Cybertext Redux: Using Interactive Fiction to Teach German Vocabulary, Reading, and Culture

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Abstract: Included within a second language acquisition program, digital games possibly can increase knowledge retention and transfer rates. This mixed-methods study uses a computer-based interactive fiction (IF) game to teach German vocabulary, reading, and culture to university students. The results indicate that contextualized, immersive role-play may have assisted in second language learning, but students were apprehensive given the departure from traditional drill- and grammar-based instruction.

Introduction

Interactive fiction (IF) falls within the scope of DGBL as a digital text-based adventure designed with specific educational goals in mind. The purpose of this study is to follow the implementation of an IF game designed to teach German vocabulary, reading, and cultural skills to beginning university students. Specifically, we designed the game so that students, upon completion of the module, will:

1. Demonstrate mastery of topic-specific vocabulary and cultural facts by completing assigned homework assignment;
2. Demonstrate retention and transfer of topic-specific vocabulary and cultural facts by completing in-class assessment measures.

Learning outcomes were based on the results of homework and assessment exercises, which also assessed motivation, engagement, and self-reported time-on-task, plus qualitative evaluation of student interview responses about their learning experience. By immersing students within a second language and cultural environment, the results of this effort help provide an international perspective on learning science research and development within the domain of contextual, immersive DGBL.

Theoretical Background

Generally, IF is a game format that tells a narrative or story by offering a text-based description of a series of locations, non-player characters and rich description. The player interacts with the narrative through a computer program that parses the text responses of the player and advances the game accordingly. The player is a character within the story and the story progresses as a consequence of the actions of that individual player. This type of experience lends itself well to the practice of second language learning, providing contexts from which students must consider the goals in the environment and to act using language to achieve those goals (Baltra, 1990; Verdugo & Belmonte, 2007). Other methods of L2 learning have used technology in interesting ways, from computer-based training in CD-ROMs and web-based methods of question-answer and photo association, to more recent efforts of introducing peer-assisted companions to learning (Baylor & Kim, 2005; Levy, 2007). However, these techniques may not combine the same motivational factors of gaming with the same environmental contexts of learning-by-doing provided by IF. Reading comprehension and fluency, literary analysis, character motivation, and examination of narrative and plot structure can all be explored. Along with traditional learning goals, it is possible to experience further learning outcomes that may be unintended but nonetheless beneficial to the player. These outcomes include problem solving, spatial reasoning (direction-finding), and increased confidence. IF is portable as well as scalable so that it may be incorporated into classroom activity, group-work, or as a stand-alone product for an individual. Ladd (2006) has written that using IF to teach computer science has resulted in positive outcomes by teaching programming fundamentals combined with creating a project that is both motivating and difficult. We are researching whether or not IF may be just as beneficial as a learning activity to practice L2 acquisition.

This IF project builds on the developments in using technology for second language acquisition. It encourages students to access schemata such as buying a bus or train ticket from their native language (L1) and to apply it in L2. Like a book, the game models well-constructed discourse in a textual form. As a "text," the game represents the experience of preparing for a train ride in Germany, and transmits cultural values by engaging spending practices, travel preferences, and engaging with minority cultures. The game thus combines communicative structures and sign systems; it provides an experimental space to observe the important "interaction of linguistic forms and social meanings" that shapes the contours of culture (Kramsch, 1993, p. 11).

Methods

Eight students in a German 2010 third-semester language course were randomly assigned to the control group, each of whom was required to read a story of 550-600 words in German, then complete exercises based on the vocabulary presented in the text, and write a short essay. Seven students in the German 2010 course were assigned to an experimental group, which instead of reading the story, played an IF game that covered the same scenario presented in the story and made use of the same vocabulary. The experimental group was required to do the same homework assignment as the control group. The homework also contained quantitative assessment instruments in the form of self-reported Likert scales to assess the apparent complexity and difficulty of the "task" (either IF game or reading the story in text form), their mental effort spent on the task, their sense of immersion in the German culture, enjoyment of the task, and the degree to which the task engaged and retained their attention. To gather qualitative data, both groups were asked to comment on their learning experience during a debriefing interview, which was conducted after the in-class assessment was completed. The debriefing interview was audio recorded and used to review researcher notes, as well as substantiate paper-based assessments.

Findings

More than the experimental (IF) group, the control (story text) group perceived the combination of reading a print-based text and then doing the homework to be a more effective way of developing German vocabulary. The story group also felt that the traditional approach of text-reading and homework was more relevant to their learning than the IF group. As a result, the story group expressed more confidence in the German language from the reading and homework than the IF group and expressed greater levels of satisfaction with the instruction than the story group. Actual performance of the story group during the assessment, however, seems to indicate that this confidence and satisfaction may be misplaced. The combination of printed text and "fill-in-the-blank" homework exercises apparently did not help the story group in vocabulary retention during the assessment. The combination of printed text and word-field homework exercises also did not help them with vocabulary retention during the assessment. It is perhaps because of this that students in the story group found the assessment to be much more difficult than the homework. This analysis of interview data indicates that the instructional scaffolding may not have been sufficient to guide the learners through the instruction. Students generally expressed frustration about the goals of game and their inability to make noticeable progress within the game space, despite the scaffolded "hints" feature. Many students felt that the game was too difficult for their level of language expertise. Of particular interest were the comments revealing that the IF game did not fit into contemporary pedagogical approaches. Students seemed to feel more comfortable with the linearity of learning for test mastery compared to the open-endedness of digital game spaces that stresses free exploration and transferable schema development.

Surprisingly, although statistically insignificant at this stage of the research, participants who learned from the IF game were more adept during the homework phase to abstract their knowledge of learned vocabulary and transfer it to free-form writing assignments. This may be attributed to their attempts at formulating sentence fragments in German during game play, even if they did not reflect on this experience as being truly helpful. The analysis indicates that DGBL students generally performed better than students in the control group both in areas of transfer and retention. DGBL students reported lower levels of difficulty with the assessments than students in the control group, and also exerted less mental effort during their assessments. It is also interesting to note that the DGBL students have written longer essays, used more pertinent vocabulary words in the essay, and manifested a high vocabulary to non-vocabulary ratio. It seems contradictory, therefore, that DGBL was considered by the experimental group to be less pedagogically valuable than traditional text-based approaches and not directly relevant to learning a foreign language. Despite their reports to the contrary, DGBL students may have done better than they thought.

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