# Traditional Quizzing with a Twist: Involving University Students in the Development Process

**Hanne M. Haave [1], Souad Slyman [2] and Tone Vold [1]**
[1]Inland Norway University of Applied Sciences, Rena, Norway
[2]Roehampton University, London, England

Hanne.haave@inn.no
Souad.Slyman@roehampton.ac.uk
Tone.vold@inn.no

**Abstract:** Quizzes have been used for educational purposes for many years. Mainly it has been digital quizzes like Kahoot or ZippyGo. However, there is an ongoing debate on the security of students' data. As the university cannot be responsible for what is stored in computers outside of Norway and at the same time paying attention to the General Data Protection Regulation (GDPR). The General Data Protection Regulation (GDPR) is a critical framework for data privacy across Europe, including the UK, Norway, and the EU (ICO, 2024). The GDPR came into force in 2018, agreeing data privacy laws across all member states. It applies to any organization processing personal data of individuals in the EU, regardless of the company's location. The regulation grants rights such as data access, correction, and deletion, and imposes strict penalties for non-compliance (ICO, 2024). As part of the European Economic Area (EEA), Norway implements the GDPR similarly to EU countries. The regulation applies to Norwegian businesses processing data of EU citizens, ensuring that data privacy standards are uniform across the region (Team, 2016; ICO, 2024). Therefore, utilizing digital games have become increasingly difficult. The students, however, are missing the gaming, and the lecturers are missing the opportunity to utilize games-based learning techniques. This leads the lecturer in the research methodology course to "Go Native" and turn to the "old style" analogue quizzing. However, previous research showed that students are not only engaged in the solving of the quizzes, but also, they engage in the development of the questions and answers for the quizzing, i.e. 'co-creating'. This paper will present a pilot study of a paper-based quiz developed by university students, and their reactions from this. Through informal interviews, data was collected to establish how they felt about this "old school" quiz type of learning after having had several different digital tools for educational games. In this paper, and based on our previous research findings (from the informal interviews with the students), we will develop this further into a digital but low-tech version of a quiz game; it should be still both fun and educational.

**Keywords:** quiz games, games-based learning, student involvement, low tech gaming,

## 1. Introduction

Since Elizabeth Magie Phillips developed the game "The Landlords Game" in 1902 to 1903 to teach people about "land grabbing and its consequences" (NPR, 2015), games have been developed for learning purposes. Even before this we have reasons to believe that games have been played for educational purposes predating dice (Hellerstedt and Mozelius, 2019).

Games-Based Learning is a significant area of research because they are integrated in many educational and business fields as a pedagogical tool (Slyman, 2018, 2022). Games-Based Learning is a type of games that use technology to deliver/enhance teaching, learning & assessment (Vos, 2014; Slyman, 2018). These games have clear learning outcomes where players can experiment with real-life scenarios in a risk-free environment (Malaka, 2014). We propose that through games with its characteristics, design and mechanics (Gee, 2005) and as a motivating pedagogical tool for learning we could enhance teaching and learning of complex subjects such as research methods. Since games allow students to engage in real-life experimental experience and use decision-making skills to resolve real-world problems in a safe environment (Slyman, 2018, 2022). In today's era of evolving digital technology, games have advanced so much from dice and boardgames to fancy graphics and advanced game technology. Games such as Sid Meier's Civilization have been used to teach strategy and history (King, 2021) whilst other games, such as SimCity, are used for teaching and learning business statistics (Slyman, 2022).

In traditional classroom settings, games for learning are often either as a simulation game to simulate a situation or a real-life case (Vold et al., 2018), or as for example quiz game (Haave and Vold, 2018; Slyman et al., 2019).

Previously, Kahoot! have been used in some of the courses (Research Methods, ECTS 7,5) (Haave and Vold, 2018). The students enjoy gaming as an aspiration as it makes a welcomed change from ordinary classroom lectures. However, with the introduction of General Data Protection Regulation (GDPR) several universities had to go through programs used in education to secure that data regarding students are not exposed to illegal or inappropriate use. This led to the withdrawal of several licences, amongst them Kahoot! as this their databases

are placed outside Norwegian jurisdiction. Only organizations with databases in Norway and with the correct security level were allowed. This means that we had to use traditional low-tech quizzes where we read the questions, and the students write down the questions on a piece of paper. They then exchanged and corrected each other's answers. The questions were developed by students, but from different classes.

In the following, we will present the theoretical foundations behind games for learning purposes, our method of inquiry, initial findings and suggestions/ improvements for our future research. Moreover, we will propose ways of using previous research data, elements of digitalization and student inputs to organize a quiz that meets the requirements of the GDPR, but at the same time offer students different inputs and a motivational boost during classes.

## 2. Theoretical foundations

Playing is an essential part of being a human since, for example, children learn social behaviour from play (Huizinga, 1971). Indeed Eicher-Catt (2016) find that play is an essential part of "human learning and, in some of its manifestations, can be linked to the sacred dimension of human existence."

Research on learning outcomes of games has had different labels such as serious games, educational games, games for learning, and games-based learning, and has been conducted for several years (Noemí and Máximo, 2014, Vold and McCallum, 2011, Vold et al., 2018, Haave and Vold, 2018; Slyman, 2018, 2022; Slyman et al., 2019).

One of the first game pioneers to seek a definition was Clark C. Abt, as he descried serious games to be effective devices for training and teaching (Abt, 1966). Serious games can suit students of all ages as they seemed to be supporting motivation and enabled effective communication regarding concepts and factual information regarding several subjects. Also, it allowed for explorations of different types of problems in a safe environment.

Sawyer (2007) claims that serious games are simulations of what happens in the real world and thus developed for the purpose of problem solving whilst Noemi and Máximo (2014) suggest that the main purpose of serious games is "to train or educate users". Serious games may be used for marketing and/or advertising. According to Noemi and Máximo (2014) a game "is a physical or mental contest played according to specific rules, with the goal of amusing or rewarding the participant."

Another definition of a game is offered by Salen and Zimmerman (2004) "a game is system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome." For a quiz game the "conflict" is the competition, the rules are "the correct answer acquires points" and the "quantifiable outcome" is winning the quiz.

A video game is a mental challenge played on a computer, following specific rules for fun, recreation, or competition. A serious game, on the other hand, is defined as a mental challenge played on a computer with specific rules, using entertainment to achieve goals in government or corporate training, education, health, public policy, and strategic communication (Zyda, 2005). The reintroduction of fun has led to the concept of edutainment (Gee, 2005; Prensky, 2001). The common belief is that learners' interest in a subject increase through the enjoyment and rich experiences provided by the game. According to Abt (1966) it is not only the interest, but also the *motivation* increases and this may be one of the clearest advantages.

Serious games are typically designed to balance educational content with gameplay, ensuring that players can retain and apply the knowledge in real-world situations. (Video) Games are not adversaries but rather valuable tools to engage in genuine learning processes (Prensky, 2003; Gee, 2003). This points out to the difficulty of designing serious games, the intersection between being a game designer and an educator. Educational games should educate, and other games are for entertainment. However, the entertainment is an "instrumental value", although not the objective for the design (Abt, 1966).

Limitations of serious gaming may be the teachers' attitude towards gaming and the balancing of explaining rules versus letting the students just play and discover the rules (Abt, 1966). Some teachers do not trust the outcome of a game such as validity of the content.

Another limitation that arose with the introduction of the General Data Protection Regulation (GDPR) (Team, 2016) was the protection of students' data. Not being in control of the storage and usage of data that is recorded from systems databases as they are not within the boundaries of the Norwegian jurisdiction. As it is not possible to sufficiently secure this data, many universities have decided to stop utilization of such programs and applications that are working on servers and databases outside of Norway.

Also, the classrooms are not adapted to utilize games for learning purposes (Shaffer et al., 2005). The facilitation is still of ordinary classroom settings with little or no adaption to the digital advancements that have been developed over the years. Abt explained back in 1966 that " if learning is based on experience and drawing analogies to previous experiences, it seems clear why the effective teaching of social studies is most difficult when only conventional techniques are used" (Abt, 1966). The classrooms – with few exceptions – are still based on a setup used for centuries.

## 3. Method of Inquiry

The method of inquiry for the pilot study was informal group interviews (Dalen, 2011). This qualitative approach (Patton, 2002) allows the informants to speak freely and even discuss the quizzes amongst each other. This may provide a richer source of information as informants' experiences are elaborated and developed further. The researcher conducting the informal group interviews took notes and did a check back (Guba and Lincoln, 1989) with the students to ensure the validity and reliability of the research notes. These notes were then analysed and interpreted line-by-line, sentence-by-sentence using colour coding highlighting key themes within each section. We looked for hidden meaning & actions. Asking questions, engaging/interacting with data, such as why participants are expressing their views/experiences the way they did. We reflected on each data and examined it. At this stage, all the coded data were linked back to the literature.

## 4. Initial Findings and discussion

The results from the preliminary investigations show that students really enjoy the quizzing experience, as they claim that "it provides a welcoming disturbance" besides claiming to learn from it. "It put some themes in a different perspective" and "it is really motivating to view the curriculum from this angle". Supporting statements such as these support the idea of gaming supporting education, as stated by Noemi and Máximo (2014).

Our participants referred to the quizzing as being motivating which is in line with what a number of researchers have reinforced (Abt, 1966; Prensky, 2001; Gee, 2005; Vold et al., 2018; Haave and Vold, 2018; Slyman, 2018, 2022).

Our participants also recognized that their teacher is willing to alternate classroom lectures for learning purposes. This is parallel to what Abt (1966) remarked as 'possible limitations' and 'teacher reluctance', which is not an issue here. On the contrary, teachers have been more than willing to utilize novel techniques to support teaching and learning outcomes (Haave and Vold, 2018).

Shaffer et al. (2005) pointed out that classrooms are not designed to play games, however, the layout of the classrooms do not seem to interfere with playing the game. On the contrary, it is important that there is a focus on the teacher (or the one reading the questions for the quizzes) and that all students are able to see the same screen, hence ordinary classroom setups will work for quizzing.

## 5. Conclusion and Future Research project

The students found the quizzing both engaging and something that they can learn from even if it is a low-tech version of a game. It allows the teacher to provide a change in the ordinary teaching regime which is also welcomed by the students who find this motivating and fun. Moreover, it can be played without reorganizing an ordinary classroom setting.

For future research project, we will use a mixed methods approach (Creswell and Clark, 2007; Patton, 2002), qualitative and quantitative. Qualitative research will be conducted using semi-structured interview guidelines on a one-to-one basis and in groups. Quantitative research will be carried out using surveys (Dwyer & Slyman, 2016). The students will be invited to take part in survey. Together, these mixed data will provide us with sufficient information to use games-based learning for further development and greater support for learning outcomes.

The new project will be about re-introducing quizzes developed by previous students. The students will play these quizzes prior to the gaming (Haave and Vold, 2018). Then they will be required to develop more questions and answers from a designated part of the textbook and add a photo/picture they find suitable for the questions. Questions and answers will then be incorporated into a PowerPoint file and sheets (paper). The presentations (MS PowerPoint) will be put up on the teacher screen, and students will have to fill in the (analogue) schemes, as the quizzes are presented. After this, students will swap schemes and the teacher will go through the answers. Next, research will be conducted amongst students to get their immediate feedback. Surveys will follow and be distributed to gain further understandings of how students perceive this type of quizzing. Moreover, we will ask them to provide examples of learning as well as suggestions for further developments.

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