Interaction Rules and their Role in Collaboration Software.

by

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Collaboration Environment ................................................................. 153

Appendix II .............................................................. 160
Quick Tutorial - AvLogin Time ............................................................. 160
  Step 1  160
  Step 2  160
  Step 3  164
  Step 4  169

Appendix III ............................................................. 175
Real-Life Venues .................................................................................. 175
The Five Venues ................................................................................... 175
Expressions of interest – context of teams .............................................. 182

Appendix IV ............................................................. 184
Draft Survey Questions .......................................................................... 184
  Part 1 Context: ..................................................................................... 184
  Part 2 Rules .......................................................................................... 187
  Part 3 The team environment: ............................................................... 189
  Part 4 Meaningfulness: ......................................................................... 192
  Part 5 Usability: ...................................................................................... 194

Appendix V ............................................................. 197
Venue 5 Training Session ........................................................................ 197
  Learn about Interaction and Interaction rules ....................................... 197
  Learn about Software ............................................................................. 199
  Interaction Rules and Software ............................................................ 200

Appendix VI ............................................................. 202
Focus Group Instructions ........................................................................ 202
  Asynchronous Instructions ..................................................................... 202
  Scenario 204

Appendix VII ............................................................. 207
Usability Study ...................................................................................... 207

Appendix VIII ............................................................. 210
CD Contents ......................................................................................... 210
Software .............................................................................................. 210
Research Data ....................................................................................... 210
Focus Groups ........................................................................................ 210
Live Venues .......................................................................................... 211

Appendix IX ............................................................. 213
Recommendation Engine Design ........................................................... 213
  Recommendation Engine ...................................................................... 214
  Agents 216
Table of Figures

Figure 1. Interactions are mentioned in the studies of many disciplines. In the area of computer-enabled collaboration, the above diagram locates the areas of Computer Supported Collaborative Learning (CSCL) and Work (CSCW) as the disciplines dealing directly with interaction. The two layers of disciplines that inform the immediate areas are also included. 19

Figure 2. McGrath’s analytical framework for team performance. (McGrath, 1991) 24

Figure 3. The fundamental components of a user adaptive system. (de Vrieze, 2006) 53

Figure 4. The User Modelling Loop (de Vrieze, 2006) 58

Figure 5. The Basic Architecture of the Interaction Rule Support System. Phreda includes the Moderator, the rule creation interface on the web site and support tables on the database. There is also space on the web site for personalised messages. The Expert would be in contact with several Moderators. 59

Figure 6. The collaboration site’s home page. 63

Figure 7. The Rule Details page. 64

Figure 8. Completing rule creation by adding the consequent. The user has written a message for the rule to send and is selecting the “Notify member” action. When the conditions shown are met, the message is sent. 65

Figure 9. Profiles of the five live venues participating in this research. 84

Figure 10. The “Elluminate Live” interface, showing the whiteboard welcome slide, the participants window (top left) the chat window below it and audio controls (bottom left). 92

Figure 11. A completed answer from Quiz tool in “Elluminate Live”. The answer shows the question, the participant’s perception of the group discussion and the participant’s own qualification of that view. 93

Figure 12. The interactive whiteboard showing checkboxes from the first web conference. Participants were anonymous and presented their reasoning via the conference software’s quiz facility shown in Figure 11. 95

Figure 13. A tagged TAMS Analyser transcript. Structural tags appear red while content tags are blue. 101

Figure 14. The TAMS Analyser search facility results for a single code associates it with all other structural tags (here “Commitment_comment”). Results are sorted here by Participant. 102

Figure 15. An extract of the usability test instructions. Participants were shown what symbols to use to classify their comments and were given examples to illustrate the use of the symbols. 103

Figure 16. The raw frequency of tagged comments appearing in textual data from each focus group. Group 3 comprised quiet, thoughtful members. 106

Figure 17. The proportion of debate statements that expressed either agreement, disagreement or compromise with regard to either structured questions or internal discussions. 108

Figure 18. The proportion of discussion posts that were labelled “feedback” from each venue. Venue 5 comprised five separate teams. None of the venue
5 teams had the **Give_Feedback** rule, while the other 4 venues did have this rule. “Feedback” was one of 8 categories available for each discussion post.

Figure 19. The association between rule firing behaviour, log in and posting of discussion posts classified as “feedback” for member V1_M5

Figure 20. The association between rule firing behaviour, log in and posting of discussion posts classified as “feedback” for member V1_M4

Figure 21. The association between rule firing behaviour, log in and posting of discussion posts classified as “feedback” for member V1_M3

Figure 22. Venue 1: the sequence of response types for two threads of discussion featuring the use of the “feedback” classification by the team. The teacher intervenes in thread 34 due to teasing.

Figure 23. Focus group evaluation of the usefulness of a rule artefact for key types of behaviour. Categories and contributing specific behaviours were all validated by the participants. The interpretation of results was also accepted by participants.

Figure 24. Home Page: Messages from Phreda

Figure 25. Home Page: Messages from the team, events, tasks

Figure 26. File Manager: Personal and team files

Figure 27. File Manager: Contents of the team/ResearchDetails subfolder

Figure 28. Event Manager: The “edit” function

Figure 29. Task manager: the “edit” function

Figure 30. The Discussion Manager: A discussion thread

Figure 31. Discussion Manager: classifying a response

Figure 32. Team Manager: Members may see each others’ details and edit their own

Figure 33. Team Manager: Members can edit their details at will

Figure 34. Well-Being Polls: Members can offer their current feelings

Figure 35. Well-Being Polls: Members can check on how everyone is feeling

Figure 36. A list of the contacts made in search of venues. * Indicates a venue that participated in the study

Figure 37. An excerpt from the usability comments of team member V4_M5

Figure 38. An excerpt from the usability comments of member V4_M4

Figure 39. An excerpt from the usability comments of member V4_M2

Figure 40. Knowledge inputs for adaptive systems integrated in a complex system of complex systems. The fine arrows indicate knowledge inputs. The adaptive systems act as interfaces between complex systems.
Statement Of Originality

This thesis contains no material which has been accepted for a degree or diploma by the University or any other institution, except by way of background information and duly acknowledged in the thesis, and to the best of my knowledge and belief no material previously published or written by another person except where due acknowledgement is made in the text of the thesis, nor does the thesis contain any material that infringes copyright.

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Statement Of Co-Authorship

The publications of the work undertaken in the course of this research are the following:


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- Mr. Robert Kildare (80%) is the primary author. He proposed the initial research question, conducted the research and prepared the material for publication.
- Jacky Hartnett (10%) and Dr Raymond Williams (10%) of the School of Computing and Information Systems, University of Tasmania, both provided general guidance and editing advice as supervisors.


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Statement of Ethical Conduct

The research associated with this thesis abides by the International and Australian codes of human and animal experimentation, the guidelines of the Australian Government’s Office of the Gene Technology Regulator and the rulings of the Safety, Ethics and Institutional Biosafety Committees of the University.
Abstract

The need for on-line teamwork has increased - particularly in transnational collaborations and in regional and rural areas, where distance and time prohibit easy face-to-face communication. On-line collaboration, however, exacerbates the forces that cause difficulties in face-to-face teams. This research identified a facility for creating and monitoring rules of interaction as a useful component for supporting virtual collaboration. Investigations in the disciplines of team psychology, sociology, education, computer supported collaborative work and computer supported collaborative learning, contributed to the design of the facility. Its value was examined in real-life venues and by teamwork experts.

Communities build structures devoted to norms of interaction, making these norms overt and regulating interaction. The creation of this social capital is deeply linked to notions of trust, which has been identified as a major contributor to successful virtual teams.

There has been little attention paid to providing software support for the sociological aspects of collaboration. Because (virtual) teams are complex, the patterns of interaction that suit a particular team may or may not be predictable, making the creation of software difficult. The sociology underlying community development and the social psychology of team interaction suggest the need for an interaction rule facility and the principles upon which the design should be based. Interaction rule software would further optimise the performance of virtual teams by nurturing trust and may be of assistance in training potential virtual team members in the behavioural issues of on-line collaboration.

Can we design software to further develop levels of trust in on-line teams by emulating societal structures of behaviour regulation? A prototype was developed and deployed in educational scenarios to explore this question. The implementation of Phreda, an editable interaction rule facility, addressed a major difficulty in current research; the inability to determine which team member behaviours are important and what they signify.
The rule module positively influenced behaviour. Although team members could construct and manipulate rules, they did not do so voluntarily. Indications were that the participating teams were not sufficiently remote, independent and virtual to make full use of the module.

Experts concluded that being involved in Phreda processes would increase member commitment and hence trust. Its effective use should be early in a team’s life for team-critical behaviours and involve all members. Recommended rules can be helpful. Team knowledge gained during the process of rule construction, was seen to be more important than the corresponding artefacts. By using the rule module, members would learn what was behaviour was important, (and hence the meanings of the rule artefacts) and gain skills in the process of establishing team norms.

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# Table of Contents

## Table of Figures

| Chapter 1 | Introduction | 13 |
| Chapter 2 | Theoretical Background | 19 |

2.1 Teams and Team Performance ................................................. 21
2.1.1 Definition ........................................................................... 22
2.1.2 Operational functions and modes ........................................ 23
2.1.3 Team Context ................................................................. 25
  2.1.3.1 Structuration ............................................................... 26
  2.1.3.2 Communities of Practice and Interest ............................. 28
2.2 Complexity ............................................................................ 30
  2.2.1 Non-linearity ................................................................. 30
  2.2.2 Feedback ......................................................................... 31
2.3 Interaction ............................................................................ 33
  2.3.1 Norms .............................................................................. 34
  2.3.2 Rules ............................................................................... 35
2.4 Trust ..................................................................................... 36
  2.4.1 Conflict ............................................................................ 39
2.5 Collaborative Learning .......................................................... 40
  2.5.1 Learning as Participation .................................................. 42
  2.5.2 Learning related to Task .................................................... 44
  2.5.3 Learning related to Collaboration ...................................... 45
  2.5.4 Learning related to the Technology .................................... 46
2.6 Current Collaboration Software ............................................... 48
2.7 Design Implications .............................................................. 50
2.8 Conclusion ............................................................................ 54

## Chapter 3 Software Design

3.1 Design ................................................................................. 55
  3.1.1 Captured Meaning .......................................................... 56
  3.1.2 Software Expert ............................................................... 57
  3.1.3 Adaptive Personalisation .................................................. 58
3.2 Implementation Environment .................................................. 59
  3.2.1 Web Platform .................................................................. 60
  3.2.2 Cut-down Groupware ....................................................... 60
3.3 Phreda Modules .................................................................... 61
  3.3.1 Moderator ........................................................................ 61
  3.3.2 User Interface ................................................................... 62
  3.3.3 Database .......................................................................... 66
  3.3.4 Dependences .................................................................... 68
  3.3.5 Training materials ............................................................ 69
3.4 Seed rules ............................................................................. 69
  3.4.1 Poor_Attendance_Tell_Me / Poor_Attendance ...................... 70
  3.4.2 Being_Sociable ................................................................. 70
  3.4.3 Not_Following_Discussions .............................................. 71
  3.4.4 Dominating_Proceedings ................................................ 71
  3.4.5 Morale_Slipping ............................................................... 71
  3.4.6 Give_Feedback ................................................................. 72
  3.4.7 Low_Content .................................................................. 72
Interaction Rules and their Role in Collaboration Software.

3.4.8 Hesitates To Offer Ideas ................................................................. 72
3.5 Conclusion ....................................................................................... 73

Chapter 4 Methodology ................................................................. 74
4.1 Research Goals ............................................................................... 74
4.2 Methods (in general) ................................................................. 76
4.2.1 Real life teams ........................................................................... 79
4.2.1.1 Purpose ...................................................................................... 79
4.2.1.2 Data .......................................................................................... 80
4.2.1.3 Challenges ............................................................................... 80
4.2.1.4 Process ....................................................................................... 83
4.2.2 Focus groups .............................................................................. 85
4.2.2.1 Purpose ...................................................................................... 85
4.2.2.2 Data .......................................................................................... 86
4.2.2.3 Challenges ............................................................................... 86
4.2.2.4 Process ....................................................................................... 88
4.3 Evaluation techniques .................................................................... 96
4.3.1 Real-life Teams .......................................................................... 96
4.3.2 Focus Groups (specific) .............................................................. 99
4.3.3 Usability study .......................................................................... 102

Chapter 5 Results ............................................................................. 104
5.1 Focus group health ....................................................................... 106
5.2 Findings ......................................................................................... 110
5.2.1 Do rules affect behaviour? If so, are the changes in behaviour constructive? ................................................................. 110
5.2.1.1 Focus Group - attendance rule artefact .................................. 111
5.2.1.2 Live Venue Overview ............................................................... 113
5.2.1.3 Venue V1 .................................................................................. 116
5.2.1.4 Venue V2 .................................................................................. 121
5.2.1.5 Focus Group – attendance rule process ......................... 122
5.2.2 The behavioural norms for which rules might or might not be useful .............................................................................. 125
5.2.3 The behavioural norms for which the process of constructing rules might or might not be useful ........................................................ 129
5.2.4 Can we design software to further develop levels of trust in on-line teams by emulating societal structures of behaviour regulation? ......................................................................... 130
5.2.5 Why did the real-life studies produce such limited results? .... 134
5.2.5.1 Do you think that the scenario was realistic? ..................... 135
5.2.5.2 Would scenario members use the rule module? ............. 136
5.2.5.3 Would a scenario team leader use the module? ............. 137
5.2.5.4 Would a set of recommended rules encourage the scenario team to use the module? ................................................................. 138

Chapter 6 Conclusion ..................................................................... 140
6.1 Problem Space .............................................................................. 140
6.2 Software development ................................................................ 140
6.3 Research Goals ............................................................................ 142
6.4 Contribution ................................................................................ 142
6.5 Further work ................................................................................. 145

References ....................................................................................... 147
Appendix I ....................................................................................... 153