RESEARCH ARTICLE

Innovation of the Online Foreign Language Learning

A Community of Inquiry (CoI)-based Virtual Reality

Classroom

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Abstract: A prevalent concern in the field of online foreign language learning pertains to the comparatively low level of online interactions. Most of the online learning platforms result in scarcity of community because student-student engagement is not as significant as those in traditional classrooms. Virtual reality has recently become an appealing online learning platform that could enhance students' online learning experience. Meanwhile, community of inquiry (CoI) model is found to suitably correspond to the virtual reality context by facilitating social, cognitive, and teaching presence within students' online interactions. As an innovative initiative, this paper suggests a community of inquiry (CoI)-based virtual reality classroom to perform online learning for foreign language acquisition. In this regard, first, this paper discusses the application of virtual reality classroom as a platform for online foreign language learning. Then, this paper integrates the CoI model into the context, discusses the strategies for implementing the CoI model in virtual reality classroom, and analyze its potential impact on students' online foreign language learning experiences.
Keywords: virtual reality; foreign language; Community of Inquiry (CoI)

1. Introduction

The rapid advancement of technology has significantly transformed the landscape of education. Online courses have been extensively promoted as a means of supplementing traditional learning or for any other independent learning purpose in today's education. Online learning, particularly when learning a foreign language, is beneficial for developing a range of language skills, including problem-solving and communication abilities as well as the four fundamental language skills (listening, speaking, reading, writing) (Pichugin et al., 2022). In this instance, foreign language learners are formally instructed through language training activities that occur inside and out of the classroom. The training activities that occur out of the classroom are lifelong educational efforts, which are usually supported by online learning platforms to prepare students to implement the language knowledge in real life.

In foreign language education, the challenges of maintaining engagement, fostering interaction, and creating immersive learning environments have led educators to explore innovative solutions. One such solution is the integration of virtual reality into online foreign language learning, offering new possibilities for creating more interactive and immersive experiences. The community of inquiry (CoI) model, which emphasizes cognitive, social, and teaching presence, has proven to be an effective model for guiding online learning (Kaban, 2021). By integrating CoI with virtual reality technology, educators can create a dynamic and engaging virtual classroom that enhances language acquisition and fosters meaningful communication.

The combination of virtual reality and CoI provides unique advantages in addressing the limitations of traditional online foreign language learning platforms, such as the scarcity of authentic interaction and the lack of immersive experiences. Through virtual reality, students can be placed in real-life scenarios where they can practice language skills in context, while the CoI model ensures that learning remains collaborative, reflective, and structured. This research paper discusses the innovative potential of CoI-based virtual reality classroom for foreign language learning, aiming to investigate how these technological advancements can address existing challenges and enhance the overall language learning experiences. By doing so, it highlights the role of virtual reality as a transformative tool in the future of foreign language

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education.

2. Existing Problems in Online Foreign Language Classroom

2.1. The choice of online learning platform for foreign language practices

In foreign language learning, interaction plays a crucial role. Many platforms focus on traditional educational content delivery and fall short of providing real-time, immersive, and interactive experiences. One of the key problems is the limitation of many online learning platforms to facilitate live interactions between students, peers, and instructors. Platforms like Duolingo and Babbel may offer language-specific content, but they often lack a real-time interaction component that is critical for developing conversational skills. Platforms like Zoom or Microsoft Teams are excellent for synchronous communication, but users' fatigue (Speidel et al., 2023) is a critical issue to be concerned about which causes low rate of participation and social presence.

Another difficulty is finding a platform that accommodates diverse learning activities, as language learning is multifaceted. The challenge for educators nowadays is to find suitable online learning platforms that not only offer high-quality instructional materials but also foster interactive activities that are essential for foreign language learning.

2. 2. Scarcity of student-student interaction

Most of the online learning platforms result in scarcity of community because student-student engagement is not as significant as those in traditional classrooms. Even during synchronous online learning, the setup often favors teacher-centered instruction, leaving less room for spontaneous conversations of group activities that promote natural language use.

A prevalent concern in the field of online foreign language learning pertains to the comparatively low level of active engagement demonstrated by students in online discussions (Liu & Deris, 2022). The same problem, though, arises when using online learning platforms like ATutor, Moodle, Google Classroom, cloud meeting, and so forth in language learning. Social isolation is among the downsides of online learning due to its negative impact on the dynamics of interactions between students, peers, and instructors. Consequently, students often face barriers to fully engage in online interactive or collaborative activities. Furthermore, without peer-to-peer interaction, students miss out on crucial opportunities to practice language skills and responding in real-time, which are essential components of language fluency.

3. The Significance of Virtual Reality to Support Online Foreign Language Learning

3. 1. Provides immersive learning experiences

Virtual reality is a technology that provides a computer-generated simulation of an environment, allowing users to interact as if they were in the actual world. Virtual reality technology can be divided into two categories: immersive and non-immersive. Immersive virtual reality requires a device to be worked as a Head-Mounted Display (HMD) to offer an open-space learning environment; while non-immersive virtual reality information is displayed on a 2D computer screen, and keyboards and mice are used for interaction. However, there are no significant differences between these two types of virtual reality environments in terms of presence and usability (Çoban, 2021).

Unlike traditional online platforms, where interaction is often limited to video calls or text-based activities, virtual reality creates a simulated environment that closely mimics real-world settings. In addition, virtual reality has the ability to place learners in lifelike environments such as marketplaces, restaurants, or public spaces, where they engage in realistic dialogues and respond to contextual cues. The immersive aspect allows language learners to practice in authentic, context-rich scenarios, thereby accelerating language acquisition and helping them build confidence in both formal and informal communication.

3. 2. Promotes personalized learning experiences

Virtual reality offers the advantage of personalized learning paths. Students can create avatars, control their learning pace, repeat scenarios, or practice specific language skills, allowing for a tailored experience that meets their unique needs. This flexibility, combined with the engaging, interactive nature of virtual reality, makes it easier for learners to stay motivated and immersed in their language studies over time.

For instance, virtual reality platforms can be programmed to adapt to individual learning styles and proficiency levels. This adaptability ensures that each learner receives the appropriate level of difficulty and support needed to progress effectively. Moreover, virtual reality allows for the creation of customized scenarios that reflect real-world contexts relevant to the students' interest or prior knowledge. This relevance enhances the learning experience by making it more applicable and engaging. In addition, virtual reality systems can offer real-time feedback based on students' interactions within the virtual environment. This instant feedback loop helps students quickly identify and address areas of improvement, enhancing their learning process.

Virtual reality caters to different learning preferences and needs by incorporating visual, auditory, and interactive elements. Students who benefit from visual aids can explore rich, detailed

virtual environments, while auditory learners can engage in conversations. Interactive elements such as simulations and quizzes provide hands-on practice that reinforces learning through active participation. In short, virtual reality supports self-directed learning by giving students the autonomy to explore and engage with content at their own pace (Alizadeh & Cowie, 2022). This control over their learning journey encourages greater engagement and allows students to focus on areas that are most relevant to their personal goal.

3. 3. Enhances social interaction

Online learning that foster interaction and collaboration improves students' performance and satisfaction. Language acquisition requires interaction, and technology-enabled collaborative learning can foster fruitful language output that supports students' language learning. Social interaction is therefore essential for motivating students to participate in online foreign language learning.

At present, virtual reality has become an appealing online learning platform that could enhance virtual social learning environments (Scavarelli et al., 2021). Virtual reality enhances social interaction in online foreign language learning by creating immersive environments that simulate real-world social scenarios, allowing students to practice language skills in authentic contexts. Unlike traditional online platforms, students are more likely to engage with others because they feel more present and involved in the environment. Students' interaction with peers and instructors goes beyond text or video chat, offering students a chance to develop their conversational abilities through gestures, facial expressions, and spatial awareness, which are crucial elements of communication. This helps reduce social barriers, making it easier for students to communicate freely.

Moreover, virtual reality creates a sense of shared presence, building communities where students can interact informally, just as they would in physical environments. On that note, virtual reality allows for collaborative activities such as role-play and group discussions in virtual environments that simulate real-life situations. This encourages peer-to-peer communication, providing a safe and supportive space for students to apply their language skills without the fear of judgement.

4. Incorporating Community of Inquiry (CoI) into Virtual Reality Classroom for Online Foreign Language Learning

The CoI model was developed from a study done by Garrison et al. (2000). The CoI model is widely recognized for its ability to evaluate the teaching, cognitive, and social presence dimensions of an online learning course to determine its efficacy

(Suharno et al., 2022). Before discussing the incorporation of CoI into virtual reality classroom for online foreign language learning, it is necessary to highlight that CoI is not a new idea to promote language learning. CoI has been integrated into traditional language classroom, with the results presenting that CoI provides many benefits for language activities (Yudhiantara, 2022). Moreover, CoI has also been integrated into traditional online learning. Despite CoI having a statistically significant impact on students' engagement in online discussion, Liu and Deris (2022) indicated that the traditional online foreign language learners still perform low rating of social presence. Thus, this study aims to address the deficiency by proposing virtual reality as an appropriate online learning platform to optimize the efficacy of CoI.

4. 1. Teaching presence

In CoI model, teaching presence is about design, facilitation, and guiding the direction of the educational experience. It ensures that the cognitive and social processes of learners that result in learning outcomes are personally and educationally meaningful. In a virtual reality classroom, instructors can create highly structured and interactive lessons that guide students through the learning process in an engaging way. For example, in a Chinese foreign language class, the instructor could create a virtual environment of a Chinese-speaking marketplace. Students would have to navigate through the market, interact with sellers, ask for prices, negotiate deals, and purchase items using the target language. To make the learning more meaningful, the instructor can set specific tasks that ensure key vocabulary and phrases are practiced in the context. The instructor can monitor and guide the interactions in real-time, providing instant feedback or stepping in to role-play different characters.

By considering the teaching presence dimension affiliated in the CoI model, the online foreign language learning becomes highly engaging and practical, as students apply their language skills in context, making the learning process more immersive and memorable. As this study proposes an innovative initiative, no prior study had confirmed the potential impact of using a CoI-based virtual reality classroom on students' online foreign language learning experiences. However, a comparable study that promoted CoI-based virtual reality classroom in the context of earth science education demonstrated that the initiative did enhanced students' learning experiences and outcomes (Hwang et al., 2024). It is possible that the application of a CoI-based virtual reality classroom in online foreign language learning could yield positive results.

4. 2. Cognitive presence

Cognitive presence lays emphasis on the extent to which students can construct and confirm meaning

through sustained communication. In fact, sustained reflection and dialogue can be significantly enhanced in a virtual reality environment. The immersive nature of virtual reality allows students to simulate real-world scenarios and engage in problem solving activities that foster deep learning. For instance, virtual reality scenario might simulate a travel experience in a foreign country where students must use the target language to ask for directions, order food, and so on. This immersive experience encourages learners to process and internalize linguistic and cultural information more deeply as they see and interact with the language in meaningful contexts.

Besides, virtual reality can incorporate features that support reflection, such as recording, replaying interactions, and receiving real-time feedback. Students can review their performances, analyze their language use, and reflect on their strengths and weaknesses. By integrating CoI into virtual reality that fosters active online foreign language learning, this reflective practice promotes cognitive presence by allowing learners to critically evaluate their understanding and improve their language skills. As a matter of fact, a learning environment is considered to be conducive if it promotes positive cognitive engagement, as cognitive engagement is the ultimate outcome of students' participation in any learning environment (Dempsey & Zhang, 2019).

4. 3. Social presence

Learning a language, especially a foreign language, places a strong emphasis on socially interactive environment. According to Dunmoye et al. (2024), social interaction significantly supports students' cognitive engagement. In CoI model, social presence emphasizes the capacity of students to project their unique personalities in order to identify with the community, communicate meaningfully in a trusting circumstance, and build interpersonal relationships. Unlike other online learning platforms, virtual reality enables virtual spaces where students can interact more naturally. This allows learners to form stronger connections, engage in meaningful discussions, and participate in group tasks more actively.

Hence, virtual group work can be conducted to create a sense of belonging and community within students, which is crucial for collaborative learning such as doing a virtual presentation, brainstorming, role-play, or solving a problem in target language. These collaborative approaches encourage students to use the target language actively and build collective knowledge; all of which contribute to improved language proficiency.

Conclusion

As a conclusion, the integration of CoI within virtual reality represents a significant advancement in the field of online foreign language learning. The innovative application of CoI-based virtual reality in foreign language learning fosters meaningful social interactions that enhance language practice, facilitates deep cognitive engagement through realistic simulations and interactive activities, and supports effective teaching strategies that guide and support learners in their linguistic journey. However, currently, most of the virtual reality platforms are not specifically designed for foreign language learning, although they can be used for such a purpose (Berns & Reyes-Sánchez, 2021). Thus, in order to effectively support students' foreign language learning experiences and accomplishments, instructors must employ their creativity and diligence to fully leverage the platform to showcase CoI-based virtual reality.

Conflict of Interest

The author declares that she has no conflicts of interest to this work.

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