Want to know how to play the game? Ask the ORACLE!

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1 The ORACLE agent

This paper describes the ORACLE, an embodied intelligent virtual agent designed and built for helping players of a serious game named ORIENT [1]. The game challenges players at the socio-cultural level, because it requires them to learn how to interact smoothly with alien characters in order to save their planet. The ORACLE is a virtual agent on a mobile phone, whose goal is to enhance the users' learning in the game. The agent can both react to the players' questions, and proactively intervene for suggesting things to users or for commenting on their performance.

The players can interact with the ORACLE by pressing at any time the "Help!" button on the user interface: the ORACLE analyzes the game situation and displays on the phone a set of disambiguation questions; when the user selects one of them, the ORACLE plays a predefined answer corresponding to that question. The ORACLE can also proactively intervene in specific situations: in such cases, the phone rings for attracting the user's attention, and then the ORACLE talks (see demo video[1]).

The ORACLE mind mainly consists of a production system containing "reactive" rules, that fire when the user presses the "Help!" button, and "proactive" rules, that fire according to the occurrence of specific events in ORIENT. The ORACLE body consists in a 2D Adobe Flash™ character animated in real time by a patent-pending software developed by Interagens. The ORACLE architecture is made up of a Java socket server that connects ORIENT, Drools[2], a forward-chaining production system, and the Flash client, installed on a phone that supports socket connections.

A preliminary evaluation of a Wizard-of-Oz version of the ORACLE has been carried out in Germany, based on 10 subjects filling 14 Likert-scale questions and

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[1] http://www.macs.hw.ac.uk/EcircusWeb/Videos/oracle.avi
[2] http://www.jboss.org/drools/

providing a written comment. The results were quite promising: users liked the ORACLE design, voice and clarity, although they found it a bit distracting; 7 out of 9 comments showed that the subjects found the ORACLE quite helpful. We now aim at evaluating the autonomous version of the ORACLE with users.

Fig. 1. The ORACLE software architecture.

2   Related work

An "intercultural game" similar to ORIENT is [2], but here the virtual assistant's role is confined to help trainees practice a foreign language. Conati (e.g. [3]) applies a probabilistic learner model to control a pedagogical agent in a computer game that teaches number factorization: here the agent only relies on the probabilistic learner model for guessing what the student needs, while in our work disambiguation questions are deemed useful in providing more relevant interventions.

3 Acknowledgments

References

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