Habermasian Analysis of Comprehensive Urban Planning

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Abstract

A design theory for collaborative technologies was proposed in a companion paper entitled 'Towards a design theory for collaborative technologies'. This paper explores the practical value of the theory via empirical data gathered in the context of an intervention enabled by Group Support Systems (GSS) in regional governance and comprehensive urban planning. During the study representatives of the regional council and territorial authorities meet to evaluate three scenarios prepared over a seven-year period. Qualitative measures were obtained of the degree of confusion (lack of understanding) and conflict (lack of trust) before and after the meeting, and participant performance and satisfaction with electronic discourse. The focus question is "Do electronic discourses enhance participant's understanding and trust in scenario planning?"

Keywords

Collaboration systems, inter-organizational conflict, governance, strategic urban planning, critical interpretive case study

1. INTRODUCTION

A generic design theory for collaborative technologies was proposed, and a methodology for application in a particular domain was described in a companion paper entitled 'Towards a design theory for collaborative technologies'. This paper explores the practical value of the theory via empirical data gathered in the context of an intervention enabled by Group Support Systems (GSS) in regional governance and comprehensive urban planning. Findings from the period before, during, and after the focal meeting are reported in sections 2, 3, and 4 respectively.

2. BEFORE THE MEETING

The database of evidence gathered in the pre-meeting phase revealed that participants in the focal strategic planning meeting were there to represent seven territorial authorities (four cities and three districts) and the Auckland Regional Council (ARC). (Figures 1 and 2). Each was a professional planner responsible for advising his/her own (elected) council. In Churchman's inquiring system, each participant is primarily a designer of an urban area for which the elected council is the decision maker. Each territorial authority constituted a part of the whole of the Auckland region. The issues associated with embedding 'a part' of an urban region in 'the whole' are complex. Participants recognized the difficulties in achieving the goals of their respective councils and engaging in consultations about comprehensive region-wide plans with planners from other councils. Perceptions of costs and benefits varied with the allegiance of the participant and the history of his or her interactions. The chief planner for the ARC advised that most participants have been involved in prior consultations marked to some degree by confusion and conflict. As the day of the focal electronically-supported meeting approached it became apparent that considerable difficulties were being experienced by ARC planners, and that these were directly related to technical, interpersonal and personal issues.

Technical perspective

The first set of problems was associated with the production of briefing documents that summarized the studies by technical experts. Economic analyses were delayed as those responsible attempted to produce estimated costs for major infrastructural projects some of which were at a conceptual stage of development. Technical difficulties were encountered in discovering an analytically sound method of combining knowledge from technical experts. Urban

planning is an area that Banville and Landry (1989) [1] would describe as 'lacking conceptual integration'. For example, traffic engineers focused on access and transportation and developed estimates of trip times under each scenario. Biologists studied coastal water quality and developed estimates of pollutants in parts per million. Financial analysts focusing on economic values developed quantitative estimates of costs. Other planning consultants developed qualitative assessments of amenity, landscape values and housing choice. Scientific methods were applied by the experts who developed sub-models in sub-disciplines embedded within urban planning. Yet measures such as trip times, pollutants and implementation costs are, by themselves, conceptually unrelated and cannot rigorously be compared. Claims to objective truth were diminished by the lack of an analytically sound method of combining knowledge from different sub-specialties.

Interpersonal perspective

The second set of problems was associated with ongoing confusion about the conceptual basis for stakeholders' evaluation of scenario options. As a consequence of the technical difficulties mentioned above, the briefing documents did not reflect the precision of the discrete idealized rows (criteria) and columns (options) of a decision matrix. Ways of expressing scenario options and criteria had continued to evolve throughout the seven year planning period. The traditional, urban planning triple-bottom-line categories of economic, social and environmental concerns appeared to be interlinked in a way that made the separate evaluation of any one category or subcategory impossible. It became clear that there were complex, dynamic and recursive ('chicken and egg') or self-referential [2, 3] interdependencies among stakeholder's beliefs, potentially right scenarios and available objective facts. These emergent properties of the design process could only be resolved by discourse.

Personal perspective

The third set of problems was associated with personal commitments. Planners from one major territorial authority (a city of 300,000) were reluctant to attend because they were committed to a city plan based on presuppositions that differed from those of the regional council. The chief planner from another city announced on several occasions that views promulgated in a regional forum would not influence his commitment to success as determined by the views of his own council. Research notes from the pre-meeting phase revealed that the chief planner of the regional council, the sponsor of the focal meeting, was concerned about the intransigence of some participants. She had planned a half-day warm-up session to introduce the community of planners to the decision procedures to be used in the focal electronically-supported meeting. One week prior to the warm-up, she felt obliged to cancel because of a perceived lack of support.

Summary

In summary, data gathered before the focal electronically-supported meeting reveals major problems. The empirical evidence is that the pre-meeting phase was fraught with technical, interpersonal and personal problems. There was little or no alignment between personal commitments, consensus and technical excellence. While some stakeholders may have preferred a more tractable problem, the evidence is that they were faced with a situation in which key aspects of the problem situation (intentions) and judgments about the "right" solution (outcomes) [4] have yet to emerge holistically as themes in discourse at three levels – technical, interpersonal and personal. The Habermasian analysis suggests that the observed levels of guarantors (truth, rightness and truthfulness) immediately before the focal electronically-supported meeting were low.

3. DURING THE MEETING

The facilitator of the focal GSS-supported meeting chose to develop trust and mutual understanding by applying the concepts in the mid-range operational model (Figure 4). He visualized the purpose of the meeting as developing and testing the coherence among the validity claims illustrated in Figure 5. The first part of the meeting focused on expression of concerns and issues motivating each stakeholder. The last part of the meeting focused on expressions of degrees of commitment to action, for and against, any or all of the scenarios. More than half of the agenda items were devoted to electronically-supported discourse about the decision matrix. Three strategic scenarios (columns) were evaluated against five classes of criteria (rows) – cost, amenity and landscape, housing choice, access and transportation, and water quality (Table 3). In Churchman's inquiring system, the urban planners are characterized as system designers who evaluate the decision matrix to provide insight about measures of performance [5]. The consensus of system designers on a preferred option provides decision makers (the councils that employ the planners) with a rationale for action. Each row of the decision matrix was the subject of a 50-minute session using

the GroupSystems Topic Commenter tool [6]. This 50-minute session included speech and the ordering by each participant of his or her preference for each scenario [7].

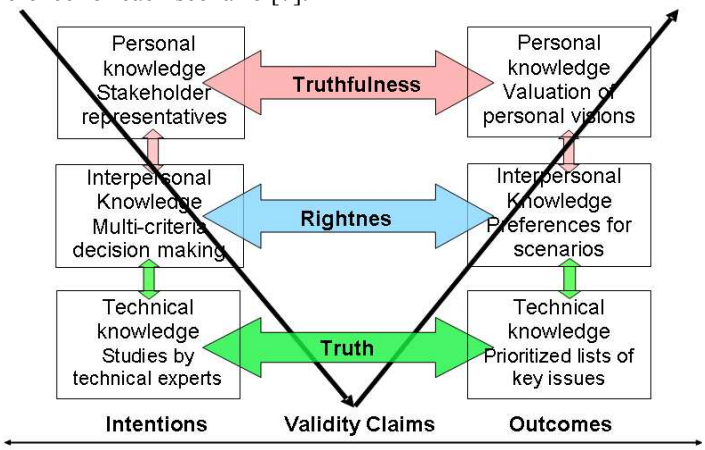

Figure 5. Validity claims to be evaluated

Twenty one people attended the meeting, excluding the facilitator. Sixteen had voting rights. Ten of these were planning executives from the four cities and three districts in the urban area; six were ARC planners and consultants. The remaining five participants were the ARC planners responsible for the seven-year planning cycle. Data gathered on participants' satisfaction with electronic discourses as a means of reducing conflict and confusion about preferences for scenario options are presented in the following subsection.

3.1. Participant satisfaction with electronic discourse

Participant satisfaction with electronic discourses was solicited anonymously via structured and unstructured methods and the results compared with observational data. The electronic meeting technology used in the focal meeting provided two key functions important to reducing conflict and confusion. Firstly, the software provided automatic recording ('group memory') that enabled procedures for idea generation (divergent thinking) to be separated in time from procedures for information analysis (convergent thinking). Secondly, the technology provided anonymity that reduced the anxiety about surfacing sensitive issues. This enabled a separate focus on interlocked issues about relationships (trust) and cognition (understanding). A two-by-two analysis produced four separate measures of satisfaction with electronic discourse. (Figure 6).

A structured survey instrument was employed that includes scales for these four measures. The instrument, which has previously been used to evaluate electronically-supported strategic planning in the presence of inter-organizational conflict, was administered to all participants at the end of the electronically-supported meeting. The architecture of the instrument consists of rows and columns that identify process steps linked in a distinctive V-shape similar to that in Figures 3-6 [8]. Participants' satisfaction with electronic discourse averaged 6.0 on a 7 point scale (1 = Low satisfaction, 7 = High satisfaction). Unstructured comments were collected anonymously from participants by means of the GroupSystems Topic Commenter tool. The responses were overwhelmingly positive. Participants remarked that the meeting generated goodwill and momentum. Many people expressed surprise that the technology existed and stated that the meeting outcomes would not have been possible without electronic support.

Focus	**Procedure** Divergent	Convergent
Relationship issues: Reduced conflict Increased trust	1. Absence of perceived conflict 6.1	4. Consensus for cooperative action 6.1
Substantive issues: Reduced confusion Increased understanding	2. Participation 6.2	3. Information exchange 5.5

Figure 6. Participants satisfaction with electronic discourse (1=low satisfaction; 7=high satisfaction)

Observational data in the form of a video record showed that electronic discourses enabled participants to interact in silence for four hours in the eight-hour meeting. The atmosphere was one of intense concentration, as though participants were committed to the success of a difficult cognitive challenge. It was observed that the resulting text received intense scrutiny during the meeting.

In summary, participants' satisfaction with electronic discourses and observations during and after the meeting, support the value of the electronic discourse. Such conventional measures of GSS instrumentality do not directly address the purpose of the meeting. The purpose of the focal electronically-supported meeting is to develop and test the coherence among the validity claims illustrated in Figure 5. The following subsections critiques the success of the meeting through the theoretical lens of Habermasian inquiry.

3.2. Evaluation of claims to objective truth

Participants arrived at the meeting carrying extensive briefing documents that they had received in the mail. The video record showed that the initial expression of personal views was heated. It took some time before most participants were ready for mutual problem solving. Participants then examined the briefing documents in detail as they worked through each row (criterion) of the decision matrix. Each participant was a senior planning generalist and this part of the meeting provided the occasion for the exercise of technical skill. Through the use of the GroupSystems Topic Commenter tool participants produced ten pages of text on each criterion. This text or 'frozen discourse' includes key issues that were prioritized via a weighted voting procedure [9].

Table 4. Evaluation of claims to truth

Criterion	Prioritized key issues
A: $Cost	1st Transport dominates the issue (44 points) 2nd Little difference – are options extreme enough? (27 pts)
B: Amenity and landscape values	Author's note: All except 15th made no explicit mention of options (233 points) 15th Greater choice, diversity, variety in Option 1 (7 points)
C: Housing choice	No explicit mention of options in any of the key issues (240 points)
D: Access and transportation	1st Stuff all difference among options (40 pts) 2nd Are we wasting money on public transport without major density increases? (25 points)
E: Water quality	1st Any option has significant sediment impacts (44 points) 7th Lack of difference among options (14 pts)

Table 4 illustrates the priority and nature of some key issues and the number of votes each received. Participants cast a total of 240 votes for each criterion. The issues were expressed in a manner that is exploratory and descriptive (emergent), rather than evaluative. For example, the issue of the extent to which population density must increase to make public transportation sufficiently viable is central to the choice between scenario one (consolidation) and scenario three (expansion). Yet at the end of a seven-year planning exercise that included extensive traffic modeling, the issue was raised as a question rather than as the evaluation of a factual proposition. No explicit mention of any of the scenario options was included in the top 14 key issues about criterion B (amenity and landscape) or in any of the key issues about criterion C (housing choice). The key issues on the remaining three criteria (cost, access and transportation, and water quality) provided no information about which scenario option was preferred. The detailed investigation of the briefing documents produced a consensus that studies by technical experts had failed to find significant difference between the scenario options. This constitutes support for the following interpretation.

Decision Outcome

Under the norms of a cognitive, objectivating attitude towards the facts, the 'truth' is that all three scenario options are equal.

3.3 Evaluation of claims to rightness

At the end of the discourse on a criterion, each participant privately recorded how well each scenario performed against that criterion. This is a more holistic measure than the key issues recorded in Table 4. Participants must interpret technical findings from the perspective of their own norms and values. Each scenario received a rating on a five-point ordinal scale from each voting participant. The aggregated ratings on each scenario were made accessible to each participant. The aggregate preference orderings for scenarios one and three are illustrated in Table 5.

Table 5. Evaluation of Claims to Rightness

Performance on Criterion	Scenario One Number who choose ++ / + / 0 / - / --	Scenario Three Number who choose ++ / + / 0 / - / --
A: $Cost	3 **5 6** 2 0	0 2 3 **6 5**
B: Amenity and landscape values	4 **7** 3 1 1	3 1 3 **4 5**
C: Housing choice	1 **7** 3 3 2	5 **7** 2 1 1
D: Access and transportation	**5 7** 3 1 0	1 3 2 **5 5**
E: Coastal water quality	5 1 4 4 2	0 1 2 3 **10**

Modal values are underlined. On criterion C (housing choice), scenario one and scenario three were rated equally. On the remaining four criteria, scenario one performed distinctly better than scenario three. Scenario two (which had been constructed as an amalgam of scenarios one and three) received ratings between those for scenarios one and three. All three scenarios had been developed through a consultative process over a seven-year period. This coupled with observations from the pre-meeting and meeting phases constitutes support for the following interpretation.

Decision Outcome

Under the norms of established legitimate inter-personal relationships, scenario one is more 'right' for us than scenario two or three.

3.4. Evaluation of Claims to Truthfulness

The discourses on truth and rightness were framed by the briefing documents. After the time allocated for these discourses was exhausted participants were encouraged to express more personal judgments about the three scenarios. Electronic meeting technology supported electronic discourse on the question "What is it like to live in Auckland under scenarios 1, 2 and 3?" In Churchman's inquiring system, participants were being asked to drop their usual role of designer and adopt the role of client [5]. The goal was disclosure of speaker's subjectivity, unconstrained by the (technical) structure of the model and unrestrained by the interpersonal context. The strategy was to get each individual to write a personalized account of what it would be like to live in Auckland 30 years hence under each of options 1, 2 and 3, then to read the account of others to identify the most valuable visions. The procedure was a 60-minute silent envisioning exercise in which each account is identified only by a code. Anonymity was almost complete.

Table 6. Evaluation of claims to truthfulness

Personal preferences	Scenario One	Scenario Two	Scenario Three
Number of participants strongly in favor of	14	0	2
Number of participants indifferent to	0	16	0
Number of participants willing to work against	2	0	14

The video record shows that participants developed their personalized accounts with a silence and intensity reminiscent of students in a final exam. Some participants insisted on working on their accounts beyond the time allocated. Their self-absorbed silence contrasted strongly with the shouted social consensus that accompanied the reading of the account of others. The most valued visions of what it would be like to live in Auckland 30 years hence showed intense personal support for scenario one, a lack of engagement with scenario two, and a willingness to work against scenario three. (Table 6).

Decision Outcome

Under the norms of disclosure of speakers' subjectivity, 14 of the 16 participants will, in all truthfulness, only support Option 1.

3.5. Summary

The positive results obtained from the meeting are in strong contrast to the confusion and conflict that existed at the end of the pre-meeting phase. Participants' perceptions and performance as a result of the electronic meeting technology were positive. Participants were satisfied. These findings are similar to those in the meta-analysis reported in [6]. While some participants were reluctant to attend the focal meeting, and expressed negative views at the beginning of the meeting, all participants provided positive evaluations at the end of the meeting. The functionality of the GSS software was supportive of an overall positive result. Participation by all participants was intense. By the end of the meeting, electronic discourse produced 80 pages of text. Intense participation in four key aspects of electronic discourse resulted in each of the three decision outcomes being documented and coherently linked to the relevant underlying validity claim. The data gathered during the focal meeting support the claim that the combination of Habermasian inquiry and electronic discourse were successful in reducing conflict and confusion.

The empirical evidence is that each of the knowledge perspectives (technical, interpersonal and personal) in Habermasian analysis is useful in capturing phenomena important to the success of the focal electronically-supported meeting. The focal electronically-supported meeting enabled a critical examination of claims to valid technical, interpersonal and personal knowledge. Observations confirm that the decision outcome in each knowledge world was grounded in the corresponding validity claim - truth, rightness or truthfulness. It is not clear, however, that the electronically-supported meeting integrated the technical, inter-personal, and personal perspectives into a consensus model that provides the rationale for action.

4. AFTER THE MEETING

A 'valid' and 'coherent' evaluation of the three scenario plans is desired. The meeting succeeded in documenting technical, interpersonal and personal decision outcomes and coherently linking each to the relevant underlying validity claim. We have yet to consider the degree of coherence among the three perspectives. Participants found no difference between the scenarios on the basis of technical knowledge. Moderate claims in favor of scenario one were made based on interpersonal knowledge. Strong claims in favor of scenario one were made based on personal knowledge.

The degree of coherence among the decision outcomes at different levels is poor. There is a major discrepancy in preferences at various stages of the decision process. The 80-page report generated by electronic meeting technology (from which the data in tables 3, 4 and 5 are extracted) was circulated to all participants immediately after the meeting. The introductory section of the report highlighted the fact that the participants were strongly supportive of an option that lacked factual support. The report became subject to intense scrutiny. Regional planners met repeatedly among themselves about the report and consulted other meeting participants. Support grew for the interpretation that the information in Table 4 should be taken at face value – the scenario options were not extreme enough. In Hegelian terms, the dialectical logic (synthesis) of this interpretation was initially lost on the regional planners because they were so firmly wedded to their decision framework (thesis) that they experienced profound difficulty in recognizing that the framework was flawed (antithesis). An abbreviated planning round was subsequently undertaken with more extreme variations on scenarios one and three (based on a 100% increase in population) and support was found for scenario one at technical, interpersonal and personal levels.

4.1. Discussion

Support has been found that framing the electronic discourses as an instance Habermasian inquiry reduces participants' conflict and confusion about a comprehensive urban plan and preferences for three scenario options. The meeting enabled bounds to rationality to be loosened by active testing of each participant's knowledge against other points of view. Intense scrutiny of the meeting report produced a significant increase in the coherence of the belief structure of meeting participants. Specifically, the apparent contradictions in preferences surfaced at different stages of the meeting served as a precursor to a Hegelian synthesis. Participants' insight that the model was flawed led to a consensus model that provided decision makers with a rationale for action. Using the definition of success in

Churchman's inquiring system ("insight leading to a consensus model that provides decision makers with a rationale for action"), the meeting was a success.

4.2. Conclusion

The paper applies Habermasian inquiry to electronic discourse in group decision, and the strategic evaluation of a comprehensive urban plan. In this case at least, the combination of Habermasian inquiry and electronic discourse led to the overall success of a key meeting. The learning process did not produce a coherent decision based on the initial parameters in the planning model, but an appreciation of the gap between the model and the purpose for which it had been developed. After the meeting consensus developed around a new urban planning model synthesized from suggestions by meeting participants. Ten years after the electronically-supported meeting, the essence of the decision in favor of scenario one remains the accepted plan for the future of the Auckland region.

In totality, the empirical evidence suggests that the combination of Habermasian inquiry and electronic discourses enhance participant's trust and understanding in scenario planning. Seen as an instance of Habermasian inquiry, the benefits of the electronically-supported meeting were three-fold:

Technical perspective

Support for the development and documentation of validity claims about objective truth, rightness and personal truthfulness or sincerity, and the degree of coherence among them.

Interpersonal perspective

Support for discourse that interweaves evidence (reflections and experiences, decisions and actions, theories and interpretations, individual feelings and objective facts) from multiple, conflicting yet mutually supportive evaluative frames.

Personal perspective

Support for the 'psychological safety' and 'trust' needed for direct and unreserved expressions of multiple, conflicting individual perspectives.

This retrospective inquiry was initially born out of a personal concern that the subjectivist story-telling aspects of the design of the GSS session could not be justified, and that harm may result. This appears not to be the case. Retrospective inquiry has enabled this GSS facilitator to find that his intuitions about session design are shared by others. Several lessons have been learned. Firstly, in theory and in practice, creativity and conflict are intertwined. An element of self expression via story-telling may get us closer to the truth than available empirical data. Secondly, in practice, individual and group knowledge is mediated and situated, provisional and pragmatic, aspirational and contested. In this case at least, a Habermasian theory of electronic discourse proved useful in teasing out intertwined technical, interpersonal and personal issues. Thirdly, GSS technology has a raw power that the facilitator may direct via the application of Habermasian inquiry. The author has found the architecture of Habermasian discourses a useful archetype for mid-range operational models in various domains. Finally, the methodology of a critical interpretive case study is recommended for critiquing the support provided by collaborative technologies in situations involving dissensus. Such an approach is required to study why participants are inauthentic in their participation in collaboration technologies, or avoid them completely as communication closes down in response to unresolved conflict. The application of ideas about pragmatism and systemic intervention provides a practice model that extends the practical and decisionistic applications of critical research in information systems, and places positivist technology-based theories of collaborative design in the context of power relations.

In practice, interaction on problematic issues is subject to confusion and conflict. However these are the experiences required to disambiguate a mess of facts, norms and feelings. Seen from a Hegelian perspective, the power of a design theory for collaborative technologies based on Habermasian discourses, lies not in achievement of enlightenment but in appreciation of the nature of ignorance, and the practical consequences of belief.

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