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Psychological factors behind the lack of participation in online discussions

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ABSTRACT

The majority of participants in online communities are lurkers, who browse discussions without actively contributing to them. Their lack of active participation threatens the sustainability of online communities. This review provides an understanding as to why the majority of participants in online communities remain silent. It specifies a variety of factors that come into play when people determine their level of participation: individual differences: need for gratification, personality dispositions, time available and self-efficacy; social-group processes: such as socialization, type of community, tendency toward social loafing, responses to delurking and the quality of responses; technological setting factors: technical design flaws, privacy and safety of the online group. All are factors that are liable to influence involvement in online communities.

1. Introduction

The advent of new technologies has brought about an abundance of online communities. Membership of different types of groups allows users to participate online through reading and through posting user-generated information, such as expressing opinions or giving feedback on someone else's post (Himelboin, Gleave, & Smith, 2009). In this virtual discussion, users may exchange information with others whom they may never meet face to face and even create close relationships with one another (Lawson & Leck, 2006). Examples of such groups include Myspace, Slashdot, Usenet and Facebook.

Despite the necessity for user participation in online groups, research demonstrates that a marginal percentage of individuals contribute to online discussions. In fact, research shows that the majority of online community users are lurkers who play a passive role in virtual groups (Jones, Ravid, & Rafaeli, 2004; Kozinets, 1999; Nonnecke & Preece, 2000). According to the 90-9-1 rule, 90% of users do not actively participate in online discussions, while 9% of users contribute to some degree, and only 1% of users account for almost all the online action (Nielsen, 2006a, 2006b; van Mierlo, 2014).

Empirical research suggests that when newcomers do actually post for the first time, this is actually usually their last (Joyce & Kraut, 2006). Consequently, turnover rates for newcomers are exceptionally high (Brush, Wang, Turner, & Smith, 2005; Nonnecke, 2000). The high turnover and low participation rates present a challenge for virtual communities which rely on the contributions of participants for their sustainability. Online communities are vulnerable when knowledge contributors have no assurances that those they are helping will ever return the favor (Faraj, Wasko, & Johnson, 2008). Lurkers fall into this category as they benefit from the knowledge of others without reciprocating (Wasko & Faraj, 2005). Such passive participation may have an undesirable effect on users, as websites may become less informative and may even be boring for both the active and passive participants. Lurker behavior is particularly problematic in smaller online communities where only a limited number of users are actually available to interact with one another. In addition, lurker behavior creates a challenge for e-democracy projects which build on civic participation to create a vibrant and pluralistic deliberation (Alonso,

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Pérez, Cabrerizo, & Herrera-Viedma, 2013). Studies of open government report a gap between the aspirations of e-democracy initiatives and actual levels of public participation (Perez, 2013).

In order to assist and encourage lurkers to transition into becoming more active members of the community, it is important to understand why such individuals choose to remain passive. This article aims to bridge the gap by identifying a typology of factors that contribute to lurker activities. There are many causes for the lack of participation which often interact together and encourage lurker behavior. Certain variables can be attributed to an individual's disposition whilst other determinants result from social processes and technological barriers.

The paper will provide a short review on online communities and participation. This is followed by our theoretical model for understanding lurking behavior, which we believe has three leading motivators: individual differences, social-group processes and technological setting. Next we provide support for this model and broaden the discussion to encompass the theoretical and conceptual background of online communities. Then follows a more in depth discussion on lurkers, after which an analysis of the individual differences, social-group processes and technological setting that influence lurker behavior is presented. The article concludes with recommendations for future research.

2. Theoretical and conceptual background

2.1. Toward an understanding of online communities

Online communities consist of individuals who communicate with each other by exchanging messages over the Internet (Joyce & Kraut, 2006). Online communities provide a platform for individuals to exchange information about a variety of different topics such as health, recreation, professional and technical subjects (Ridings & Gefen, 2004). These communities develop according to the needs of their creators and users.

The two primary functions of online communities are information exchange and social network interactions (Burnett, 2000; Ridings & Gefen, 2004). They also serve particular social functions such as facilitating public participation in democratic processes and collaborative knowledge production. Directed information exchange provides individuals with the framework to seek, provide and share information. TripAdvisor, is an example, of one such community, which enables individuals to post and request information regarding different vacation destinations. This takes another form in the shape of social interaction groups, these specifically enable individuals to build relationships and connect with others. Facebook is an example of this type of network community that enables individuals to connect with one another, exchange gossip, upload pictures and post their statuses. Research shows that there is often more user participation in social network groups than there is in those directed at information exchange (Nonnecke, 2000). Although there is some evidence of young people starting to leave Facebook, (Baumer et al., 2013), Facebook remains the largest online social network, reaching its 1.39 billion active users as of the third quarter of 2014 (Statista, 2015). Other popular social network services include Google Groups, Twitter and MySpace, LinkedIn and Pinterest and YouTube.

Based on the large membership of online social networking groups, it would appear that participants are more concerned with fulfilling their own needs for affiliation and belonging, than they are in exchanging or providing information. However both information exchange and social network online groups often take a significant amount of time to grow and develop and initial participation in these groups is often scarce and uneven (Joyce & Kraut, 2006; Sloep, 2008).

2.2. Towards an understanding of lurkers

There are many terms used to describe lurkers, including non-public participants (Nonnecke & Preece, 2000) and “read only participants” (Williams, 2004) and more negative labels, such as “abusers of common good” and “free-riders” (Kollock & Smith, 1996). Regardless of the different terms, there is a general agreement that lurkers are persistent, though silent and passive members of online communities who do not contribute to groups (Lee, Chen, & Jiang, 2006; Rafaeli, Ravid, & Soroka, 2004; Ridings, Gefen, & Arinze, 2006).

In contrast to lurkers, posters are active members in online discussions; hence they are generally regarded as more constructive members of online communities. A constant flow of contributors is needed in order to maintain online groups. The more active participants there are in online groups, the larger the pool of resources will be for the entire group, thus the lack of involvement among lurkers often serves as a threat to the continuity of online groups (Yeow, Johnson, & Faraj, 2006). From this perspective it seems that lurkers should be encouraged to participate more frequently in online discussions.

Although lurkers are almost invisible, it turns out that the majority of both posters and lurkers consider lurkers as part of the community. More importantly, none of the respondents to the survey showed resentment toward lurkers (Merry & Simon, 2010).

2.2.1. Factors that affect lurker behavior

In the words of Nonnecke and Preece (2001) “there is no single answer to why lurkers lurk” (p. 6). A variety of factors are often involved in determining the extent to which members participate in online communities. Lurker behavior varies among participants, and each individual is affected by different factors. In the diagram presented in Fig. 1, we present a typology of factors that will be explained in this article, and which we found to be relevant in influencing participation rates in online communities. This typology includes individual differences, social-group processes and technological setting factors (see Fig. 1).

2.2.2. Individual Differences

Individual differences refer to participants' different characteristics and intentions. Each individual's personality drives and motives impact on the extent to which he or she is inclined to engage in lurker or poster behavior. Four factors, which have been shown to impact on lurker behavior, will be discussed below. These include: need gratification levels, personality dispositions, time available and self-efficacy.

2.3. Need gratification

People go online in order to fulfill their social and emotional needs (Rau, Gao, & Ding, 2008). The degree to which users feel the need to post and interact with others is frequently a reflection of their deep socio-emotional desires. Tan (2011) suggests that prosocial attributes, such as online relationship gratification, significantly affect posting levels. For example, if an individual encounters significant satisfaction when posting online, then he or she is likely to become more motivated to continue their involvement in such discussions. The socio-emotional needs for attachment and belonging often lead individuals to commit to being part of a group and to participating (Sassenberg, 2002). Developing attachment to and friendships with others often motivates online members to continue to participate in groups. van Uden-Kraan et al.'s (2008) study suggests that participation enhances social and emotional wellbeing and has a positive influence on social self-esteem. It is likely that individuals with high social-emotional need gratification

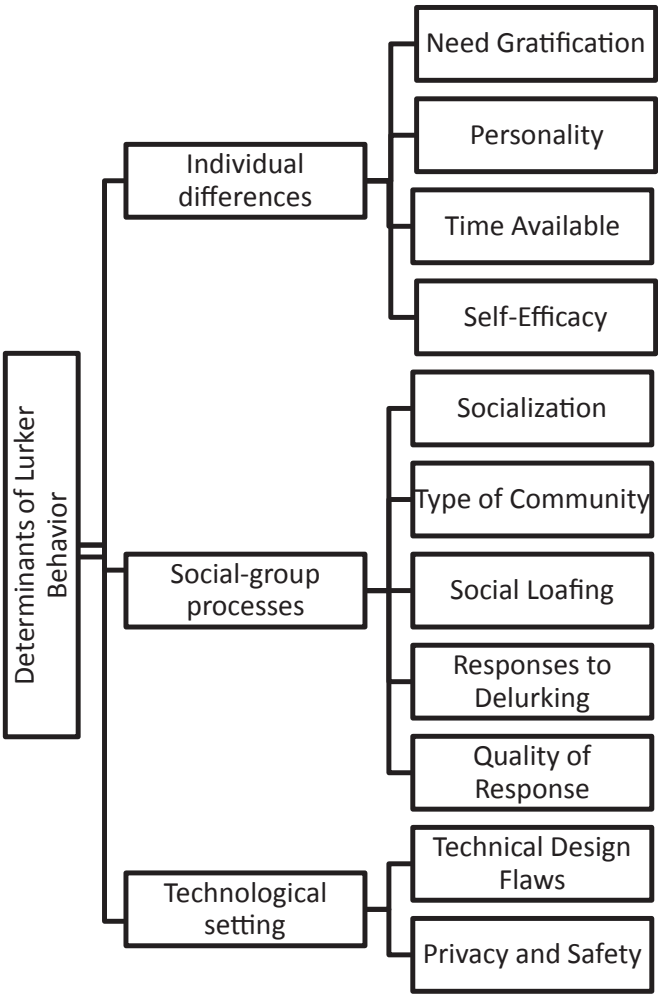

Fig. 1. Determinants of lurker behavior.

levels will therefore continue to participate in order to fulfill their need for affiliation. However, there are individuals who prefer to lurk as they do not feel that their socio-emotional needs will be fulfilled by posting. This is unfortunate as research has indicated that actually participation is often correlated to increased satisfaction levels (van Uden-Kraan et al., 2008) and social capital (Rafaeli & Soroka, 2006). On the other hand, there are individuals who have lower needs for emotional and social relationships and consequently their needs can, in essence be fulfilled by simply lurking in the background (Nonnecke, 2000). The level of need gratification of an online member may vary depending on the situation, the context and the mood of the individual. For example an individual may feel a greater need to become part of a community that his/her friends are a part of than a regular information exchange group. Community-related variables are another important factor in determining the extent to which participants lurk.

2.4. Personality

Personality is highly influential in determining online behavior (Amichai-Hamburger, 2002, 2005). Nonnecke's (2000) study demonstrates that there will always be a proportion of individuals who are predisposed to lurk and those who are predisposed to post. When it comes to understanding lurker behavior, there are two seemingly contradictory explanations. The first is that personality remains relatively stable when using the Internet (e.g. an extrovert in public will be an extrovert online). The second viewpoint is that the Internet is a mask behind which individuals can display hidden aspects of their personalities (e.g. introverts may become more extroverted online). Below we will demonstrate that in terms of understanding lurker behavior, these two, seemingly paradoxical stances, in fact complement one another.

According to the first viewpoint, social inhibition often prevents lurkers from posting online, leaving them to lurk in the background. In keeping with this viewpoint, Nonnecke and Preece (2001) suggest that lurkers display introverted behavior as they prefer to observe rather than contribute to discussions. Nearly a third of participants (28%) in Nonnecke and Preece's (2001) study stated that they were indeed shy about posting. From this perspective, it would seem that individuals who score highly on the introverted continuum tend to behave unresponsively in online groups (Rafaeli et al., 2004). Dennen (2008) suggests that in fact it is this lack of confidence among lurkers that often leads to what appears to be apathy. The change from lurker to poster may actually come about when lurkers feel confident that they will receive a positive response to their post (Lee et al., 2006; Ridings et al., 2006). Respondents admitted that their lack of participation was due to their inability to find the appropriate message with which to respond, their lack of model-post to follow and their worry at presenting a redundant response. The theme of not having the confidence to post is further reflected in Preece, Nonnecke, and Andrews (2004) study where users ranked that they had “nothing to offer” (p. 208) as the fourth most common reason for not posting (by 23% of the participants). It is common for passive participants to doubt their abilities to contribute to discussions and instead believe that they will do more good by remaining silent. Individuals such as these, would rather remain unresponsive than encounter negative responses as this would further amplify their lack of confidence. On the other hand, individuals will be more likely to transition to posters when they feel sufficiently secure that they will receive positive responses and that they will add value to the group.

In line with the second view, it could be argued that the Internet is in fact a forum through which introverted individuals may become less inhibited and this may well lead them to interact more online than they would face to face (Amichai-Hamburger, 2005; Amichai-Hamburger, Wainapel, & Fox, 2002). Introverted individuals actually often voice their opinions on the Internet in order to meet their social and intimacy needs. More recently Amichai-Hamburger (2007) suggested that the fact that the Internet enables its users to feel protected psychologically, and thus enables the more introverted among them, to express the opposite, yet complementary side of their personalities. This is compatible with Jung's theory of personality, that psychological coherence is created from a dialogue between opposite sides of one's personality (Amichai-Hamburger, 2007).

Recent research corroborates this understanding, as introversion was found to be associated with conversational preference for online groups (Anolli, Villani, & Riva, 2005). Socially inhibited individuals' online behavior may in fact be incongruent with the general behavioral patterns usually expressed by those with more introverted personalities. Consequently, socially inhibited individuals may display more extroverted behavior online than they would when relating to others face to face (Amichai-Hamburger et al., 2002). Thus, one would expect introverts to express the more extroverted, under-developed parts of their dispositions when online, in fact people with social inhibitions often open up on the Internet in an attempt to meet their social and intimacy needs (Amichai-Hamburger, 2007). From this standpoint, introverted individuals would be expected to display relatively high levels of online participation or at least higher levels of online participation

than their regular, more personal interactions especially when they interact in an anonymous environment.

Both these perspectives are in fact complementary to one another as they allude to the impact of the interplay between personality, the online community and the online environment, when it comes to user involvement. Social-group processes, which will be elaborated upon in the next section, together with personality dispositions influence the extent to which individuals utilize the introverted and extroverted components of their personalities. It is likely that introverts will remain shy and submissive in virtual communities until such time as they feel comfortable enough within the group to post. Introverts are therefore likely to express their introverted side more during the initial stages of socialization into a group and only to reveal their more extroverted dispositions when they are in the later stages of group membership. Moreover, both extroverted and introverted individuals are likely to be more inclined to partake in discussions when they believe that other participants will respond to them favorably (Lee et al., 2006).

Furthermore, Cullen and Morse (2011) suggest that people who have a variety of personality traits will require different kinds of motivations to become active members of the online community. For example, people who are high in agreeableness are more likely to participate if the interface is simpler; while people who are high in neuroticism are more likely to participate if they receive reassurance of their unique contribution to the community.

2.5. Time available

Posting and engaging in online groups takes time. Therefore a simple yet important reason why many lurkers do not contribute to online communities could be owing to their lack of time. This reason is highlighted in Nonnecke and Preece's (2001) research where it was found that when time was not restricted, there was an increased interaction on social network sites. Nonnecke's (2000) study supports these findings as lurkers in his study were found to have many other priorities in their lives, which prevented them from spending a lot of time in virtual discussion groups. In addition, participants in Nonnecke's (2000) study stated that following online discussions was not one of their high priority tasks and certainly not the one in which they desired to spend much of their time. Therefore, lurker behavior is often induced when members have too many other demands on their time and participation in the online group is not a priority for them.

2.6. Self-efficacy

According to Bandura's socio-cognitive theory, self-efficacy (SE) refers to beliefs in one's capabilities to organize and execute the course of action required to manage a particular situation (Bandura, 1982). SE is a form of self-evaluation which directly and indirectly influences decisions and behavior (Hsu & Chiu, 2004). Individuals with high SE in a task are more likely to perform that task than those with lower SE (LaRose, Mastro, & Eastin, 2001).

Within the context of online behavior, Internet self-efficacy (ISE) refers to beliefs in one's capabilities to execute actions over the Internet (Chyung, 2007). In keeping with Bandura's (1982) understanding of SE, one can infer that ISE influences affective and behavioral reactions to online participation in several ways. Firstly, SE will influence the degree to which individuals initially engage in online communities. Secondly, SE will impact on participants' persistence in contributing to discussions when faced with negative feedback or barriers to communication. Naturally, certain individuals will have higher levels of SE and feel more confident than others in their abilities to navigate their way on the Internet and participate in online groups. Such confidence is often the product of prior online experiences, time spent online, as well as personal, physical and psychological characteristics (Gangadharbatla, 2008). Empirical research demonstrates the association between ISE and Internet usage (Daugherty, Eastin, & Gangadharbatla, 2005; Eastin & LaRose, 2000; Gangadharbatla, 2008). In addition to this correlational relationship, a causal relationship has been found between the two variables. For example, SE predicted 34% of the variance in computer usage among participants (Gangadharbatla, 2008). This study validated that belief in one's computer skills significantly predicts online participation. Aside from a few examples to the contrary, such as those by Chyung (2007), the majority of research indicates that high levels of ISE are positively related to participation in social networking sites (i.e. Gangadharbatla, 2008). Thus, the more individuals believe that they have the ability to use online groups effectively, the more likely they will be to contribute to these discussions.

2.6.1. Social-group processes

Community related determinants of lurker behavior are factors that arise from within the online community. Included in community-related factors are one's relationship to the online-community, stage of membership and quality of the information received by other members (Tan, 2011). According to Tan (2011) community-related variables can be accumulated or varied in a relatively short time. Given the elasticity of these variables, they are often the triggers that are involved in converting lurkers to posters and vice versa. The community related variables, or social-group processes, that will be elaborated upon below include socialization, type of community, social loafing, responses to delurking (becoming an active participant-see below) and quality of the response.

2.7. Socialization

Socialization has been defined as the process of learning the behaviors and attitudes necessary for assuming a role in an organization (Morrison, 1993). In online communities socialization is the process through which new members adjust and adapt to the new virtual community. Before users become integrated into an online community, they go through a process of socialization whereby they learn about and adapt to group norms, culture, values, communication styles and behavior.

In Preece et al.'s (2004) study, during the initial stage of socialization, users were still “testing the waters” and “collecting information” about the group (p. 211). During the stage of socialization, participants assess the culture, values and norms of the group and often subsequently decide whether or not they want to form an identity within the group. Often individuals will not post on the group during their early stage of membership as they do not yet feel a sense of belonging to the group. Preece et al.'s (2004) research depicts the importance of the socialization process, in fact 30% of the participants in their study stated that they did not post on online discussions as they were still learning about the group. Similarly, in Nonnecke's (2000) study, participants acknowledged that they had not posted as they did not yet feel a sense of belonging or commitment to the virtual community. Thus, it is apparent that it may take users some time before they establish a sense of belonging to the group and are familiar enough to contribute to discussions. Lurking behavior should therefore be expected to be manifest during the socialization process, especially by those with more introverted personalities. Lurker behavior may be even more prominent when new members join groups after the

group itself has already transitioned through the developmental stages of norming and performing. During these later stages, when the group has already developed and formed a bond, it is more difficult for new participants to join such a seemingly cohesive group.

Perhaps the fact that many lurkers are still in the initial stages of membership in online groups, is one of the reasons why lurkers tend to feel a lesser sense of membership and post less frequently when compared to posters (Nonnecke, Andrews, & Preece, 2006). Consequently, lurking behavior may be a temporary strategy for users until such time as they understand the group and can find an identity there. However, it should be noted that, in Nonnecke et al.'s (2006) study 13% of the participants said that they intended to lurk even at the later stages of their group membership. Once new members have gone through the socialization period, they should have a good understanding about the norms of the groups and consequently make informed decisions as to whether they feel they fit in. However, just as Nonnecke et al.'s (2006) study concludes, this response will not always be positive. In fact, given the percentage of lurkers, one can assume that users frequently feel that they are not suited to the community or that they will not be accepted by it (Preece et al., 2004). A participant in Preece et al.'s (2004) study stated that he was "made to feel like an outsider" and "not part of the group". When individuals feel that there is not a match between them and the group they are unlikely to remain active within it. Nevertheless, following the socialization process, some participants will make the shift from lurkers to posters, although many will continue to remain passive.

2.8. Type of community

Most of the research on online behavior, has proposed a taxonomy of virtual communities without taking the specific type of community into account (e.g. Burnett, 2000; Hagel & Armstrong, 1997). However, there is some literature that suggests that the type of online community and its context has a strong influence on users' behavior (e.g. Butler, 2001; Wasko & Faraj, 2005) this is particularly true in terms of user participation. For example, lurking has been found to be lower in health-related groups than in software-support groups. The difference in rates of participation may be due to the type of response anticipated by the user. For example, empathy is often displayed in health-related groups, which seems to increase the rate of participation and consequently lower the extent of lurker behavior (Preece, 1998; Preece & Ghozati, 1998). Technical and illness support groups have been found to be the most welcoming groups to newcomers (Fisher, Smith, & Welser, 2006). Therefore, newcomers to these groups are likely to have a pleasant socialization process which may increase their desire to participate in future discussions. Nonnecke (2000) also found that the specific type of community influences the degree of participation. His findings show that users tend to post more on online social network groups than they do in information exchange communities. Since posting on social interaction groups allows for an almost direct and personal relationship with other members, users are likely to post more on these types of groups in order to satisfy their socio-emotional needs. It is therefore not surprising that virtual groups such as Facebook and Twitter have higher participation levels than information exchange communities such as TripAdvisor or Health Information Exchange.

Grace-Farfaglia, Dekkers, Sundararajan, Peters, and Park (2006) suggest that active participation in online communities is also related to cultural values. In a cross-cultural comparison of online participation among American, Dutch and South-Korean participants, Grace-Farfaglia et al. (2006) found that South-Koreans, who as a nation tend to value collective activities, were more likely to seek out and participate in both online communities of interest and organizations within their own online community.

2.9. Social loafing

Social loafing has been defined as a "group phenomenon where individuals contribute or exert less effort to achieve a goal when they perceive that they are working jointly with others than when they are working alone" (Karau & Williams, 1993, p. 681). Research suggests that there is a tendency among online members for social loafing (Yeow et al., 2006). This phenomenon usually has a damaging effect on overall group performance (Karau & Williams, 1993). Many members may withhold their personal contributions as they know that other online members will participate. According to Yeow et al. (2006), the low participation among lurkers indicates that many of the lurkers do not think that their contributions will affect the group's outcome and that their contribution to the group will be inconsequential. Therefore, such individuals will choose to remain silent as they know other members will post sufficient information. In Küçük's (2010) study, participants stated that their main reasons for not posting were that just reading the discussions was sufficient for them; that others responded in the way they would have done and that they simply had no need to post (Küçük, 2010). Accordingly, irrespective of their perceived degree of involvement, members are likely to post less when they know that other community members will participate. With regards to posting, several participants in Preece et al.'s (2004) study declared "I do not really feel a need to" and "I'll start posting in the future if I feel the need to" (p. 210). This apathy further illuminates the suggestion that knowing that they are part of a group often results in lower participation levels and a reduced feeling of responsibility towards the group. In fact, Nonnecke et al.'s (2006) study found that, having no need to post, was the number one reason for non-participation. Furthermore, 54% of participants claimed that just reading/browsing was enough to satisfy their needs when going online. This tendency of having no desire to contribute to discussions may be owing to the fact that members know that other people will post online, thus removing from them the responsibility of posting. Participants who engage in social loafing often feel less accountable to the group and consequently do not participate as much as they would have, if the onus of participation was on them alone.

2.10. Responses to delurking

According to an Online Jargon Dictionary Netlingo (2013), "delurking" is the slang term used to describe exiting an online "lurking mode", usually motivated by an irresistible need to flame about something. Lurkers will often decide whether or not to remain passive participants by observing how other users are treated when they "delurk" (Nonnecke, 2000). By observing others in the "delurking" process, lurkers gather tips on how to formulate their own posts. Of particular importance to lurkers, is how the posts of newcomers were received by the online group (Nonnecke, 2000). When lurkers observe newcomers who are treated well, they will be more motivated to follow in their footsteps and post for the first time (Bishop, 2007). Although this method of inference appears to be a reasonable way for lurkers to decide whether or not it is to their advantage to post, it is not as apparent as it seems, since lurkers can only observe the public response to "delurking", and have no knowledge of the personal messages, possibly extremely negative, which the "delurkers" may have received from group members (Nonnecke, 2000).

2.11. Quality of response

Nonnecke's (2000) study reported on the impact that receiving a response plays in decisions to post subsequently. In his study only 12% of the newcomers, who received a response to their initial post, stated that they were likely to post again. One may have expected that newcomers who received a response to their post would be more inclined to contribute again. This relatively low percentage implies that factors other than merely receiving a response are involved in determining whether or not newcomers post again. As such, perhaps it is the quality of the response, and not just the response itself, that influences participants' participation levels (e.g. Davis & Holtgraves, 1984; Patterson, 1994). The quality of the response includes elements such as the extent to which participants receive positive or negative feedback, affirmation, the length of the response and its perceived usefulness. Skinner's theory of operant conditioning, (1953) is valuable in explaining how the quality of the response may enhance or impede online participation. In line with the reinforcement model (Skinner, 1953), positive reinforcements motivate individuals to repeat the actions that led to a positive outcome. Therefore, new members are likely to continue to be involved in an online community when they receive positive responses that fulfill their needs. According to Nonnecke's (2000) research, asking a question, writing a long message or receiving useful responses are actions that often to lead to the positive reinforcement of receiving a response. Thus, participants feel that they have been rewarded (by receiving responses) for these actions and consequently their own responsive behavior is more likely to be reinforced and repeated. Additionally, the extent to which the responses agree or disagree with newcomers' posts also influence the reinforcement value (Byrne & Griffitt, 1966). Posts that reinforce what the initial users stated are likely to encourage individuals to feel a sense of belonging to the group and will encourage them to participate subsequently (Joyce & Kraut, 2006). Bishop's (2006) findings demonstrate that novices were more likely to become integrated into the community if they were responded to positively. Additionally, new members are likely to be more committed to a group if they are given constructive responses to their posts (Moreland & Levine, 2001).

In contrast, negative responses can be seen as a form of punishment which discourage individuals from repeating behavior that led to the undesirable result. According to Patterson (1994) negative or non-existent feedback online is a form of punishment which will discourage participants from repeating the actions which led to the negative outcome. Consequently, if users receive a response that ridicules or even disagrees with their post, they will be less likely to post again. Zucker (1983) suggests that the absence of a response is a form of negative feedback. Participants who encounter this type of feedback may not want to continue with their prior involvement in the group and may return to their previous lingering state (Lambropoulos, 2005).

2.11.1. Technical setting

External determinants are external constraints within the technical setting that influence lurker behavior (Nonnecke & Preece, 2001). These elements stem from outside or situational causes and yet they have a significant influence on lurker behavior. Examples of such constraints include technical design flaws and the privacy and safety of the group.

2.12. Technical design flaws

Online members may encounter situations in which they have no choice but to lurk in the background. These circumstances may not be attributable to individual or community-related variables, but rather to external factors that prevent members from posting. One such factor is technical flaws in the software or online system. In Nonnecke et al.'s (2006) study 7.8% of participants reported that they had remained silent participants because technical and community design flaws made it difficult for them to post online. Satisfactory online interaction design depends on the usability of the human–machine interface (Rogers, Sharp, & Preece, 2011). This means that online communities should allow for easy user interaction between the users, the computers and the software. It is important that initiators of virtual communities provide clear instructions as to how to register, log in, browse, post replies and initiate discussions, thereby ensuring that the system is user friendly (Preece, 1998). According to Nonnecke et al. (2006), the usability of technology is often problematic for generation x and older generations as they were not brought up in the technological era. Thus, participants are often unable to make the software work which prevents them from contributing to discussions. Technical design flaws as well as the process of learning how to use technology are therefore often contributing factors to lurker behavior (Nonnecke & Preece, 2001). A similar lurking behavior was found in a study of a wiki platform, which was used to facilitate a participatory process, but was found to be too cumbersome by the prospective participants (Perez, 2013).

2.13. Privacy and safety

In 1890, Warren and Brandeis defined privacy as the “right to be left alone”. This definition of privacy can be extended in order to understand privacy of information on the Internet. As such, privacy exists when the usage, release and circulation of personal information can be controlled (Culnan, 1993). Personal privacy in online communities is violated when online members cannot maintain a substantial degree of control over their personal information and its usage. For example, if a participant's personal information is available for all members of the group to see and utilize, then that participant lacks privacy. Having the ability to remain anonymous is one way to preserve one's privacy. However anonymity is not guaranteed in online groups. In fact research has shown that online groups often compromise individual privacy and safety (Nonnecke, 2000).

Although privacy and safety are related, they are not identical. Safety refers to the physical as well as psychological protection of participants (Nonnecke, 2000). Online communities that provide participants with safety should therefore ensure that there is no physical violence or physiological harm on individuals involved in the community. Moreover, participants should not be ridiculed, embarrassed or physiologically harassed for posting their opinions or information on the online discussion. The interplay between privacy and safety is highlighted in Katz's (1988) study where he acknowledges that participants may be uncomfortable with the tone and hostility of public groups (safety) and feel comfortable only when they can remain anonymous (privacy) and cannot be personally insulted (safety). Participants frequently cite not having sufficient privacy and safety in online communities is a common reason for their reluctance to take an active role in discussions (Nonnecke & Preece, 2000). Therefore, one can infer that the lack of privacy and safety in online groups is an important component in the accrual of lurker activities. Nonnecke (2000), points out that privacy and safety are frequently not guaranteed in online communities, and it seems that many would be active participants in virtual communities find that the uncontrolled access and persistent messages are an obstruction of their privacy and security. Such individuals will often prefer to remain invisible than divulge their personal information or other information that could later be used against them.

3. Conclusion and recommendations

As this paper has made clear, the expression *lurker* is not an absolute term, but rather entails a wide range of lurking behaviors. It appears that each individual's level of participation in an online discussion can be positioned along a continuum that starts with *always participating* and ends with *only observing*. It is possible to place the behavior of most visitors on Internet groups within these two extremes. This article demonstrates that an individual's lurking behavior is frequently inconsistent, and is often comprised of an interplay between individual differences, social-group processes and the technological setting. Below, based on the typology presented in this article, we give some suggestions as to how to encourage lurkers to delurk.

Individual differences, such as personality dispositions, are relatively stable in individuals and thus the online forum should be adapted to cater for different personality characteristics. Web designers need to understand the importance of designing sites that can be tailored to the individual needs and dispositions of Internet surfers (Amichai-Hamburger, 2002). One direction previously mentioned is the one of introverts. Several studies have pointed out that introverts strive to compensate themselves for their social challenges and prefer an anonymous environment in which to do so (Amichai-Hamburger et al. 2002; Anolli et al. 2005; Hamburger & Ben-artzi, 2000). It seems then, that in order to encourage introverts to participate in online discussions, it is likely to be more effective to provide them with an anonymous, rather than an identified, online forum, particularly during the initial stage. However, interestingly, a comparison of different anonymous conditions has revealed that total anonymity is the least desirable condition, as it leads to negativity, whereas use of pseudonyms is the preferred profile option, as it increases contributions and significantly reduces negative postings (Malinen, 2015).

Another relevant personality direction to be exploited is the *need for closure* trait. Amichai-Hamburger, Fine, and Goldstein (2004) demonstrated that people with a high need for closure prefer a simpler web structure with less hyperlinks as compared with people with a low need for closure. This leads us to conclude that if we are able to tailor the online discussion environment, and wish to encourage the participation of people with a high need for closure; we should design an online environment with a minimum number of hyperlinks.

Research concerning personality and web experiences has generated a knowledge base that can be exploited by web designers. For example, encouraging people with social inhibitions to open up over the Internet will allow these users to achieve their social and intimacy needs. By taking personality and social needs into account, Web designers can facilitate an environment that will encourage all types of Internet surfers to participate in online discussions.

It is interesting to note that usually when participants start getting involved in virtual communities, their SE increases. As levels of SE increase, they will begin to feel motivated by their newly found abilities to participate in and influence discussions, and in many cases, this may well give them the courage needed to participate actively in offline discussions as well. Currently there is no empirical evidence to suggest a causal relationship between SE and delurking. We recommend a research study to test this hypothesis. Should such a causal relationship be found, we suggest the creation of online training programs and support mechanisms for online communities, in order to help them to increase the levels of SE among participants, which in turn will encourage users to contribute to online discussions.

Social-group processes on the other hand, are dependent on variables outside the remit of the individual. In order to assist lurkers' transition to becoming more active participants, initiators of online communities can adjust, adapt and work on these processes to ensure that online groups are comfortable and accessible for the more silent members. For example, new members should be welcomed into the community and their input should be requested. In addition, existing members of online groups should provide newcomers with feedback and positive reinforcement especially when they post for the first few times. Initiators of online communities should ensure that users feel at ease with the group and provide topics that are relevant to their participants.

Another approach may involve dealing with the phenomenon of social loafing. According to Karau and Williams (1993), individuals are more likely to engage in social loafing when their individual outputs cannot be evaluated collectively, when working on tasks that are perceived as low in meaningfulness, or when a group-level comparison standard is not available. According to Myers (1990), in order to prevent social loafing the following features must be in effect: (1) group goals must be challenging and motivating, (b) individual accountability must be achieved through a monitoring procedure that has the ability to detect each group member's contribution or lack of contribution, and (3) a reward system must be used that properly reflects individual contributions (Myers, 1990). The system should therefore emphasize the unique contribution of each individual, so that participants feel that their individual contribution is of value. This could be achieved, for example by, mentioning under the user's name how many messages he had written. In addition, it is also possible to give special titles or benefits to active users who contribute a lot to the online community. Users might consider becoming active participants in order to win a special “rank” or title in the online community.

When considering reward systems, in order to discourage social loafing and encourage participation, one must consider Social Exchange Theory. According to Social Exchange Theory (e.g. Constant, Kiesler, & Sproull, 1994; Thibaut & Kelly, 1959), individuals evaluate alternative courses of action so that they get best value at lowest cost from any transaction completed. The term *value* can be interpreted in several ways, and different solutions can be suggested in order to increase specific kinds of values. First, value can be achieved if the participant has a pre-existing expectation that he or she will receive useful information in return for participating. Web-designers can encourage participation by providing access to valuable information in return for participation (“member-only zones”, for example, by revealing only part of the information to non-members Secondly, value can also be achieved if participants feel that they can improve their visibility and influence others on the network. Web-designers can design a ranking system for users based on their contribution to the network. Thirdly, value can be achieved if the participant gets some kind of more tangible asset in return for participation – some kind of reward, in the form of money or cheap merchandise such as T-shirts (Sun, Rau, & Ma, 2014). In studies on the effects of rewarding and incentives on participation, it was found that immaterial incentives such as prestige and reputation are the most effective rewards, while tangible assets are found to be successful only in corporate websites, (Malinen, 2015). The use of the first two types of reward is found in Self-Determination Theory (e.g. Ryan & Deci, 2000). According to Ryan and Deci (2000), external motivation (such as a reward) has limited influence on behavior, and it decreases over time, while internal motivation can influence behavior and change it in the long-term.

Finally, the technological setting has a great deal of influence as to whether or not one chooses to participate in the online community. Many individuals do not contribute to online discussions owing to the perceived lack of privacy and security in online communities. Website owners should therefore provide an online

environment that offers a strong feeling of security and safety. By allowing participants to maintain their anonymity and preventing their physical exposure, users are likely to feel safe which is a basic prerequisite for people to allow themselves self-expression (Amichai-Hamburger & Hayat, 2013).

Sense of security can also be achieved by greater control of website-owners over the discussions. Broß, Sack, and Meinel (2007) for example, described how in their weblog platform each post was published only after the approval of the website editor. The editor had 3 options: (1) publication of the post without changing it, (2) deletion of the post if, for example it was completely impertinent and lacked basic elements of good conduct, or (3) modifying the post by the editor (and letting the readers know what was edited). Although it might seem a rough approach, if editors would use their authority only when necessary, and according to a known set of rules, this might increase the sense of safety among potential participants. Broβ et al. (2007) conducted a survey on this approach among their weblog participants, and reported that almost 70% of participants found editorial control necessary. Furthermore, since as Malinen (2015) found, community response to newcomers is critical for their future participation, by preventing negative postings, web-owners can promise more welcoming feedbacks to newcomers.

In addition, websites should be designed to increase members' perceived control of the site (Gangadharbatla, 2008). This can be implemented by incorporating easy mechanisms and templates through which users can upload and share their knowledge and opinions. Increasing participants' interactivity will allow users to feel a sense of belonging to the group as well as gain confidence over time in their abilities to contribute to virtual communities. While not entirely solving the problem, the aforementioned suggestions should go a long way in providing a solution to the problems associated with lurker behavior.

User interface also has a great deal of influence on user participation, especially in online discussions. Ease of use should be one of the central features of any online discussion. In addition, Liao (2007) investigated the influence of identity-enhancing (IDE) features, specifically avatars, signatures, point system and rankings on user participation levels. These elements are mostly found in computer games, but it is possible that they may, in some cases lead to an increase in user participation in online discussion boards, which in turn may lead to an increase in user satisfaction. Liao (2007) also showed that users preferred point systems and rankings over avatars and signatures, probably because of the relative complexity of creating an avatar or a graphic signature. Thus, web-designers should consider embedding IDE features in their websites in order to encourage greater user participation which is likely to increase user satisfaction levels.

Increased levels of participation can also be achieved using an interactive user interface. Beekes (2006), for example, found that the use of Personal Response System (PRS) encouraged participation in class. PRS are used in class similarly to “Ask the Audience” on the television game show “Who Wants to be a Millionaire?” – the lecturer poses a multiple-choice question to the audience and using the PRS they vote on the answers. Web-designers can encourage participation by conducting polls and asking the participants questions. Answering a poll is relatively easy and requires very little effort on the participant's side, while providing the website owner with important data that can later be used in many ways.

In the previous paragraphs we described what could possibly motivate lurkers to become active participants. However, it was shown by several studies that even without participating actively, lurkers benefit from following online discussions. Petrovčič and Petrič (2014) studied health related online support communities and differentiated between interactional and intrapersonal empowerment. They showed that both lurkers and active participants experienced the same levels of intrapersonal empowerment. van Uden-Kraan, Drossaert, Taal, Seydel, and van de Laar (2008b) found no significant differences between posters and lurkers in most empowering outcomes. Other studies (e.g. Merry & Simon, 2010; Mo & Coulson, 2010) showed that active participants gain more, but lurkers also benefit from passive participation. Preece et al. (2004) found that lurkers identify themselves as members of the community, but to a lesser extent than active participants.

Another important function of online communities is to provide a platform to enable greater participation in local and national governments. These authorities are increasingly employing technological opportunities to listen to their constituents and encourage them to participate in the process of governance. E-democracy is slowly moving from a slogan to a reality as authorities provide platforms and increasing numbers of citizens become active in the process. We recommend that future research will assess how e-democracy affects online users' sense of political empowerment. In this way, it is hoped that online communities will be designed to satisfy the needs of both the creators and the participants. This effort is likely to lead to the increased empowerment of the citizen and the formation of a vibrant e-democracy (Amichai-Hamburger, McKenna, & Azran, 2008).

Based on this article, a further recommendation is that a quantitative study be conducted in order to determine the extent to which each of the identified factors (individual differences, social-group processes and technical settings) influences participation; their individual and interaction effects should be noted. In addition, experimental studies should be conducted to determine the cause and effect relationships between lurker behavior and its antecedents. It is hoped that the understanding that lurking behavior lies within a continuum, and that individual behavior varies according to circumstance, will help those trying to encourage greater participation in online discussions to target their efforts more effectively. As discussed earlier, encouraging active participation in online communities is one of the greatest challenges facing community initiators. Participation is the lifeblood of online communities-without it communities will find it difficult to sustain themselves.

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