# ENHANCING VIRTUAL CONFERENCING: THE INTEGRATION OF GAMIFICATION IN AN INTERACTIVE 3D SPACE ENVIRONMENT

Undergraduate Thesis
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Bachelor of Science in Computer Science

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# ABSTRACT

**ESTRIBOR, CHARNELLE P., MANIBOG, FRANZ EMSLEY L. and PALEN, KERCHEI C. Enhancing Virtual Conferencing: The Integration of Gamification in an Interactive 3D Space Environment.** Undergraduate Thesis. Bachelor of Science in Computer Science, Cavite State University, Imus City, Cavite. September 2024.

Enhancing Virtual Conferencing: The Integration of Gamification in an interactive 3D Space Environment began in December, 2023 and was approved on January 12, 2024 at Cavite State University - Imus Campus which is located at Land Transportation Office (LTO) Compound at Emilio Aguinaldo Highway, Imus City, Cavite. The researchers developed the research study through a succession of brainstorming processes, and they then started to gather relevant studies and literature by conducting internet research of several websites, books, and articles.

The study aims to develop a gamified virtual conferencing system using interactive 3D space environments to enhance engagement, learning outcomes, and collaboration. Specific objectives include creating a 3D conferencing game that fosters user engagement and collaboration, designing a game to capture user interest, developing communication features for clarity and reduced misinterpretation, implementing an effective conferencing system, and establishing reliable authentication protocols for accurate user verification.

The methodology employed is Agile Kanban, with purposive sampling used to select participants from the target population: students, remote workers, and IT professionals. The survey will serve as the primary data-gathering instrument, designed based on ISO 20510 quality standard, to collect insights on users' experiences and feedback for game improvement. Questionnaires will be administered to gather data from the selected respondents.

The researcher proposed SIMAGENDA, this system/game revolutionizes online collaboration with its feature-rich design tailored to boost communication and productivity. Offering an immersive 3D environment and adaptable multiplayer

features, it caters to diverse users, especially those in educational and remote work settings. With integrated voice chat functionality, it ensures clear and efficient communication, even in adverse conditions like natural disasters or health crises. Garnering an impressive overall score of 4.6 out of 5, and a notable 4.62 for functional suitability, it proves its efficacy and user satisfaction. Evaluated by 40 participants, including students, remote workers, and IT professionals, it resonates strongly with its audience, promising to redefine online communication with its user-friendly interface and robust functionality.

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## INTRODUCTION

The growing adoption of advanced virtual conferencing in the Philippines is revolutionizing individual communication and interaction, providing a resilient solution to the country's unique challenges such as natural disasters (Heat causing suspensions, volcano ash falls, typhoon prediction and etc.), health emergencies (pandemics and even people with disability), and social events (Transportation strikes, Holidays, Fiestas and etc.). According to Kousky (2019) Disasters can interrupt children's education by displacing families, not having safe facilities in schools, and pushing children into continuing education despite the health concern of the natural disaster condition.

The inability to engage with an environment that afforded many alternative activities promoted feelings of boredom and a desire to engage with the environment. These results corroborate the notion that activities characterized by high opportunity costs (i.e. presence of alternative activities with the potential to be more engaging than the primary task) contribute to the experience of boredom, which signals

dissatisfaction with the current activity and a desire to engage in some alternative(Shruk and Scholer, 2020).

CVE (Collaborative Virtual Environment) meetings were experienced as more efficient overall than ordinary face-to-face meetings and both chat, and CVE were experienced as having the highest efficiency in task-oriented work (Latz, 2019).

Video conferencing such as Zoom Meetings and Google Meet, with its advanced features, provides a versatile and resilient solution to various disruptions commonly experienced in the Philippines. Whether due to natural disasters, health emergencies, or social events, the ability to connect, communicate, and collaborate in an environment ensures continuity and safety, mitigating the impact of face-to-face interaction conflicts.

The goal is to contribute valuable insights and practical recommendations that can inform the future development of virtual conferencing platforms. By harnessing the power of gamification and interactive 3D environments, the researchers aim to create a more vibrant and collaborative space that transcends the limitations of traditional online meetings, making virtual conferences not only efficient but also enjoyable and enriching experiences for all participants.

**Statement of the Problem**

Generally, this study aimed to answer "How to develop gamification in a 3D space Environment to enhance virtual conferencing?

Specifically, this study attempts to answer the following problems: In an educational setting, ensuring continuous student engagement poses a significant challenge, with many students struggling to maintain focus and interest in their learning activities over time. Long-suspensions can vary educational behavior or