Requirements Analysis

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**Abstract**

The current Coronavirus pandemic has spurred a great rise in popularity of videoconferencing software, as people search for safe ways to interact without contact. This type of software is now widely used in businesses to organize meetings, in schools as virtual classrooms, and by friends and family trying to stay in touch. Despite this wide range of current uses, one area that has yet to be adequately explored is the possibility of using this software to facilitate gaming. We explore the promising design space at the intersection of videoconferencing and videogaming by conducting a survey of college students and faculty, and by interviewing several respondents for more detailed information. Our findings show that there is much demand for videoconferencing software to integrate gaming functionality, and that users of this software would prefer short minigames that can accommodate 3-5 people.

**Introduction**

Videoconferencing software has the unique ability to put distant people in contact with one another in a way that feels more comfortable and organic than a phone call. In recent months, this type of software is being used more than ever because of the Coronavirus pandemic. As health guidelines require that people refrain from gathering in the same space, people have been relying heavily on videoconferencing software to facilitate face-to-face interactions for work, school, and group socializing. However, one domain that has yet to significantly embrace the connective power of videoconferencing software is gaming. In multiplayer games, some players choose to speak to one another through an in-game voice chat, or through an external software like Discord. However, since these methods of communication are restricted to audio, the interactions fail to provide the visual elements that make true face-to-face interactions rich and engaging. This problem represents a clear opportunity to incorporate videoconferencing software into the gaming experience – or conversely, to incorporate games into the videoconferencing experience.

**Background**

At present, very little research has been performed at the intersection of videogames and videoconferencing software. One study from 2007 by researchers at the University of Michigan showed that participants playing the game ‘Mafia’ over a videoconferencing software showed similar levels of enjoyment as participants who were collocated. (Batcheller, 1) Similarly, a 2006 project at the University of Melbourne demonstrated the potential for game design in this domain by creating a three-player game of ping pong. The resulting game leveraged the apparent disadvantage of having separated players to create an experience that was only possible because of their distance. (Mueller, 1) A third team of researchers explored how long-distance families used videoconferencing to stay connected and offered suggestions on how software could be improved to help facilitate playing with young children. (Follmer, 1) The ‘Caribu’ app follows a similar theme of enabling parents and grandparents to play games with or read digital storybooks to their children or grandchildren over a video call, and there is a variety of professional software to handle pure videoconferencing (such as Skype, Microsoft Teams, and Zoom, and many more). Furthermore, most sources online agree that there are many common party games that can be played via videoconference with only minor adjustments, and the recent success of large-group social games like ‘Among Us’ demonstrates that there may be demand for games that offer greater connectivity to friends who cannot meet in person.

**Methods**

We sought to determine whether there exists a demand for video games integrated into videoconferencing software, and if so, what kind of games would be most desirable. To this end we distributed a survey of 14 questions to learn more about this design space. The survey was constructed and analyzed using Qualtrics software. Participants for the survey were gathered from among college students and faculty, and the survey was sent to each participant by email. In total, 26 people responded to the survey, and some basic analysis was conducted on the data through the Qualtrics software. In addition, participants were asked whether they would agree to a brief follow-up interview. Of those who agreed, three participants with a diverse set of survey responses were selected to be interviewed. Each of these participants were interviewed separately using the videoconferencing software Zoom, and their responses were again kept anonymous. The interview format was semi-structured with a mix of closed and open-ended questions, and no audio or visual recordings were taken.

**Results**

The survey results showed that the most used videoconferencing software among respondents was Zoom, with 53.8% of respondents, and FaceTime was second with 34.6%. 84.6% of respondents indicated an interest in playing games that are integrated into a videoconferencing software. Of those that indicated interest, the responses showed that “socializing with friends,” “virtual events,” and “school” were the main contexts in which users would play such games. These same respondents showed a strong preference toward games with shorter duration, as 66.7% voted for “2-3 minute minigames” as opposed to 23.8% who selected “30 second turn-based games” and 9.5% who preferred “15+ minute games." Two thirds of these respondents preferred larger groups of 3+ people, as opposed to solitary or two player games. Only 4 total respondents stated that they had attempted to play a game over a video call – games such as Quiplash, scribbl.io, and the Jackbox suite were given as examples – and these respondents rated their experience with playing such a game over video call as somewhat negative, an average of 2.5 on a scale from 1-5. One final survey question we asked was about the typical amount of time the participant spends multitasking in videoconference meetings; 19.2% of respondents multitask less than 5% of the time, 26.9% multitask 5-25% of the time, 30.7% multitask 25-50% of the time, and 23.1% multitask more than 50% of the time.

The participants who were interviewed showed some patterns in their responses; for one, their ideal group size is about 3-5 people, and the ideal duration of a game for them is short (around 5 minutes). All three respondents reported being bored often during Zoom meetings and occasionally playing games during meetings for entertainment.

**Discussion**

The survey and interview results confirm that there is some demand for games integrated into Zoom. Zoom was the most used videoconferencing software among our survey respondents, so we will focus specifically on design opportunities in that context. Additionally, Zoom scored the lowest of all videoconferencing software options when participants were asked to rate how fun they found it; this observation offers further motivation for focusing on Zoom, as integrating games here could alleviate that problem. Based on the survey and interview findings, short games accommodating 3-5 players that last only a few minutes would likely be most popular. Another finding is that our respondents – which were mostly college students – are frequently distracted during Zoom meetings, with more than half of respondents saying they are usually multitasking at least 25% of the time during these meetings. The interviews support this observation, as all three interviewees reported that they are often bored in Zoom meetings and frequently play video games to pass the time during the meetings. One might share the concern that incorporating games into software meant to provide a focused and professional environment could make it easier for users to become distracted. While this is a valid worry, it can be solved simply by allowing the host to disable the gaming capabilities in their meeting. On the other hand, offering the ability to play short games with other meeting attendees could foster the kind of spontaneous interactions among peers that are virtually nonexistent in current videoconference environments, where interactions are usually structured rigidly so that the meeting host speaks to everyone at once and everybody else remains silent except to address the whole group themselves. Regardless, gaming capabilities would likely be popular in less formal settings; the vast majority of respondents showed interest in videoconferencing games, and socializing with friends was ranked the second reason why respondents used the software at all. Based on our findings in this study, we are confident that videoconferencing software hold great untapped potential for gaming, and incorporating gaming elements into these kinds of software is likely to improve them.

**Bibliography:**

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