

Enhancing Engagement in Distance Learning: Overcoming Learner Isolation Through ICT Tools

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Abstract: The COVID-19 pandemic accelerated the adoption of online distance learning, bringing challenges such as learner isolation and decreased engagement. This paper explores strategies to address these issues through the use of Information and Communication Technology (ICT) tools. It reviews existing studies on learner isolation and proposes the integration of social networking services (SNS) and video annotation tools to create simulated synchronous experiences (SSE) and social interactions (SSI). Additionally, the paper discusses the role of large language model (LLM)-based AI chatbots in providing personalized feedback and enhancing learner motivation. The proposed study will utilize the PlatJam platform, aiming to reduce transactional distance and foster a collaborative online learning environment.

Keywords: distance online learning, distance learning, online learning, learner isolation, learning motivation, learning engagement, generative AI, simulated synchronous experiences (SSE), simulated social interactions (SSI)

1. Introduction

The shift to online distance learning, accelerated by the COVID-19 pandemic, has highlighted the challenges of maintaining learner engagement and reducing feelings of isolation. Video-based instruction, whether synchronous or asynchronous, has become the dominant method, but it often lacks the spontaneous interactions that occur in traditional classrooms, leading to a decrease in motivation. This paper reviews strategies to enhance the online learning experience and outlines a proposed study to evaluate these approaches.

2. Issues of Distance Learning and Teaching

2.1 Learner Isolation

One of the most significant challenges in distance learning is the sense of isolation and loneliness learners may feel. The concept of “transactional distance,” introduced by Moore (1993), describes the psychological gap between learners and instructors. Research has consistently shown that reducing this transactional distance by fostering better dialogue can significantly reduce the feelings of isolation among distance learners (Huang et al., 2016), but it also increases teacher workload.

2.2 Pedagogical Effectiveness

While distance education has evolved from a teacher-centered to a learner-centered approach, the rapid shift to online learning during the pandemic often reverted to teacher-centered methods, utilizing lecture videos and instructional materials uploaded to learning

management systems (LMSs), limiting interactive learner engagement. This shift highlighted some of the ongoing challenges even in massive open online courses (MOOCs) such as Coursera and EdX, where the pedagogical effectiveness is frequently debated due to the lack of interactive learner engagement and immediate feedback from the instructors.

3. Strategies to Mitigate the Issues

3.1 Social Networking Services (SNS)

To enhance the effectiveness of distance learning, establishing clear and consistent communication between instructors and students, as well as among students themselves, is crucial. While LMS platforms provide essential communication channels, research by Brady et al. (2010) indicates that these systems often lack the ability to facilitate a rich social experience, which is a vital component of effective learning. SNS platforms, such as Facebook and WhatsApp, can foster community building and social learning, mitigating isolation and enhancing the learning experience. Research has shown that SNSs support informal learning and peer support within online learning environments (Pimmer, Linxen W Grohbiel, 2012) and serve as a 'third space' that bridges social life and schoolwork (Aaen & Dalsgaard, 2016) .

3.2 Video Annotation Tools

Online learning often utilizes video content created by instructors. This medium serves as an effective way to communicate educational materials, providing students a richer learning experience compared to text-only resources. However, learning through videos can be isolating and passive. To address this, various video annotation tools have been developed to support not only individual note-taking, but also collaborative learning. These tools enable learners to build communities around the videos by sharing annotations, thereby enhancing engagement and interaction.

Collaborative annotation, a technique long used for textual-based materials, is proving effective for videos as well. A notable example is the use of the collaborative annotation tool, Perusall¹. In their 2020 study, Adams and Wilson (2020) observed an increase in interactions over the duration of a course. They conclude that such tools facilitate real-time cognitive engagement, mirroring the interactive learning dynamics of a traditional classroom where students can discuss content directly with instructors and peers.

Tools like Perusall and VideoANT support collaborative learning by enabling students to share annotations, creating a simulated synchronous experience in asynchronous learning environments. The strategic implementation of video annotation tools can create "simulated synchronous experience (SSE)," countering the lack of real-time interaction in asynchronous learning environments based on LMSs. These tools can be adapted for either instructor-centered approaches, where the instructor highlights key video segments, or learner-centered approaches, where students independently share and discuss their annotations. This adaptability promotes active viewing and deeper engagement among students, facilitating a more dynamic learning experience.

3.3 LLM-based AI Chatbot

With the advent of ChatGPT in November 2022, the LLM-based generative AI has been scrutinized in a number of academic literatures. In the beginning, many academic institutions were hesitant to embrace such technologies in fear of losing academic integrity and students' plagiarism in assessment. However, gradually the mood is shifting to embrace the technology for the betterment of teaching and learning. AI chatbots can provide personalized feedback, act as tutoring aids, and enhance engagement by offering timely support and motivation. For example, Li et al. (2023) used LLMs to create dialogues aligned with curriculum topics,

¹ <https://www.perusall.com/>

enhancing students' conversational skills in foreign languages and providing user-tailored practice. Yang et al. (2022) implemented an AI chatbot in EFL speaking classes and demonstrated high task success rates and positive student engagement.

4. Proposed Research

The research study proposed here will utilize a platform developed for Japanese MOOC, called PlatJam, which has the basic functions most LMSs have such as uploading learning materials, linking to videos, and hosting quizzes. It lacks a basic function of students' interactions and collaboration due to a limited budget at the initial stage. However, we plan to add the two functionalities, video annotation tool and LLM-based chatbot to foster simulated synchronous experiences (SSE) and simulated social interactions (SSI).

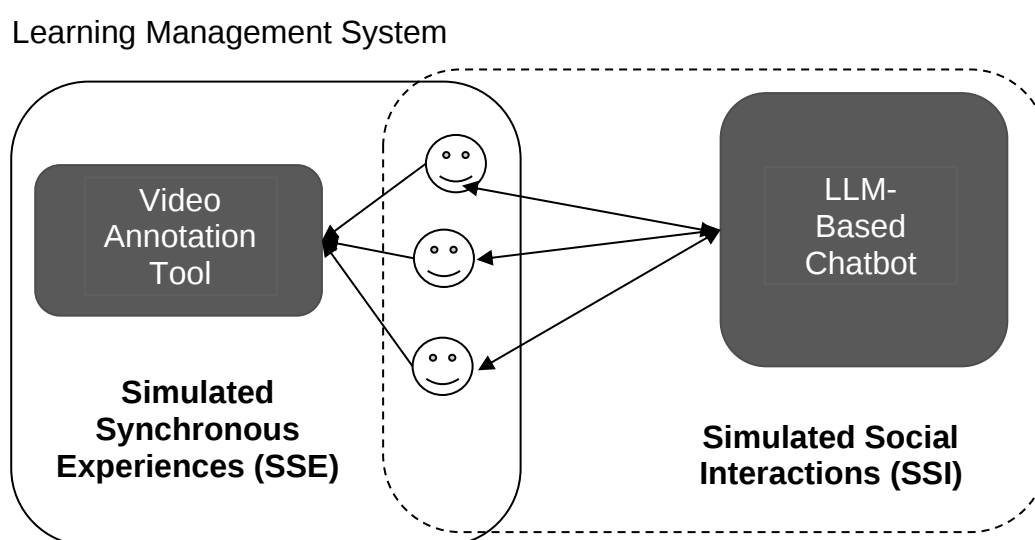


Figure 1. Simulated SychroSocial System

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