Facilitation Tool – A Tool to Assist Facilitators Managing Group Decision Support Systems

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Abstract

This paper describes the Facilitation Tool, a tool built to untangle two problems that we find in current Group Decision Support Systems. If we want to allow facilitators manage such systems with success, then a planning functionality more detailed than the currently available is necessary. We also found very limited support to remote facilitation. Several notions concerning decision-making and facilitation, which were the basis for our design, are described. Finally, results obtained from an experiment with the planning functionality are presented.

1 Introduction

Group facilitation is a process in which a person who is acceptable to all members of the group intervenes to help improving the way it identifies and solves problems and makes decision [17].

There is an increasing presence of GDSS in organisations, augmenting the demand for people trained to assist GDSS usage, that we designate electronic facilitators. Organisations are training their managers to accomplish this task, but the transition from manager to facilitator is not considered easy and thus the electronic facilitator is still a scarce organisational resource. Hence, better facilitation support is indispensable to increase GDSS usage and assimilation.

Cost reductions also increase the preference for remote meetings. In that situation, facilitators must rely on computer-mediated communication to intervene in the group, which, depending on media richness, requires additional effort and reduces the variety of interventions. Facilitation support must be redesigned to uphold remote facilitation roles, a functionality that goes beyond the most commonly supported intervention: technology configuration.

This paper reports the development of a tool dedicated to assist facilitators in the task of managing GDSS. Emphasis has been put on exploring two facets of the meeting life cycle: (1) extending the pre-meeting support with process structure; and (2) extending the range of remote interventions in meetings with steering, conflict resolution and group focus techniques.

2 Overview

The literature on facilitation support shows an interesting diversity of focus, ranging from the pure technical aspects of technology support, technology configuration and usage, a combination of technical and human roles, process abilities and organizational abilities [4][12]. Considering our emphasis on pre-meeting support and remote interventions in meetings, we overview three categories of increasing intervention: chauffeur, productivity and process interventions.

Chauffer interventions manipulate the technology but not the process [6]. In this category we find pre-meeting support to the definition of an agenda, selection of participants, selection of decision techniques [19] and GDSS configuration; and support during meetings for shifting tasks, recording, monitoring and start/stop GDSS tools [8].

Productivity interventions consider reviewing previous meetings [8], describing goals, gathering documents, establishing roles, rules, time [2], space [1] and organizational fit [14]. Productivity interventions also include chairing the meeting, enrolling participants and tracking accomplishments [8].

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Process interventions structure decisions as collections of lower-level tasks. Such structures have for long followed the rational approach of intelligence, design and choice defined by Simon [18]. Other specific process interventions include balancing participation, keeping focus or diagnosing syndromes [3][20].

It is important to note that, although the support to chauffeur and productivity interventions is common to most GDSS [5][6][15], the support to process interventions is rarely found, with two notable exceptions [2][7]. One of our goals is to explore this lack of support.

We may now raise the problem of remote facilitation of GDSS. In that situation, facilitators must rely on computer-mediated communication to intervene in the group, which may reduce the range of possible interventions. Chauffeur interventions are supported by most GDSS in remote situations [15][16], but support to the other types of interventions is rarely found [2][13].

Considering the spectrum of facilitation behaviours mentioned above, we must conclude that there is still limited support to facilitation of remote GDSS. Several missing interventions are explored in this paper: steering the group, managing conflicts or keeping the group focussed.

3 Facilitation Tool

The development of the Facilitation Tool (FT) was based on two functional requirements: (1) support pre-meeting planning with explicit provision of process structure; and (2) support remote facilitation, with provision of mechanisms for remote interventions in meetings.

3.1 Process Structure

This section elaborates the first one of the requirements specified above. Although many rational models could have been used, we adopted one developed by Kaner [10], which will be briefly detailed:

- A decision process develops according to a sequence of different zones. There are four zones, which come in the following temporal order: divergent (search for information); groan (discuss issues); convergent (attempt to reduce the number of solutions); and closure (select one solution by consensus or voting).
- Each zone can consist of one or more strategies for handling a problem. For instance, *exploring the territory, searching for alternatives* or *discussing difficult issues* are different strategies defined for the divergent zone.
- Finally, a strategy can consist of one or more activities. As an example, we find in the *explore the territory* strategy an activity characterised as *who, what, when, where and how* (identify who is involved, what must be done and so forth).

We adopted the Kaner's model because we found compelling its separation of concerns in multiple levels: zones, strategies and activities. Each different strategy mentioned by Kaner is also a very expressive and intuitive pattern for handling a problem. The model is independent from any particular GDSS, a good design practice well known in software development, where implementation options are delayed as much as possible in the product life cycle.

The Kaner's model was then extended in order to embrace two new levels of abstraction: task level and tool level. Both levels are intended to smoothly approximate the high-level process design towards the actual process instantiation. The task level uses a generic characterisation of GDSS support developed by Hwang and Lin [9]. The tool level directly maps these tasks into GDSS tools such as brainstorming, topic commenter, categorizer, and so forth. This final level is the only one dependent from the particular GDSS used (currently, GroupSystems and Meeting Works). In Table 1 we present a table descriptive of the process model specified for FT.

Zone	Strategy	Activity	Task	Tool	
				GS	MW
Divergent	Explore territory	Say point of view	CC	TC	GEN
		Specify requirements	CC	TC / CAT	GEN / ORG
		Who, what, when, where, how?	CC	TC	GEN
		Facts and opinions	CC	TC	GEN
		Initial positions	CC	BST	GEN
		Perspectives not represented	CC	BST	GEN
	Search for alternatives	Brainstorming	CC	BST	GEN
		Analogies	CC	BST	GEN
	Discuss difficult issues	Something not said?	CC	TC / CAT	GEN
		How does it affect me?	CC	TC / CAT	GEN
		3 complains	CC	TC / CAT	GEN
Groan	Create shared context	Learn others' perspectives	SS	CAT	ORG
		If I where in your place…	SS	CAT	ORG
		Solutions and needs	SS	GO	ORG
		Alternative futures	IC	GO	CROSS
Convergent	Reinforce good ideas	Clarify criteria	SS	GO	ORG
		Risks and consequences	SS	GO	ORG
		Who else needs to evaluate?	SS	GO	ORG
		Who does what when ?	SS	GO	ORG
	Explore principles	Case studies	IC	TC	CROSS
	Creative re-contextualisation	What cannot be changed?	IC	TC	CROSS
		Keywords	IC	TC	CROSS
		Revert assumptions	IC	TC	CROSS
		Remove restrictions	IC	TC	CROSS
		Catastrophising	IC	TC	CROSS
Closure	Voting	Doyle and Straus Fallback	POLL	VOT	EVAL
		Vote to Vote	POLL	VOT	EVAL
		Meta-Decision	POLL	VOT	EVAL

Key to task types: CC – Creative confrontation, SS – Systematic structuring, POLL – Polling of experts/participation, IC – Implementing and controlling.
Key to GroupSystems' tools: BST – Brainstorming, TC – Topic commenter, CAT – Categorizer, GO – Group Outliner, VOT – Vote.
Key to Meeting Works' tools: GEN – Generate, ORG – Organise, EVAL – Evaluate, CROSS – Cross impact.

Table 1 - Adopted model

3.2 Remote Facilitation

This section elaborates the remote facilitation requirement. We followed a model from Schwarz [17], which classifies group processes in terms of problem solving, decision making, conflict management, communication and boundary management (people getting in and out of the group). Facilitators' interventions in these processes may be exercised either at micro (e.g., foster communication from one participant) or macro level (e.g., use a procedure to manage conflicts).

Thus, based on the micro and macro interventions described in [17] and [10], we elected for implementation a subset that we believe to be most adapted to electronic meetings.

Interaction techniques basically intended to steer and focus the group:

- *Paraphrasing* (repeat what a participant said using own words); *Mirroring* (repeat the participant's exact words); *Balancing* (make a silent participant to speak); *Drawing people out* (ask a participant for more information); and *Encouraging* (encourage others to speak).

Analyse and understand techniques, dedicated to obtain feedback information:

- *Listening for common ground* (request attention, make a summary of divergences and common views and ask if the participants agree with the list); and *Tracking* (request attention, summarize the discussion topics and then ask if the participants agree with the list).

Control techniques, to moderate conflicting or chaotic situations:

- *Stacking* (organise the participants' interventions, asking for anyone to speak, making a list of candidates and scheduling candidates).

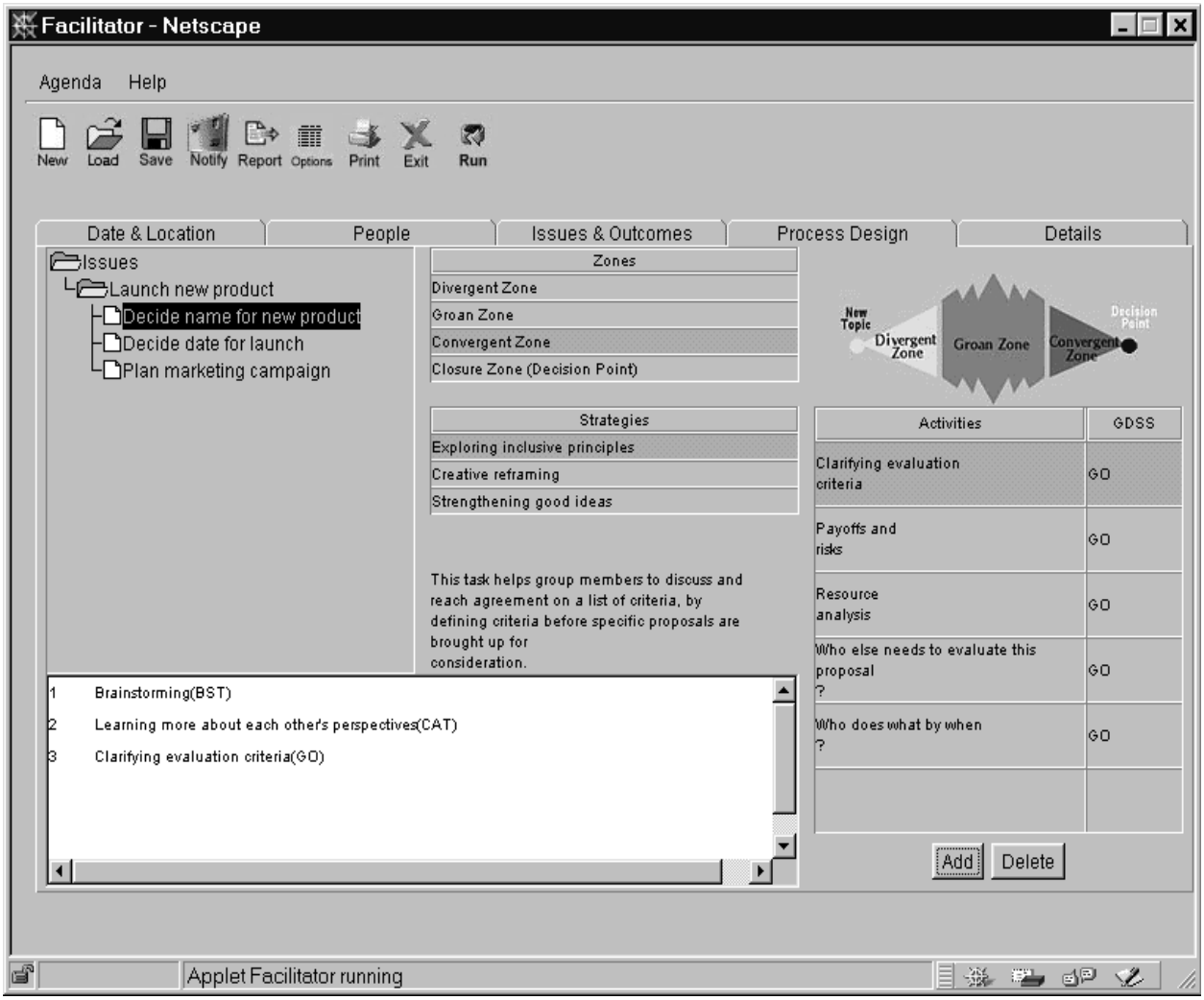

Figure 1 – Process design window

Given that these interventions impose a burden to the facilitator, we had to develop a collection of standard messages, which the facilitator may easily select for automatic delivery.

3.3 Other Details

The FT has a client-server architecture, consisting of the Facilitation Server and Java Applets (clients) which can be downloaded from a WWW home page using a standard browser. There are two types of clients: the facilitator and participants of group activities. The server mediates all communication between facilitator and participants.

Figure 1 shows how the facilitator structures a decision process aided by the FT. At the top left, the facilitator can organize multiple processes in a tree. At the centre of the window, the facilitator can select zones and corresponding strategies. To the right of the window, the facilitator finds a table for the selection of activities, tasks and tools. Finally, the bottom left window shows the process steps assembled by the facilitator. Note that the tool does not enforce a strict adoption of the model, allowing the facilitator to freely arrange the process steps.

Figure 2 illustrates the drawing people out technique. The facilitator's window allows selecting any appropriate pre-defined messages and participants.

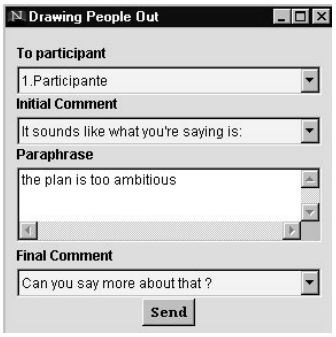

Figure 2 – Facilitator's window for the drawing people out technique

4 Evaluation

The evaluation of GDSS tools is very complex, given that most initial designs miss well-formulated user requirements and evaluation comprises many independent and dependent variables. We recognize the design methodology proposed by Limayem [11], where "versions 0" reveal new opportunities and needs rather than conclusive results. We are at this "version 0" stage.

Following a stepwise evaluation approach, we set up an experiment focussing exclusively on pre-meeting support and assessment of the advantages/ disadvantages of building process structures in the tool. Four facilitators with low/moderate skills in electronic facilitation were selected to participate in the experiment. Each facilitator was requested to design agendas for two problems, one using the FT and the other using the GroupSystems agenda. We obtained the following results from the experiment:

1. The facilitators using FT generated agendas with a greater number of tasks (8, on average) than the facilitators using the GroupSystems' tool (4.25).
2. The agendas generated with the GroupSystems' tool present small variations over a traditional sequence of three GDSS tools: brainstorming, categorizer and voting. On the contrary, the agendas generated with FT present much more diversity: they introduce two other GDSS tools, group outliner and topic commenter; and two out of four agendas do not finish with voting, apparently seeking for consensus.

These observations highlight one major problem that was not foreseen in our first design: it seems that the complexity of the model increases the complexity of the problems perceived by the users. One possible element for future design consists in delivering different views of the model based on how the facilitators perceive the problem.

Another reflection over the results is related to the diversity of tasks: the adopted model, guiding users through a top-down design approach that delays the adoption of specific GDSS tools, seems to lead to more diversity of choice.

5 Conclusions and Future Work

This paper describes the Facilitation Tool, a tool that assists facilitators managing GDSS. Two design issues were of particular consideration. The first one is that facilitators must carefully plan decision processes in advance, a task that requires either past experience or some degree of assistance. The second subject concerns remote facilitation, a problematic situation limiting facilitators' interventions caused by low media richness.

The Facilitation Tool is based on a comprehensive model of the decision process, which guides the pre-meeting activities starting from a high-level perspective down to the selection of specific GDSS tools that best fit the problem at hand.

Concerning remote facilitation, the Facilitation Tool implements a set of techniques covering three types of interventions in the decision-making process: steer and focus group participants, analyse and understand issues, and moderate conflicting or chaotic situations.

Currently, we have tested the pre-meeting functionality with a set of four facilitators and two decision problems. On the positive side, the results obtained indicate that having a model of the decision process built into the tool seems to slightly increase the diversity of agendas.

On the negative side, the efficiency of the process seems to be decreased by this model-based approach.

Regarding future work, our intention is to obtain design implications from experiments with remote facilitation and then proceed with the design/evaluation cycle, redesigning the Facilitation Tool and evaluating again.

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