DEVELOPING LEADERSHIP RESEARCH

Papers from the Northern Leadership Academy Fellows 2007 Conference

Editor: Gail P Clarkson, Leeds University Business School

Northern LEADERSHIP Academy
www.northernleadershipacademy.co.uk

McCormack, B., Dewar, B., Wright, J., Garbett, R., Harvey, G. and Ballantine, K. (2006). *A realist synthesis of evidence relating to practice development: Final report to NHS Education for Scotland and NHS Quality Improvement Scotland.* Available [on-line] at: http://www.nes.scot.nhs.uk.

Nolan, M., Davies, S. and Brown, J. (2006). Transitions in care homes: towards relationship-centred care.

Nolan, M.R., (1997). Health and Social Care: What the future holds for nursing. Keynote address at *Third Royal Collage of Nursing Older Person European Conference and Exhibition*, Harrogate.

Nolan, M.R., Davies, S., Brown, J., Keady, J. and Nolan, J. (2002). *Longitudinal study of the effectiveness of educational preparation to meet the needs of older people and carers: The AGEIN (Advancing Care in Gerontological Education in Nursing) Project*. English National Board for Nursing, Midwifery and Health Visiting, London.

Pearson, A. (1983). *The Clinical Nursing Unit*. Heinemann, London.

Rippon, S. (2001). Nurturing nursing leadership: How does your garden grow? *Nursing Management*, 8(7): 11-15.

Rodwell, M. (1998). *Social work constructivist research*. London: Garland Publishing.

Vaughan, B. (1998). The story of NDUs: How the nursing, midwifery and health visiting development unit programme began. *NT Research,* 3(4): 272-274.

Wright, S. (1989). Defining the Nursing Development Unit. *Nursing Standard,* 4(7): 29-31.

INTELLIGENT TOOL DESIGN FOR THE SUPPORT OF DISTRIBUTED FACILITATION

Aida Azadegan
Manchester Business School, The University of Manchester, Booth Street West, Manchester, M15 6PB

Abstract

Virtual environments are increasingly being used in networked situations for distributed collaboration. However, there is still very little research about the social and technical aspects of collaboration and how these relate to issues influencing overall usability of such environments. The aim of this study is to examine different patterns of collaboration, and how to increase the effectiveness of the leader's (facilitator's) role and his/her engagement with an intelligent tool. Different issues are concerned and are related to the usability of groupware technology in a meeting, which are arising from the facilitator's performance in a meeting. This paper introduces new techniques in competitive intelligence and business intelligence use that aims to increase the efficiency and effectiveness of dispersed collaborations and related leadership issues.

Introduction

People often face different problems that are challenging, complex and difficult for an individual to solve. Collaboration helps people to accomplish more than they could as separate individuals. Nevertheless, achieving effective team collaboration is a challenging organisational issue (de Vreede and Briggs, 2005).

Collaboration in Organisations

The importance of the collaboration value in organisations has been dramatically raised during recent years. Organisations need to do project planning, task scheduling, decision making and many other different tasks that are performed among the members of a project team composed of many specialists and experts. Collaborative teams are increasingly used in organisations in order to create value for stakeholders. These teams might be located in different geographical areas. The spread of enterprise managers all over the world and the globalisation process has led to new organisation structures and virtual project management and associated knowledge management problems. Virtual teams enable organisations to take advantage of the certain kind of skills and expertise of different workers without incurring substantial travel or relocation expense and time consumption. Therefore, the emerging need for distributed collaboration and decision making support systems is driving a move towards distributed business. Virtual organisation collaboration is a considerable issue in the area of management and team leadership. Team collaboration solutions should remove the barriers between business processes and related enterprise content. A certain sort of leadership structure as well as tools should be provided to maximize the productivity to support the team participants in achieving their shared goal.

Exploring the role of leadership in a collaborative context is a considerable issue. A leader has the role to provide an organisation with many important elements, including vision, insight, expertise, focus, and resources.

Team leaders are those who are referred to as facilitators. Facilitation is the complex skill of enabling a group of people to complete a task. Facilitation might be a formal role within a group or a complex task which is contributed by leaders to the group. The purpose of facilitation is to increase group effectiveness. By helping a group improve its processes, it can increase the quality of its decision making processes, increase group member commitment to the decisions which are being made, and decrease time for effective implementation. Facilitation in organisations is a complicated task and often difficult to sustain in groups (Adkins et al., 2004).

Collaboration Engineering Elements

The emerging field of collaboration engineering formulates a method for designing high-value recurring collaboration processes which capture the master facilitators, packaging the processes in such a way that can be transferred to practitioners without the intervention of the professional facilitators. The collaboration engineering design must mitigate the lack of collaboration facilitation expertise of the people who execute it. Practitioners of recurring processes can learn to conduct different tasks and even pass the skill to others without learning to become a general facilitator (de Vreede and Briggs, 2005).

All kinds of team building tasks reveal a certain kind of pattern which can be reused. A pattern is a reusable concept or design that can be applied to problems and linked to goals. Collaboration Business Patterns, which is also referred to as user to user or U2U pattern, enables interaction and collaboration between users. This pattern is found in different situations in which small or extended teams work together in order to achieve a goal. Team rooms, bulletin boards and online meetings are examples of collaboration (Adams et al., 2007). The collaboration patterns areas are:

> GENERATE: {gather, create, and elaborate {decompose, expand}}: Move from having fewer to having more concepts in the pool of concepts shared by the group.
> REDUCE: {detect, abstract, summarize}: Move from having many concepts to a focus on fewer concepts that the group deems worthy of further attention.
> CLARIFY: {describe}: Move from having less to having more shared understanding of the concepts and of the words and phrases used to express them.
> ORGANISE: {classify, structure}: Move from less to more understanding of the relationships among concepts the group is considering.
> EVALUATE: {poll, rack, assess}: Move from less to more understanding of the relative value of the concepts under consideration.
> BUILD CONSENSUS: {measure, diagnose, advocate, resolve} Move from less to more agreement among stakeholders so that they can arrive at mutually acceptable commitments (Noor et al., 2007).

Collaboration Engineering and Business Intelligence

Collaboration engineering is a novice area in the field of business and management. Different kinds of collaborative approaches and modelling methods as well as a set of collaborative tools and techniques have been used in the area of collaboration engineering to support further research studies. Business Intelligence (BI) is a business management term that refers to applications and related technologies which are being used to collect, analyse, and provide access to data and information about an organisation's behaviour. Business Intelligence applications and technologies help companies develop data-based decision making processes for business decisions. Some of the BI applications are used to store and analyse the data, for example data mining, data warehouses, and decision support systems.

Data Mining

Data mining is the process of automatically searching large volumes of data for specific patterns using tools such as classification, association rule mining, clustering, etc. Data mining describes the science of extracting useful information from large datasets or databases. Data mining and Artificial Intelligence are being used to develop Decision support systems. A decision support system or tool is one specifically designed to allow business end users to perform computer generated analyses of data on their own. Social data mining gathers data implicitly by mining and redistributing information from computational records of social activities. It is proposed to use this technique to collect data from the facilitated collaborations and the social communications people have during the sessions within this study.

Project Implications

Collaboration engineering is based on identifying patterns within the collaboration processes. Collaboration processes need to be supported by facilitators that require certain kind of skills and competences which are developed and transferred to practitioners. In dispersed meetings the facilitators are faced with a larger number of users or even simultaneous meetings. A certain kind of technology is required to help the facilitator to analyse the situation in meetings and also predict the on-going collaboration status. The analysis should be carried out according to the diagnosis rules described by the adopted pattern language (Macaulay and Alabdulkarim, 2007). Facilitators might encounter a range of different alternatives and they need to choose the best possible option among all available ones. Facilitators play a critical role in electronically supported decision making groups. Facilitators need to perform planning for collaboration processes based on problem solving and decision-making analysis. Ho and Antunes (1999) suggest that limited support to planning group activities is one of the issues that facilitators need to deal with. There should be a facilitation tool to support remote meetings, analyse and understand issues which are of concern in a group, and lead the group towards a shared goal.

Implication in Terms of ThinkLet Design

For an organisational team to achieve a particular goal, several steps may be required, and consequently a collaboration engineer design is typically composed of several ThinkLets. The term, ThinkLet sequence refers to recurring combinations of a different number of ThinkLets that may be reused as a single unit in work practice designs (see example in Figure 1). The important point is that when recording a design of a collaboration process that invokes a sequence of these patterns of collaboration, the specific facilitation interventions to create these patterns should be packaged such that they can be successfully re-created. This can be achieved through recording and documentation of ThinkLet sequences that have been used and an efficient retrieval system should be engaged in order to access the desired data when required.

Although ThinkLets create predictable thinking patterns, the facilitator should detect that they are suitable for the task in hand. It should also be noted that the position of the chosen ThinkLet in the module needs to be chosen by team facilitators. Another important issue is the fact that the exact components of ThinkLet transition and the potential to perform the transition have to be analysed by the facilitator in the group.

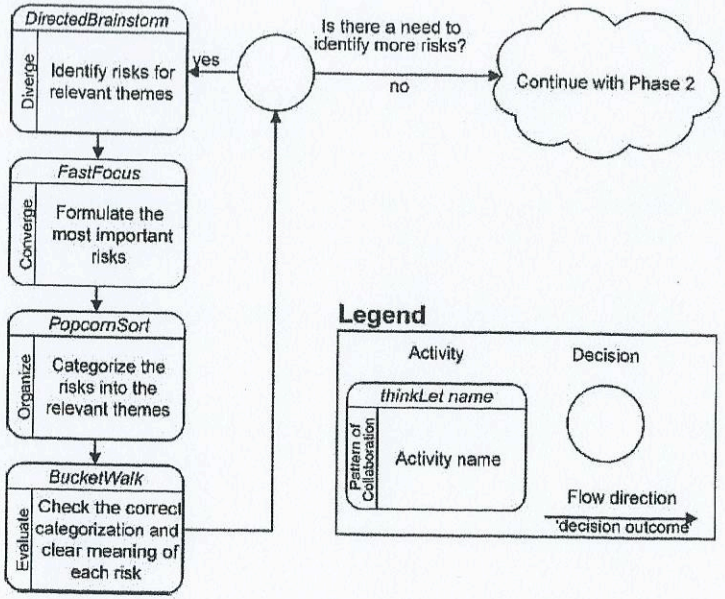

Figure 1: Risk-Management ThinkLet Design Template (from De Vreede and Briggs, 2005)

Implication in Terms of Facilitation and Leadership Promotion

Collaboration engineering needs to address two key challenges:

1. Developing a more complete and accurate perception of how teams accomplish their tasks by analysing various collaboration patterns and these patterns are possible to be invoked by participants predictably,
2. Developing better understanding of how collaboration designs can be transferred to collaboration practitioners in a way that results in self-sustaining and growing practice communities (Briggs et al., 2006).

Managing knowledge is an important element of collaborative group processes which is done by the group leader. Groups cannot fully benefit from their efforts unless they are provided by a leader to keep track of their ideas, decisions and agreements. Researchers have been suggesting that virtual teams are suffering from the lack of a formal leader. Leadership is necessary to move the team forward. Recent work on virtual teams suggests that leadership, in this electronic context, might be better viewed as a developmental process to which all members of the team may contribute by sharing and rotating leadership roles and leadership becomes a collective effort distributed among team members.

Quinn's leaderplex framework suggests eight different roles for a leader in a group (see Figure 2). As we can see in quadrant IV, facilitation is described as one the roles of a leader in a group. This focus is similar to the objectives of a participative leader, who is primarily concerned with actively engaging each member of the team in the task at hand through methods such as shared problem-solving and the equalisation of power within the team.

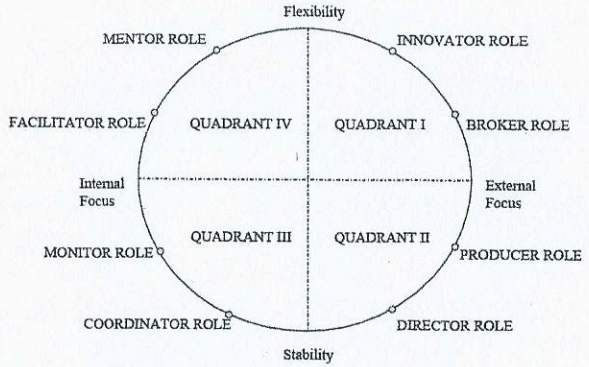

Figure 2: Leaderplex Model (from Carte et al., 2001)

This type of leader behaviour can enhance team performance through increased participation. Further, participative leadership can be especially effective in combination with the collaborative technologies used by virtual teams because it is consistent with the spirit of promoting participation that is common among these tools (Carte et al., 2001). Facilitation might be considered as an important strength of leaders. An effective facilitator is a leader, a follower, a collaborator, and a servant to the group. Like collaboration, facilitation can be learnt only through experience. It is both a behaviour and a mental process, demanding parallel monitoring of several different processes occurring simultaneously during teamwork sessions. During the project experiments we will run many facilitated collaborations so that many aspects of leadership can be learnt and promoted.

Research Methodology and Design

The research methodology we have chosen is the Information Systems Design Research Methodology. Design research includes the analysis of the use and performance of designed artefacts to understand, explain and very frequently to improve on the behaviour of aspects of Information Systems (see Figure 3).

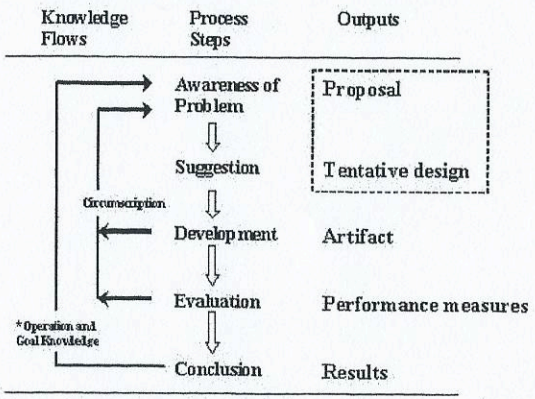

Figure 3: Design Research Methodology
(from http://www.isworld.org/Researchdesign/drisISworld.htm)

The awareness of the research problem comes from reading papers, journals and books related to IS, leadership, facilitation, AI and data mining which revealed the requirement for an intelligent tool in the area of team leadership and facilitation.

Suggestions are made when the problem is recognized. The suggestion to our problem statement is designing an intelligent tool which helps the facilitators in decision-making processes.

In the Development phase the techniques for implementation is described which of course vary depending on the artefact to be constructed. A formal proof is required in this phase which is normally described in a form of an algorithm. In our case, this step describes the techniques required to formalize, name and document ThinkLets according to accurate combinations which may occur in collaboration sessions in a dataset. In order to achieve this stage, we will run different facilitated collaboration sessions in the form of the groups of participants and facilitators using the ThinkTank software. ThinkTank is used for a structured process which leaders use for collaboration that can support the continuous growth inside a group or in a wider range as an organisation.

The WEKA Machine

Once we had managed to complete the dataset, we will feed the result into a data analysis system and choose the proper machine learning method. This job is performed using the WEKA machine (Hollmes et al., 1994). The WEKA toolkit applies standard machine learning techniques to real world data. A sample of the dataset is shown in Table 1. This dataset needs to be saved in CSV or ARFF format and then should be fed into the WEKA machine.

Team Task Type	ThinkLet(1)	ThinkLet(2)	...	ThinkLet(n)
Generating ideas Plans, data collection	One minute madness	Gold miner	...	Crow Bar
Problem without answer	Top five	Concentration	...	Straw poll

Table 1: WEKA Machine Input Sample

Once we had managed to complete the dataset, we then need to choose a learning method which WEKA supports.

In the evaluation phase the intelligent tool is constructed and is going to be evaluated according to the criteria described in the awareness phase. The behaviour of the tool in terms of quantitative and qualitative expectations is going to be studied. The result of this study might either confirm or contradict the usability of the tool in terms of its supportive characteristics in the area of distributed team leadership. In some cases feedback from different loops between the evaluation and the problem awareness might be useful to gain more information and data which can suggest a re-design or a new design.

Conclusion

The results of this study should provide a ThinkLet module set which is classified with respect to its application in different collaboration sessions that guides facilitators in decision-making analysis. Although there might be deviations from expected tool behaviour, they can be considered as future work and further research. Furthermore, a variety of different leadership education approaches will be assessed and experimented with the potential to the evolution and promotion of this knowledge area. The experiments may reveal certain kinds of collaboration designs in the area of Requirements Engineering which could then be used, in the form of a template, as part of a company's intellectual property.

References

Adams, J., Koushik, S., Vasudeva, G. and Galambos, G. (2007). Patterns for e-Business: A strategy for reuse. *http://www-128.ibm.com/developerworks/patterns/collaboration/index.html*, [Accessed 5th September 2007].

Adkins, M., Kruse, J. and Younger, R. (2004). A language technology toolset for development of a large group augmented facilitation system. *Proceedings of the 37th Hawaii International Conference on System Sciences*.

Briggs, R.O., Kolfschoten, G.L., de Vreede, G. and Dean, D.L. (2006). Defining key concepts for collaboration engineering. *Proceedings of the Twelfth Americas Conference on Information Systems*, Acapulco, Mexico.

Carte, T.A., Chidambaram, L., Becker, A. and Clay, S. (2001). Leadership in virtual teams: A longitudinal study of concentrated and distributed leadership behaviors. *System Sciences 2001 Proceedings of the 34th Annual Hawaii International Conference*.

De Vreede, G. and Briggs, R.O. (2005). Collaboration engineering: Designing repeatable processes for high-value collaborative tasks. *Proceedings of the 38th Hawaii International Conference on System Science*.

Ho, T. and Antunes, P. (1999). Developing a tool to assist electronic facilitation of decision-making groups. *String Processing and Information Retrieval Symposium 1999 and International Workshop on Groupware*, 243-252.

Hollmes, G., Donkin, A. and Witten, I.H. (1994). WEKA: A machine learning workbench. *Intelligent Information Systems, 1994. Proceedings of the 1994 Second Australian and New Zealand Conference*, 357-361.

Macaulay, L. and Alabdulkarim, A.A. (2007). Facilitation patterns and citizen engagement. *International Journal of Technology, Policy and Management*, 7: 122-133.

Noor, M.A., Grünbacher, P. and Briggs, R.O. (2007). A collaborative approach for product line scoping: A case study in collaboration engineering. *Proceedings of the 25th IASTED International Multi-Conference Software Engineering*, Innsbruck, Austria.

The Northern Leadership Academy Fellows 2007 Conference was organised on behalf of the Northern Leadership Academy by the University of Leeds

Published by Leeds University Press
Financial Services, 11-84 EC Stoner Building
University of Leeds, Leeds
West Yorkshire, LS2 9JT
ISBN: 978-0-85316-266-7

Northern LEADERSHIP Academy
www.northernleadershipacademy.co.uk

Moving Forward:
The Northern Way

one North East
Yorkshire Forward
Northwest Regional Development Agency