Note that these four categories of discussion frames are not mutually exclusive. Single postings, chunks of postings, and entire discussion threads may be part of several discussion frames at the same time. For example, discussants may share knowledge about the best way to prepare fresh pizza, while they simultaneously negotiate norms about how healthy it is to eat pizza. Also note that the frames of discussion are categories that are attributed to the entire set of selected postings by the researchers. Although member checks revealed that the forum participants found the classification insightful, they do not necessarily define their postings in terms of the four types of discussion frames at the time they make a contribution to a discussion thread. Nevertheless, distinguishing these four frames of discussion enables us to systematically present what is communicated and how it is communicated, and to better understand the functioning of the focal community as a site of interpersonal influence between consumers.

5.2.1. Sharing knowledge

The selected forum discussions contain a lot of information about food products, food preparation, kitchen utensils, and specific recipes. Participants pose and answer culinary questions, and they give each other explanations and background information. In short, they share knowledge. From the existing marketing literature we know that people engage in knowledge-sharing communication for reasons of benevolence, i.e., they truly want to help others [29]. However, knowledge is also shared to experience feelings of prestige [23]. In the discussion threads that are studied examples of both sides can often be found simultaneously. The forum participants exchange information, but at the same time they show what they know, by articulating conceptions of culinary expertise. They constantly challenge and put each other's culinary expertise to the test. Consider, for example, the following discussion about preparing mashed potatoes in which participants try to outdo each other with respect to the tools and appliances that they use.

The discussion starts with a recommendation by Brenda: “I use a passé vite, some sort of large garlic press to make mashed potatoes. Never messing around with the masher anymore! I can really recommend it.” Brenda is backed-up by Julia: “It is indeed my best purchase of the last months.” Alice makes clear that she is up to date, but still prefers the conventional preparation method: “I also have such a passé vite, but I don't have enough strength, so I still use the pestle more often. Or my husband has to help out.” Betty does not see any reason to switch to another tool: “For mashed potatoes I just use a masher, as long as you add enough milk the result is practically without chunks.” Mary rejects the passé vite as a recently new product innovation: “I remember this passé vite from my childhood. My mother used to have one with two separate blades, one for a fine and one for a coarse result. I thought it was a heavy and nasty job, but we used it very much. In my household I used a pestle, but now I use the hand mixer adding milk and butter.” (Mary).

The expertise contest continues when Brenda challenges Mary: “Don't you get a result that is too smooth if you use a mixer? It is especially the pressing through the small holes that causes such a fluffy result. I also have a pestle, but I only use it when I mix the mashed potatoes with vegetables, because the result is not very fine and fluffy.” But Mary refutes: “No one has ever complained about my mashed potatoes. I don't understand what you mean with too smooth. In the first place, I always use the kneading hooks instead of the whipping hooks, and, secondly, I use cream or sour cream, which gives a sturdier result than milk.” (Mary). Brenda concludes: “I thought you meant that you use the type of hand mixer that grinds very fine. That is indeed a disaster for mashing potatoes. The result is sticky. I also don't use milk anymore in my mashed potatoes, only some oil or butter.”

As these examples about potato preparation make clear, sharing knowledge serves to learn from one another, but it also serves to establish expertise. Participants try to convince one another that they have expertise by describing long lists of ingredients and little-known preparation method they use to make certain dishes. Also, they call upon their long-time experience. They refer to their parents or grandparents who passed on wisdoms and tricks as to emphasize that their knowledge has proven itself for many years. Another way to establish expertise is to call upon authority. However, authoritative sources vary in the extent of impact. Mass media such as the television, radio, newspapers, magazines, and the Internet, which inform the public for example about scientific research, have limited authoritative power. They are easily put aside in favor of personal knowledge and experience. In contrast, personal knowledge and experience gain in impact with exclusiveness, e.g., the discussant that has lived in India is considered to have more expertise about the Indian cuisine than the discussant that is acquainted with an emigrated Indian. Finally, natural authority cannot be disputed. Many community members exploit this fact by presenting themselves as experts about the local cuisine of the area where they were born and raised.

5.2.2. Negotiating norms

Obviously, the forum participants extensively discuss their cooking practices and eating habits. There is often more at stake in these discussions than just sharing experiences or exchanging information. Discussants compare their attitudes and behaviors. They back each other up or let each other down, and by doing so they actively negotiate community norms about cooking and eating. In these normative discussions, two issues pop up again and again: what constitutes a good cook and what constitutes a healthy diet? The negotiations about what constitutes a good cook are sophisticated and elaborate. Since they cannot judge each other's cooking qualities by trial, forum participants judge merits by comparing their special recipes, and the amount of

preparation time spent. Another point of comparison is the question under which conditions one opts for frozen food instead of fresh. The vocabulary used makes clear that somehow the use of frozen foods needs to be justified, because in the end the norm is that one uses fresh produce. The justifications for using frozen foods are meticulously described and discussed. By allowing variations in the norm for certain circumstances (e.g., frozen food is allowed when fresh is not available), the discussants are able, at an abstract level, to arrive at a shared community standard of what constitutes a good cook.

The negotiations about what constitutes a healthy diet differ from the one about what constitutes a good cook, because the reference norm is usually set by an authoritative agency (e.g., the Department of National Health), and traditional conventions about dinner composition. Rather than negotiating the norm, discussants negotiate how they should put the norm to practice. In cases where the norm is not abided, for example when one indulges in eating fat food instead of the fresh fruits and vegetables that are advised, the forum participants together silence their conscience by rearticulating the proclaimed bad habit, or comparing it to something worse. For example, some forum participants engage in a discussion about whether pizza is junk food or not. The sentiments are explicated in detail, and they can be summarized as follows: (1) compared with a McDonald's hamburger, pizza is considered much healthier, (2) a ready-made (frozen) pizza is considered junk food, but a freshly prepared homemade pizza is not, and (3) a pizza from an Italian restaurant is much healthier and appetizing than the pizza's usually served in an ordinary pizzeria. Although the homemade pizza is accepted as a sufficiently nutritious dinner, several participants point out that one should not eat it too frequently. Thus, the ambivalence is not totally overcome.

Negotiating the norms about what constitutes a good cook and how one should keep to a healthy diet is not only done by discussing personal cooking and eating habits, but also by telling stories about other people's behavior. All these narratives have in common that they are examples of behavior that the discussants disapprove of. They disassociate themselves from this proclaimed bad behavior, thus showing that they know what is right according to the general accepted norms. Very popular are stories about the terrible cooking qualities of relatives; especially the mothers-in-law are found to be rather horrible cooks:

> "We ate several times at my parents-in-law, and I am sorry to say so, but she really can't cook. [She made] a stew with six kilos of onions and only 300 grams of meat and she served it with mashed potatoes and nothing else. Another time [she made] spaghetti with a brown sauce that didn't taste like anything, served with fake Parmesan cheese from the fridge…bah!" (Monica).

> "I also have that kind of mother-in-law. My kids love her cooking, but that is no surprise, because she mixes everything with applesauce. I really try hard not to eat there." (Donna).

The prevailing notion amongst the forum participants is that everyone is able to cook as long as they are willing to invest some time and energy and as long as they are not afraid to experiment a little. These mothers-in-law obviously do not meet these criteria. In numerous discussions it becomes clear that the forum discussants consider themselves to be different from the majority of consumers. They believe that, in contrast to the ordinary consumer, they are culinary experts who truly appreciate the art of cooking with the right ingredients.

5.2.3. Opposing values

Although oftentimes a shared standard is reached among the community members, in some cases discord continues to exist, and tensions occasionally disrupt into outright conflict. One particular issue that leads to sharp, polarized debates is members' stance on using fresh produce versus pre-processed, canned, and other ready-made products. The pro-fresh norm is set by recurring statements that it is so easy and just as quick to make roti, mashed potatoes, pesto, spread, et cetera, oneself instead of buying it in a pre-processed, ready-made form. Furthermore, it is generally asserted that the taste of fresh produce is better than the taste of ready-made products. Finally, the pro-fresh norm is fiercely propagated particularly by downgrading usage of ready-made products.

This discourse makes some forum participants feel like culinary underdogs since they do use ready-made products. The vocabulary they use to admit that they deviate from the norm, i.e., by admitting usage of ready-made products, suggests a real coming out: "I dare to say it." (Nicole); "I dare to be open about it." (Sharon). The debate about this issue polarizes, because the group that admits to use canned foods and pre-processed products does not believe that the group who states that they make everything fresh is honest. Their sentiments are put into words as follows:

> "I really don't believe that you always use fresh produce and nothing else. […] I use canned foods and pre-processed products and that is considered by some a deadly sin." (Nicole).

> "I am honest: I also cook with ready-made mixes and I really don't know what is against it? Yes, of course I am also not highly talented in culinary matters." (Sharon)

> "But you are very honest, and honesty lasts. […] Everyone uses canned foods and pre-processed products, but they are just afraid to admit it." (Tony).

Moreover, they are quick to refute the idea that using ready-made products makes one a bad cook: "I sometimes use pre-processed products […] and sometimes deep-frozen foods. And I am certainly not the worst cook around here." (Nicole). Similarly, several participants point to the fact that chef cooks also sometimes use pre-processed products, thus that it is not against culinary experts' norms.

The pro-fresh group feels attacked and not taken seriously, because of the allegations of dishonesty. What follows is a lengthy discussion in which each side gives detailed justifications and contextualizations to inform the others why and when one behaves in a certain (denounced) way. To understand community conflicts like these, we point to two areas of tensions between forum participants that are exemplary of their interaction dynamics and the processes of interpersonal influence following from it.

The first area of tension is caused by participants' differing levels of culinary involvement. Statements such as "I do cook, but not wholeheartedly." (Neil) and "I prefer eating over cooking!" (Amy) makes clear that not all members of this culinary community are enthusiastic, dedicated cooks. In contrast, several pro-fresh discussants characterize themselves as 'idealistic and passionate' cooks. Thus, some members simply take an interest in cooking, while others are truly passionate about cooking. Of course, it is inevitable that in a large community, as the one under study, variance is found amongst the members with regard to their experience in and commitment to the topic of interest (see Sections 3 and 4). Problems arise when exponents from both sides declare their standpoint as normal and the other as abnormal. Tension also arises from lifestyle differences. The community covers a rich and varied member database, and the forum participants differ greatly in personal background. Men and women, older and younger, full and part time workers, housewives, pensioners, and students, single and married members with or without children, various nationalities, various levels of education, and various levels of affluence. As a result, the forum participants have different lifestyles and, also, different cooking habits and culinary preferences, which sometimes leads to a 'clash of cultures' culminating in heated debates.

5.2.4. Celebrating similarities

So far, the three frames of discussion that passed in review might suggest that community forums are full of competition, debate, and contrasts. However, despite the differences between participants, they all share an interest in cooking and culinary matters. Moreover, they share the hobby to talk about their culinary interest, as manifested in their involvement in the forums. Consequently, many discussion threads are joyful accounts of recognition and identification. The participants truly celebrate their similarities with respect to cooking and eating habits. These discussions often refer to the past; participants recount how they learned to cook or what they used to eat when they were younger. As such, the forum participants construct a shared past that reinforces their community spirit, despite nowadays' (lifestyle) differences.

In celebrating their similarities the participants go as far as engaging in self-disclosures about behavior that they would probably hide from others. For example, they tell each other about how and when they overly indulge in eating. In our society this kind of behavior is often stigmatized; if you cannot control your food intake you are presumed to have an eating disorder or an addiction. Consistent with this perspective, the metaphoric language used for these self-disclosures describes the yearning to eat as an attack that overtakes control and that is hard to resist:

> "It is not that I wake up at night and engage in indecencies, but eating late at night and then really gross, yes, that I do. Just now, 1:30 A.M., I have ripped open the filet américain and ate it with sweet-and-sour." (Kevin).

> "The later at night, the more gluttonous. I would easily make a bouillabaisse at night. But I try to restrain myself."(Brenda).

> "I am often awake at night for my work and sometimes I get a real hunger attack and then I stuff myself with everything I can lay my hands on." (Tony).

Although these excerpts present the yearning for food at night as an attack, as gluttony, and as something close to an indecency, the forum participants continue with happily exchanging their nightly favorites. By doing so, they celebrate their nightly appetite as a sign of shared fondness of food.

5.3. Implications

This netnographic analysis of forum discussion has contributed to a richer and deeper understanding of the process of interpersonal influence within virtual communities of consumption. The four frames of discussions that we discussed do not only exemplify the aim of the online forum discussions (to share, negotiate, oppose, and celebrate), but also what is at stake (knowledge, norms, values, and similarities). This categorization is valuable for researchers and marketers alike, because it highlights the complexity of virtual communities as sites of interpersonal influence between consumers. It is not just about information exchange related to specific purchase decisions, but community members engage in far more encompassing communicative acts to define, negotiate, argue, and cheer about value systems surrounding the community's focal topic of interest.

Furthermore, the categorization underscores the unique character of the virtual community that serves as a reference group compared with its real life counterparts. Within our focal community, we find a large variety of members that diverge in terms of age, education, income, nationality, household and professional situation, living standards, et cetera. In a real life culinary community, for example a cooking club, culinary society, or wine course, it is not likely that people from such diverging backgrounds would come together due to geographical, practical, and ideological barriers. Moreover, the relative anonymity of the computer-mediated environment and the fact that members can leave the community whenever they want, contributes to an open atmosphere that results in confessions and disclosures about behavior that is normally hidden from public scrutiny. In real life, people tend to uphold their decorum; online, amongst people that share and understand their passions, the forum discussants let go of this decorum and bond with each other by confiding secret habits and rituals. Altogether, this makes an online community a more diversified, informative, and, in some respects, unifying reference group than the average cooking club or culinary magazine. Members are actively stimulated to broaden their scope, because they have to share community space with members who share a passion or interest, but who also have differing opinions and behaviors. In the process, they engage in communal celebrations of their like-mindedness and homophily to mark their unity, while they learn from and are influenced by each other's differences.

Market researchers may extract useful knowledge from all types of communicative acts discerned. We have discussed the power of 'natural' authorities in influencing other members. This underlines the benefit marketers could achieve when they facilitate natural experts in virtual communities (e.g., someone who is born is a certain region and therefore exactly knows which ingredients the regional dish should contain) to engage in word-of-mouth recommendations. Discussions about norms and values are sophisticated and elaborate, with detailed descriptions about member's behavior and underlying motivations. This offers a rich source of information for marketers looking for an attractive positioning or USP. Although tensions may rise high, in general, the forum discussants find ways to strike a balance between that what opposes them and that what binds them by alternating negotiations and fights with celebrating similarities. The members love talking about shared cooking and eating habits. These conversations are useful for producers of food products, kitchen utensils and kitchen furniture to understand the context in which their products are used and the way consumers sometimes adapt them to their particular needs. Within the community of like-minded culinary enthusiasts, discussants also dare to disclose their cravings, their overindulgence, and their secret enjoyments with respect to the focal consumption activity. This kind of sensitive information about consumer behavior cannot be easily retrieved by means of traditional methods such as focus groups, interviews, and surveys. Thus, marketers and researchers who learn to monitor and interpret online consumer conversations may have a big advantage over those who rely on traditional methods, because it allows them to gain insight in consumers' true selves.

The four frames of discussion revealed by our netnography are not exhaustive. We have limited our analysis to topics about cooking and eating. This means that, for example, small talk discussion threads were left out of consideration. Including this kind of discussions might have generated another discussion frame, such as 'establishing friendships'. Again other discussion frames might be found in other types of virtual communities, e.g., 'giving support' in online health forums [54], and 'closing deals' in transaction communities [35]. Furthermore, although insights in consumer behavior that are generated by any netnography may serve as a starting point for developing new products, determining positioning strategies, and devising advertising campaigns, each issue warrants further research. Other sources and research methods should be used before conclusive marketing recommendations can be made.

Taken these limitations into account, our netnography has proven to be a valuable tool to gain insight in word-of-mouth processes in virtual communities. Ultimately, it shows that these processes are rich, encompassing, and influential. Successful communities may evoke hundreds of contributions per day. Therefore, marketers need to acquire skills to systematically extract information from these contributions. We call upon marketers and market researchers to

take notice of Kozinets' guidelines for netnographic research method and to benefit from our application of the method in a virtual community of consumption. The insights in the interaction dynamics between forum participants offer a good starting point for defining a monitoring strategy and they aid in the process of making sense out of all these contributions.

6. Conclusion

The three studies presented in this paper have considerably advanced our knowledge about participation in, and the effects of virtual communities on consumer decision-making. We have demonstrated that virtual communities serve as reference groups that differ from traditional reference groups in their heterogeneous character. Consequently, members are faced with diverse opinions and behaviors. The core member group actively engages in negotiating and discussing norms and values about the community's topics of interest. Their discussions reveal the valence of the community as a reference group, and can be used as a starting point for an in-depth understanding in what respect the members are influenced by the community. On a more abstract level, we have systematically demonstrated that the extent of community influence differs across various phases of the consumer decision process, and across community members. Our member typology facilitates understanding of the different ways in which members make use of, and value the community as a reference group.

With rapid developments in online communication network technology it is relevant to ask if the findings from our study executed in the context of a 'traditional' virtual community of consumption consisting of databases, forums, chat rooms, and member pages, apply to more recently originated forms of communities like blogs, wiki's, and social networks such as MySpace and Facebook. In this respect, it is important to highlight in which respects these new types of social networks are similar to old ones, and in which respects they differ. Virtual communities organized around a topic of interest tend to bring together people that have never met, and will never meet, in real life. We have pointed out that the power of the virtual community as a reference group is closely related to the heterogeneity of its member database, including people from all strands of life not likely to interact and exchange their opinion and experiences in face-to-face settings. All online social networks have the same unifying power. Of course, not all of them will be as heterogeneous as the community under study, but neither are all virtual communities. Considering the increasing number of consumers that make use of Web 2.0-based technologies, we can only assume that the heterogeneity of interconnected online consumers increases as well, and with that the power and reach of online social networks as reference groups in consumer-decision making.

Our typology of virtual community members has made clear that people prefer to use the virtual community as a source of information in different formats. Some give preference to contributing and retrieving factual information through the community's databases, others like to socialize and exchange information in discussion forums, and again others focus on recreational activities such as updating and maintaining their member pages. Whereas a lot of traditional virtual communities offer all these functionalities in one integrated platform, we see that a lot of the new social network technologies have specialized in only one or two. Wiki's are the equivalent to the virtual community databases catering to the informationalists, functionalists, and opportunists. Blogs appeal to the conversationalists. MySpace and Facebook are extensions of member pages that are so popular with the hobbyists. Thus, we see a natural segmentation occurring based on preferred participation orientation. This offers advantages to marketers looking for ways to exploit online consumer-to-consumer networks for marketing purposes, because each format requires a different way of 'packaging' one's message. On the other hand, this division into distinct formats might decrease some of the potential influencing power of social networks, since users are only exposed to one type of information format (i.e., informational, relational, and recreational). Nevertheless, it is likely that consumers are members of several communities simultaneously, and easily switch from one type of network to the other according to their particular needs at any given point in time.

This brings us to the last point of discussion. Our study into the effects of virtual communities on the consumer decision process has shown that it is specifically a member's social involvement, their frequency of visits, and the amount to which they retrieve information that is related to community influence, particularly in the phase of search for information. These factors are very similar to the factors that play a role in processes of face-to-face interpersonal influence, thus they are not likely to change with new types of online networks. With the ubiquitous presence of social networks that each have their specificity, however, it is likely that their impact increases in those phases of the decision process that we found only marginally affected. Information rich reservoirs such as wiki's and community databases are likely to play a major role in the search for information process, whereas forums and blogs in which consumer discusses their experiences are presumably more powerful when it comes to forming and changing preferences. Social network sites as MySpace and Facebook that are primarily used to reanimate and maintain existing social ties might have a more significant effect on need recognition, actual behavior, and post-purchase evaluations because of real life scrutiny of members' consumption practices.

It is clear that these assumptions need further examination by means of empirical research. We conclude by stressing that online social networks and virtual communities present many *real* opportunities for marketers, managers, and researchers. There is a whole world out there, behind your screen, with continuously changing landscapes, new vistas, and avenues to explore. Don't hesitate, jump in, and enjoy the ride!

References

[1] J.W. Alba, J.W. Hutchinson, Dimensions of consumer expertise, Journal of Consumer Research 13 (March 1987).
[2] R. Algesheimer, U.M. Dholakia, A. Hermann, The social influence of brand community: evidence from European Car Clubs, Journal of Marketing 68 (July 2005).
[3] A. Alon, F. Brunel, W. Schneier Siegal, Ritual behavior and community life-cycle: exploring the social psychological roles of net rituals in the development of online consumption communities, in: C. Haugvedt, K. Machleit, R. Yalch (Eds.), Online Consumer Psychology: Understanding How to Interact with Consumers in the Virtual World, 2005, Hillsdale, NJ.
[4] J.A. Arndt, Role of product-related conversations in the diffusion of a new product, Journal of Marketing Research 4 (August 1967).
[5] R.P. Bagozzi, U.M. Dholakia, Intentional social action in virtual communities, Journal of Interactive Marketing 16 (2) (2002).
[6] W.O. Bearden, M.J. Etzel, Reference group influence on product and brand purchase decisions, Journal of Consumer Research 9 (September 1982).
[7] W.O. Bearden, R.G. Netemeyer, J.E. Teel, Measurement of consumer susceptibility to interpersonal influence, Journal of Consumer Research 15 (March 1989).
[8] B. Bickart, R.M. Schindler, Internet forums as influential sources of consumer information, Journal of Interactive Marketing 15 (3) (2001).
[9] R.D. Blackwell, P.W. Miniard, J.F. Engel, Consumer Behavior, 2001 Orlando, FL.
[10] D.M. Boush, L. Kahle, Evaluating online consumer discussions: from qualitative analysis to signal detection, Conference Proceedings La Londe Seminar: Marketing Communications and Consumer Behavior, 2001, Aix-en-Provence.
[11] J.M. Bristor, Enhanced explanations of word of mouth communications: the power of relationships, Research in Consumer Behavior 4 (1990).
[12] G. Broussard, How advertising frequency can work to build online advertising effectiveness, International Journal of Market Research 42 (4) (2000).
[13] S.L. Brown, A. Tilton, D.M. Woodside, The case for online communities, McKinsey Quarterly (1) (2002).
[14] R.E. Burnkrant, A. Cousineau, Informational and normative social influence in buyer behavior, Journal of Consumer Research 2 (December 1975).
[15] J.P. Cannon, W.D. Perrault Jr., Buyer–seller relationships in business markets, Journal of Marketing Research 36 (November 1999).
[16] M. Catterall, P. Maclaran, Researching consumers in virtual worlds: a cyberspace odyssey, Journal of Consumer Behaviour 1 (3) (2002).
[17] P. Chatterjee, in: M.C. Gilly, J. Myers-Levi (Eds.), Online Reviews: Do Consumers Use Them?, Advances in Consumer Research, vol. 28, 2001, Provo, UT.
[18] J.A. Chevallier, D. Mayzlin, The effect of word-of-mouth on sales: online book reviews, Journal of Marketing Research 43 (August 2006).

[19] D. Constant, J. Sproull, S. Kiesler, The kindness of strangers: the usefulness of electronic weak ties for technical advice, Organization Science 7 (2) (1996).
[20] M.G. Deutsch, B.G. Harold, A study of normative and informational influence upon individual judgment, Journal of Abnormal and Social Psychology 51 (November 1955).
[21] C. Dellarocas, N. Awad Farag, X. Zhang, Exploring the value of online reviews to organizations: implications for revenue forecasting and planning, Conference Proceedings 25th International Conference on Information Systems, 2004, Washington, DC.
[22] U.M. Dholakia, R.P. Bagozzi, L. Klein Pearo, A social influence model of consumer participation in network- and small-group-based virtual communities, International Journal of Research in Marketing 21 (2004).
[23] E. Dichter, How word-of-mouth advertising works, Harvard Business Review (November- December 1966).
[24] A. Dobele, A. Lindgreen, M. Beverland, J. Vanhamme, R. Van Wijk, Why pass on viral messages? Because they connect emotionally, Business Horizons 50 (4) (2007).
[25] F.R. Dwyer, P.H. Schurr, S. Oh, Developing buyer–seller relationships, Journal of Marketing 51 (April 1987).
[26] Ch. Ess, AoIR Ethics Working Committee, Ethical Decision-Making and Internet Research: Recommendations from the Association of Internet Research Ethics Working Committee, 2002.
[27] L. Festinger, A Theory of Cognitive Dissonance, 1962 Stanford, CA.
[28] M. Fishbein, I. Azjen, Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research, 1975 Reading, MA.
[29] P. Fitzgerald Bone, in: J.F. Sherry, B. Sternthal (Eds.), Determinants of Word-of-Mouth Communications During Product Consumption, Advances in Consumer Research, vol. 19, 1992, Provo, UT.
[30] N. Fox, C. Roberts, GPs in cyberspace: the sociology of a virtual community, Sociological Review 47 (4) (1999).
[31] B.G. Glaser, A.L. Strauss, The Discovery of Grounded Theory, 1967 Chicago, IL.
[32] D. Godes, D. Mayzlin, Using online conversations to study word-of-mouth communication, Marketing Science 23 (4) (2004).
[33] D. Godes, D. Mayzlin, Y. Chen, S. Das, Ch. Dellarocas, B. Pfeiffer, B. Libai, S. Sen, M. Shi, P. Verlegh, The firm's management of social interactions, Marketing Letters 16 (3/4) (2005).
[34] M. S Granovetter, The strength of weak ties, American Journal of Sociology 87 (6) (1973).
[35] J. Hagel III, A.G. Armstrong, Net Gain: Expanding Markets Through Virtual Communities, 1997 Boston, MA.
[36] D.I. Hawkins, R.J. Best, K.A. Coney, Consumer Behavior: Implications for Marketing Strategy, 1983 Plano, TX.
[37] T. Hennig-Thurau, K.P. Gwinner, G. Walsh, D.D. Gremler, Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the internet? Journal of Interactive Marketing 18 (1) (2004).
[38] A. Hemetsberger, R. Pieters, When consumers produce on the internet: an inquiry into motivational sources of contribution to joint-innovation, Conference Proceedings La Londe Seminar: Marketing Communications and Consumer Behavior, 2001, Aix-en-Provence.
[39] P.M. Herr, F.R. Kardes, J. Kim, Effects of word-of-mouth and product-attribute information on persuasion: an accessibility-diagnosticity perspective, Journal of Consumer Research 17 (March 1991).
[40] S. Hertz, Drifting closer and drifting away in networks: gradual changes in interdependence of networks, in: D. Iacobucci (Ed.), Networks in Marketing, 1996, London.
[41] D.L. Hoffman, Th. P. Novak, Marketing in hypermedia computer-mediated environments: conceptual foundations, Journal of Marketing 60 (July 1996).
[42] J. Horrigan, L. Rainie, The Internet's Growing Role in Life's Major Moments, 2006 Washington, DC.
[43] H. Jensen Schau, M.C. Gilly, We are what we post? Self-presentation in personal web space, Journal of Consumer Research 30 (December 2003).
[44] S.G. Jones, Doing Internet Research: Critical Issues and Methods of Examining the Net, 1999 London.
[45] J. Johnson Brown, P.H. Reingen, Social ties and word-of-mouth referral behavior, Journal of Consumer Research 14 (December 1987).
[46] E. Katz, P. Lazarsfeld, Personal Influence, 1955 Glenco, IL.
[47] P. Kiecker, D. Cowles, Interpersonal communication and personal influence on the internet, Conference Proceedings La Londe Seminar: Marketing Communications and Consumer Behavior, 2001, Aix-en-Provence.
[48] A.J. Kim, Community Building on the Web: Secret Strategies for Successful Online Communities, 2000 Berkeley, CA.
[49] P. Kollock, M.A. Smith, Managing the virtual commons; cooperation and conflict in computer communities, in: S. Herring (Ed.), Computer-Mediated Communication; Linguistic, Social, and Cross-Cultural Perspectives, 1996, Amsterdam.
[50] R.V. Kozinets, in: J.W. Alba, J.W. Hutchinson (Eds.), On Netnography: Initial Reflections on Consumer Research Investigations of Cyberculture, Advances in Consumer Research, vol. 25, 1998, Provo, UT.
[51] R.V. Kozinets, E-tribalized marketing? The strategic implications of virtual communities of consumption, European Management Journal 17 (3) (1999).
[52] R.V. Kozinets, Utopian enterprise: articulating the meanings of Star Trek's culture of consumption, Journal of Consumer Research 28 (June 2001).
[53] R.V. Kozinets, The field behind the screen: using netnography for marketing research in online communities, Journal of Marketing Research 39 (February 2002).
[54] A. Laing, G. Hogg, T. Newholm, in: B.E. Kahn, M.F. Luce (Eds.), Talking Together: Consumer Communities and Health Care, Advances in Consumer Research, vol. 31, 2004, Provo, UT.
[55] N.K. Malhotra, Marketing Research: an Applied Orientation, 1996 Upper Saddle River, NJ.
[56] C. Mathwick, Understanding the online consumer: a typology of online relational norms and behavior, Journal of Interactive Marketing 16 (1) (2002).
[57] J.H. McAlexander, J.W. Schouten, H.F. Koenig, Building brand community, Journal of Marketing 66 (January 2002).
[58] N.B. McCormick, J.W. McCormick, Computer friends and foes: content of undergraduates' electronic mail, Computers in Human Behavior 8 (1992).
[59] W.J. McGuire, in: L. Aronson (Ed.), Attitudes and Attitude Change, The Handbook of Social Psychology, vol. II, 1985, New York, NJ.
[60] M.L. McLaughlin, K.K. Osborne, C.B. Smith, Standards of Conduct on Usenet, in: Cybersociety, 1995 London.
[61 G.W. Milligan, Cluster validation: results and implications for applied analyses, in: P. Arabie, L. Hubert, G. DeSoete (Eds.), Clustering and Classification, 1994, River Edge, NJ.
[62] S. Moorthy, B.T. Ratchford, D. Talukdar, Consumer information search revisited: theory and empirical analysis, Journal of Consumer Research 23 (March 1997).
[63] G. McWilliam, Building stronger brands through online communities, Sloan Management Review (Spring 2000).
[64] A.M. Muniz Jr., Th.C. O'Guinn, Brand community, Journal of Consumer Research 27 (March 2001).
[65] A.M. Muniz Jr., H. Jensen Schau, Religiosity in the abandoned Apple Newton brand community, Journal of Consumer Research 31 (March 2005).
[66] M.J. Naples, Effective Frequency: The Relationship between Frequency and Advertising Effectiveness, 1979 New York, NJ.
[67] B. Nonnecke, J. Preece, Lurker demographics: counting the silent, Conference Proceedings SIGCHI Conference on Human Factors in Computing Systems, 2000, New York, NY.
[68] C. Okleshen, S. Grossbart, in: J.W. Alba, J.W. Hutchinson (Eds.), Usenet Groups, Virtual Community and Consumer Behavior, Advances in Consumer Research, vol. 25, 1998, Provo, UT.
[69] C.W. Park, P.V. Lessig, Students and housewives: differences in susceptibility to reference group influence, Journal of Consumer Research 4 (September 1977).
[70] L. Percy, J.R. Rossiter, Advertising Strategy: A Communication Theory Approach, 1980 New York, NJ.
[71] T. Postmes, R. Spears, M. Lea, Social identity, normative content and 'deindividuation' in computer-mediated groups, in: N. Ellemers, R. Spears, B. Doosje (Eds.), Social Identity, 1999, Oxford.
[72] G. Rae Bachmann, D. Roedder John, A.R. Rao, in: L. McAllister, M.L. Rothschild (Eds.), Children's Susceptibility to Peer Group Purchase Influence: An Exploratory Investigation, Advances in Consumer Research, vol. 20, 1992, Provo, UT.
[73] S. Rafaeli, F. Sudweeks, Networked interactivity, Journal of Computer-Mediated Communication 2 (4) (1997).
[74] L. Rainie, J. Horrigan, A Decade of Adoption: How the Internet Has Woven Itself into American Life, 2005 Washington, DC.
[75] H. Rheingold, The Virtual Community: Homesteading on the Electronic Frontier, 1993 New York, NJ.
[76] M.L. Richins, Negative word-of-mouth by dissatisfied consumers: a pilot study, Journal of Marketing 47 (Winter 1983).
[77] M.L. Richins, P.H. Bloch, Post-purchase product satisfaction: incorporating the effects of involvement and time, Journal of Business Research 23 (1991).
[78] E.M. Rogers, Diffusion of Innovations, 1983 New York, NY.
[79] F.T. Rothaermel, S. Sugiyama, Virtual internet communities and commercial success: individual and community-level theory grounded in the atypical case of TimeZone.com, Journal of Management 27 (3) (2001).
[80] M. Sawhney, G. Verona, E. Prandelli, Collaborating to create: the internet as a platform for customer engagement in product innovation, Journal of Interactive Marketing 19 (4) (2005).
[81] T. Schadler, Technographics Survey Highlights: North-American Technographics Consumer Technology Online Survey, 2007 Cambridge, MA.
[82] A.E. Schlosser, Posting versus lurking: communicating in a multiple audience context, Journal of Consumer Research 32 (September 2005).
[83] J.F. Sherry, R.V. Kozinets, Qualitative inquiry in marketing and consumer research, in: D. Iacobucci (Ed.), Kellogg on Marketing, 2000, New York, NJ.
[84] T. Smith, J. Coyle, E. Lightfoot, A. Scott, Reconsidering models of influence: the relationship between consumer social networks and word-of-mouth effectiveness, Journal of Advertising Research 47 (4) (2007).
[85] N. Srinivasan, B.T. Ratchford, An empirical test of a model of external search for automobiles, Journal of Consumer Research 18 (September 1991).
[86] F. Sudweeks, S. Rafaeli, How do you get a hundred strangers to agree? Computer-mediated communication and collaboration, in: T.M. Harrison, Th. Stephen (Eds.), Computer Networking and Scholarship in the 21st Century, 1995, New York, NJ.
[87] D.S. Sundaram, K. Mitra, C. Webster, in: J.W. Alba, J.W. Hutchinson (Eds.), Word-of-Mouth Communications: A Motivational Analysis, Advances in Consumer Research, vol. 25, 1998, Provo, UT.
[88] D. Tewksbury, A.J. Weaver, B.D. Maddex, Accidentally informed: incidental news exposure on the world wide web, Journalism and Mass Communication Quarterly 78 (3) (2001).
[89] S.R. Thomsen, J.D. Straubhaar, D.M. Bolyard, Ethnomethodology and the study of online communities: exploring the cyberstreets, Conference Proceedings IRISS, 1998, Bristol.
[90] J. Van Kruijsdijk, Technographics Survey Highlights: European Technographics Online Media, Marketing, and Retail Survey, 2007 Amsterdam.
[91] M.P. Venkatraman, in: M.E. Goldberg, G. Gorn, R.W. Pollay (Eds.), Opinion Leadership: Enduring Involvement and Characteristics of Opinion Leaders: A Moderating or Mediating Relationship, Advances in Consumer Research, vol. 17, 1990, Provo, UT.
[92] P. Wallace, The Psychology of the Internet, 1999 Cambridge, MA.
[93] J.B. Walther, Interpersonal effects in computer-mediated interaction: a relational perspective, Communication Research 19 (1) (1992).

[94] J.B. Walther, Relational aspects of computer-mediated communication: experimental observations over time, Organization Science 6 (1995).
[95] K.J. Ward, The cyber-ethnographic (Re)construction of two feminist online communities, Sociological Research Online 4 (1) (1999).
[96] M. Wasko, S. Faraj, Why should i share? Examining social capital and knowledge contribution in electronic networks of practice, MIS Quarterly 29 (1) (2005).
[97] M. Wedel, W.A. Kamakura, Market Segmentation: Conceptual and Methodological Foundations, 1998 Dordrecht.
[98] R.H. Wicks, Improvement over time in recall of media information: an exploratory study, Journal of Broadcasting and Electronic Media 36 (1992).
[99] C. Wiertz, K. De Ruyter, Beyond the call of duty: why customers contribute to firm-hosted commercial online communities, Organization Studies 28 (3) (2007).

Kristine de Valck is Assistant Professor of Marketing at HEC School of Management, Paris. Her research focuses on consumer tribes, interpersonal influence, word-of-'mouse', and the role of new communication technologies (blogs, podcasts, mobile phones, etc.) in co-creation and marketing.

Gerrit H. van Bruggen is a Professor of Marketing at Rotterdam School of Management, Erasmus University. Most of his research addresses the impact of information technology and information systems on marketing. His research has been published in *Management Science*, *MIS Quarterly*, *Information Systems Research*, *Interfaces*, *Marketing Science*, *Journal of Marketing and Journal of Marketing Research*.

Berend Wierenga is Professor of Marketing at the Rotterdam School of Management, Erasmus University. His main research area is marketing decision making and marketing decision support. Together with Gerrit van Bruggen he published a book on *Marketing Management Support Systems* (Kluwer Academic Publishers 2000). He has (co-) authored several articles on decision support systems in the domain of marketing (e.g. *Journal of Marketing*, *Marketing Science*, *International Journal of Research in Marketing*, *Management Science*), as well as in the general IS/DSS domain (e.g. *MISQ*, *Communications of the ACM*, and *Decision Support Systems*). Berend Wierenga is also the Editor of the *Handbook of Marketing Decision Models* (2008), published by Springer Science + Business Media.