

The Challenges of Teachers Using Digital Games for Game-based Learning in Primary, Middle and High Schools

Lingbing Huang^{1,a,*}

¹*Moray House School of Education and Sport, The University of Edinburgh, Holyrood Road,
Edinburgh, EH8 8AQ, The United Kingdom*

a. lingbinghuang@hhu.edu.cn

**corresponding author*

Abstract: Using digital games for game-based learning provides great potential for language learning. However, game-based learning differs from gamification, which teachers may be more familiar with, and it presents numerous conceptual and technical challenges to current front-line teachers, who are considered essential for the success of any technology integration project in schools. It is undeniable that the implementation and effectiveness of game-based learning significantly relies on the willingness of classroom teachers to embrace it. Therefore, this article explores front-line teachers' understanding and attitudes toward using digital games for game-based learning and its application in teaching. 4 front-line teachers from the primary, middle and high school levels in China participated in this qualitative study. Data for the study were gathered through semi-structured interviews and subsequently analyzed using thematic and content analysis. According to the findings of the study, the participating teachers showed negative attitudes towards using digital games for language learning purposes, and almost all participants had difficulty distinguishing between game-based learning and gamification; In addition, all participating teachers showed their limited ability in using game-based learning strategies as educational support in teaching. This research aims to enhance the understanding of English teachers' perceptions and attitudes toward using digital games for game-based learning in the Chinese context, potentially leading to constructive recommendations for educational authorities. Moreover, relevant teaching resources, including teacher training programs, can be further tailored to meet the specific needs of educators.

Keywords: Teachers' perspective, ELT, game-based learning, digital game.

1. Introduction

In educational environments, the use of games for learning is by no means a new phenomenon. Personal smart devices and ubiquitous networks have made digital games one of the mainstreams of entertainment for today's students. Given this trend, it seems inevitable that educators will need to consider how to apply digital games in the field of education.

In mainstream entertainment systems, digital games, supported by advanced multimedia technology in online environments, provide great potential for language learning [1]. Game-based learning appears to effectively address challenges in language education, such as maintaining students' enthusiasm and meeting their personalized learning needs, which can be difficult when

relying solely on formal learning environments. However, game-based learning differs from gamification, which teachers may be more familiar with, and it presents numerous conceptual and technical challenges to current front-line teachers. Teachers, whose perceived value is regarded as a vital part of the success of any technology integration project in school, can be considered the true change agent of the schools [2]. Moreover, the adoption and effectiveness of game-based learning largely depends on the acceptance of the classroom teachers [3]. Therefore, this article aims to explore front-line teachers' understanding of game-based learning and its application in teaching, offering suggestions for future teacher training. In order to do so, the first research question will be to what extent the front-line teachers know about the concept of game-based learning. After that, what teachers think about using digital games for game-based learning in the language learning process will be explored. Finally, the research will try to explore what challenges the front-line teachers using game-based learning as students' learning strategies. By addressing these research questions, this study seeks to contribute both theoretically and practically to English Language Teaching (ELT) in China.

2. Method

2.1. Sampling

This study employs purposive sampling that takes into account different teaching experiences and gender [4]. In this research, recruiting teachers in this manner is justifiable for the following reasons. Firstly, gender differences are likely to lead to differences in teaching styles, which may enrich the data. Secondly, teachers who have different teaching experiences appear to have diverse opinions on the target topic, which may be helpful for research to obtain richer data.

Then, the researcher sent invitations online and recruited two English teachers who were willing to participate and were respectively one elementary school teacher and one junior high school teacher. Then, the researcher tried to contact an English teacher at a certain high school to ask for help in posting recruitment information on campus to find volunteers willing to participate in the study, resulting in two English teachers volunteering to take part. Finally, four English teachers were recruited in the study.

In Table 1, it presents information about the participants involved in the study. The four participants, representing both private and public schools, are all from southern China. Among them, there is one primary school teacher, one middle school teacher, and two high school teachers. The gender composition includes both male and female English teachers; however, there is a notable imbalance in the male-to-female ratio among English teachers in China. Specifically, only one female English teacher was identified at both the elementary and middle school levels, while the high school participants included both male and female teachers. In terms of teaching experience, the participants consist of one primary school English teacher with less than five years of experience, two English teachers—one working in junior high school and the other in senior high school—each with over five years of experience, and one teacher with over twenty years of experience.

Table 1: Participants' profiles

Teacher	Gender	School-type	Teaching experience	Geographical location
A	Female	Public primary school	3	Southern China
B	Female	Private middle school	6	Southern China
C	Male	Public senior school	24	Southern China
D	Female	Private senior school	6	Southern China

2.2. Research Design

After examining several potential research methodologies, qualitative descriptive approach was selected ultimately [5].

Qualitative description provides detailed and direct accounts of specific phenomena, situations, or experiences [5]. More specifically, qualitative description involves collecting data through interviews, observations, or documents, and using an inductive analysis process to identify key themes, patterns, or concepts [5]. The goal of qualitative description is to offer rich descriptive accounts of the phenomena being studied, rather than to provide theoretical explanations or test hypotheses [5]. Thus, qualitative description aligns well with the objectives of this research, which is why it was chosen.

According to the chosen methodology, the semi-structured interview is considered the most suitable data collection method for this research [6]. It is more flexible than highly structured interviews, allowing researchers to adjust the listed questions [7].

Firstly, based on the clearly defined research questions mentioned above, the researcher designed an interview outline that included open-ended questions, ensuring that the questions could guide participants to express their perspectives and experiences in depth. Then, through communication tools, including phone calls and online chats, the researcher confirmed the mode and location of the interviews with the participants. Ultimately, all interviews were conducted online. During the interviews, the researcher used recording devices (with the participant's consent) to capture the entire conversation. Then, the interviews were followed by data organization and analysis, during which the researcher transcribed the interview records, coded the data, and conducted thematic analysis to extract key insights and patterns. Finally, based on the analysis results, a research report was written to reflect the participants' voices and research findings.

2.3. Data Collection

Given its strong alignment with the research objectives, semi-structured interviews were selected as the research method. In the data collection process, primary data is considered an effective means of gaining deeper insights and understanding of specific issues [8]. Therefore, data was collected through the interviews, which allows researchers to obtain participants' attitudes and perspectives on particular issues [6]. Highly structured interviews require strict adherence to predetermined questions, including the order of the questions. While this rigid format can ensure consistency in research in certain situations, it also has its limitations. Because researchers must follow a set process in asking questions, the responses they obtain are often based more on their own "preconceptions" rather than accurately reflecting the participants' views and experiences. [6]. In contrast, unstructured interviews resemble a conversation and consist of several open-ended questions. Compared to highly structured interviews, semi-structured interviews allow researchers to modify the listed questions as needed, providing greater flexibility. Based on these considerations, semi-structured interviews were chosen as the data collection method, and an interview plan was designed to gather information from participants.

In the data collection process, the interviewer first assessed the extent to which front-line teachers understand the concept of game-based learning. Next, informed by the interviewees' perspectives on digital games, the researcher then further investigated teachers' opinions on using digital games for game-based learning in language education. During the last part of the interview, the research explored the challenges that front-line teachers face when using game-based learning as a strategy for student learning.

2.4. Data Analysis

The data of the study was analyzed using following data analysis methods.

First is content analysis, which can quantify the frequency of certain words, phrases, themes, or concepts appearing in the recorded materials [9]. The advantage of using content analysis lies in its ability to facilitate qualitative inferences through a systematic examination of the meanings and semantic relationships associated with words and concepts. By exploring the subtleties of language and context, content analysis allows the researcher to uncover deeper insights and patterns that might not be immediately apparent.

In addition, the study also analyzed data via thematic analysis proposed by Braun and Clarke [10]. In the course of this research, the key advantage of employing thematic analysis is its capacity to facilitate a more nuanced exploration and understanding of a particular issue. By identifying and analyzing emerging 'themes' from the data collected, researchers can uncover deeper insights and patterns that might not be immediately apparent. These themes serve as the culminating results of the data analysis process, reflecting the core ideas and significant findings that arise from the participants' experiences and perspectives [11]. This approach allows researchers to engage with the data in a more open and exploratory manner, fostering the identification of patterns, themes, and insights that genuinely reflect the participants' experiences and perspectives [12].

In the actual data analysis process, the six phases proposed by Braun and Clarke were chosen as the framework for this section [10]. Initially, the collected data were preliminary processed by the researcher through listening to recordings, transcribing, and translating the interviews. During this process, some preliminary thoughts were recorded. Following this, the data were coded by emphasizing sections of the gathered text, and the researcher summarized them with labels and codes. This process not only aids in organizing the data but also facilitates a deeper understanding of the underlying concepts. Following this initial coding, patterns within the created codes were identified, leading to the grouping of codes with similar patterns into potential themes. During this critical phase, some codes were discarded due to their vagueness or low frequency of occurrence, ensuring that only the most relevant and significant codes remained for further analysis. In the theme refining process, the researcher engaged in a continuous review of the generated themes to ensure their consistency with both the individual codes and the entirety of the data set. During this period, some themes were split, merged, eliminated, or even newly created. Ultimately, through this comprehensive and iterative process, six themes were confirmed, each encompassing relevant and important codes that encapsulated the core findings of the study.

3. Results

3.1. Negative Attitudes toward the Impact of Digital Games on Learning

All participants expressed varying degrees of negative attitudes toward the impact of digital games on learning. Among them, Participant D, a high school English teacher with six years of teaching experience, stated that *"it is very 'dangerous' for students to be exposed to digital games during high school"*. She continued that, in her teaching experience, students can easily become addicted to digital games, which will only harm their studies, let alone have any positive impact on their language learning. However, she also noted that the existence of games is indeed very appealing to students, so she was used to adapting some English reports about games to draw learners' attention to language learning. Participant B who is a middle school English teacher with six years of teaching experience mentioned that resistance to games even comes from the school authorities. She said she learned that almost all schools do not allow students to bring smartphones, but they do permit students to carry older phones that do not support gaming functions. Participant C, a teacher with 24 years of

experience, mentioned alongside Participant D some high-quality single-player games, such as “Black Myth: Wukong,” which may provide students with a great learning experience, however, are believed more likely to learn history and literary knowledge rather than language skills. In addition, they both mentioned that high school students should ideally avoid online games. During the interview, Participant A, a primary school English teacher with three years of experience, believed that it is unavoidable for elementary students to be exposed to simple digital games in their daily lives. However, she also questioned about there were positive impacts that digital games can bring to language learning, whether in or out of the classroom.

3.2. Confusion between Game-based Learning and Gamification

Among all the interviewed teachers, Participant A, the only one with overseas study experience, stated that she had heard of game-based learning and could roughly explain some of its basic concepts, as well as distinguish it from gamification. The other participants, B, C, and D, while able to infer some related content from given terms, all indicated that it was their first time hearing these two phrases. The participants mentioned that introducing game elements into the classroom is quite common, but they were struggling to recognize that using elements such as reward systems is classified as gamification rather than game-based learning. They also expressed they were unfamiliar with some concepts related to game-based learning.

3.3. Limited Ability and Unwillingness to Use Game-based Learning Strategies as Educational Support in Teaching

After explaining the academic concepts of game-based learning and gamification by the interviewer, the interviewees expressed greater familiarity with the latter. Participant A noted that elementary students love reward systems and can be effectively motivated by the strategy, which is gamification. Two high school teachers noted that the use of game elements in their classrooms decreased at that level. All participants expressed limited capability and willingness regarding game-based learning. In the follow-up interviews, participants noted that front-line teachers were facing significant pressure in the current English teaching environment, making it difficult to provide game-based learning experiences alongside their regular teaching tasks. Participant C stated that “*using game-based learning as a strategy in high school classrooms is unrealistic*”. Participant B also mentioned that middle school students in China face significant pressure to advance to high school because their parents generally consider attending vocational schools instead of high school to be shameful. In this situation, the teaching pressure faced by teachers comes not only from the subject itself but also from the parents of the students. Worse still, given that parents often hold negative views about games, it is almost impossible for her to implement game-based learning experiences for students, both inside and outside the classroom. Besides, Participant A and C both stated that they haven’t seen any suitable language-learning games available on the market. Additionally, Participant C pointed out that assessing the effectiveness of language learning through games outside the classroom is challenging, a concern echoed by Participant D. Regarding technological support related to game-based learning, all interviewees admitted their limited understanding it.

4. Discussion

This section aims to explore the potential factors influencing the research results within the given context.

First, many participants harbor negative views towards digital games, likely due to their uncontrollable nature. Specifically, students are typically allowed to use electronic devices only at home or outside the classroom. In these environments, it becomes challenging for teachers to guide

or monitor students' behavior. This lack of control may also arise from the fact that the platforms hosting digital games offer various entertainment options, leading students to become distracted by other forms of media.

Next, the reasons behind the second research finding are likely linked to the diverse educational experiences of the respondents, as well as the level of development in the cities where the teachers work. More developed cities often provide richer educational resources, which benefit both students and teacher training.

Finally, regardless of their educational background or work experience across different stages, all teachers expressed that, under teaching pressure, it is difficult for them to implement effective teaching strategies, even when they acknowledge that these strategies could enhance student engagement.

This study has room for improvement. First, all interviewed teachers are from southern China, and none represent international schools. Therefore, incorporating these two aspects in future research could enhance the findings. Additionally, future researchers can try to increase sample size. Increasing the sample size can better represent the target population, reduce bias, and make the research findings more universally applicable. At the same time, a larger sample size can help minimize the impact of random factors, making the results more reliable and stable. Additionally, in-person interviews might be more effective in grasping and interpreting participants' perspectives, which could enhance the study's credibility.

5. Conclusion

This research aimed to investigate Chinese English front-line teachers' perceptions of game-based learning and its application in teaching. The main findings are as follows. First, regarding digital games that have the potential to be used for language learning, the participants exhibited negative attitudes. Second, although each participant had a slightly different understanding of game-based learning, almost all participants experienced difficulty distinguishing between game-based learning and gamification. Lastly, all interviewees demonstrated limited ability to utilize game-based learning strategies as educational support in their teaching.

This research aims to provide the understanding of English teachers' perceptions of using the digital games for game-based learning within the context of China. With these insights, constructive suggestions can be provided for educational authorities. Furthermore, the research investigates how Chinese English teachers consider using game-based learning in their teaching processes. Consequently, relevant teacher training programs can be adjusted to better align with teachers' needs.

Although this study presents meaningful findings and suggestions, several limitations must be acknowledged. The findings presented in the study only demonstrate the insights of four English teachers in Southern China, with just one or two teachers represented from each educational stage. In other words, the sample size is relatively small and lacks diversity. Additionally, the collection of all data was conducted online because of time and logistical constraints, which could impact credibility of the research. To enrich future research findings, it would be beneficial to include teachers from northern China and those from international schools.

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