TITLE OF PAPER: Investigation into the roles of agents in supporting students working on group projects online

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PROPOSAL:

Group projects give students an opportunity to discuss their understanding of the subject with their peers, as they apply the theory to practice. Successful group working requires that the maintenance roles as well as the task roles of the group are given attention (Hartley 1997). Group dynamics play an important role in determining how successful the outcome of the project is, i.e. the ways in which the members interact with each other and how this changes with time as the group develops (Bion 1961, Gibbs 1995, Jaques 1984). Traditional undergraduate campus-based courses incorporate a group project element, as the essential means of "learning by doing", but to accomplish a group project online requires different skills and ways of working. In this work we are looking at the potential for intelligent agent technology to help students working online to acquire the skills and ability to collaborate successfully on group projects.

Our work has included research into typical problems students encounter when doing group projects in the face to face context, together with a pilot implementation of a Managed Learning Environment for learning occupational therapy (Armitt et al., 2001). Work was undertaken as part of this study to identify the most effective ways that students learnt within the group environment (Armitt et al, 2002). These studies were used to identify limitations in the operation of current tools for learning environments and resulted in an analysis of the stages of a group project where students could be guided to make most effective use of the learning opportunity offered. We then constucted a prototype system of intelligent agent support for one of the major areas identified.

It is proposed that a guardian agent can offer some support to students, working quietly in the background on each group member's workstation. The agent will autonomously monitor the progress of the group project, suggest ways in which the students can act to improve the progress of the project and enhance the communication between members of the group. Each student working on the project will have an individual agent, and agents belonging to each member of the group are able to communicate with each other to exchange information and negotiate on behalf of the students. This agent does not replace the tutor's input, but performs some of the administrative tasks, which are usually performed by the group members during face-to-face meetings automatically. This allows the tutor to concentrate on problem-solving and academic issues, rather than the simply organising the group, as is often the case in web based tutorials (Armitt et al., 2002).

Our demonstration will be a basic prototype guardian agent that is currently being evaluated to prove that it can significantly enhance the effectiveness of web-based group project work in the ways intended, and to evaluate its acceptability to both staff and students. The second is most important as if the agent is not fully accepted and trusted by all parties it will not ultimately succeed in its goals.

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