

GLOBAL WARMING ON SECOND LIFE: THE PUBLIC SPHERE AND FREE DISCUSSION IN COLLABORATIVE VIRTUAL ENVIRONMENTS

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ABSTRACT

In recent years, Collaborative Virtual Environments (CVE) have become more than mere entertainment for bored youngsters. These environments are the scene of encounters between people who develop conversations and discussions on a variety of topics. These discussions are grounded in norms and rules of conduct which, in part, are determined by the external service provider or the websites operators, and by the participants. Meetings in virtual environments resemble real-life, physical ones but are not identical to them, thus posing interesting questions about this newly emerging culture, the nature and quality of the resulting discussions, the option to set up and manage a community and to formulate agreed norms of conduct among participants. In the physical world, discussion occurs through the encounter between people, which then enables conversation, discussion, an exchange of opinions and, eventually, the consolidation of agreements. Lacking the physical presence of its participants, the virtual environment constitutes a new and different world. We chose to look at the *Second Life* virtual environment, whose participants go by the name of *avatars*, and we conducted discussion groups on the subject of global warming. The discussion groups were held both in the real world and in the virtual environment. The latter type of discussion is essentially similar to the one that takes place in Habermas's (1989) "public sphere," which is not necessarily physical and in the case of the virtual environment, differences in power and status between the participants, are temporarily suspended. Habermas's public sphere is considered a good, perhaps even utopian, basis for conducting a democratic discourse.

KEYWORDS: Global Warming, Climate Changes.

INTRODUCTION

In recent years, Collaborative Virtual Environments (CVE) have become something much more than mere entertainment or a leisure time game for bored youngsters. These environments are the scene of encounters between people who develop conversations and discussions on a variety of topics, which. These discussions are grounded in norms and rules of conduct which, in part, are determined by the external service provider or the websites operators, and also by the participants. Meetings in virtual environments resemble real-life, physical ones but are not identical to them, and they pose interesting

questions about this newly emerging culture, the nature and quality of the resulting discussions, the option to set up and manage a community and to formulate agreed norms of conduct among participants. In the physical world, discussion occurs through the encounter between people, which then enables conversation, discussion, an exchange of opinions and, eventually, the consolidation of agreements. Lacking the physical presence of its participants, the virtual environment constitutes a new and different world. We chose to look at the *Second Life* virtual environment, whose participants go by the name of *avatars*, and we conducted discussion groups on the subject of global warming. The discussion groups were held both in the real world and in the virtual environment. The latter type of discussion is essentially similar to the one that takes place in Habermas's (1989) "public sphere". Such a public sphere is not necessarily physical and in the case of the virtual environment, differences in power and status between the participants, are temporarily suspended. All participants have equal status and each is entitled to express her or his position regarding any issue of public interest (Werman, 1997: 35). Habermas's public sphere is considered a good, perhaps even utopian, basis for conducting a democratic discourse.

THE PUBLIC SPHERE

According to Habermas (1962/1989), the public sphere arose in the social and political context of 18th and 19th century Europe around the discourse that evolved in salons and cafes, as well as in newspapers and other printed forms. This sphere allowed for citizens' true democratic participation in political processes. It emerges in the encounter between private individuals, with social status, who have a certain, joint power to resist the establishment. Participants in the Habermasian public sphere conduct a rational, methodical discussion, entirely aimed at the general good and in the absence of any element of personal interest. This results in a critical consensus vis a vis the establishment. Successful discussion depends on autonomy from the authorities.

The public sphere offered a voice to members of the public who were not included in government and it constituted a new and evolving type of democracy. For Habermas, this ideal sphere was destroyed as with the advance of capitalism and as state involvement grew massive. This robbed the bourgeoisie of its power, in the public sphere (through the weakening of social movements and lobbies) as well as in the private one (by means of welfare policies which interfered with the family's autonomy). Habermas also argued that by maintaining its self-image in the media, the establishment undermines the rational basis of the discourse thus causing the erosion of public discussion. The public sphere, as a result, reverted to an earlier, pre-democratic, mode of functioning, namely, as a staged presentation of public relations which aims to distract laypeople from political action.

However, the public sphere that Habermas described was a "bourgeois" public space only. Offering a new space to part of the population, it was a restricted space in terms of gender and class which only bourgeois men could participate (Fraser 1992; Schneider 1997). The democratic nature of the public sphere is questioned since it excluded certain groups.

Habermas's original approach to the nature of the public discourse suits our research frame. He mentions three important elements that shape the public sphere: the first of these is that the public sphere was formed through discussion, often mediated. Second, it represented a new space of discussion for many who had previously been excluded. And third, ideas presented in the public sphere were considered on the basis of their merits, and not on the social standing of the speaker. (Kellner, 2000). Since Habermas's original work, there have been various reformulations of and additions to the idea of the public sphere (Calhoun, 1992), and in fact the literature on the public sphere has become quite large (as noted, e.g., by Dahlgren, 2001 and Sparks, 2001). One important addition to the public sphere theory is the notion of multiple publics, rather than of one overarching public sphere (Asen & Brouwer, 2001; Dahlgren, 2001; Fraser, 1992). To our research this notion of plural spaces is relevant: Internet discussions fit well with a notion of diverse public groups with different fields of interest which are conducting global discussions. The question that interests us is about the features that characterize an online public sphere, and to what extent such a space can be subsumed under critical theory.

THE PUBLIC SPHERE ONLINE

Schneider's study (Schneider, 1997) has developed specific measures that can assess the degree to which the public sphere satisfies the conditions of democratic theory. Those measures can be applied in the context of an ongoing conversation that is contributing to the informal zone of the public sphere. The four dimensions that comprise the idealized public sphere are equality, diversity, reciprocity and quality.

Equality – The equal distribution of voice among the speakers in the discussion.

Diversity - The presence of a range of conversational patterns by the participants.

Reciprocity – The messages in the discussion are reflected upon and discussed by others.

Quality – Quality in the public sphere requires that participants stay on the topic discussed.

According to Dahlberg (2001), if an online space is to be considered a public sphere it must satisfy the following six criteria:

- Exchange and critique of reasoned moral-practical validity claims. Deliberation involves engaging in reciprocal critique of normative positions that are provided with reasons rather than simply asserted.
- Reflexivity. Participants must critically examine their cultural values, assumptions and interests, as well as the larger social context.
- Ideal role taking. Participants must attempt to understand the argument from the other's perspective.
- Sincerity. Each participant must make a sincere effort to provide all information relevant to the particular problem under consideration.

- Discursive inclusion and equality. Every participant affected by the validity claims under consideration is equally entitled to introduce and question any assertion whatsoever.
- Autonomy from state and economic power. Discourse must be driven by the concerns of publicly-oriented citizens rather than by money or administrative power. (ibid, P. 623)

Based on the research detailed above, Poor (2005) came to a useful definition of a public sphere that may be applied to the Internet, and that may allow us to identify a space for analysis. Drawing from Habermas's original conception (as noted above), he gave the four following criteria of public sphere on the Internet:

1. Public spheres are spaces of discourse, often mediated.
2. Public spheres often allow for new, previously excluded, discussants.
3. Issues discussed are often political in nature..
4. Ideas are judged by their merit, not by the standing of the speaker.

In spite of various cyber-liberal rhetorics, virtual space has never been free of external supervision. On different levels, the Internet has been developed, controlled and administered by governments. Nor do virtual interactions steer clear of corporate power (Papacharissi 2004). The Internet, at this point in time, is mainly being developed and controlled by corporate interests, and it is dominated by online trade. Still, a huge amount of discussions are being conducted on the net – discussions which are relatively independent of state or economic influence (Al-Saggaf 2006; Poor 2005).

A large share of public interaction online involves participation in virtual communities. These are online groups in which people connect with others who share the same values, interests, or concerns, with the aim to exchange information, to make friends and provide emotional support (Wellman & Gulia 1999). There are tens of thousands of virtual communities in virtual space – communities which flourish on list serves, electronic bulletin boards, online chat groups, and role playing sites (Madison, 2006; Papacharissi, 2002). Communities arise on the basis of diverse fields of interest, some of them extreme, like pornography sites that determine their own limits and modes of conduct (ethical, normative, etc.) (Karniel & Wismonsky 2004). Many of these communities, again, are linked with mega-communities, which are sites that host thousands of online communities (Al-Saggaf 2006; Beers 2006).

Most of the communications in these groups, however, involve gossip, slander, superficial chat and other low forms of verbal exchange (Beers 2006; Poor 2005). But there is a large variety of connections that occur in the virtual space, and this also includes important discussion on controversial issues. The majority of participants in these forms of communication, however, seem to be out mainly to find like-minded others – groups in which a participant's own interests, values, as well as her or his prejudice, are confirmed rather than challenged. As a result, virtual discourse tends to fall into fragmented Internet

communities that accommodate participants with mutual background and shared values that are noticeably different from one another. (Madison 2005).

In an interesting study dealing with online bulletin boards, Wilhelm (2000) shows that even groups that focus on issues that can be expected to trigger a wide range of opinions sometimes evolve simply into ideologically homogeneous "interest communities". Though they provide balanced communications, as a result of their exclusive character, virtual communities, in the best case, offer a weak version of democratic participation. As a rule, members of virtual communities do not have to face the wide range of public concerns and values that arise when coping with differences in non-online daily life (Papacharissi, 2004). In the case of communities of public discussion makers like journalists, the Internet may generate a potentially critical public sphere in the sense Habermas was thinking of when he wrote. But a recent study involving the blogs of Israeli journalists carried out by Karniel and Lavie-Dinur (2008) reveals that only a minority of them blogs regularly and stirs up serious, relevant, and high-quality public discussion. What the research showed was that most of these bloggers were junior journalists without status. The blogosphere, hence, is a forum that allows additional space to new speakers.

COLLABORATIVE VIRTUAL ENVIRONMENTS AND *SECOND LIFE*

Collaborative Virtual Environments have been in existence from the early 1990s (in fact, the first that could be properly so called started in 1987) (Johnston, 1987). Some of them began even before that in early basic versions which offered certain limited capacities (text-based Multi User Dungeons or MUDS, for example) (Joslin, 2004). Some of the recent research has focused on technological or architectural aspects of virtual worlds like presence, mode of development, the role of the user and other functions (Joslin 2004; Quax 2007). Others looked at behavioral, democratic and other aspects (Bailenson et al. 2004; Fabrie & Moore 2005; Parsons et al 2004).

When considering them from the perspective of Computer Mediated Communications (CMC), virtual environments enable verbal as well as non-verbal communication in virtual space and in real time, between individuals who are geographically remote (Bailenson et al. 2004).

Among the most-used virtual environments *Second Life* (SL) is prominent. This Internet-based world, which has gained much media attention worldwide, started in 2006. SL allows its users (also known as "residents") to interact with one another and it serves in fact as an advanced social network by means of *avatars* who are capable to move and explore the cyber space of SL. The innovation that SL introduces is in terms of the diverse activities it offers: it combines community life with contents created by surfers, and to this is added a business component in the form of a local currency, which has actually created a virtual economy. The number of "registered residents" in SL is still on the increase (so far reaching about 20 million). Because of its financial basis participants can make money, and about 25% of the companies appearing in *Fortune 100* (Sivan, 2008) are present on SL as well. Today, SL is a complete virtual world which in many senses resembles the physical world. It reflects the community,

society and culture of the Internet, using media that include written and spoken communications and movement in a rich and varied virtual environment. It is SL, as said, which we have chosen as the virtual space for the discussions under study.

DEMOCRATIC PUBLIC DISCUSSION ON CVE

Much has recently been said about the possibility of the Internet enhancing democracy (Dahlberg 2001; Papacharissi 2004; Zhang 2004). Despite considerable speculation, many claims have been based upon actual online practices. . Within these rhetorics and practices, three dominant ‘camps’ have emerged. First, a communitarian camp, which stresses the possibility of the Internet enhancing communal spirit and values. Second, a liberal individualist camp, which sees the Internet as assisting the expression of individual interests. Third, a deliberative camp, which promotes the Internet as the means for an expansion of the public sphere of rational-critical citizen discourse – discourse autonomous from state and corporate power through which public opinion may be formed and can hold official decision makers accountable. (Cammaerts & Van Audenhove, 2005).

The third camp is less prominent than the other two within Internet rhetoric and practice, yet the decentralized communications enabled through Web publishing, electronic bulletin boards, e-mail lists and chat rooms does seem to provide public spaces for rational-critical discourse. The deliberative position also offers a more powerful democratic model. Both liberal individualist and communitarian models posit a unitary subject, whether the isolated ego or the undifferentiated communal subject. In contrast, dialogue and difference are central to the deliberative model. The model assumes that difference always exists between subjects, difference which necessitates a process of rational-critical discourse in order for privately-oriented individuals to become publicly-oriented citizens and for public opinion to develop that can rationally guide democratic decision-making (Dahlberg 2001; Zhang 2004). This deliberative model informs our research, which comes to examine the question whether it is possible to conduct significant and qualitative discussion in CVE.

RESEARCH HYPOTHESES

A rational and critical discussion which allows public opinion to become mature and democratically operative and which yields publically oriented individuals needs to be conducted at a certain level of quality, seriousness, depth and relevance. This will enable the emergence of a diversity of high-quality arguments and the transmission of new information and data. Such a discussion must also be democratic and free, allowing all participants an equal voice, an equal opportunity to express their opinion, position and response, and it should offer regular feedback to participants and their different arguments – that is to say: an open and critical discussion which has the capacity to change views and bring about agreements.

We suppose that it is possible to conduct a democratic discussion in SL about controversial public issues, but only under certain conditions, as Schneider (1997) elaborated them (quality, diversity,

equality, and reciprocity). We also assume that though discussion on a public issue is possible in virtual worlds, and specifically among a group of participants in Second Life, we believe – on the basis of the published research – that such discussion will typically be of reduced **quality**; they will be less **divested** in the used arguments compared to a real-life discussion – with arguments also being **qualitatively** inferior. The degree of **relevance** of the arguments, too, is bound to suffer. Yet at the same time we hypothesize that the discussion on SL will be more democratic, especially in terms of the share of participants and **equality** between them.

We hypothesize that a virtual discussion will allow participants to have more equal slots of time and arguments (**reciprocity**) than in real-life discussions because certain aspects of face to face communication are absent, such as nonverbal features (body language, facial expression) as well as verbal ones (tone, intonation, etc.). There is more social pressure on the speaker, in face to face discussions, not to diverge, and usually one speaker takes the upper hand. Our assumption is that in SL, social pressure will be reduced, which implies that the level of relevance of the arguments and other things said will be lower, and that arguments and other expressions will be more equally distributed among the speakers.

RESEARCH QUESTIONS

1. Is there a difference between real life and virtual discussion in terms of the quality and character of the discussion?
 - i Is the discussion in the real world has a deeper and more serious nature than that in the virtual environment?
 - ii Which discussions will have more sentences? Which will have more words?
2. Will a CVE such as SL can be a public sphere for group discussions?
 - i Which discussion includes more sentences that are relevant to the issue?
 - ii Which discussion raises more arguments?
 - iii Which discussion raises more complicated arguments?
 - iv Which discussion shows more equal participation?
3. Which of the discussions has more impact on its participants?
 - i Following the discussions, which discussion will increase the participant's involvement and interest in the topic?

METHODOLOGY

We conducted four discussions in the framework of this study: two of these were online, on SL, and two were held face to face, in a conference room. Each discussion included between 8 to 12 participants, which resulted in a total of 36 participants who each only took part in one discussion only.

Participants did not know each other by name. On SL, participants' identity was unknown because each participant adopted an avatar with neutral name and appearance from a group of avatars that were created earlier by us. The participants had 20 minutes right before the beginning of the experiment to wander about, change physical appearance etc, in order to get accustomed to the virtual environment. Interestingly, none of the participants chose to adopt an avatar of a different gender. The participants were checked to ascertain they had a similar level of knowledge about virtual worlds and that they are capable of conducting an on-line discussion. Each discussion took 50 minutes.

In order to be able to draw comparisons with previously published research and for data analysis participants were asked to use English in their discussions. Their English was examined and they were found to be on a similar level of familiarity with and competence in the language.

The topic of the discussions was *global warming*, a key public issue which has political, social, technological, cultural as well as economical implications and concerns all. Participants were presented with a specific, detailed question. As said, they had 50 minutes to discuss the issue.

All participants were recruited among the students of the *Interdisciplinary Center in Herzliya*. All participants were between the ages of 21 to 27, with similar demographic background.

All discussions were conducted in a conference room – physical or virtual – and they were videotaped and audio recorded. We aimed to maintain a level of similarity between the discussion groups in both methods in order to have optimal comparative results.

QUESTIONNAIRE

Participants filled out a questionnaire both before and after the procedure. The questionnaire consisted of 7 questions tapping participants' opinions and concerns about global warming and awareness of the issue. It was administered in order to assess the degree of change in participants' opinions regarding the topic. We were interested to see whether – and if so, to what extent – discussion had affected participants' ideas and their attitude to the subject. Our assumption was that a more significant discussion would cause a change in participants' thinking and in their attitude to the issues while a more superficial and less meaningful discussion would leave ideas and attitudes unchanged.

FINDINGS

The data we gathered consisted of the transcripts of all four discussions which included the order of events, speaking turns and actual words during the discussions. In addition we collected two identical questionnaires from each participant – one filled out prior to the discussion and one after it. These data allowed for both quantitative and qualitative analysis. For the video recorded material we measured and counted how much participants took an active part, how many arguments each raised, who raised each specific argument, what types of arguments were presented, and we also counted the number of words that was used. We checked the number of relevant sentences – i.e., the words and sentences that

related to global warming, associated problems and possible solutions – as opposed to sentences that were about totally different issues. We checked the average length of sentences.

The first research question was whether there was a difference between the discussions, and we decided to use the basic qualitative measure of number of sentences per discussion. The basic statistical data of the findings, therefore, concern word and sentence counts for each discussion and speaker. Discussions SL3 and SL4 (face to face) rendered a total of 688 and 524 sentences respectively, while discussions SL1 and SL2 (online) produced a total of 855 and 537 sentences respectively.

We found a further indication concerning the quality of the discussions through word counts. When we divided word counts by number of sentences for each discussion we obtained average length of sentence for each speaker. In discussions SL1 and SL2 (online) the average sentence consisted of on average 5.0 words (both discussions showed an identical average), while in discussion SL3 (face to face) the average sentence consisted of on average 8.9 words, and this figure was 12.7 in discussion SL4 (face to face). The face to face discussions, as expected, included more words.

The second research question concerned the relevance of the spoken sentences. From a look at the number of relevant sentences and their percentage in the whole discussion, another difference emerged. Discussions SL3 and SL4 yielded 659 and 507 relevant sentences respectively; the percentages of relevant sentences were 95.8% and 96.8% respectively. Discussions SL1 and SL2 produced – respectively – a total of 297 and 221 relevant sentences, and this translated into the following percentages: 34.7% and 41.2%.

Research question 2 (4) asked about a dominant speaker and about equality between participating speakers. We analyzed both the number of sentences and the number of relevant sentences for each speaker. The outcome was as follows: discussion SL1 (online) featured one clearly dominant speaker who was responsible for 36.6% of the sentences; of these only 25% were relevant. This speaker has the lowest rate of relevant sentences in this discussion. We can therefore say that the dominant speaker here is the one who drew the discussion into irrelevant directions. Discussion SL2 (online) showed a more equal distribution of speakers, who used a relatively equal number of sentences.

In both face to face discussions, SL3 and SL4, we found dominant speakers (for SL3: 31% and 17.3% of the sentences; for SL4: 22.1% and 21% of the sentences), while the rest of the participants were responsible, in relatively equal proportions, for the rest of the sentences. SL3, however, included two participants who hardly spoke (each contributed 4 sentences only). This underperformance may have been the result of their weak command of English, though they had both claimed that they would be able to participate in a discussion in that language.

CONTENT ANALYSIS

We content-analyzed the four discussions in order to find out how many topics each of them had raised, and at what level of depth and quality the discussions had been conducted. For this purpose we constructed a list of topics relating to global warming that were mentioned during the discussions. We

then rated the depth and comprehensiveness of discussion on each topic according to three categories: *topic was raised* (1); *topic was raised and comprehensively discussed* (2), *topic was not raised at all* (0). Then, we summed up the score that was given to each topic and came up with a final score for each discussion.

Content analysis and examination were carried out by the researchers and a research assistant who was an MA student, trained for the purpose by the researchers.

Discussion SL1 (online), especially, was superficial and full of fun; the opening questions were: Who really cares about this issue? Who among us actually knows something about it? Who is to be blamed? Does global warming really mean the end of humanity? The ensuing discussion was mainly about cars and about the concern that we might lose cars in our attempt to save the environment. Most of the discussion consisted of irrelevant topics such as: What's the real reason for us conducting this discussion on global warming on SL? What's better – talking on SL or face to face? One interesting, irrelevant comment was: "It's not fun, talking here." A total of 8 different arguments were recorded, and the discussion scored only 12 points on the above presented scale – which is quite a low score and the lowest we awarded in all the discussions.

SL2 (online) was a more profound discussion than SL1, yet superficial even so. The special question that was raised was whether global warming is a natural process taking place in nature. This came as an addition to other topics: The need to change opinions regarding global warming; cars; the Mafia's role in Israel's recycling business; legislation for fining people who don't recycle; the role of Yom Kippur in reducing pollution¹; Tel Aviv and Haifa as Israel top-polluted cities. Most of this discussion, nevertheless, consisted of irrelevant arguments, like: group members reported they were bored only 10 minutes into the discussion. They also argued that the discussion on SL was very frustrating and that they would much prefer to discuss the subject in real life. "Rather than sitting here and talking about it," they said, "let's just get up and do something about it in real life." And there were remarks like: "Who wants coffee?" (An intriguing question because it is unclear whether this referred to virtual coffee in the world of SL, or to real coffee in the computer lab in which participants were seated.)

A total of 13 different arguments were raised, and the discussion scored 17 points, which is rather low.

In addition to the content analysis, the physical situations of the avatars were also analyzed. Here we should mention discussion SL2 which ended with a swimming pool party, attended by some of the avatars who abandoned the conference room and went wandering. In face to face discussions, by

¹Yom Kippur is the Jewish "day of atonement", when people are fasting and asking for atonement. In Israel, there is a reduced usage of electricity, and almost no use of cars or public transportation, and therefore less pollution.

contrast, all participants were active: talked simultaneously at times, and remained seated around the table throughout.

Discussion SL3 revolved entirely around global warming. Many interesting issues were raised, like for instance: sharing a car as a practical way of saving petrol and protecting the environment; to reduce the working week to four days so as to diminish pollution; medical and commercial experiments on animals; raising funds to put a halt to global warming; water shortage in Israel. The number of arguments raised was 13 – out of the 20 included in the table. The discussion scored 24 points, which is significantly higher than the scores received by SL1 and SL2.

Discussion SL4 dealt emphatically with education and possible solutions: it had a decidedly practical focus. Specific issues that emerged were: the meat industry as a significant contributor to global warming; economic aspects of global warming. One suggested solution was the creation of alternative, cheaper and greener products to replace expensive and polluting ones; coping with global warming, initially, on the level of the super-powers (e.g., the USA and China). Of all four discussions, this one was the most organized. Sentences were longer and topics were the most relevant. Here the total of arguments raised were 13 out of 20; but the discussion scored a mark of 25, which is the highest of all marks awarded.

EXAMINING OPINION CHANGE

Participants filled out a questionnaire – before and after the discussions. The questionnaire included 7 questions about global warming that tapped their general knowledge, their opinions about global warming and how important they rate the issue. We constructed the questionnaire with the aim of measuring the influence of the discussions on these matters. We assumed that a serious, meaningful discussion which would also expose participants to new and reasoned facts and opinions would also entail a certain shift in their opinions.

The average scores for the 7 questions of all participants were combined to form a general response average for each participant. We then calculated the average for the each group discussion and gave each one of them a score representing the group's current position. SL1 participants gave an average score of 3.8 (on a scale between 1 and 7) before the discussion, while this score was 3.9 (on a scale between 1 and 7) after it. The change that was found as a result of the discussion's influence on the participants was 0.1.

SL2 participants gave an average score of 4.7 (on a scale between 1 and 7) prior to the discussion, and this score dropped to 4.7 after it. Basically there was no change before and after the discussion. These two discussions, it would seem, did not leave much of an impression on their participants.

Participants in SL3, by contrast, initially rated the discussion at 4.7 (on a scale between 1 and 7) before, and 5.1 after, so that the change resulting from the discussion was 0.4. Similarly, participants in

SL4 gave an initial rating of 4.8 (on a scale between 1 and 7) which changed into 5.3 after the discussion. This yields a change of 0.5 due to the discussion.

Paired sample T-test that was conducted to the 4 discussion groups indicated no significant difference at the general position of the groups. Yet, the two face to face discussions show a sharper rise in the group's average scores, from first administration of the questionnaire, to the second, while the discussions conducted on SL show smaller changes. These data indicate that participants were more affected by real-life, face to face discussion than by discussion on Second Life.

DISCUSSIONS

The present findings confirm our hypothesis – which was based on the current literature – that there are considerable differences between a group discussion held in face to face format and a similar one conducted in the Collaborative Virtual Environment of *Second Life*.

We should first mention that we did succeed in running discussions on a key public issue – global warming – in the virtual environment of SL, in spite of participants' anonymity and their partial familiarity with the environmental issues. The discussion in real life was more profound and of higher quality, however, in all parameters checked. The difference did not necessarily inhere in the number of sentences spoken in the course of the discussion. In this respect we found a general resemblance between the discussions. Rather, it was related to the main parameter of the study, which was the number of sentences relevant to the discussion on the public issue selected. During the face to face meetings there was serious discussion which did not divert from or abandon the professional, topical focus. Obviously, participants were experienced in discussing a public issue when seated around a table in a conference room. Moreover, this situation was not anonymous, and lacked the serious obstacles experienced by participants who were being filmed and were directly exposed to someone who observed their behavior critically. Face to face participants showed no difficulty about spending nearly one hour discussing a current public interest issue which was not of their choice. They raised many and varied arguments and did so at length and in depth. Our hypothesis that a real-life discussion would be more serious and profound, would come up with more arguments and be more substantial on the whole as well as in terms of its specific arguments was confirmed.

Most notable was the finding that in the SL discussions only a small part of the spoken sentences was relevant and focused on the issue at hand. Anonymity and the alien visual virtual environment, enabled participants to stray from the topic at hand, and allowed them instead to engage in lighthearted chat.

The data we collected in this research did not allow us to gain a full understanding of the cause of the found differences, and we associate the findings with the specific set of conditions constituted by our experiment. Surely, the partial anonymity was an important factor in the freedoms participants allowed themselves in straying from the subject and the task. However, we also attach importance to the visual nature of the virtual environment, and to this being a relatively new type of environment for most

participants. The visual stimulus constituted by the new virtual environment, and the use of avatars to replace the real physical body loosened up the participants and allowed them to conduct a spontaneous conversation. The topic of global warming, it transpired, was not of itself sufficiently attractive, and failed to arouse discussion. This also suggests that face to face participants stuck to the subject matter not because it was important and aroused much interest, but mainly as a result of the format of a conference room meeting. We do not ignore, either, that the face to face encounter was filmed in the unconcealed presence of a cameraman who was present during considerable part of the experiment. And though SL participants were also aware that their discussion was being recorded, the presence of the recording device in the virtual environment was less pronounced.

The other data, too, that were presented above confirm the conclusion that the face to face discussion was deeper and more varied than that in the virtual environment. Time apportioned to the topic as well as the relevant sentences produced allowed participants to come up with more, and more diverse, arguments and issues. The relatively greater freedom that marks the virtual world did not translate into unusual arguments and in a more free, critical, or diverse discussion. Rather, the opposite was the case: the discussion was insubstantial, superficial, touched on known issues and failed to meet the level of the face to face discussion.

We are of course aware that some of this difference should be related to the differences between face to face vs. written discussion, but this difference alone cannot explain the large gap between the two types of discussion. The findings clearly invite further research into differences between spoken vs. written discussion, and challenge us to isolate the component of physical reality vs. virtual environments – in the context of spoken discussion as well as in that of a written discussion.

Another hypothesis which the study confirmed, but only partly, concerns the equal distribution of expressions and speaking turns among the participants. The assumption is that virtual discussion offers a freer and more equal environment which allows every participant to join in, even those whose real, physical presence is minor and shy. Here, findings are not unambiguous. One of the virtual discussions involved a dominant speaker, but the other had a relatively equal distribution of speakers. This, too, requires further research, but our findings seem to suggest that virtual worlds offer more of a possibility to have open discussions with a wider participation in the public sphere. Both real-life discussions featured more prominent participants while the rest were less active. The more equal discussion occurred in the virtual mode. Moreover, our findings suggest that dominance in the real-life environment – which is determined, among other things, by physical presence, body language, quality of voice and self-confidence – differs from dominance in the virtual environment, where it is the result of familiarity with virtual worlds and writing skills. Interestingly, dominance in real life discussions was mainly in the form of dealing with and contributing to the issue at hand, while the dominant speaker in SL was the one who contributed less to the topic and pulled the discussion away to other areas.

The face to face discussions did not only deal more profoundly with the chosen topic – they also had more impact on participants. The questionnaires that came to examine the extent to which the

discussion had affected participants' attitudes and in which way, revealed a significant difference between SL participants, who hardly changed their ideas and attitudes at all, and the face to face participants, who changed some of their responses to the questionnaires to some extent. This finding, too, fits in with the others which were indicating that the real life discussion was more serious and meaningful in terms of dealing with the issue of global warming. Here, too, however, we would like to add that our finding requires further study, especially to probe whether or not discussions in SL that do stick to the chosen topic and are more serious and profound, would still affect their participants less. Clearly, when the discussion is fairly poor and the experience mainly one of "yet another game in the virtual environment", one can hardly expect it to have an impact on participants' attitudes.

CONCLUSIONS

The public sphere is changing. The internet at large, and virtual environments with many participants more specifically, constitute a new platform for conducting and managing free public discussion on political and social issues. We may well, in the future, try to conduct a considerable part of discussions, conversations and decision making processes by means of new technologies and of computer-mediated communications, instead of face to face communication and direct, real life encounters. In the present study we compared discussions among random participants in the real, physical world to those held with similar participants in the virtual environment of *Second Life*. The topic of the discussions was global warming.

The study's findings and outcomes are not surprising: The face to face discussion was more serious and profound and left more of an impression on participants. In the virtual SL environment, the discussion was more superficial, unfocused, lightweight, and it had very little impact on participants. Still, we found that even those who were inexperienced with the medium were able to take part in a public discussion on a current issue, even when it was by means of anonymous avatars in a virtual world, conducted in a conference room.

Our challenge is to find the ways, conditions and circumstances that will enable more substantial, in-depth and high-quality discussion, and to make decisions on public issues by means of virtual technology as well. The present study indicates the need for further work that examines how we can, also, conduct a free, equal, serious, profound and influential discussion in SL. Further research might, among other things, look into the effect of anonymity; the possibility of conducting spoken discussions in SL, as well as the significance and contribution of participants' previous experience with the virtual environment, as well as the impact of the discussion's rules and general framework. The present study indicates that SL has a real potential for offering an appropriate public space for the free discussion of public issues.

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APPENDIX

Appendix A: The List of Topics Raised with Respective Scores for Quality of Discussions

SL4	SL3	SL2	SL1	List of topics	
2	2	1	2	Who is causing GW	1
2	2	2	1	Who should be responsible for dealing with GW	2
2	2	1	2	Activism: how and what can we do to help decreasing GW	3
2	2	1	0	How to discuss the subject- internationally or nationally	4
2	2	2	2	Ideas for solution	5
2	2	1	1	Publicity, public relations and education	6
1	2	1	1	The Al Gore movie	7
2	2	0	1	Money as the crucial factor regarding GW	8
0	2	2	2	Cars (hybrid cars, gas solutions, carpool etc.)	9
2	2	1	0	Recycling	10
0	0	1	0	Is GW a natural process that occurs in nature	11
0	0	2	0	Pollution in Israel	12
0	0	1	0	Finding other sources of energy	13
0	0	1	0	Legislation and fines	14
0	1	0	0	Animal experiments	15
0	1	0	0	Israel's shortage of water	16
2	2	0	0	large countries should deal with GW first (like china)	17
2	0	0	0	The meat industry	18
2	0	0	0	Making cheaper products that are environment friendly	19
2	0	0	0	The ozone lair	20
25	24	17	12		