

# ORIENT: An Inter-Cultural Role-Play Game

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## Abstract

This paper provides a high level overview of a game called ORIENT which aims at cultural and emotional learning by engaging adolescents in a role-play with virtual characters in a virtual world. The paper focuses on defining and explaining the learning objectives, and gives an overview of how we intend to achieve these objectives using narrative concepts, affective characters, and innovative technologies for interaction.

## 1. Introduction

ORIENT (*Overcoming Refugee Integration with Empathic Novel Technology*) is being developed as part of the EU-FP6 project *eCircus (Education through Characters with emotional Intelligence and Role-playing Capabilities that Understand Social interaction)*. The objectives of this project concern developing models within which narrative engagement and empathy can be used to understand social, cognitive and emotional learning processes through role-play. The users play the role of outsiders in an alien world and interact with a virtual environment inhabited by autonomous affective characters, which are able to express emotions on their own. In this paper we talk about ORIENT by explaining the learning objectives, intended outcomes and major technical and conceptual components.

## 2. Learning in ORIENT

### 2.1 Social and Emotional Learning

Interacting with ORIENT should lead the learners to change their attitudes towards (cognition), their negative feelings about (emotion), and indifferent or pejorative behaviour towards members of other cultures. It is aimed at the adolescent group aged 14 in order to enhance their intercultural sensitivity. Hence, it can be seen as fostering social and emotional learning as described by Elias et al. (1997), with a special focus on the responsibility and caring for people with different cultural background.

As a group based approach, it uses the didactic tool of virtual role-play, building on role-play's successes as a means to change cognition, emotion, and behaviour in school as well as in therapeutic contexts (Hungerige & Borg-Laufs, 2001) while transferring it to a safe, "as-if" virtual world. Role-play helps to develop the ability to detect and interpret the experiences of others in complex social situations and offers immediate and tailored reinforcement for appropriate behavioural strategies. It can thus directly influence the subjective evaluation of learners regarding their own social skills and self-efficacy, facilitating not only the acquisition, but also the performance of "adequate" social behaviour, for which it provides a secure setting for exploration and experiment. To be able to take over a role, the learner needs to empathise with the "role"; they need to imagine how another person (defined by the role) would think, feel and act in a given situation. Role-play can therefore be seen as a training method for empathy in social interactions, providing learners with a secure – because fictional - framework for experimenting with different reactions to a given situation and for exploring experiences of self and other. Ultimately it helps users to alter their own behaviour and attitudes in order to better match the challenges of complex (multicultural) social encounters.

Theories of social learning (e.g. Bandura et al., 1977) and experiential learning (e.g. Kolb, 1984) suggest that a number of different aspects must be addressed in an application of this nature and help to establish generic requirements. Firstly, it is important that users can identify and acquire knowledge about "adequate" behaviour options, and for this reason a cooperative task has been selected in which success depends on overcoming cultural differences. Secondly, scenarios should feature characters that are similar

to and stories that are attractive to the target group. Thirdly, the system should not only provide the learner with scenarios, but also allow them to act and interact with the characters, so that behaviour options are not only witnessed but also carried out, producing role commitment. Next, offering multimodal channels of information transfer between the learner and the model fosters learning by immersing the learner into the scenario, enhancing their engagement. It is important to offer reinforcement for interculturally sensitive behaviour choices, motivating the user to choose “adequate” behaviour options. Finally, a session in which reflection takes place is needed to ensure transfer to real world intercultural settings.

## 2.2 Learning Outcomes

In looking for ways to help the process of acculturation of adolescents from immigrating backgrounds, there were a number of reasons for not focusing on them directly. Firstly, they form a heterogeneous group with a multitude of cultures and languages. It would be infeasible to try to capture all these in a computer-based system. More than this, acculturation is a two-way process in which both the incoming group and the host group have to negotiate a common understanding. It was therefore decided to focus on the host group, and to foster intercultural sensitivity through the development of intercultural empathy. A dynamic bicultural identity as a result of an ongoing acculturation process should be interpreted as a resource rather than an obstacle or problem. However, to be able to really understand and value their bi- (or multi-) cultural identity as a resource in their culture of settlement, adolescents with migration background rely on the intercultural sensitivity within their culture of settlement, especially among their peers.

Based on empathy models (Davis, 1996) and Bennett’s (1993) model of intercultural sensitivity, we suggest that intercultural empathy is the ability to understand and share the thoughts and feelings of members of other cultures. Bringing these two models together, intercultural empathy builds on the general ability to empathise as far as the processes are concerned that constitute empathy in the mind of an empathic observer, but it poses more challenges in that it focuses on targets that are less similar than members of the home culture. Firstly, interculturally empathic reactions build on self-reflection and mental flexibility: being aware of one’s own cultural identity as well as being able to temporarily suppress it in order to understand the impact of culture on others (cognitive aspect). Secondly, they involve stress and ambiguity tolerance: not being afraid of others that seem to be different (affective aspect). Finally, they involve communicative skills: being able to feed the shared experiences back to others.

The ORIENT scenarios show how imaginary people - the *Sprytes* - struggle to reconcile their own interests, attitudes and feelings with another culture. The learner can monitor and support this process of intercultural empathy: while the *Sprytes* act as coping models, showing continuous efforts and gradual success in mastering their intercultural approaches, the learner can take over their attitudes and strategies more easily and effectively than if they would demonstrate well-executed behaviour, or verbalize strong feelings of self-efficacy (mastery models). While the learner takes in the strategies and attitudes of the *Sprytes* during the scenario, they can also act out their own attitudes and feelings towards the intercultural conflict situation through various interaction devices, providing them with occasions for passive as well as active learning (Kolb, 1984).

## 3. ORIENT – An RPG (role-playing game)

Subsequently, we will describe the main components of ORIENT: its back-story, its narrative structure and its means of user interaction. Other important parts of the game are the cultures involved, the characters belonging to these cultures and an Oracle which provides learning help. All these components are inter-related and form a complex structure for a role-playing game.

### 3.1 Story – Saving the planet “ORIENT”

ORIENT is designed to be played by a group of 3 teenage users, each a member of a spaceship crew. Their mission takes them to a small planet called ORIENT, which is inhabited by an alien race, the nature loving *Sprytes*. The users task is to prevent a catastrophe in the form of a meteorite that is on destruction course with the planet. This general story framework allows the users to appreciate cultural differences by trying to integrate themselves into an alien culture in order to gain the aliens’ trust and eventually work together with them to save the planet. Our future work plans include a possible further elaboration on the story by adding more cultures, so that the users can apply their learned intercultural understanding to reconcile hostile social groups.

### 3.2 Narrative Structure

As with our previous educational software application FearNot! (Aylett et al., 2006) in ORIENT we want to explore the possibilities of emergent narrative (Aylett, 1999). Decisions that the users make should directly affect the behaviour of other characters and as a result the story. Thus, narrative is not pre-scripted as in most games but rather emerging from character interactions. Each character in the ORIENT story is an autonomously acting agent. The main authoring work goes into the configuration of character goals, actions, emotions and motivations rather than into creating a specific plot.

### 3.3 The Sprytes Culture

Hofstede (1991) defines culture in terms of dimensions such as Hierarchy, Identity, Uncertainty avoidance and Gender. The culture of the tribal Sprytes is hierarchical. Hierarchy usually depends on respect and age. This is reinforced by the fact that Sprytes are militarily active and believe in using force and power to influence others and to protect their habitat. They are a collectivistic culture, which makes them compassionate with each other, and live in a group where the majority holds power. The Sprytes are highly traditional in their ways and view uncertainty as a threat but exceptions do exist in younger Sprytes. Gender is absent from the portrayed culture, and the graphical representation of the Sprytes is intended to be ambiguous from a gender point of view as shown in Figure 1.

Each character has particular goals of its own, relations with the other characters, and an ability to influence others. These goals and relationships become the basis of the conflicts in the game and in turn present the user with conflicts which are to be resolved to achieve user goals. The cultural descriptions consist of the back-story for the character, its hierarchical status, interests and relationships with other characters and the user. The goal of the user is to find interactions and acceptable social conduct at different stages of the game that interest the Sprytes and avoid enraging them.



Figure 1: Sprytes

### 3.4 Agent Architecture in ORIENT

The software component that drives character behaviour is an extension of FAtiMA (Dias & Paiva 2005), an agent architecture based on the OCC appraisal theory (Ortony et al., 1988). The appraisal processes are influenced by the agent's former experiences stored in its autobiographic memory (Ho, 2006). The advantage of using the OCC-model for modelling empathy is that it is – as far as we know – the only model that provides a formal description of non-parallel affective empathic outcomes. On the other hand, only a very limited subset of empathic emotions can be modelled. As a refinement, in ORIENT, we added the PSI model (Dörner, 2003), a psychologically grounded research. It incorporates all basic components of human action regulation in one model of the human psyche, allowing the modelling of autonomous agents that adapt their internal representations to a dynamic environment while deriving their goals from a set of basic drives that guide the activity of the agent. It includes a variety of aspects that are crucial to modelling for ORIENT: the need for affiliation serves as a motivational basis for engaging in social contacts, and the emergence of emotions is rooted in a plausible model of action regulation, thus allowing for believable emotional dynamics. One of PSI's unique characteristics compared to other models of the human mind (e.g. Newell, 1990) is the explicit incorporation of an emotional model that specifies emotions as modulations of the information processing. Thus, emotions serve as quick adaptations of the agent to a specific situation and may lead to a change of belief about other agents as shown in (Lim, 2007). Since emotions drive the agent's behaviour, the PSI approach provides a feasible way of modelling empathy without a need to distinctly model empathic behaviour.

### 3.5 Oracle

The Oracle (Onboard Resource Agent for Cultural and Liaison Engagements) is an embodied computer character running on a mobile phone that aims at enhancing users' learning in the game. It stimulates users' reflection on the events and outcomes of ORIENT by asking suitable questions, by encouraging the recording of both personal and collective diaries, and by commenting on users' actions. It also helps the transfer of learning to real-world situations, by carrying out a "debriefing" session with users when they report back to the Oracle with material collected during the mission. The Oracle also fosters users' motivation and keeps them engaged by not disrupting the game flow, stimulating group collaboration, keeping players' focus on the task, and providing help during the mission.

### 3.6 User Interaction

In ORIENT, the users will interact using a WiiMote game controller, a dance mat and mobile phones, providing more natural input modes than the combination of keyboard/mouse and allowing physical movement within the real world. Furthermore having this 3-fold user interface facilitates role separation by providing each user with one of the devices. The users can learn aspects of a culture from mapping between WiiMote gestures and behaviour. Once they have knowledge of the gestures, they can use a specific gesture to signal a command. On the other hand, the Dance Mat has been adopted as a solution to the problem of navigation around the virtual world. Real world objects augmented with RFID tags can be touched via a mobile phone to perform selection of corresponding virtual objects.

## 4. Conclusion

We intend to evoke inter-cultural empathy, social and emotional learning by involving users in role-play and letting them interact with a virtual world populated by virtual characters from different cultures. By using novel emotional models for virtual characters, the concept of emergent narrative and physical interaction devices, we intend to provide the user with an engaging, challenging and emotional interaction. ORIENT focuses on the learning objectives by providing help and support to work in a group at different stages through the Oracle.

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