

ELLE the EndLess LEarner: A Second Language Acquisition Virtual Reality Game

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Abstract. Our team has developed a virtual reality (VR) videogame, *ELLE the EndLess LEarner*, designed to enhance second language acquisition (SLA). The game is an endless-runner style (the avatar is always in motion), which results in fast-paced, engaging gameplay that we predict will motivate learners to increase out-of-class vocabulary practice. Terms are added to the game database through a user-friendly website, and the flexible game design affords it much opportunity for research on a variety of elements influencing SLA including term types (visual, auditory, textual), learner study habits and platform preferences (the game is playable on a variety of VR, PC, and mobile devices).

Keywords: VR · Second language acquisition (SLA) · Learning game · Portuguese

1 Description

Language learning can be difficult and time-consuming, especially when it comes to vocabulary retention. Second-language learner motivation often wanes when presented with a foreign lexicon they cannot easily map to prior knowledge. To alleviate this issue, our team has developed a virtual reality (VR) videogame designed to make vocabulary practice fun. *ELLE the EndLess LEarner* is an endless-runner style game (the avatar is always in motion), which results in fast-paced, engaging gameplay.

ELLE draws vocabulary terms from a database with a user-friendly front-end website where instructors can input new “packs” of vocabulary terms (organized by a theme or chapter if they choose). Students can enjoy the autonomy of selecting which “packs” to download and include in their game, monitor their progress by looking at their player data (total time played, highest score, etc.), and choose how long and how often to play.

In conjunction with these learner-centered game features, *ELLE* is designed to be simultaneously a robust language acquisition tool as well as a research instrument. The flexibility of the game will allow the research team to study the learning outcomes from players who are presented with different combinations of input (text, image, audio, etc.), as well as other aspects of language learning games such as learner self-efficacy, autonomy, and the logistics (frequency, duration, and location) of student-selected play.

It is our intent to scrutinize a variety of aspects of language learning to determine whether or not there are more effective paths for second language acquisition for different groups of learners.

In its current iteration, *ELLE* is engaging and motivating; however, it is not very culturally immersive and does not fully capitalize on the affordances of the VR platform. For example, in this version, players have to point and click the handheld VR controller to operate the game (Figure 1). This is a scope constraint that we seek to remedy. The demo at *iLRN 2018* will afford us opportunity to discuss ways for improving the game's design to enhance its immersive nature to more effectively facilitate language learning.

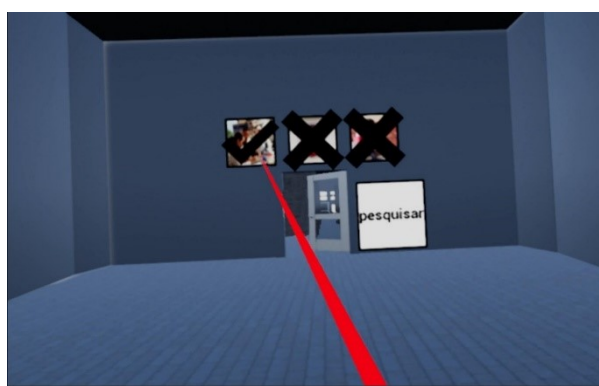


Fig. 1. Player points a laser from the Vive handheld controller to select the matching term.

ELLE is also playable on a PC or laptop in two different player perspectives (Figures 2 and 3), and a mobile prototype is also under development. We have just concluded a research study comparing the three versions to a control game. Several participants who had never experienced a VR headset were preoccupied with the non-learning elements, especially dodging the virtual brick walls. Even experienced VR players commented in post interviews that the walls were a major distraction to their ability to concentrate on the game. Work is underway to replace these walls with shorter, less intimidating obstacles; the research team views this as an opportunity to replace distracting game elements with meaningful interactions that will increase the player's learning opportunities and/or the cultural context of the game.

We have made plans to implement *ELLE* as a required assignment in a language class next Spring and are eager to study its efficacy when utilized in conjunction with a post-secondary language course. Students will be given autonomy to select which of the four versions of the game to play as well as the frequency, duration, and location of their gameplay. By studying these behaviors, we will be able to better understand student preferred methods of utilizing learning games and further iterate the game's design accordingly. We believe this information will be valuable to the field of educational technology in general and immersive learning in particular.



Fig. 2. The PC version of ELLE showing the side-scroller player point of view.

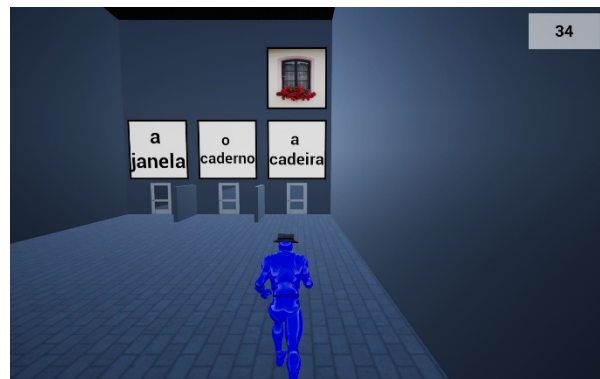


Fig. 3. The PC version of ELLE depicting the over-the-shoulder point of view.