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The Impact of Immersive 360-Degree Video Learning on Enhancing Oral Communication Skills

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ABSTRACT

This study investigates the pivotal role of immersive 360-degree video and its perceived advantages on the enhancement of oral communication skills within the framework of the ELC650 course, 'English for Professional Interaction'. The research involved twenty-four students enrolled in the Bachelor of Applied Language (Arabic Communication Professionals) (Hons) program. The distribution of questionnaires immediately after the students watched the video aimed to assess the role of immersive 360-degree video and its perceived advantages of this technology in preparing students for conducting assessments within a meeting discussion. Employing a cross-sectional design, the study collects both closed-ended and open-ended responses through the distributed questionnaires. The latter serves as a crucial means of triangulating the data, offering real-time insights into the students' understanding of professional interaction and assessment practices using 360-degree video. The study's findings on the use of 360-degree video in education can inform government decisions and contribute to achieving SDG 4, which aims to improve the quality of education. It is important for government and learning institutions to recognize and embrace the role of 360-degree video in enhancing learning quality, specifically in fostering communication skills within the area of professional interaction in English. Other than that, this study holds implications for refining curriculum design, shaping instructional strategies, and optimizing the integration of innovative technologies in language education, particularly for students specializing in Arabic communication.

Keywords:

360-degree video; Oral communication skills; Immersive technologies; Professional interaction

1. Introduction

The incorporation of videos in education has seen significant development thus strengthening the learning process by providing it with more participation in the learning process. Videos effectively

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communicate knowledge by suggesting emotional feedback and presenting different perspectives. This promotes cultural understanding among learners.

Using videos, the enhancement of students' cultural awareness and appreciation is extremely significant. Research consistently confirms the numerous advantages of using videos, particularly in bridging theoretical concepts with real-life situations, fostering independent learning, and stimulating critical thinking [1-3].

The transition from conventional videos to 3D videos represented a significant advancement in educational resources, offering enhanced and lifelike learning encounters. These innovations have enhanced students' comprehension in diverse subjects [4,5]. Originally, 3D videos were used as instructional aids that are used to introduce and prepare students for new material. Nevertheless, the incorporation of 360-degree media has completely transformed the educational field. These videos provide a full and immersive panoramic perspective, enabling a more thorough understanding of the various subject matter [6]. This innovation is highly efficient in providing insights into verbal communication and cultural situations.

The objective of this project is to investigate the potential of 360-degree videos in language teaching, with a specific focus on the students' ability to improve their oral communication skills. To investigate this, we studied their function in the English for Professional Interaction (ELC650) course offered in a local university. The ELC650 course emphasises the significance of communication in organisations, highlighting its function in both external and internal management systems. This course is specifically designed to assist students in cultivating crucial interpersonal skills that are necessary for advancing in their careers. It is a two-credit hour course that spans one semester and requires two contact hours each week. The course covers a wide range of subjects, including the basics of communication and its different forms (verbal, written, and non-verbal), as well as the language functions utilised in workplace interactions. It also explores the elements that influence professional relationships, such as attitudes, behaviour, and cultural competency.

The instruction in this course incorporates collaborative learning activities, role-playing, group discussions, and work-related simulations to promote the use of communicative language. Upon completion of the course, students will possess the ability to showcase their social aptitude, effectively handle key occurrences related to interpersonal communication, and display favourable beliefs and attitudes during professional contacts.

The course utilises a thorough evaluation framework to test students' proficiency in communicating in professional settings. An essential evaluation method is the 'workplace simulation,' in which students engage in real-life circumstances to showcase and enhance their proficiency in professional communication. The 'video critique' is an additional evaluation method that aids in the development of students' critical thinking and presentation skills, so further improving their professional communication talents.

Furthermore, the 'conversation observation' assessment specifically evaluates students' ability to engage and communicate effectively in a discussion environment, like that of a professional meeting. This component is essential, as numerous students lack proficiency in organising or engaging in professional meetings. 360-degree videos are extremely beneficial in giving students an immersive and realistic perspective of meeting dynamics. By observing these recordings, students acquire direct experience of stakeholder interactions, so improving their comprehension of professional meetings, nonverbal communication, and efficient communication tactics. A study [7] found that fieldwork activities have a substantial impact on students' personal development by providing experiential learning opportunities.

In typical classes, passive learning often dominates, making engagement a persistent struggle. The use of 360-degree films resolves this problem by providing a captivating and dynamic learning

experience that captures the attention of students. This interactive method changes students from being passive to being more engaged in the lesson. This promotes a more deep and meaningful comprehension of the subject matter thus contributing to their long-term memory.

The second research question aims to examine the perceived advantages of utilising 360-degree video technology as a tool for preparing for meeting discussions, particularly in the context of professional engagement within the ELC650 course. The objective of this study is to examine the influence of 360-degree video on the meticulous preparation and seamless conduct of meeting discussions, in accordance with the overarching objectives of the ELC650 course. The objective of this inquiry is to evaluate the intricate dynamics associated with the use of 360-degree video in education, with a specific emphasis on its impact on students' comprehension and verbal communication skills.

Furthermore, this initiative is in accordance with Sustainable Development Goal 4 (SDG 4). The objective of this goal is to guarantee fair and quality education for every individual. Additionally, it promotes the availability of educational opportunities for learners throughout the course of their lives. By including the utilisation of 360-degree video into the curriculum, we are improving the standard of education and equipping students with important competencies that will enhance their professionalism in the workplace. This innovative approach allows students to completely immerse themselves in virtual environments, so enhancing their degree of involvement and enhancing their capacity to retain information. Furthermore, the incorporation of 360-degree video may enhance students' communication skills by providing them with a medium to refine their vocal expression in a realistic setting. By aligning our educational practices with Sustainable Development Goal 4 (SDG 4), we are not only providing students with the essential skills required for the future job market, but also promoting the principles of equity and inclusivity by guaranteeing universal access to education.

Based on the various positive aspects from the implementation of 360-degree videos in the teaching and learning environment, it is important to investigate the role of these videos in enhancing students' oral communication skills especially in the ELC650 classroom setting. This would benefit both educators and students in obtaining insights and ensuring quality teaching and learning experiences utilizing technology in the classroom.

1.1 Technology in Language Education: A Paradigm Shift

The integration of technology into language pedagogy represents a shift from traditional instructional methodologies, steering in an era where learning is not just about being in a physical classroom. The mixing of information technology into pedagogical practices has led to what is known as "blended teaching/learning", where traditional methods of teaching and learning shifted beyond the walls of a classroom [8]. This has allowed learning experience to extend beyond the walls of the traditional physical classroom [9]. This phenomenon, as described in the academic literature, involves an expansive use of digital resources. It includes devices such as computers and smartphones, which fundamentally alters the language acquisition that happens in a classroom. The modern pedagogical approach, as characterized by the incorporation of digital tools and language applications, gives learners unprecedented flexibility and convenience in language practice. It is effectively dismantling the traditional boundaries of classroom-based learning. This shift is also reflected in the exploration of the possibility of shifting from the instruction to meet the needs of 21st-century learners within the fourth industrial revolution [10].

In the area of language education, the infusion of technology facilitates access to various authentic learning resources which are made available for teachers and learners. Scholarly discussions, such as those presented by a study [11], indicate that this shift in educational resources extends beyond simplifying the learning process. It addresses common educational challenges such

as speech anxiety and linguistic barriers, while simultaneously offering exposure to cultural nuances through diverse mediums like videos and articles [12]. This exposure not only grows learners' linguistic proficiency but also enhances the critical aspect of their cultural understanding.

Another study highlights the numerous benefits of technology-enhanced language teaching [13] where the implementation of digital tools in educational settings facilitates an interactive and experiential learning approach, aligning with the findings of another study [14]. In line with this, A study by Anderson *et al.*, explored the use of digital tools in language learning and found that recent advances of incorporating digital tools in language teaching can create incredible improvement in various language areas [15]. The benefits include immediate feedback, increased learner motivation, and the creation of an enriched learning environment. The implementation of digital tools in educational settings facilitates an interactive and experiential learning approach for learners. This contributes to more effective language acquisition and fostering community and collaborative learning among students. Additionally, the use of digital tools can provide an enriched "input" for language learning, supporting the rapid learning that characterizes language acquisition [16].

A study conducted in Indonesia explored students' perceptions in an online flipped grammar course and found an overall positive perception towards the introduction of flipped learning within the course among the teachers who functioned as facilitators and the learners [17]. This shows that a significant aspect of technology in language education, as discussed in contemporary academic discourse, plays a key role in personalizing the learning experience. Similarly, a study [18] explores students' perceptions and technological acceptance of a flipped learning model in language classes, demonstrating a positive impact of technology on personalized learning experiences. This also aligns with the findings of a study [19] that discussed the psychological factors affecting the language-learning process and highlight the positive effect of technology-based education, particularly through flipped learning, on students' motivation and attitude towards language learning.

In addition, advanced technologies such as artificial intelligence and machine learning are important in tailoring educational content to individual learner profiles. This not only ensures that learners are engaged at an appropriate level of challenge but also promotes autonomous learning practices. This is in line with the findings of a study [20] that emphasises the role of AI, the cloud, and distributed ledger technologies in the emerging evolution of the internet, which includes leveraging AI to bridge cultural divides and enhance educational experiences through technology. Furthermore, technological advancements link geographical divides, enabling learners from various cultural backgrounds to engage in collaborative language practice. This will enrich the educational experience through diverse cultural interactions. It is also found that this situation has reduced the workload among teachers [21].

Recent academic studies by [22-24] have focused on the potential of virtual and immersive technologies, such as 360-degree video, in language instruction. These technologies provide immersive experiences that enhance linguistic and cultural learning. They offer authentic interaction scenarios with native speakers, thus not only strengthening language proficiency but also providing a deeply engaging and informative learning environment. This blend is not only a tool to enhance language skills, but it also plays a crucial role in advancing cultural awareness. The utilization of virtual and immersive technologies in language education paves the way for personalized, effective, and culturally enriched learning experiences. This will prepare learners to navigate the complexities of a globally interconnected world.

1.2 Video Technology in Language Learning

The incorporation of video technology into language learning has redefined the pedagogical environment. This provides various methods of learning that enhances both engagement and accessibility for the teachers and learners. A study by Chen [4] mentioned that this capitalizes on the visual and auditory elements which are the main elements to video media, thus promoting an immersive learning experience that significantly improves learners' motivation. The findings in another study [25] supports this through their study where the integration of visual and auditory elements in video media has shown to improve the learning experience and significantly improve learners' motivation. Moreover, video technology allows authentic and real-life language use to happen, providing learners with exposure to different accents, speech patterns, and cultural contexts. This exposure helps learners develop their listening and speaking skills in a more natural and dynamic way, eventually improving their overall language proficiency. A study [26] emphasizes that reliable videos contribute to the expansion of vocabulary capacity and improve listening skills by including real communication examples with advanced words and phrases, thus supporting the development of listening and speaking skills in a more natural and dynamic way. Video technology does not only attract learners' attention but also provide a more enjoyable and comprehensive language learning process.

Another benefit of video technology in language education is its capability to provide the learners with cultural exposure, as mentioned by [27]. Besides allowing the learners to learn the language, it also gives insights into the customs, traditions, and perspectives of diverse cultures to the learners. It increases their intercultural competence and enables them to communicate effectively in diverse global contexts. Additionally, video technology also offers the opportunity for learners to engage in interactive activities such as role-playing or discussions. This will further enhance their language skills and promote a cooperative learning environment.

Videos serve as channels for genuine linguistic experiences, highlighting real accents, expressions, and scenarios that reflect the cultural nuances and contexts of the target language. This exposure to the cultural dimensions of language participates in developing a deep understanding that transcends mere grammatical knowledge, thereby enriching the learner's linguistic competence and cultural literacy. For instance, incorporating multimedia resources like podcasts or online articles can expose learners to a wide range of topics and perspectives. In turn, this will allow them to expand their vocabulary and grow their understanding of the language. This also provides opportunities for learners to practice their listening and reading skills, further strengthening their language acquisition process.

The improvement of listening skills is a supporting aspect of language acquisition is significantly adopted using video materials. Polat and Eristi [26] mentioned the importance of exposure to a varied range of spoken language in real-world contexts. By incorporating video materials into language learning, learners can hear and experience how the language is used in real situations, such as conversations, interviews, or cultural events [28] This exposure allows learners to not only improve their comprehension skills but also gain understanding into the social and cultural norms of the targeted language. Additionally, video materials often provide visual cues, gestures, and facial expressions that can assist in understanding and interpreting meaning, hence enhancing the learner's overall linguistic competence. Video resources, with their collection of voices and accents, are helpful in advancing listening comprehension skills. The videos enable learners to navigate a linguistic landscape that is far more diverse than what traditional textbooks could offer, exposing them to authentic expressions and conversational nuances. This contextualization helps learners understand

how language is used in real-life situations, making it easier for them to apply their knowledge in practical settings.

Furthermore, activities such as the implementation of video projects in language classes can improve various aspects of language learning, such as learners' oral production, understanding of discourse, and observation of their own language proficiency, highlighting the adaptability and effectiveness of video materials in language education [29]. By witnessing language in practical, real-world situations, learners can bridge the gap between theoretical knowledge and its practical application. The production of authentic video materials contributes to the formation of cross-cultural experience and creativity among students in foreign language classes [30]. This contextualization ensures that vocabulary and grammatical structures are not only abstract concepts but are seen as important components of everyday communication, thus providing a more holistic understanding of the language.

Finally, the flexibility characteristic in video-based language learning is a significant advantage. Studies found that the emphasis on adaptability of video materials, which can be accessed across various platforms, allows learners to engage with content at their own pace [1,31]. The adaptability and flexibility of video-based language learning is widely recognized in recent research. Video materials can be retrieved across various platforms. This flexibility is particularly beneficial for learners with different learning styles and preferences. Moreover, studies show that learners have become heavily dependent on YouTube channels and other technology-enhanced language learning platforms in their everyday life, which shows the acceptance and preference for video-based language learning due to its flexibility and accessibility [32]. This not only caters to different learning styles but also promotes self-directed learning. The rise of enthusiasts in mobile-assisted language learning (MALL) has also proliferated, benefiting from the well-established advantages of consuming audiovisual content for autonomous learning, further highlighting the adaptability and flexibility of video-based language learning [33].

Video-based language learning allows learners to access a wide range of content and topics, exposing them to various aspects of the target language and culture. This experience helps learners develop a greater understanding of the language and its nuances, enhancing their overall language proficiency. Moreover, through video-based learning, learners can easily revisit and review specific lessons or concepts, enabling them to reinforce their understanding and mastery of the language at their own pace. Overall, video-based language learning offers a flexible and personalized approach that fosters a more engaging and effective learning experience for learners of all types.

1.3 360-Degree Videos

Screens have become the primary interface for people to engage with their daily work or other activities. This shift has essentially impacted the education landscape, especially with the adoption of video-based learning which also includes the use of 360-degree videos. According to a study [34], video-based learning, including 360-degree videos, has proven to be extremely effective to enhance teaching and learning process. This is supported by a study that stated such learning methods inculcate self-directedness and engagement among students [35]. 360-degree videos offer students the opportunity to learn independently at their own pace, using materials provided by their instructors.

The increase in affordability and technological advancements, rise the demand for 360-degree videos. Instructors especially think the use of 360-degree videos can be very interesting as it provides a meaningful immersive learning experience. Unlike traditional videos with limited perspectives, 360-degree videos offer a comprehensive and interactive spherical view, allowing users to explore various

angles and scenarios [6]. Whether computer-generated or real-world footage, 360-degree videos promise an immersive and engaging learning experience for students. Research explains that a 360-degree video comprises a sequence of images or videos captured at fixed intervals [36]. Each 360-degree image or video represents a panorama captured by an omnidirectional camera or assembled from multiple cameras to cover the entire horizontal field of view.

Students exposed to 360-degree videos report a heightened sense of presence in the virtual environment, leading to deeper engagement and absorption in their learning tasks [37]. The immersive aspects of these videos contribute to students feeling physically present in the virtual space, showcasing the seamless integration of this innovative approach with well-established teaching methods [20]. Based on the elaboration on Technology Acceptance Model (TAM), the ability of students to utilise this technology to its full potential is categorised in the final stage of human technology utilization [38], where the technology integration is considered successful.

In the future, it is necessary to consider innovative learning environments that utilise resources such as 360-degree videos to not only deliver knowledge but also to foster the development of individuals with innovative thinking and critical analysis skills. The use of these videos also aligns to the demand of digital era that contributes to multidisciplinary technological tools use in the classroom which is important in creating an environment of interdisciplinary collaboration and development of critical thinking abilities among students [39]. Through the utilisation of 360-degree videos in the field of education, we can create immersive settings that encourage the development of creativity, problem-solving skills, and critical thinking. Modern education requires the ability to equip students for a rapidly evolving and technology-oriented society and the use of 360-degree videos would be able to contribute to the needs of modern society.

1.4 Oral Communication Skills

Effective oral communication skills are extremely important for students, regardless of their academic disciplines at the university level. Research suggests that mastering oral communication is essential across all disciplines as it will increase students' chance for success in a professional environment once they leave university [40]. The university, according to the study [40], serves as an ideal platform for students to brush up on these skills before moving to a workplace in the next phase of life.

At the same time, the integration of videos in language learning has become gradually more common, offering a dynamic tool that not only facilitates better comprehension of diverse subjects but also acts as a valuable companion in our fast-paced world. The use of videos, including 360-degree videos in language learning will show outstanding improvement in terms of fluency and accuracy [41]. 360-degree videos are not only used to teach simple grammar, but they act as channels for creativity, immersing students in unique scenarios like leading meetings. This immersive experience not only sharpens oral skills but also knocks into existing knowledge and experiences.

The combination of auditory and visual elements in videos transforms the learning process, revealing students into a world where sound and visuals are synced together. This immersion proves helpful in clarifying even the most intricate concepts, providing students with a richer and more engaging educational experience [24].

Having effective oral communication skills is crucial for success in both school and the workplace. Nevertheless, teachers often encounter a common issue, for instance, students who avoid speaking during oral assessments due to a fear of making mistakes. Introducing videos into the learning routine, where students can engage with the material at their own pace, can significantly boost their

confidence [42]. This approach has the power to enhance language skills, encouraging students to participate more confidently and realistically in assessments.

The main reason that makes students feel shy to speak up is their fear of judgment. The feeling creates a real anxiety that leads to their hesitation to express themselves openly. This anxiety becomes a huge obstacle in fostering meaningful conversations and is closely tied to psychological barriers. Students need to overcome these natural fears and find comfort in voicing their thoughts [42]. According to another study [43], an immersive learning experience helps to motivate students which then increases their willingness to speak. Addressing communication phobia, or the fear of speaking aloud, is crucial for cultivating an environment where individuals feel at ease expressing themselves verbally. In the context of this study, which focuses on language learning, especially in reading, 360-degree video stands out as a particularly effective tool. Consequently, this paper aims to address two fundamental research questions (RQs):

- i. RQ1: What is the role of 360-degree video in the enhancement of oral communication skills within the context of the ELC650 course?
- ii. RQ2: What are the perceived advantages of utilizing 360-degree video in the preparation for meeting discussion, specifically in the context of professional interaction within the ELC 650 course?

2. Methodology

2.1 Research Design

Our research adopts a cross-sectional approach to provide a snapshot of the immediate effects of immersive 360-degree video on oral communication skills within the LG2423B class during their third semester.

2.2 Participants

The study focuses on 25 students from the Bachelor of Applied Language (Arabic Communication Professionals) (Hons) program, specifically in the LG2423B class during their third semester. This targeted group ensures a cohesive and relevant sample for the study.

2.3 Materials

The intervention involves a purpose-designed 360-degree video tailored to align with the course's learning objectives, emphasizing practical aspects of assessments within a meeting discussion setting.

2.4 Procedure

The analysis of the quantitative data, acquired through Google Forms, primarily involves the calculation of percentages based on the responses provided by participants in the survey questions. This approach allows for a straightforward quantification of trends and patterns in participants' self-reported confidence levels before and after exposure to the immersive 360-degree video within the LG2423B class during their third semester.

2.5 Instrumentation

The survey instruments are essentially divided into 5 sections namely:

- i. Demographic Background
- ii. Video Experience
- iii. Oral Communication Skills
- iv. Meeting Discussion Assessment
- v. Recommendations.

In tandem with the quantitative analysis, the qualitative data from open-ended responses is subjected to thematic analysis. This qualitative approach involves identifying recurrent themes, patterns, and insights within the participants' detailed responses. By employing thematic analysis, the study aims to capture the vary perspectives and experiences of the participants regarding the perceived advantages and potential challenges associated with the use of immersive 360-degree video in enhancing oral communication skills. The combined use of percentage analysis and thematic analysis ensures a comprehensive and multifaceted exploration of the impact of the 360-degree video on oral communication skills within the specified academic context.

3. Findings

3.1 Demographic Background

The study had a diverse sample of 25 participants enrolled in the Bachelor of Applied Language (Hons) Arabic for Professional Communication programme. The age of most responders, or 56% of the sample, was 21. Furthermore, 12% and 32% of participants, respectively, were 23 and 22 years old. To ensure a homogeneous study group, all participants were enrolled entirely in the Bachelor of Applied Language (Hons) Arabic for Professional Communication programme. This specialised academic programme made it possible to conduct a more concentrated investigation of how 360-degree videos affect oral communication abilities in a particular educational setting.

3.2 Video Experience

3.2.1 Overall experience with 360-degree video

Most participants expressed satisfaction with the use of 360-degree video in meetings. Remarkably, 36% of respondents thought their experience was good (5 on a scale of 1 to 5), compared to 52% who thought it was excellent (4 on a scale).

1. How would you rate your overall experience with the 360-degree video for the meeting context?
(Please use a scale from 1 to 5, where 1 is poor and 5 is excellent)
25 responses

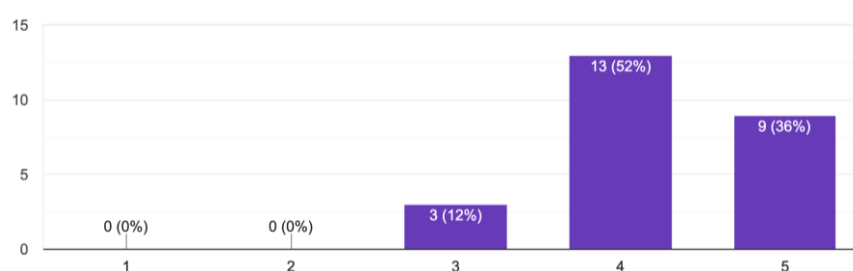


Fig. 1. Overall experience with 360-degree video

The significant approval rating of the 360-degree video usage reflects its effectiveness in engaging participants, aligning directly with the objectives of this study, which aims to explore the transformative potential of such technologies in enhancing oral communication skills within educational settings. This finding corroborates Reyna's [6] observations on the potential of immersive video technologies to provide a more engaging and comprehensive view of the subject matter, crucial for fostering professional interaction skills in courses like ELC650 .

Furthermore, the implications of these findings extend beyond the primary educational context of the study. For instance, research by Martínez Sánchez [44] demonstrates that 360-degree videos can present content in innovative ways that not only facilitate immersive learning experiences but also promote a multi-perspective approach to observation, thereby enhancing students' understanding and retention of information. Similarly, studies like those by Rosendahl and Wagner [45] indicate that 360-degree videos can effectively improve social skills in individuals with autism spectrum disorder through simulated social interactions, suggesting potential applications in specialized educational settings that focus on communicative competencies. Additionally, Ionescu *et al.*, [46] have shown that immersive videos increase the sense of presence and realism, valuable for mental health interventions that could be adapted to educational strategies to aid students in managing communication-related anxiety and stress in professional environments. These applications highlight the versatile utility of 360-degree videos, suggesting their integration could benefit a variety of fields and disciplines, from language education to social skills development and mental health support, thereby broadening the impact of this technology beyond its initial educational focus.

3.2.2 Engagement and immersion

Most respondents expressed that 360-degree videos were highly engaging and created a sense of immersion. The 360-degree point of view provided a distinct perspective that was valued for its ability to provide a keen sense of presence during the discussion. The feedback received from the participants is as follows:

"I find the 360-degree video to be intriguing as it gives me the impression that I'm present at the meeting." – P7

"The wide view is engaging, and I can look around in any direction, giving a sense of being present in the scene." - P16

"The 360-degree video is captivating and offers a novel experience." - P9

"It provides a comprehensive perspective, enabling me to experience the genuine circumstances beyond the display." – P20

"The profundity of the reality is accurate; it is truly captivating and engrossing." P5

The positive responses from participants regarding the engagement and immersion offered by 360-degree videos in educational settings align closely with findings in recent literature. Lampropoulos *et al.*, [22] note that the public perceives 360-degree videos positively, often associating them with heightened anticipation, trust, and joy. These attributes contribute to enhancing student motivation, active participation, and engagement, crucial elements that are reflected in our study where participants expressed a heightened sense of presence and engagement [47]. Furthermore, a study by Esteves *et al.*, [48] discuss the systematic design and application of immersive virtual reality (iVR) technologies in English learning, which supports our findings by emphasizing how well-designed immersive experiences can significantly enhance language learning

processes. This includes fostering a more profound sense of immersion and engagement, which our participants experienced as being present within the virtual meeting scenarios [48]. These studies provide a strong academic foundation that validates the effectiveness of immersive technologies like 360-degree videos in educational contexts, aligning with the immersive experiences reported by our study's participants.

3.3 Oral Communication Skills

3.3.1 Oral communication skills confidence

Before viewing the 360-degree video, participants exhibited various levels of confidence, with most falling within a rating of 3 (32%) and 4 (28%) on a scale of 1 to 5.

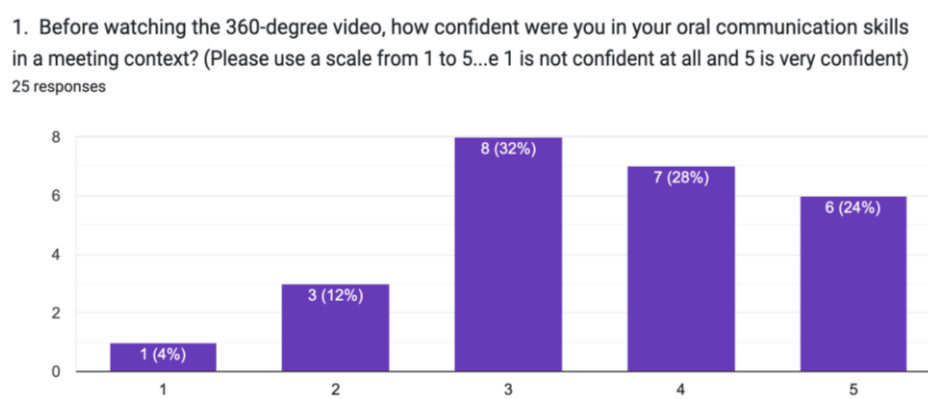


Fig. 2. Oral communication skills confidence

3.3.2 Improvement in oral communication skills

Following the video, a substantial number of participants indicated an improvement in their oral communication abilities, attributing it to an increased language competency, acquisition of vocabulary, and learning of grammar, according to the study:

"360-degree video enhances my comprehension and enhances my proficiency in verbal communication." – P11

"The video demonstrated effective communication techniques, which boosted my self-assurance." P14

The improvement in oral communication skills and increased confidence reported by participants after viewing 360-degree videos are strongly supported by the findings in the literature by Lui *et al.*, [48] which emphasize the significance of embedding immersive virtual reality (IVR) educational tools within a theoretical framework. By applying learning theories to the design of IVR, such as providing learners with control and minimizing cognitive loads, our use of 360-degree videos aligns with recommendations for enhancing educational outcomes. This methodological approach ensures that the educational experiences are not only immersive but also effectively structured to improve learning outcomes, particularly in enhancing oral communication skills [45,48].

Additionally, the study by Blair *et al.*, [49] corroborates our findings, illustrating how immersive 360-degree videos can increase learners' emotional engagement and motivation, which are crucial for learning oral communication skills. By integrating the ARCS model (attention, relevance, confidence, and satisfaction) to frame their results, Blair and colleagues provide further evidence

that immersive videos enhance the learning environment, directly contributing to the positive changes in learner confidence and skill acquisition observed in our study [49].

3.3.3 Specific contributions to communication skills improvement

The immersive quality of the video facilitated improvement in multiple facets of communication skills, such as attentive listening, comprehension of non-verbal signals, and articulation precision. Some of the feedback received from the participants is as follows:

"I possess the ability to perceive non-verbal signals such as body language, thereby improving my proficiency in active listening." - P18

"The video enables me to enhance my speaking skills and comprehend various communication scenarios." P3

The immersive quality of 360-degree videos enhancing communication skills, as evidenced in our study, is well-supported by recent scholarly work. Esteves *et al.*, [47] in their systematic review, highlight how immersive virtual reality applications are meticulously designed to boost oral communication capabilities, focusing on attentive listening, comprehension of non-verbal cues, and articulation precision. Similarly, Blair *et al.*, [49] demonstrate that the emotional engagement fostered by immersive 360-degree videos significantly boosts learners' motivation and ability to understand and articulate in various communication scenarios. Together, these studies validate our findings that immersive videos can be powerful tools in enhancing comprehensive communication skills, linking theoretical insights with practical outcomes in educational technology.

3.4 Meeting Discussion Assessment

After utilising the 360-degree video for meeting discussion evaluation, most respondents (56%) felt well-prepared.

1. How well did the 360-degree video prepare you for the assessment of the meeting discussion?
(Please use a scale from 1 to 5, where 1 is not well at all and 5 is very well)
25 responses

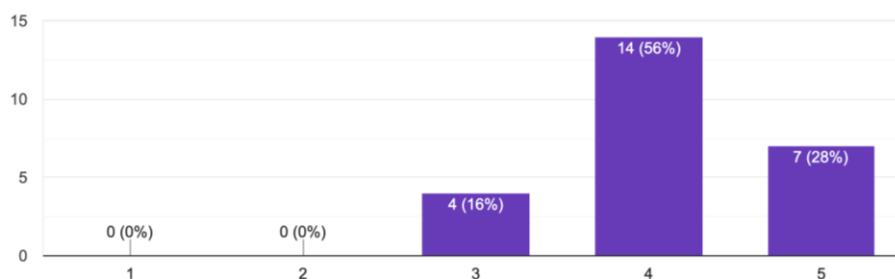


Fig. 3. Meeting discussion assessment

3.4.1 Aspects of 360-degree video assisting with preparation

Participants emphasised several elements, including promoting active listening and expression, comprehending meeting dynamics, and observing body language:

"It helps me prepare with my gestures and ideas because the video demonstrates how the meeting operates." – P10

"Observing body language and active listening in the video helped in preparing for the meeting discussion." – P15

"The video helps me find out issues and solutions, making my discussion more prepared." – P8

"Visual context is crucial for effective communication; the video provides that context." - P19

3.5 Recommendations/Suggestions

3.5.1 Suggestion for utilising 360-degree videos in alternative educational settings

Participants strongly advocate for the utilisation of 360-degree videos to enhance spoken communication abilities in diverse educational settings. The good reaction underscores the immersive quality of these videos, enabling learners to engage in realistic circumstances and enhance their communication skills. The feedbacks documented from the participants are:

"I really recommend this video because it's the best way to attract anyone in studies." – P2

"360-degree videos can be used to immerse language learners in authentic language environments." – P17

The enthusiasm shown by participants for the use of 360-degree videos in various educational settings underscores their potential to revolutionize learning experiences across disciplines. [46,47] discuss the immersive capabilities of virtual reality in creating authentic environments that enhance oral communication skills. This aligns with participant feedback, suggesting that such immersive tools can significantly attract learners' attention and improve interaction in studies. Similarly, several studies [46,49] highlight the emotional engagement and motivation enhancement provided by immersive videos, supporting the idea that these technologies can be effectively adapted to different educational contexts to foster better communication skills.

3.5.2 Further remarks and recommendations for enhancement

Participants provided helpful recommendations for enhancing the 360-degree video experience. These requests encompass the need for distinct visual and auditory components, the inclusion of subtitles, the creation of engaging storylines, enhancements in resolution and frame rate, and the broadening of material variety:

"The visual and audio need to be clear for a better understanding." – P6

"Adding subtitles can enhance the overall learning experience." – P12

"Develop a compelling narrative to guide viewers through the 360-degree experience." – P9

"Improving resolution and frame rate would make the videos more enjoyable." – P15

"Expanding content diversity can make the experience more valuable and engaging." – P19

Overall, the results show that most participants value the beneficial effects of 360-degree videos on their educational process. These videos' immersive format helps with language learning, confidence building, and efficient discussion preparation before meetings. The response from the participants highlights the significance of the distinct viewpoint provided by the 360-degree point of view, which enhances the immersion and engagement of the learning process. These observations

offer insightful things for teachers to think about while utilising immersive technologies in language instruction.

Building on this understanding, the strong endorsements from participants for the application of 360-degree videos in various educational settings illuminate potential pathways for broader educational integration. Notably, the ability of these immersive tools to simulate real-life scenarios can significantly enhance the relevance and applicability of learning experiences across different subjects. The feedback from participants underscores the transformative potential of these technologies not only in language education but also in other areas where communication skills are vital. This holistic enhancement of educational practices through immersive technologies like 360-degree videos could represent a significant step forward in educational methodologies, promoting deeper engagement and understanding among students.

4. Conclusion

4.1 Role in Enhancing Oral Communication Skills (RQ1)

The results of this study focus on the substantial influence that 360-degree video has on the development of oral communication abilities, thus providing an answer to the initial research inquiry (RQ1). The transition from conventional monochrome videos to the increasingly immersive domain of three-dimensional and, notably, the use 360-degree videos signify a paradigm shift, providing students with a more vivid and comprehensive understanding of diverse subjects [5,6]. The study focused specifically on the English for Professional Interaction (ELC650) course, aiming to dissect the multifaceted dynamics surrounding the pedagogical application of 360-degree video and its influence on students' comprehension and proficiency in spoken communication.

The increased sense of presence that students report experiencing while interacting with 360-degree videos is consistent with well-established pedagogical approaches and strengthens the immersive characteristics of these videos [20,35]. This not only aligns with the results reported by [20], but also supports the assertion put forth by [5] concerning the significant influence that 360-degree videos have on the comprehension of learners. The increasing availability and cost-effectiveness of 360-degree videos, in conjunction with technological progress, have generated enthusiasm for incorporating these immersive technologies into educational endeavours, thereby bolstering the case for their continued implementation [6].

In response to the initial research inquiry (RQ1), the investigation examined the domain of oral communication abilities, acknowledging their pivotal significance in achieving success in academia and the workplace. The utilization of video, particularly 360-degree video, has surfaced as a successful strategy to tackle prevalent obstacles like student hesitancy during oral evaluations, which is consistent with the conclusions drawn by [38]. Through the provision of self-paced and location-independent content review, 360-degree videos facilitate an environment that promotes enhanced speaking confidence among students [38]. 360-degree videos, by virtue of their immersive qualities, establish modern virtual learning environments wherein pupils are enabled to investigate, engage with, and exchange thoughts regarding virtual material; this, in turn, enhances their overall educational experiences.

4.2 Perceived Advantages in Meeting Discussion Preparation (RQ2)

The study obtained positive responses when it came to addressing the second research question (RQ2) regarding the perceived benefits of utilizing 360-degree videos to prepare for meeting discussions, particularly in the context of professional interaction in the ELC650 course. These

recommendations, which acknowledge the improved knowledge, communication skills, and engaging nature of 360-degree videos, are consistent with studies by [20,35].

On top of that, participants' feedback, including requests for clear visuals, improved audio, and additional interactive elements such as subtitles, provides valuable input for refining and optimizing the integration of 360-degree videos into language education practices that resonate with previous studies highlighting the importance of these elements in optimizing the effectiveness of educational videos [4,20].

All in all, the participants' feedback is consistent with the general positive perception of 360-degree videos to augment language education. It provides some valuable insights into the role and perceived advantages of 360-degree videos in language education, specifically within the ELC650 course. The positive reception of these immersive technologies, coupled with identified areas for improvement, underscores the dynamic and evolving landscape of technology-assisted language learning. As educators navigate this landscape, careful consideration of pedagogical strategies, ethical considerations, and the integration of diverse and engaging content becomes paramount. The positive trajectory indicated by the findings encourages further exploration and refinement of 360-degree videos as a valuable tool in enhancing language learning experiences.

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References

- [1] Ruf, Alessia, Carmen Zahn, Anna-Lena Roos, and Klaus Opwis. "How do enhanced videos support generative learning and conceptual understanding in individuals and groups?." *Educational technology research and development* 71, no. 6 (2023): 2243-2269. <https://doi.org/10.1007/s11423-023-10275-4>
- [2] Abd Majid, Siti Norzaimalina, Rosnani Ismail, and Aisyah Hanum Abu Bakar. "Learners' perspective of using 360-degree video in reading classroom." *Malaysian Journal of Social Sciences and Humanities (MJSSH)* 5, no. 10 (2020): 238-246. <https://doi.org/10.47405/mjssh.v5i10.501>
- [3] Dumford, Amber D., and Angie L. Miller. "Online learning in higher education: exploring advantages and disadvantages for engagement." *Journal of computing in higher education* 30, no. 3 (2018): 452-465. <https://doi.org/10.1007/s12528-018-9179-z>
- [4] Chen, Lin. "Exploring the Impact of Short Videos on Society and Culture: An Analysis of Social Dynamics and Cultural Expression." *Pacific International Journal* 6, no. 3 (2023): 115-118. <https://doi.org/10.55014/pij.v6i3.420>
- [5] Barr, Rachel. "Transfer of learning between 2D and 3D sources during infancy: Informing theory and practice." *Developmental review* 30, no. 2 (2010): 128-154. <https://doi.org/10.1016/j.dr.2010.03.001>
- [6] Reyna, Jorge. "The potential of 360-degree videos for teaching, learning and research." In *INTED2018 proceedings*, pp. 1448-1454. IATED, 2018. <https://doi.org/10.21125/inted.2018.0247>
- [7] Boll Kassim, Nur Qursyna, Nur Masriyah Hamzah, and Nurul Hidayah Mohd Khairlani. "The Impact of Fieldwork Courses on the Students' Learning Experience and Academic Performance". *International Journal of Advanced Research in Future Ready Learning and Education* 34 (2024): 1.
- [8] Keong, Tan Choon, and Gao JiMei. "Analysing Flipped Classroom Themes Trends in Computer Science Education (2007–2023) Using CiteSpace." *Journal of Advanced Research in Applied Sciences and Engineering Technology* 46, no. 1 (2024): 15-27. <https://doi.org/10.37934/araset.46.1.1527>
- [9] Barman, Binoy, and J. Karthikeyan. "Facilitating ELT through Moodle and Google Classroom." *Restaurant Business* 118, no. 10 (2019): 506-518. <https://doi.org/10.26643/rb.v118i10.9570>
- [10] Atibuni, Dennis Zami, Deborah Manyiraho, and Agnes Nabitula Nabitula. "A Fourth Industrial Revolution Paradigm Shift in Teacher Education?." *International Journal of African Higher Education* 9, no. 2 (2022): 1-21. <https://doi.org/10.6017/ijahe.v9i2.15365>
- [11] Sosas, Rowena V. "Technology in teaching speaking and its effects to students learning English." *Journal of Language and Linguistic Studies* 17, no. 2 (2021): 958-970. <https://doi.org/10.52462/jlls.66>
- [12] Hilton III, John. "Open educational resources, student efficacy, and user perceptions: A synthesis of research published between 2015 and 2018." *Educational Technology Research and Development* 68, no. 3 (2020): 853-876. <https://doi.org/10.1007/s11423-019-09700-4>

- [13] Su, Fan, and Di Zou. "Technology-enhanced collaborative language learning: theoretical foundations, technologies, and implications." *Computer Assisted Language Learning* 35, no. 8 (2022): 1754-1788. <https://doi.org/10.1080/09588221.2020.1831545>
- [14] Kessler, Greg. "Technology and the future of language teaching." *Foreign language annals* 51, no. 1 (2018): 205-218. <https://doi.org/10.1111/flan.12318>
- [15] Anderson, Peter, Qi Wu, Damien Teney, Jake Bruce, Mark Johnson, Niko Sünderhauf, Ian Reid, Stephen Gould, and Anton Van Den Hengel. "Vision-and-language navigation: Interpreting visually-grounded navigation instructions in real environments." In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pp. 3674-3683. 2018. <https://doi.org/10.1109/CVPR.2018.00387>
- [16] Goswami, Usha. "Speech rhythm and language acquisition: an amplitude modulation phase hierarchy perspective." *Annals of the New York Academy of Sciences* 1453, no. 1 (2019): 67-78. <https://doi.org/10.1111/nyas.14137>
- [17] Ahmad, Djuwairiah, and Muhammad Ahkam Arifin. "Exploring student achievement and perceptions in an online flipped grammar course." *Indonesian Journal of Applied Linguistics* 10, no. 3 (2021): 639-655. <https://doi.org/10.17509/ijal.v10i3.31750>
- [18] Singay, Singay. "Flipped learning in the English as a second language classroom: Bhutanese students' perceptions and attitudes of flipped learning approach in learning grammar." *Indonesian Journal of Applied Linguistics* 9, no. 3 (2020): 666-674. <https://doi.org/10.17509/ijal.v9i3.23217>
- [19] Abdel-Al Ibrahim, Khaled Ahmed, Abeer Ahmed Ali, Salama Aqeel Al-mehsin, and Poupak Alipour. "Psychological Factors Affecting Language-Learning Process in Saudi Arabia: The Effect of Technology-Based Education on High School Students' Motivation, Anxiety, and Attitude through Flipped Learning." *Education Research International* 2022, no. 1 (2022): 8644890. <https://doi.org/10.1155/2022/8644890>
- [20] Sutikno, Tole, and Asa Ismia Bunga Aisyahrani. "Non-fungible tokens, decentralized autonomous organizations, Web 3.0, and the metaverse in education: From university to metaversity." *Journal of Education and Learning (EduLearn)* 17, no. 1 (2023): 1-15. <https://doi.org/10.11591/edulearn.v17i1.20657>
- [21] Gocen, Ahmet, and Fatih Aydemir. "Artificial intelligence in education and schools." *Research on Education and Media* 12, no. 1 (2020): 13-21. <https://doi.org/10.2478/rem-2020-0003>
- [22] Lampropoulos, Georgios, Vassilis Barkoukis, Kevin Burden, and Theofylaktos Anastasiadis. "360-degree video in education: An overview and a comparative social media data analysis of the last decade." *Smart Learning Environments* 8, no. 1 (2021): 20. <https://doi.org/10.1186/s40561-021-00165-8>
- [23] Dhimolea, Tetyana Kucher, Regina Kaplan-Rakowski, and Lin Lin. "A systematic review of research on high-immersion virtual reality for language learning." *TechTrends* 66, no. 5 (2022): 810-824. <https://doi.org/10.1007/s11528-022-00717-w>
- [24] Rosendahl, Philipp, Marcus Müller, and Ingo Wagner. "A 360° video as visual training support for independent movement acquisition—benefit evaluation with the TAM." *German Journal of Exercise and Sport Research* (2024): 1-10.
- [25] Wardhana, Yessy Yustia, and Ribeh Najib Muhammad. "An Investigation of Video and Audio to Improve Students' Motivation in Learning Listening during Online Learning at Ban Pongneeb School, Thailand." *Journal of English Teaching, Literature, and Applied Linguistics* 5, no. 1 (2021): 20-27. <https://doi.org/10.30587/jetlal.v5i1.2156>
- [26] Polat, Mustafa, and Bahadir Eristi. "The effects of authentic video materials on foreign language listening skill development and listening anxiety at different levels of English proficiency." *International Journal of Contemporary Educational Research* 6, no. 1 (2019): 135-154. <https://doi.org/10.33200/ijcer.567863>
- [27] Park, Minsu, Jaram Park, Young Min Baek, and Michael Macy. "Cultural values and cross-cultural video consumption on YouTube." *PLoS one* 12, no. 5 (2017): e0177865. <https://doi.org/10.1371/journal.pone.0177865>
- [28] Alghamdi, Emad A., Paul Gruba, and Eduardo Velloso. "The relative contribution of language complexity to second language video lectures difficulty assessment." *The Modern Language Journal* 106, no. 2 (2022): 393-410. <https://doi.org/10.1111/modl.12773>
- [29] Ismailia, Titik, and Suyik Binarkaheni. "Implementing a video project for assessing students' speaking skills: A case study in a non-English department context." *Journal of English in Academic and Professional Communication* 8, no. 1 (2022): 10-20. <https://doi.org/10.25047/jeapco.v8i1.3878>
- [30] Kopaneva, Tatiana, and Tatiana Pervil. "The usage of authentic video materials for the formation of cross-cultural competence of students in foreign language classes." In *E3S Web of Conferences*, vol. 273, p. 12154. EDP Sciences, 2021. <https://doi.org/10.1051/e3sconf/202127312154>
- [31] Amin, Fakhrrurazi M., and Hanna Sundari. "EFL students' preferences on digital platforms during emergency remote teaching: Video Conference, LMS, or Messenger Application?." *Studies in English Language and Education* 7, no. 2 (2020): 362-378. <https://doi.org/10.24815/siele.v7i2.16929>

- [32] Tahmina, Tania. "Students' perception of the use of YouTube in English language learning." *Journal of Languages and Language Teaching* 11, no. 1 (2023): 151-159. <https://doi.org/10.33394/jollt.v11i1.6883>
- [33] da Silva Carvalho, Tiago, Pedro Almeida, and Ana Balula. "Reliability of Digital Formative Assessment Practices and Instruments: Theoretical Review Towards an Assessment Proposal." *Handbook of Research on Determining the Reliability of Online Assessment and Distance Learning* (2021): 171-193. <https://doi.org/10.4018/978-1-7998-4769-4.ch007>
- [34] Robertson, Barbara, and Mark J. Flowers. "Determining the impact of lecture videos on student outcomes." *Learning and teaching* 13, no. 2 (2020): 25-40. <https://doi.org/10.3167/latiss.2020.130203>
- [35] van der Meij, Hans, and Paul Dunkel. "Effects of a review video and practice in video-based statistics training." *Computers & Education* 143 (2020): 103665. <https://doi.org/10.1016/j.compedu.2019.103665>
- [36] Mi, Tzu-Wei, and Mau-Tsuen Yang. "Comparison of tracking techniques on 360-degree videos." *Applied Sciences* 9, no. 16 (2019): 3336. <https://doi.org/10.3390/app9163336>
- [37] Won, Mihye, Dewi Ayu Kencana Ungu, Henry Matovu, David F. Treagust, Chin-Chung Tsai, Jungho Park, Mauro Mocerino, and Roy Tasker. "Diverse approaches to learning with immersive Virtual Reality identified from a systematic review." *Computers & Education* 195 (2023): 104701. <https://doi.org/10.1016/j.compedu.2022.104701>
- [38] Fahmi, Rauhil, Nurulhuda Noordin, Fariza Hanis Abdul Razak, Wan Abdul Rahim Wan Mohd Isa, and Ahmad Iqbal Hakim Suhaimi. "Acceptance of Unified Communications and Collaboration Applications Among Students: A Case Study of University in Sumbawa Island Indonesia." *Journal of Advanced Research in Applied Sciences and Engineering Technology* 45, no. 1 (2025): 1-16. <https://doi.org/10.37934/araset.45.1.116>
- [39] Chi, Cai, Melor Md Yunus, Karmila Rafiqah M. Rafiq, Hamidah Hameed, and Ediyanto Ediyanto. "A Systematic Review on Multidisciplinary Technological Approaches in Higher Education." *International Journal of Advanced Research in Future Ready Learning and Education* 36, no. 1 (2024): 1-10.
- [40] Živković, Slađana. "The importance of oral presentations for university students." *Mediterranean Journal of Social Sciences* 5, no. 19 (2014). <https://doi.org/10.5901/mjss.2014.v5n19p468>
- [41] Bajrami, Lumturie, and Merita Ismaili. "The role of video materials in EFL classrooms." *Procedia-Social and Behavioral Sciences* 232 (2016): 502-506. <https://doi.org/10.1016/j.sbspro.2016.10.068>
- [42] Wahyudi, Iin. "The Effect of Video Project-Based Learning on Students' Speaking Skill." *Jurnal Ilmu Bahasa dan Sastra* 16, no. 2 (2022). <https://doi.org/10.21107/prosodi.v16i2.15980>
- [43] Alizadeh, Mehrasa, and Neil Cowie. "Language learning and virtual reality: A scoping review." *ASCILITE Publications* (2022): e22258-e22258. <https://doi.org/10.14742/apubs.2022.258>
- [44] Sánchez, Rubén Martínez. "Vídeos 360º como herramienta de entrenamiento de habilidades sociales con alumnado TEA." *Metaverse Basic and Applied Research* 2 (2023): 34-34.
- [45] Rosendahl, Philipp, and Ingo Wagner. "360 videos in education—A systematic literature review on application areas and future potentials." *Education and Information Technologies* 29, no. 2 (2024): 1319-1355. <https://doi.org/10.1007/s10639-022-11549-9>
- [46] Ionescu, Alina, Tom Van Daele, Albert Rizzo, Carolyn Blair, and Paul Best. "360 videos for immersive mental health interventions: a systematic review." *Journal of Technology in Behavioral Science* 6, no. 4 (2021): 631-651. <https://doi.org/10.1007/s41347-021-00221-7>
- [47] Esteves, Jessica Rodrigues, Jorge CS Cardoso, and Berenice Santos Gonçalves. "Design recommendations for immersive virtual reality application for English learning: A systematic review." *Computers* 12, no. 11 (2023): 236. <https://doi.org/10.3390/computers12110236>
- [48] Lui, Angela LC, Christelle Not, and Gary KW Wong. "Theory-based learning design with immersive virtual reality in science education: A systematic review." *Journal of Science Education and Technology* 32, no. 3 (2023): 390-432. <https://doi.org/10.1007/s10956-023-10035-2>
- [49] Blair, Carolyn, Colm Walsh, and Paul Best. "Immersive 360 videos in health and social care education: a scoping review." *BMC medical education* 21 (2021): 1-28. <https://doi.org/10.1186/s12909-021-03013-y>