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E-dialogues: A role in interactive sustainable development?

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Abstract

Human societies worldwide are dealing with messy, wicked problems beyond the capacity of any one sector, community or nation to solve. In such complex, turbulent environments (Trist, 1983), there is even a greater need for collaboration between sectors, communities, and countries. The world must become committed to unprecedented interaction and sustained dialogue around these interconnected, and interdependent public policy issues, particularly sustainable development. Yet, the transaction costs of face-to-face meetings are high. Also, one has to question the unsustainability of current modes of travel, particularly the air travel required to bring together stakeholders on a global scale. Synchronous on-line electronic dialogues (e-Dialogues) are an emerging way of transcending place and time constraints, with the capacity for sustained connectivity between communities worldwide and the more rapid dissemination of research and knowledge produced on the ground.

Keywords: on-line dialogue, community development, local knowledge, participatory decision making

1 Sustainable Development Context

Sustainable development issues are different from other critical public policy issues in terms of scope, complexity, and scale. Because human and natural systems are now co-evolving (Norgaard, 1994) both systems are dynamically interconnected, surprise becomes inevitable; and scientific predictions about the outcomes of actions in such systems become virtually impossible to make (Holling 2003). The challenge is not necessarily one of scientific or managed

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origin, but rather it is about dealing with people and their diverse cultures, interests, visions, priorities and needs (Norgaard, 1994). People have to mobilize and communicate at all scales, from the local to the regional, nationally and internationally, and across cultures around this normative, problem-driven domain. As well, sustainable development issues are inherently transdisciplinary as they exceed the capacity of any one community to solve in isolation, as unsustainable development spans traditional jurisdictions and local capacity. They require the cooperation of experts, decision makers, and local stakeholders to be successful.

Moreover, it is not sufficient merely to ameliorate current modes of operation (Gunderson & Holling, 2002). Basic transformations are required in all sectors of human society, including changes to our social, economic and governance structures, coupled with shifts in cultures and industrial practices. The scale of critical change and research collaboration requires unprecedented levels of interaction between the research communities, business communities and governments. Sustained dialogue around the problems, probable scenarios, and conversations about the future are required (Robinson, pers. Comm.). Many communities have lost shared meaning; that is, the collective norms and actions about the ways forward for their future sustainable community development. New ways of coming together for meaningful dialogue are critical to augmenting the public sphere for sustained dialogue by communities on their future, as is transdisciplinary research. Transdisciplinary research, however, is not based in the old model of an 'expert' coming into a community, but rather focuses on working in and with communities, respecting the plurality of expertise that exists, and creating agency through the research process. Agency is the ability to respond to events outside one's immediate sphere of influence to produce a desired effect (Bhaskar, 1994). Inter-organizational agency can be increased through sharing (s-learning strategies) (Kurtz & Snowden, 2003), where knowledge is shared within and outside organizations with the intention of augmenting opportunities and the strategic advantage shifting to the speed of exploitation of knowledge. New transdisciplinary and social network formations designed to stimulate collaboration between researchers, early adopters and marketers building new coalitions, strategic alliances and new forms of leadership are critical to augmenting agency, and to increasing community access to diverse intellectual and social capital critical to their sustainable community development (Dale, 2001; Onyx & Bullen, 2000; Kurtz & Snowden, 2003).

Kurtz and Snowden 2002 in list, 2001 cited

2 S-Learning and Internet Communications (ICTs)

Communities need to embrace different tools to address these issues, and one promising set of tools is quickly evolving out of Internet communication. Electronic town meetings are not new. They were pioneered in the 1980's to supplement traditional town meetings in New England. These early electronic efforts used telephones and local cable TV stations (Becker, 2001). As well, in Canada there was a novel partnership between the Canadian Association for Adult Edu-

cation, the Canadian Federation of Agriculture and the Canadian Broadcasting Association with the Farm Forums from 1942 to 1965. These weekly forums were designed to deal with the economic and social issues affecting rural farmers in Canada through the unique communication features of radio and proved eminently successful in shaping agricultural policies and commitment to rural communities until funding cutbacks, and a change in policy about the role of public broadcasting occurred. From these rather cumbersome beginnings an explosion of electronic interaction has occurred; as will be discussed below there are now thousands of examples of electronic dialogue.

Electronic dialogue based on internet technology offers several compliments to and advantages over face to face dialogues. Firstly, electronic dialogue extends opportunities for participation, which can attract new voices who otherwise would not be heard (Haythornwaite, 2002; Mobray, 2001). These new voices change decision-makers' environments (Stanley & Weare, 2004) and can lead to more inclusive actions being implemented. Secondly, electronic dialogue can accord marginal groups a voice and allow them to form alliances and force recognition (Mitra, 2001). This is partly because of lower costs of participation (Ridings et al., 2002). Cost reductions are achieved because of the elimination of long distance travel and the lack of a physical "meeting hall". A third advantage is an electronic dialogue's ability to foster new collective action (Stanley & Weare, 2004). Internet technology provides ways to strengthen weak ties and allows latent ties that exist but haven't yet been activated to form (Haythornwaite, 2002). The resulting clustering fosters high levels of innovation, information and resource exchange, and allows sharing of specialists between groups (Chiles & Meyer, 2001), another cost saving tool.

Participating in electronic discussions also changes one's perception of geography in ways beneficial for engaging with environmental issues; the ways people think about space are challenged by Internet technology (Mitra & Schwartz, 2001). Some of this change is of a practical nature; electronic dialogue eliminates the barriers of real space (Mitra & Schwartz, 2001) and allows dispersed participants to make their social anchoring portable (Matei, 2004). These changes can help empower the marginalized as one doesn't have to be at the locus of power (Mitra & Schwartz, 2001). On a more conceptual level, electronic dialogue and Internet technology help participants to think in terms of networks instead of about specific locality. The geography of sustainability mirrors that of the Internet; interconnected, multi-scaled, and complex. As well, there is nascent evidence that such on-line spaces may encourage more lateral than linear thinking (Dale, 2005), critical to interdisciplinary and transdisciplinary research. Dale, in press

Much as transportation technology changes the way we approach the physical landscape, the nature of cyberspace will evolve as the technology evolves (Mitra & Schwartz, 2001). However, there is evidence that use of a cyber landscape augments our participation in geographical communities; Matei (2004) measured yahoo groups in a state and Putnam's (2000) social capital index for the same state and found that virtual communities and social capital were positively correlated. Clearly more effective ways of meeting, engaging in conversation and dialogue are necessary to affect the scale of change needed to implement

sustainable development globally. Since sustainable development issues are convoluted, and involve a tangled skein of shareholders, timescales, disciplines, and scales, Internet communications may offer the greatest potential for large-scale engagement of people at multiple scales and span geographical distances. But can e-spaces facilitate greater interdisciplinary thinking, more perspective taking and making, and can they be used for broader public engagement in critical public policy issues?

3 Challenges of On-line Interactivity

Though electronic dialogue presents some formidable opportunities, it does pose challenges as well. Firstly, electronic conversations can be difficult to moderate. It is difficult to steer online conversation because of lack of visual cues. This can lead to "interleaved" conversations in which side threads continue despite a moderated shift in the conversation (Pilking & Walker, 2003). The lack of visual cues can also hinder the initial stages of discussion; in a group conversation the initial task involves developing ties and communication norms. Lack of visual cues can hamper this from occurring quickly on-line (Haythornwaite, 2002; Ridings et al., 2002).

Secondly, Matei (2004) argues that electronic communication is prone to homophily. The principle of homophily states that people who are similar in socio-demographic characteristics are more likely to interact with each other than with people who are dissimilar (Mark, 2003). Some experts maintain that we form homophilic networks (Kiesner et al., 2003), and that homophily occurs although it is not optimal (Reuf et al., 2003). Homophily occurs as cultural similarities and differences provide a basis for cohesion and exclusion (Mark, 2003). We feel more comfortable with those like ourselves, even in virtual communities, online groups have been rated by participants as more satisfying if the participants are similar (Wright, 2000). It remains to be seen whether cyberspace dialogues will increase our natural tendencies to homophily or whether without traditional physical cues and patterns of interaction, they can transcend this inclination towards sameness and increase diversity of inclusion.

Though electronic dialogue can bring in marginalized voices, there are issues of access that must be addressed. From the point of view of hardware, rural access still lags urban access (Grubesic, 2001). Also, a "digital divide" still separates rich and poor urban areas (Norris & Simone, 2004). There are also interaction issues that do raise themselves on-line. To function well, a diverse group must first form ties and establish norms (Haythornwaite, 2002). The required literacy to participate can also pose an access issue. To fully engage in on-line dialogue, participants must be able to read, write, and type in the chosen language.

(Norris & Conceicao, 2004)

Several other concerns can hamper electronic dialogue. Dialogue can be infected with a corporate presence, can suffer from a lack of respectful listening and a lack of verifiable identity, and certain groups or voices can dominate (Dahlberg, 2001; Mobray, 2001). There is also a worry that electronic dialogues

can flow into information overload resulting from the technology's almost unlimited ability to transfer information (Geyer, 1996). (Geyer, 1996)

4 e-Research Agenda

Regardless of the foregoing limitations, the Internet has great potential for interdisciplinary research and interactive dialogues on sustainable development issues. A research program was initiated in 2001 that experimented with the design of three e-spaces at Royal Roads University in Victoria, British Columbia—public forums, e-Dialogues and research salons (www.e-researchagenda.ca). The three spaces are designed to work in different ways but all contribute to the research agenda of knowledge diffusion; literacy around critical public policy issues, and specifically sustainable development and s-sharing strategies.

The public forums are asynchronous on-line spaces developed to engage individuals in public policy issues at the edge. By this, we mean that the forums are intended to be proactive and engage people in dialogue around future scenarios, critical public policy issues that are just emerging or at the leading edge of social trends, on the forefront of emergent change. For example, immediately after the Canadian government signed the Kyoto protocol, we launched our first public forum on *Post Kyoto: What Does it Mean for Canadians?* in February 2003. The title of the forum reflects our positioning on the issue; we did not want to be mired in the "for and against" debate, but rather, engage the research community with the wider public on the implementation of Kyoto and its ramifications for the future. The yearlong forum was lead by a different Royal Roads scholar each quarter, albeit we limited our publication of the forum to four advertisements placed in one of the country's national newspapers as we were experimenting with the medium and its capacity for dynamic interaction and engagement. The forum was also supported by a website with illustrative neutral information provided by researchers and included comments from Canadian leaders on the issue of climate change. Over five thousand Canadians participated in this first on-line public forum and several key learning points emerged.

First, although Canadians knew the protocol generally, they lacked access to in-depth information and subsequently their knowledge was very shallow. Second, on-line public forums can provide a critical space for disseminating academic expertise and research to the public. Third, forums are an important venue for augmenting literacy around critical public policy issues, and most importantly, increasing literacy of some of the complex drivers and barriers to change embedded in these issues. Fourth, forums can serve as a continuous feedback loop between policy-makers and the wider Canadian public by expanding their role from traditional consultation to facilitating critical dialogue. Fifth, the public appears to desire access to expertise and information from respected sources that are free of vested interests. Sixth, even asynchronous on-line forums can generate a level of interactivity, momentum and synergy that are interdependent with active moderation by a respected, well-known expert in the field

who is considered neutral, fair and objective.

A series on synchronous on-line dialogues was also initiated simultaneously, and to date, we have led five expert e-Dialogues on climate change, social capital and sustainable community development, sustainable communities, recruitment of the 'scientist of the future', and the management of used nuclear fuel in Canada. Three Royal Roads students have now used e-Dialogues as a data collection methodology for diverse topics; spirituality and sustainable development, cosmology and sustainable development, and the cost-benefits of green buildings. Each e-Dialogue is supported by a website that offers an elucidation of the issue, and in addition, provides illustrative access to additional resources, including other websites. This background material is chosen to contribute to the basic literacy by anyone accessing the site, besides those participating in the dialogues.

The e-dialogues bring together expert panelists with an audience that can 'listen in' to the expert panelists and pose questions to the experts after their initial dialogue. The panels are deliberately designed to be multi-sectoral, interdisciplinary and include researchers, practitioners and decision-makers. Again, the first three e-Dialogues were not widely publicized as the efficacy of the medium for meaningful dialogue was still being tested, and again, audience participation varied from over 100 to 30 depending upon the subject. What was surprising was the outreach for some of the dialogues; listeners were from diverse sectors such as government, the private sector, students, albeit with limited audience participation by other senior researchers. Some have questioned (Rees, pers. Comm.) what the value is in an academic's participation in such on-line dialogues as there are no incentives such as a journal publication. We would argue, however, that access to a more diverse scholarship and interdisciplinary intellectual capital would serve as an important incentive, and indeed, this observation appears to apply to younger scholars. More research will have to be conducted on targeted engagement strategies later.

5 On-Line Interactivity

In terms of the interactivity and engagement in the on-line dialogue by the expert panelists, the following table on the management of nuclear waste illustrates their engagement in terms of postings. Interaction is indicated by the pacing of the posts. Although the subject matter is very complex, the on-line medium does not appear to inhibit interaction nor inhibit trust even though the participants are engaging in such an immediate and public space. We have some suspicion that the subject of the dialogue very much dictates comfort levels with trust and willingness to engage in open dialogue. Also, participants appear to be more willing to engage if they are from the social or the natural sciences, albeit further research would have to verify this observation.

In terms of the interactivity of the student led e-Dialogues, the pace and level of interaction are even more intense. There is some supposition that there is a significant age variable in on-line dialogue, and that barriers encountered

Table 1: Level of e-Dialogue interactivity (NWMO)

e-Dialogue	Risk, Uncertainty, and the Management of Nuclear Waste (#1)	Decision-Making under Conditions of Risk and Uncertainty (#3)
# of experts	6 (including moderator)	5 (including moderator)
# of posts	125	74
Average posts per expert	20.8	14.8
Average pace	post every 58 sec	post every 1 min 37 sec

by older people are not relevant to people 30 and under. Thus, we assume that this method of communicating will assume greater importance and relevance as the methodology improves and as generations raised with Internet technology come of age.

Each dialogue involved an outreach period; for the five-day period preceding each on-line dialogue and five days following, 260 unique visitors viewed the spirituality and sustainable development website; 619 the cosmology and environmental education website and 243 unique visitors the green buildings website. The most recent e-Dialogue on the management of nuclear waste management in Canada reached over 2700 Canadians in a four-month period. Methods are still being developed to test the ability of such dialogues to increase literacy, and building upon a definition of sustainable development literacy (Dale and Newman, forthcoming), a pre and post-dialogue survey is now being designed.

6 Lessons Learned

Active moderation is the key to on-line interaction and meaningful dialogue, and moderation on-line is very different from moderation in face-to-face meetings. The moderator has to have both a general cognition of the issue being discussed besides expert moderation skills to interact properly with the complexity and breadth of some of the issues being discussed. In the absence of traditional visual cues, the moderator has to have an intuitive sense of when to interject and when to be silent in terms of facilitating discussion.

This absence of physical cues introduces one of the positive benefits of on-line dialogue and enhanced interactivity. Because of this absence, the medium for the potential for greater equity of participation, as the absence of these cues controls for traditional power and dominance patterns, albeit s/he who types and thinks the fastest dominates instead of dominance based on hierarchical position based on power and seniority. The medium imposes an anarchy of equality of voice which may allow for greater diversity of opinion and ideas from people who normally do not have a voice.

Many panelists have remarked on the capacity of the e-Dialogues to provide a more reflexive space that is, the time taken to read one another's comments and to respond with a slight delay allows greater time for reflection, instead of

Table 2: Level of e-Dialogue Interactivity (Student-Led)

e-Dialogue name	Spirituality and Sustainable Development			Cosmology, Education and Sustainability			Green Buildings
	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1
# of experts	16	16	18	9	7	10	7
# of posts	115	84	78	80	98	117	122
Sectors	8 male, 12 female, 8 academic, 5-government, 3-private, 4-civil society			5- academic, 5-civil society, 1- government			6 male, 1 female, 1-academic, 1-government, 3-private sector, 2-civil society
Total posts (all days)	277			295			122
Average posts per day	92.3			98.3			n/a
Viewing audience	122			177			81
Minimum posts by experts	1	1	1	4	7	2	7
Maximum posts by experts	18	13	9	20	23	21	20
Average # of posts by expert	7.2	5.3	4.3	8.9	14	11.7	17.4
Average posts by experts (all days)	5.5			11.3			17.4
Average time between posts	47 sec	64 sec	73 sec	71 sec	59 sec	48 sec	59 sec
Average pace (all days)	new post every 58 sec			new post every 55 sec			new post every 59 sec

simply cuing off one another signals, body language and physical expressions. In addition, the ability to append material, particularly reference material, to reinforce their points and to increase access to seminal documents was seen as a very positive benefit. In terms of interactivity, there did not appear to be any decrease in the ability for multiple perspective-taking, particularly as traditional group dynamics are not in play given the supposed anonymity of the medium.

With respect to enhanced literacy, both the websites and the e-dialogue themselves which are archived after each on-line conversation ends, serve as a living archive for the general public, aside from access by younger scholars for potential research areas. In this way, we are building a living history of ideas where voice is directly recorded and archived, without any intermediate interpretation. Intellectual capital is being recorded as it is being built and disseminated immediately, instead of sitting on shelves in individual offices gathering dust and not seeing the light of day.

7 Conclusions

Have the e-Dialogues contributed to s-learning strategies and engaging the public interactively with leading-edge sustainable development issues? We conjecture that the e-research program has demonstrated the power of Internet technology to engage people in fundamentally different ways and that they are capable of dynamically interactive and more importantly, meaningful dialogue. We believe there is nascent evidence that the medium has the potential to facilitate more lateral thinking rather than linear thinking, paradoxically because of the lack of perfect symmetry in messaging and the lack of virtual one-on-one cuing.

We also believe it has potential for new kinds of network formation and e-communities of practice that transcends disciplines, place-based knowledge and traditional perspective-taking by being virtual and apparently free from geographical place constraints. More research needs to be conducted, however, in this capacity as well as its future potentiality in moving people from hoarding (N-learning) strategies, in which defensive barriers are placed around what we know and what is being developed to sharing (S-learning) strategies, particularly in the research community (Kurtz & Snowden, 2003).

If interactive on-line dialogue was combined with the ability to create on-line scenarios, and dynamic models that enable our capacity to see the aggregate impacts of our decisions for present and future sustainability, combined with multimedia events, round tables and multistakeholder processes, television and radio, then we will indeed move to S-learning strategies where literacy is paramount for the day-to-day decisions taken that affect the planet. And if it allows us to engage doublethink that is, the power of holding two contradictory beliefs in one's mind simultaneously, and accepting both of them (Orwell, 1984), it holds for our future sustainable development, a world of 'and/both' instead of 'either/or'.

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