

The Effect of Online Role-Playing Games on Collaborative Skills

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Abstract. Online role-playing games (ORPG), as one of the most commercially successful entertainment software programs, continue to expand in terms of income and user interaction, with players congregating in their virtual area and forming communities around them to support one another. With the exception of traditional offline computer games or networked games with a finite number of players, ORPGs are often seen as an environment with sophisticated dynamics of social interactions. As a result, it is considered that playing these games may produce collaborative skills in the players since they must continually engage with the game environment as well as other users. Qualitative methodologies are exploited to perform exploratory research on collaborative skills in Class RPG, an online educational RPG developed in Classcraft. The findings show that several sorts of collaborative skills arise during gameplay. While some of these collaborative skills cause significant challenges for even experienced players, players seem to find techniques to overcome them. It has been discovered that certain types of collaborative skills are actually beneficial in order to make the game more complicated. A series of guidelines are developed to assist game creators in dealing with collaborative skills.

Keywords: Classcraft, collaborative skills, game education, online role-playing games.

1 Introduction

Computers, video games, and the Internet are deeply interwoven in the everyday lives of today's youngsters. The Games Generation has been reared with, and gotten acclimated to, the worldwide connectivity of email, broadcast messages, bulletin boards, user groups, chat, multiplayer games, and instant messaging [1]. As a result, today's students are more tech-savvy than their teachers and rapidly accept new technology for communication and enjoyment. Instead than being fearful or resistant, suggests that teachers "co-opt" the technology their students are already familiar with in order to pique their interest and improve their students' ability to study. He believes that the actual interactivity provided by computer games makes them an especially potent medium. Many of the objectives of education and games are the same, such as collaboration and innovation [2]. Furthermore, the basic skill today is the skill of learning and the ideal use of games is to exploit the inclination to develop it.

Serious online role-playing games can provide a theoretical paradigm for computer-supported collaborative learning, which emphasizes the use of ICT as a mediating tool for collaborative virtual environments [3]. Collaborative learning, which has its roots in social constructivism, places a premium on students' ability to communicate effectively across a variety of cultural and linguistic contexts. Multiplayer online role-playing games

(MMORPGs) are a great example of this phenomenon since new players quickly become engaged in the community's sociocultural practices and learn new information and skills from their peers [2]. There are a variety of cognitive benefits for students who work together to create, test, and use a massively multiplayer online role-playing game. Project Massive, an investigation into online gaming communities, found that most of them followed a pattern of back-and-forth, collaborative problem-solving [4]. Game playing and construction, scheduling and coordination, providing and receiving help and guidance, and interacting socially are the four main sorts of activities that occur during gaming sessions. All of these are crucial interpersonal communication skills for success in the workplace and beyond.

MMORPGs are defined as networked virtual environments in which multiple geographically distributed users interact with each other in real time providing a new medium for players to interact with one another, learn from one another, and eventually form communities online [5]. Players in massively multiplayer online role-playing games need to be able to juggle many tasks at once. While navigating the virtual world and using the in-game items that are often characterized by the game's intricate mechanics, players must also learn to deal with the social dynamics surrounding the game. Overwhelmed brains can't play their best, especially when starting off. The mental effort needed to digest a certain volume of information is commonly referred to as the "cognitive load" of the material [6].

Numerous prior research have attempted to provide guidelines and suggestions to lessen cognitive demands in multimedia programs, most notably those used for e-learning. There is now a growing body of literature on the study of MMORPGs, spanning areas as diverse as their sociological and psychological effects and their technical aspects, such as their network traffic characteristics [7]. Because of the increasing popularity of "serious games", it's no surprise that academics are looking at the possibility of employing MMORPGs in the classroom. While this seems like a good concept in theory because it promotes collaboration among students, not much research has been done to investigate the potential for increased mental strain from participation in these games. In addition, since MMORPG is applied in classroom, it is suggested as ORPG.

ORPG in particular encourage players to juggle a number of different responsibilities simultaneously. As the game progresses, players will engage with a variety of players to accomplish the objectives of each map or scenario. This require players to hone their characters' skills and gain the charisma necessary to successfully bargain with other players. Multiplayers must work together to complete the goal, therefore they will need to introduce themselves and discuss what they can provide to the team through conversation. Both need the players to interact with one another and share information using a common language. Through social engagement, whether in-game or in real life, players are able to share their stories and perspectives with one another. In addition, players may need to redo some activities in-game when they fail to meet the standards for advancement to the next level or stage. These challenges present players with opportunities for repetition, which may be used to strengthen learning through the use of language and social skills. This study thus proposes the use of ORPG in Probabilistics and Statistics course. The objective is to assess the impact of ORPG in collaborative skills.

2 Research Method

Third-year students from the Informatics Departments at Universitas Negeri Surabaya (n=82; 42 males, 40 females; average age = 21) participated in the study. Classes were used to form groupings for the students. The ORPG was employed by the experimental group, whereas the control group used a conventional paper-based method. There were a total of 42

students split evenly between the experimental and control groups. Every participant, both in the experimental and control groups, was taught by the same lecturer.

This study used a quasi-experimental approach. The experiment was done once a week for two weeks, with the exercise split into two periods of 50 min. The experimental classes had half an hour to play around with the software on their own. The experimental classes then used the system to solve issues for 15 minutes before verifying their solutions for another 15 minutes. After receiving instructor comments, students had 10 minutes to further improve their concerns. After making the necessary changes, they were instructed to resubmit their issues to the computer. The next 15 minutes were spent having students go through a game-based series of problems. The control classes were participating in the same activity by utilizing the conventional paper-based technique. Before moving on to the digital portion of the lesson, students in the control group completed the paper-based task for 15 minutes. After 20 minutes of working on paper and pencil, they had the difficulties nailed down. At last, they got some feed-back from their instructor. Once the two weeks of experiments were over, both groups were given the questionnaire to measure their collaborative skills.

The questionnaire used to determine participants' perceptions of ORPG engagement was adapted from "The Game Experience Questionnaire". The questionnaire consists of several dimensions: *Sensory and Imaginative Immersion, Tension, Competence, Positive Affect, and Challenge*. The total number of questionnaire statement items is 20. The 25-item scale for the perspective of collaborative skills contained five dimensions: leadership, responsibility, goal, role of the instructor, and group work willingness.

3 Results and Discussion

The characters in this ORPG are divided into three: Guardians, Mages, and Healers. Each of the characters has its own distinctive features. Guardians are protectors because when a friend in a team loses health points (HP), guardians can use their power to absorb all dangers and directly neutralize the situation. In effect, the HP of the guardian will disappear a little bit. Students who will lose a lot of HP (entering class late, not doing homework) then the guardian is the right choice because the guardian has a maximum point of 80 HP. Mage is an action point (AP) provider, because it has the most maximum AP of 50 AP. So it can use power more often than other characters. The uniqueness of mage is that he has the power of Psionic Flare to restore AP from his team members. Students who are diligent and confident in being able to save their team can choose this character. Healers are healers, so when team members are in trouble, healers can use their power to restore HP. Healers have 50 HP and 35 AP making them a lifesaver and survival. Examples of guardian, mage, and healer characters are depicted in Figure 1.

Quests are missions or tasks that must be completed by a team. In this study, the quest given was an exercise on Probability and Statistics. The developed SRPG has five levels. Each level consists of five quests that each team member must complete. If a team member is unable to complete a quest, it affects the team's performance. The story developed in this SRPG is the war between humans and aliens as well as the attempt to stop the war and the Peace Organization. There are three regions used in completing the quest, namely the human territory, the aliens region, and the peace organization area (Figure 3). The quest given is about the story of the possibility that occurs if the war is carried out.



Figure 1. Game characters



Figure 2. Game stages

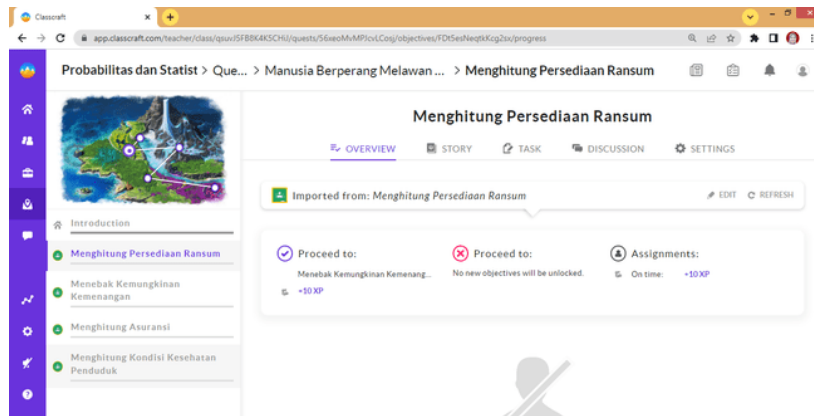


Figure 3. Sample quest

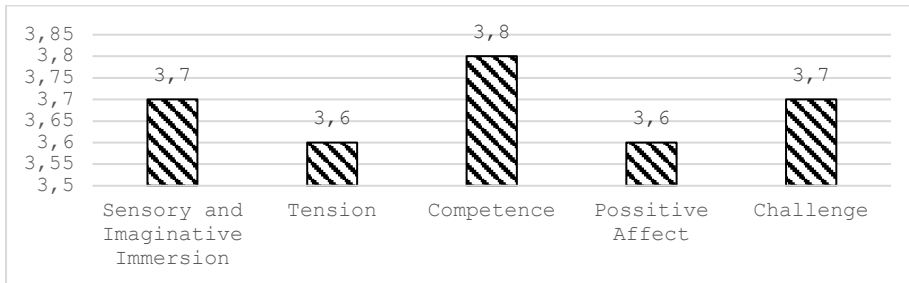


Figure 4. Results of participants' perceptions of ORPG engagement

Self-perception questionnaires in playing ORPG were measured based on Sensory and Imaginative Immersion, Tension, Competence, Positive Affect, and Challenge. The average score obtained for each of these dimension's ranges from 3.6 – 3.8. Thus, it can be concluded that students do not have difficulty in playing ORPG and goes well. The results of this study showed that after completing the project, more students in the experimental group than in the control group felt that class was enjoyable (65%) and fascinating (35%), while more students in the control group felt that class was repetitive (77%) and essential (23%). Higher percentages of students in the experimental group (57% vs. 43%) disagree with the statement, "the class represent a subject that only few people can understand".

According to the findings, the approach that was created through the utilization of ORPGs makes a contribution to the development of cooperative working abilities. Based on the findings, we were able to deduce that the group that took part in the experience has a more favorable global perception of their ability to work together than the students who were assigned to the non-equivalent control group [8]. They also have a more favorable perception of the dimensions related to work responsibility and work objectives. These findings hold true regardless of the socioeconomic status of the school or the students' scores in science. When asked about leadership, the students who were part of the non-equivalent control group gave the impression that they felt it was more important for their group to have a person who oversaw the work of the other members than the students who were in the experimental group did. The explanation for this is because although though the non-equivalent control group had a member of the group designated as leader, the responsibilities for completing the tasks were distributed among all of the members of the team.

The students who participated in the experience had a better opinion about class and a more familiarized perception of science compared to the students who did not participate in the experience; however, there was no association between the variables in either case. In addition to the results regarding collaboration and problem solving, the students who participated in the experience had a better opinion regarding in general. This adds to the findings of previous research on the educational potential of mobile devices, the contribution that mobile technology and videogames make to the learning, and the significance of contextualizing scientific phenomena so that students can have a better understanding of them [9].

It is not an easy task to successfully incorporate gaming into educational settings [8]. There is an effort being made to increase one's ability to solve problems collaboratively and develop problem-solving abilities by integrating mobile devices and serious games onto an ad hoc learning technique. These abilities are part of the skill set required in the 21st century. As a result, the creation and assessment of a technique that can increase these skills is a highly essential contribution to the educational systems that already exist. The kind of abilities that were being tested should be considered when attempting to make sense of the fact that the research did not have a significant influence on either the ability to work well with others or the ability to solve problems [9]. In point of fact, it is conceivable to entertain the idea that the amount of time necessary to acquire one of these skills as opposed to another may be different.

4 Conclusions

Students in their third year of studying Informatics are given a series of ORPG-based learning activities in order to help them strengthen their ability to work together effectively. The outcomes of these activities are presented in this research. The research hypothesis that was investigated during the course of the study was that ORPG-based learning activities can contribute to the development of collaborative skills, the enhancement of views of science, and

an increase in the students' desire for learning. This work has been directed by an interest in creating learning activities to incorporate ORPGs with a logic that is closely suited to the logic of the most attractive games and combining it with learning contents. The development of games with educational purposes paves the way for new avenues of inquiry into the ways in which technological tools mediate teaching and learning practices and the circumstances in which such activities really enhance educational outcomes. We suggest that more research on MSGs is very important. Investigating the use of ORPGs leads to an improvement in learning might be one potential direction of research in the future. It is recommended that additional work be done in the future on the study to improve certain aspects of the three ORPGs in order to better cater to the mental models of the students and to the learning environments that permitted the students to make use of new places outside the classroom for the purposes of the curriculum.

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