Object-focused collaboration in Second Life: the use of verbal and gestural modes for the establishment of common ground and in deictic referencing.

Key words: virtual worlds, multimodality, deixis, CLIL

This study focuses on a French-as-a-foreign-language course for architecture students. The course uses the virtual world *Second Life* for collaborative building tasks in the foreign language and adopts a Content and Language Integrated Learning (CLIL) approach. The study investigates participant exchanges and, more specifically, how verbal and gestural communication modes are used in establishing common ground. Given the inherently object-focused nature of building tasks, it appears crucial for learners to establish mutual understanding of objects they identify and refer to quickly and securely (Hindmarsh, 1997). Diectic referencing, thus, play an important role in the establishment of this common ground.

In virtual worlds, users are represented as avatars: semi-autonomous agents represented in the digital space which can perform actions when commanded by the user (Peachey et al, 2010). Second Life users can express themselves using text chat, voice and by commanding their avatar to use gestures. The range of gestures of an avatar includes kinaesthetic gestures (e.g. orientating the avatar in a particular direction), tactile gestures (e.g. touching an object to make the avatar appear to be pointing at it) and gestures of action (e.g. moving an object or changing the textural appearance / size of an object.)

One of the affordances of virtual worlds has been shown to be that they favour collaborative learning (Dalgarno and Lee, 2010, Henderson et al., 2009). Clark and Brennan (1991: 127) proffer that in collaborative tasks, "all collective actions are built on common ground and its accumulation" and that the purpose of spoken language in such collaboration is to establish this common ground. Kraut et al. (2003) and Clark and Krych (2004) add that in distance collaborative tasks participants must have shared visual access to the collaborative task space so as to help establish deictic references. In *Second Life* this shared access is not guaranteed for the virtual world includes a camera tool which users can manipulate independently of the position of their avatar and this is not visible to other participants. Furthermore, in virtual worlds, visual access to collaborative tasks is limited by a user's inability to transform the course of pointing gestures to take into account emerging orientations and movements of co-participants. Fraser (2000) argues that this impacts on designating referential actions for co-participants and, thus, that there is a greater reliance on talk than in everyday, real-life, collaborative work.

These characteristics of virtual worlds lead us to study the new relationships between the gestural and verbal modes. Firstly, we examine how learners employ these modes when engaged in a collaborative building task, in particular to establish a common ground. Secondly, we examine how these modes are utilised to reference objects used within the building tasks.

Virtual worlds are becoming of interest for distance language educators (Molka-Danielson et al., 2007, Cooke-Plagwitz, 2008). This study furthers our previous work on multimodality (Chanier and Vetter, 2006) by introducing the gestural mode. The study is also one of the first pieces of research drawing on a CLIL approach in higher education.

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