Chapter 6
Metaverse-Based Virtual Workspace to Support Team Collaboration in the Laboratory

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ABSTRACT

This research set out to discover how a virtual workplace based on the metaverse may facilitate communication and cooperation in a health informatics lab in an academic institution. Concurrent triangulation was used to analyze a survey of fourteen lab members. Personas representing the various kinds of lab members were created by organizing the qualitative survey results depending on the opportunity, capability, motivation, and behaviour (COM-B) model. To supplement the results of the survey, planned work hours were also statistically analyzed. The survey data was used to

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create four fictional characters who stand in for various kinds of remote workers. The many perspectives expressed by the participants on virtual work were mirrored in these avatars, which were also used to classify the most frequent comments. Only a small fraction of the potential cooperation possibilities were used, according to the work hours schedule sheet study.

1. INTRODUCTION

Our methods of communication and teamwork at work were drastically altered by the 2019 Coronavirus Disease (COVID-19) epidemic (Japutra, A. 2024). At first, there were very few in-person gatherings and conversations that were no longer a choice for employees wishing to go about their regular duties (Attri, R. 2024). Modern means of communication have made it possible to work together remotely, which lessened the effect of social distance (Singh, G. 2022) When compared to face-to-face meetings (Umamaheswari, K. 2022) many employees find that working together online is significantly (Calandra, D 2023) he fact that it makes it harder to form meaningful relationships and eliminates chances for an informal chat The current state of remote collaboration approaches in apps includes web conferencing voice teleconferencing (Jacobsen, M. D 2016), video conferencing and "telepresence" technologies such as VR and AR.

Workers need to engage in group activities (Kalyani, 2022), communicate with others, and synthesize new information to cooperate Meccawy (2022). With web-based programs like Miro, audio and video conferencing capabilities may provide extensive cooperation on complex projects. Yet, despite developments in these areas in recent years, technological advancements, having Morbey (2010) casual conversations in a remote office is challenging. Another obstacle to virtual teamwork is the transmission of "tacit knowledge," or information that is difficult to put into words. Because everyone on the team is physically there, in an in-person workplace teams are better able to work together, communicate, and synthesize data. Same real-world location. A key component of group invention is tacit information interchange, and this idea, known as "co-location," opens up more chances for cooperation, encourages socialization, and, ultimately, and facilitates it. Telecommuters are less likely to "miss idle conversations in the hallway and other informal conversations" when they work in person, as opposed to collaborating remotely. Since members of virtual teams cannot read each other's facial expressions, they must communicate more professionally and directly than when meeting in person. The transmission of tacit information declines in tandem with the decline in the frequency of informal contact. Collaboration in virtual teams may not be as creative as in in-person teams due to this. Finding a solution that allows virtual teams to re-create a feeling for members