Discuss The Impact Of Computer-mediated Communication On Group Decision-making.” Essay, Research Paper

This essay will explore the impact of computer-mediated communication on group decision-making. It will examine one good example of this at Xerox PARC, and also consider such diverse areas as electronic interviews and virtual meetings; finally outlining possible outcomes in the future. A successful company needs to move with the times, and adapt itself to new challenges and potential opportunities in the future. One such opportunity stems from an advancement in computer-mediated communication, and its potential in meeting rooms for group decision-making. One computer tool designed to increase efficiency in the meeting room is Colab, and its software, Cognoter. Colab consisted of a local area network of computers, a video network and a specially designed room. Three terminals were available for users, facing a large screen. They were connected to each other and to a large screen (”Liveboard”) in the room which could be seen by all agents, and onto which a participant could project their own screenful of data for the perusal of others. Additionally, users were able to observe each other’s input on their own terminal without having to look at the liveboard. Such a design appears to be close to a traditional meeting consisting of a large board on which is written various ideas during the course of the meeting. Cognoter was perceived as a more efficient tool in which users could contribute in a much freer way and thereby stimulate group decision-making. Of particular note was the ability for users to enter data in parallel, so all agents could contribute ideas to the topic at any time. Moreover, writing can often be unclear or badly written on traditional wall boards, and a computer system allows such luxuries as printing, rapid revision, and text editing facilities such as cutting and pasting. Cognoter basically relied upon icons, sometimes illuminated with text (called ‘items’), which could be nested into ‘groups’. Two windows existed on the screen – and ‘item organisation window’, where the icon could be displayed to colleagues, and an ‘edit window’, allowing users to create and change aspects of their own icons. The former, remember, appeared on the screens of other users simultaneously. The designers, Tatar et al (1990), held great hopes for Cognoter. They reasoned that it would ‘cleanly’ replace the traditional medium, and that face to face group decision making could only benefit from its flexibility. It would incorporate orthodoxies such as brainstorming ideas, the organization of these ideas, and evaluating them. However, the responses from two trial groups were mixed, and fundamental problems such as notions of human communication and social interaction, needed addressing. Out of two trial groups, one set featured each person using the edit function with scarcely any communication between each other at all; and eventually they abandoned the system altogether in favour of traditional paper and pen. The second group used the video workspace function to examine the screen of whoever happened to be typing, but did not use the shared computational workspace. An important point, since the latter is one of the main reasons for setting up such a system in that all users can participate at once. By resorting to the video workspace there was a lack of freely flowing information, and disagreements emerged over who should type next. It became apparent that the shared computational workspace was extremely problematical, even to experienced computer users. One objection was that the shared workspace did not always display what the users desired, which is a question of ergonomics and software design. More interesting is that the users had certain expectations of what should be seen, from the perspective of a traditional meeting, and even in such meetings, where lapses of attention can easily occur, the situation never broke down in the way that it did when using Cognoter. A further objection is the deictic notion of reference, which was lacking on the computational model. When using a chalkboard, it is easy to point to “that” to convey meaning. On the computer there was no such facility, which hardly facilitates clear and efficient communication. The designers, Tatar et al, decided that the major flaw in the design was a conversational one. Ordinary face to face conversation is, they argue, ‘interactive’ in the sense that the semantic and pragmatic meaning of utterances are, at least to some extent, context-dependent. For example, even in relatively one-way communications, a speaker picks up cues from the person he/she is addressing, by their actions – they may nod, or mutter in agreement (see Tartar et al, pp.62-64 for a fuller account). The Cognoter system, however, used what its designers termed a ‘parcel-post’ model, in that ideas are created by a speaker and ’sent’ to the receiver. In anything more than short time-lapses between sending and receiving, this can severely hamper clear communication, and consequently the decision-making ability of the group. Citing a distinction between conversation and literary communication (pp.65), Tartar et al focus on the lack of co-production and the time-frame involved in the latter (e-mail is such an example). Cognoter is seen to fall somewhere in between these two forms. Writing on wall boards and talking are intertwined in the course of a meeting: they complement each other and a wall board is as much an instrument and prompt for conversation as it is a recorder. Note that whilst the writing down is taking place, there is spare time which needs to be filled. This might be done with more conversation, or individual work to compensate. Again, the deictic importance of the board is vital here. In technical respects, Cognoter is superior to the wall board and more flexible in its recording of information, allowing printing and valuable editing functinos suh as cutting and pasting. Yet the interactivity between users was lacking for a number of reasons including separate screens, anonymity as to who made the changes to particular items, and unpredictable delays (see pp.68 for full list) in the multi-user display. A combination of textual and verbal communication, though possible, is hampered by such time delays and the difficulty in associating an item with a communicator (remember the anonymity provided by separate terminals). Even if an item is successfully communicated, responses can be difficult – if they are not entirely verbal, the agent does not know that his/her colleagues have received the response, unless a verbal question is put forth, which causes yet more work. Similar constraints exist in responding, to those of addressing the group. Other factors include a lack of shared reference – users did not look at their screens in a uniform fashion, as would be expected when viewing a wall board or flipchart. It was also difficult to locate some items in a cluttered screen, especially if individuals were updating them at regular, rapid intervals. Such factors indicated that this style of computer-mediated communication did not lend itself at all well to group decision-making environments. A new design was established, with more success, although the overall conclusion of the study was that Cognoter had been designed with a naive view of textual and verbal human communication. The notions raised in the Cognoter example are interesting, and, in hindsight, quite intuitive. However, there are alternative explanations for the failure, in some circumstances, of computer-mediated communication to aid group decision-making. Lea (1991) cites research carried out by the Committee on Social Science Research in Computing at Carnegie-Mellon University , who accounted for social psychological processes at work in computer-mediated communication, and the consequent impact upon group-decision making. The Carnegie-Mellon team argued that certain technological features of computer-mediated communication give rise to deregulated, unorthodox psychological states in the individuals and groups involved. Keisler (1984) accounted for polarization in groups by arguing that it stems from a greater pool of arguments favouring the preferred pole. With the increased flow of information in a computer-mediated communication, one can posit an increase in the likelihood of polarization. Noticeable when using computer-mediated communication is the lack of social and contextual cues, bringing about a reduction in social constraints. An obvious example is the phenomena of ‘flaming’ on Internet chat-lines and bulletin boards – where individuals are subject to, and subject others to, abusive language and comments. Here, the anonymity of a distant computer terminal provides a protection against reactions to the abuse; in addition, the medium of computer-mediated communication itself deprives the user of cues which facilitate (or even necessitate) normative social behaviour. Moreover, it can be argued (Kiesler et al, (1984)) that this process induces more equality amongst participants and thereby undermines leadership. In some cases, for example teleworking, this may be largely an illusion which only hides existing power structures and hierarchies. However, in the case of group decision making, the notion seems more plausible – if there is no leader to conduct the meeting, individuals may polarize in an attempt to impose their own ideas upon the meeting. De-individuation, similarly, brings about a sense of isolation for an individual, leading to a loss of identity in a group, reduced self-awareness and a lowering of behaviour which is generally inhibited in the presence of normative social cues. Another difficulty may arise from the lack of feedback for agents, during the use of computer-mediated communication – producing a feeling of inefficient problem-solving and more extreme decision-making as participants become increasingly frustrated. ‘Polarization shifts’ can occur when the attention is redirected away from the audience. Siegel et al (1986) point out that, in computer-mediated communication, attention is focussed on the textual content and context of a message – however, since the aforementioned social cues are lacking, the social context is severely lacking. A further interesting theory, from both Keisler and Siegel, is that a computing sub-culture exists which is itself resistant to traditional office behaviour. Such arguments seem to belie the populist notion of computers as promoting efficient, progressive, ‘rationalized’ completion of work tasks. Computer-mediated communication, according to the above, results in just the opposite, where agents rapidly loose traditional social norms and restraints, and engage in irrational, inefficient communication. As Lea notes, the themes of fast flowing information, and uninhibited, inefficient communication, are awkward bedfellows. It can be seen, then, that social and contextual cues are of prime importance in any communicative exchange, including group meeting sessions. However, one can question previous conceptions of de-individuation and its usefulness in assessing computer-mediated communication. Reicher (1987) argues that the anonymity of group immersion can actually enhance social norms at work in the group, if the agents identify with the group, and if group membership is made salient to them. For if one’s group identity is not already conspicuous, de-individuation can give one a sense of individuality, which actually reduces the salience of group norms. In computer-mediated communication terms, Spears et al (1990) found greater polarization and social influence in the de-individuating conditions of agents working in separate rooms, when group salience was high, but depolarization when their individuality was made more conspicuous, which clearly resists the earlier theories. Siegel et al argued that social isolation in computer-mediated communication tends to be associated with private self-awareness, which Lea again argues heightens, not reduces, the salience of norms – an account which he admits draws on the social identity theory of some people comprising contrasting ‘personalities’ in group work and individual work. This indicates, then, that the effects of computer-mediated communication upon group decision-making depends as much upon the individuals involved, and the interactions between them as a group, as the inherent limitations in the system. Lea found that “…subjects in a deindividuated group condition were significantly more polarized in the direction of the group norm…” than those in the deinviduated individual condition, which corresponded with the exchange of noticeably fewer remarks regarding the discussion topic – but not with more uninhibited behaviour or reduced perception of social cues. This contradicts the predictions of the Carnegie-Mellon study by arguing that group norms can indeed influence group decision-making, even in the unorthodox realm of computer-mediated communication – under the condition of group salience. Again, deindividuation does not necessarily revolve around increasingly uninhibited behaviour, and is not always associated with lack of physical co-presence in the group. He also avoided the ‘computer culture’ argument by using subjects who were new to computer-mediated communication. From this study, much of the previously held theories are shown to be invalid, in particular the findings of Kiesler and the Carnegie-Mellon centre. The differences can be accounted for due to varying methodologies of the researchers, especially study conditions which can lead to a biased individuating effect, such as allowing participants to see each other (pp.169 – 170), although this, of course, was the point of Cognoter. Such new research suggests that older methodologies failed to take into account social contextual factors and normative processes in computer-mediated communication. With regard to face-to-face interaction, such factors may be even more important – Lea notes that, where agents are familiar with each other and in face-to-face situations, as at Xerox PARC, an individuating effect is all the more likely. We must bear in mind, though, that it is more common to compare computer-mediated communication with face-to-face decision-making – it is relatively rare (although on the increase) to attempt to combine the two, as with Colab. Perhaps it is the intrinsic differences between the two that to some extent constrains the success of such a marriage. Note also the difficulties that many people have in dealing with computer complexity, in particular senior managers who are high in interpersonal skills – valuable for meetings – but relatively unskilled in complex computer environments. It is not unreasonable for them to question the adoption of computer-mediated communication at the group decision-making level, when the traditional meetings are clearly so effective. The future may hold an interesting variation on this theme. ‘Virtual reality’ is a buzz-word that is too easily bandied about, but it certainly poses interesting answers to the problem of a lack of social cues. Already the graphics are sophisticated enough to enable a high degree of user interaction, but within one or two decades there may be significant improvements of user absorption – such that many of the social cues that are now lacking in computer-mediated communication, will be present. This, of course, would only be of any real use to individuals who are separated by long distances. They will be able to connect with the system and ‘virtually meet’ almost as if in real life, but this is precisely because the distance prohibits the adoption of a traditional meeting pattern. Workers who can meet in ‘real life’ should do so, and a virtual boardroom under this circumstance would be an expensive executive whim, nothing more. Also of importance, though often overlooked, is the ergonomic factor of human-computer interaction. It is essential that both hardware and software ‘feel’ right to the users, and follow an intuitive notion of what ’should’ be (of course, different users may have different intuitions and expectations of a computer system). This was seen to be the case with Cognoter, software which sometimes lost the thread of meetings and proved frustrating to use. Even more crucial will be the ergonomics of virtual reality software, with its all-encompassing environment which will almost certainly collapse without a full exploration of the psychological needs of its potential users. Another interesting concept might be that of remote interviewing. Perhaps even without the benefit of virtual reality, it is not difficult to envisage a day when a first interview for a job, or perhaps a timed abstract reasoning test, such as IQ tests, could be conducted on distant terminals. Here the employee/s would use a function not dissimilar to the TALK or WRITE functions in Unix, for real-time communication. In such a medium, crucial social cues would indeed be lacking, so this concept is likely to be of any use only at the stage of the first interview. Nevertheless, with such occupations as teleworking now being forwarded by British Telecom, one can see the potential for these remote interviews. Indeed, it may be the ideal interview for a teleworker, where social/interpersonal skills may be less important than efficiently and lucidly conveying information on a computer screen) In this sense, then, the decision of a group of interviewers may be strongly facilitated by computer-mediated communication. We can see a common theme in these studies, and that is the importance of communicative understanding at a human level, before an attempt to model discourse is made at a computational level. Some findings appear to contradict popular intuitive notions of why computer-mediated communication would, or would not, contribute favourably towards group decision making. But it is certain that for an effective aid in meetings, what we have learned about interactive conversation and the semantic and pragmatic importance of context must be implemented in a computer system. approx 3,000 words BIBLIOGRAPHY Atkinson, J & ‘New forms of work organisation’ in IMS Report, (1986), Meager, N – Institute of Manpower Studies. Kiesler, S., Siegel, J. & – ‘Social psychological aspects of computer-mediated McGuire, T. communication’ in Amercian Psychologist (1984), vol.39. Lea, M., & – ‘Computer-mediated communication, de-individuation Spears, R. and group decision-making’ in International Journal of Man- Machine Studies, (1991), vol 39. Siegal, J., Dubrovsky, V., – ‘Group processes in computer-mediated communication’ Kiesler, S. & in Organizational Behaviour and Human Decision McGuire, T. Processes, (1986), vol.37. 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