A Study on China's TESOL Pre-Service Teachers' Knowledge and Attitudes on Gamification

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ABSTRACT
In recent years, educational gamification is getting more attention together with the fast advancing of technology as one efficient way to boost learning outcome. Incorporating gamification in learning has an overall better outcome in many aspects. With the popularity of digital gaming, the potential of digital game-based language learning has also been an increasing focus of educational research. Although the reluctance of EFL in-teachers to adopt digital technology has already been explored, the perspectives/perceptions and experiences of EFL pre-service teachers on using gamification in EFL classrooms remain relatively unknown. thus, the focus of this paper was to explore EFL pre-service teachers' experiences, perceptions, and levels of teacher leadership on digital game-based language learning /gamification. The results of this study found that most pre-service teachers have a positive attitude and high level of teacher leadership toward using gamification in their future classrooms. However, this study also yielded some worrisome results. This study has implications on future teacher education program development on integrating gamifications.

Keywords: *Gamification-service teachers, perceptions, experiences, teacher leadership.*

1. INTRODUCTION

In recent years, educational gamification, as one efficient way to boost learning outcome, is getting more attention along with the fast advancing of technology. Compared with traditional teaching approaches, educational gamification has many advantages such as increasing student motivation and engagement. Initially, gamification was developed to increase students' intellectual knowledge. Gamified learning was later found to be effective in motivating students than traditional approaches. Meanwhile, gamified learning enables students to enjoy and have fun in the learning process [1]. According to Laskaris, gamified learning presents knowledge visually which are beneficial for visual learners [2]. What's more, when faced with technical issues or classroom management issues in the classroom, gamification can help solve them and save more class time. Therefore, incorporating gamification in learning has an overall better outcome in many aspects. More and more public attention is also being drawn to gamification due to its unique benefits.

With the popularity of digital gaming documented across virtually all sociodemographic subgroups, the potential of digital game-based language learning (DGBLL) has been an increasing focus of educational research [3, 4]. More and more English as a Foreign Language (EFL) and Teaching English to Speakers of Other Languages (TESOL) classes are also starting to apply gamification into their teaching process. Teachers of those classrooms break the traditional teaching methods and try to add situational approaches into their classes. Gamification makes their classes more entertaining than the traditional classes and can thus motivates students and boost their learning efficiency.

Despite the substantial body of literature attesting to the affordances of Digital Game-based Language Learning (DGBLL), there has not been a parallel uptake of digital gaming activities informal language learning settings [5], and digital game playing remains virtually unknown in public schools in many countries that English is not the native language, including China [6]. EFL teachers in China are often found to be reluctant to use DGBLL in their classrooms. First and foremost, they sometimes have a misunderstanding about DGBLL, and they haven't found out that games can be applied as a teaching tool in a real classroom. They often hold a prejudice that digital games can only be used for entertainment and relaxation, intending to ignore its function of drawing students' attention and can thus improving their learning efficiency. What's more,

although some EFL teachers already know about DGBLL's advantages, they are still reluctant to use them and they indicated that they are worried that they cannot ensure they can properly manage the whole class, especially when kids fight with each other about certain games. Moreover, the number of students in a Chinese class is always larger than that of Western's, ranging from 30 to 50, so it may be challenging for the teacher to manage the class, ensuring every student has an equal chance to join in the games.

Parents also have a reluctant attitude toward educational games. Chinese parents often place extremely high values on their children's academic success. However, whether DGBLL can be well accepted by parents is remained questionable as most Chinese parents themselves are not taught by GDBLL, and their mere experiences with digital games is usually concerned with entertainment. Therefore, they are very likely to misunderstand the aim and method of DGBLL, acting against EFL teachers' DGBLL teaching method.

Although the reluctance of EFL in-teachers to adopt digital technology has already been explored [7, 8], the perspectives/perceptions and experiences of EFL pre-service teachers on DBGLL/using gamification in EFL classrooms remain relatively unknown. Thus, the focus of this paper was to explore EFL pre-service teachers' experiences, perceptions, and levels of teacher leadership on DBGLL/gamification. Pre-service teachers in this new generation are generally considered as "technology/digital natives" and their experiences and perceptions on DBGLL/gamification impacts the further adoption of technology including DBGLL/gamification in the TESOL classrooms. Research also demonstrated that teachers' levels of leadership predict their acceptance of new technology and new teaching methods. This study aims to provide insights to school administrators and policymakers to understand how the future teacher workforce perceives DBGLL/gamification so that they can provide appropriate pieces of training to better support the further uses of DBGLL/gamification in TESOL classrooms. This study as guided by the following research questions

a. What are EFL pre-service teachers' experiences and perceptions on DBGLL/gamification?

b. What are EFL pre-service teachers' levels of teacher leadership?

2. PRE-SERVICE TEACHERS: THE NEW GENERATION Y

Pre-service teachers who are currently studying in normal colleges nowadays, most of them are considered as Generation Y(Millionaires), who are exposed to the earliest kinds of gamification, such as musical approaches, situational approaches, and spelling games. They have experienced gamification at an early age such as in kindergarten and primary school and the games have promisingly impressed them with pleasant feelings. They grasped the process of how gamification goes in a classroom. What's more, the Internet improves dramatically during the 21st century. Generation Y grows up during that time just right, they know certain kind of knowledge about digital games which is a piece of good news. A growing number of authors believe that the new generation of students is fundamentally different from former generations, mostly because of changes in their media consumption patterns. Contemporary students–also referred to as "digital natives"[9]," the net generation"[10]," screenagers"[11]," Millenials"[12], and even as the "gamer generation"[13]–haven ever experienced a world without ICT. They grow up with hypertexts, social networking programs, and video games. Thus, it is claimed that these students have gained specific technical skills, new ways of thinking, and different learning preferences, which require a new educational approach [14]. However, whether the knowledge can serve for the normal school students to properly apply DGBLL into their future career remains unknown.

Generation Y grow up during the period when technology and digital games boom rapidly, they are accustomed to playing computer games and VR-concerned activities. Moreover, when it comes to taking classes, the traditional learning method seems to lose charm among them. They are eager to have new ways of learning when can excite them especially the DGBLL, with all kinds of interesting digital elements contained. However, teachers who grow up in the former generation can hardly become aware of the thirsty demand from the Y generation. A terrible and invisible gap between the teachers and generation Y students has emerged.

3. LITERATURE REVIEW

3.1. Advantages of Applying Gamification

Gamifications have multiple benefits: promoting reading performance, promote student motivation, promote student higher-order thinking skills, provide as appropriate incentive, and use as assessment tools. Gamifications can promote or hinder reading performance for three sets of reasons: (1) it can crowd out other activities that are conducive to learning; (2) it can promote the acquisition of specific skills, and (3) it can promote or hinder students' capacity for self-regulation [15].

Some teachers regard gamifications as a kind of guidance or reward in class [16]. Gamifications can excite and entertain students when performing gamification. Students are motivated by such sweet fruit and devote themselves to learning in the later time. Moreover, the use of games was based on the perception

that it enhances cognitive and higher-order thinking skills [17].

Gamification can be used to provide as appropriate incentives for expected behaviours in education and to ensure that expected behaviours help students to reach positive cognitive, emotional, and social benefits [18]. Students will have the chance to improve their critical thinking skills as they could spend several hours applying them in game-based environments [19]. Moreover, students become ready to face learning failures, since game-based environments can evoke feelings of curiosity and disappointment [20]. Different studies have demonstrated that the use of gamification in education increases motivation, learning outcomes, and active engagement in a course [21].

Gamification applications may be used as assessment tools for formative and summative assessment since students will perform actions while performing complex processes, such as problem-solving in a gamified activity. The evidence required to assess these skills is provided by the players' interactions in the activity [21]. In a gamified activity, the assessment must be as unintrusive as possible to keep the players,students, engaged. This can be accomplished through stealth assessment [22, 23]. Kocadere and Çağlar [24] found that the gamified assessment design increased enjoyment, flow, learning experience, and motivation and decreased examination anxiety.

3.2. Teacher Attitudes

Teachers often hold negative opinions toward gamifications as these games are considered to cause addiction, loss of time, and violence. It is challenging for the teachers to properly design the games in classes because how the learning tools that will be apply depends on teachers, not the students. It's also difficult to measure student's learning behavioural intention when educational games are used.

The study by Sandford et al. [25] found that teachers thought of games as an aid in the development of antisocial behaviour as well as stereotypical notions of other students or teachers [25]. In a study investigating the acceptance of game-based learning in secondary school teachers, Bourgonjon et al. found mixed feelings and realized the existence of complex beliefs of incorporating game features in learning [26].

The task of pinning down teachers' attitudes has not been easy. Watson considered teachers' attitudes as the most misread impeding the integration of computers in educational practices [27]. As Zimbardoetal noted, the complexity of attitudes and their interrelationship with behaviour and many other variables summoned a consideration for "the maze of variable sand processes that could affect attitudes, beliefs, and actions"[28] (p.53). Studies have pointed to a wide range of actors affecting attitudes toward ICT. The variations in the factors identified by different researchers might be attributed to differences in context, participants, and type of research.

4. METHODS

4.1. Context and Participants

This study aimed to apply a convenient sampling strategy to recruit participants who are English pre-service teachers who are studying at a local normal university that the author is studying in East of China. This particular university aims to provide quality teacher education programs to train quality teachers ready to teach in various grade levels and subject areas. Specifically, they provide English education teacher education programs that train teachers ready to teach in EFL or TESOL classrooms in China. In the English education program, they are required to take a series of educational courses. According to the curriculum of Chinese normal school students majoring in English education, they have a systematic series of English-related courses, such as *Writing, Grammar, Comprehensive English, Extensive reading, oral English, and English listening*. For sociology learning, courses such as *International Communication, Forms and Policies, and Society and Culture in English-Speaking Countries* are also included in their curricula. However, there's only one course named *Middle School Students' Cognition and Learning* which teaches Educational Psychology that contains several aspects of gamification. There was no systematic courses to formally education the pre-service teachers the formal deification of "gamification " and "DGBLL. No courses were set up to education English pre-service teachers on how to properly design educational games in class, how to manage a game played in class, and how to receive in-time responses from the students that attend in the games. However, the passion of normal school students to apply gamification and DGBLL is very high among normal school's popularity. Students are all eager to apply new educational strategies to polish up their teaching skills. If normal schools can set up more appropriate courses on educational gamifications to meet their needs, the level of applying gamification of the students will be significantly increased in the future when this new generation of pre-service teachers are teaching in the actual classrooms.

The sample group of this study consists of 60 pre-service EFL teachers. All the participants were majoring in English education and the majority of the group are sophomores. Participants who agreed to participate in this study were asked to complete a questionnaire on their teacher leadership and their perception and experience about gamification and DGBLL.

4.2. Data Collection

The data was collected via online survey responses. According to the purpose of this study, the survey was designed to include three parts: demographic information, experiences, and perceptions on gamification, and levels of teacher leadership. The demographic information part includes one question about participant's basic information. The experiences and perceptions on gamification part include 8 questions. The part on the level of the pre-service teachers' leadership consists of 17 questions.

5. RESULTS AND DISCUSSION

All the participants are majoring in English education who will probably become EFL teachers in the future. According to their survey responses, a large majority of the group have heard of gamification, up to 78.33% (see Figure 1)

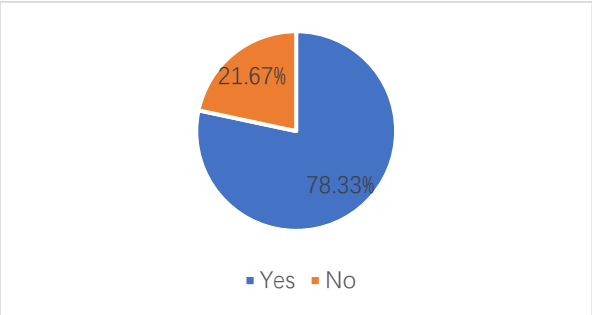

Figure 1. Teacher's Level of Understanding on gamification

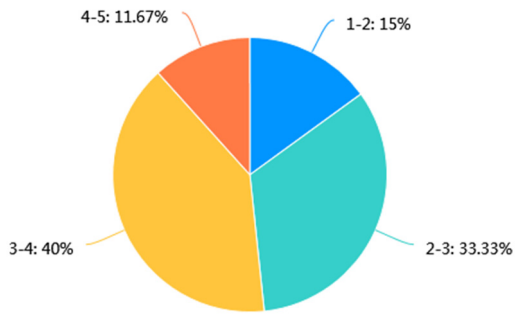

Figure 2. The knowledge level that the participants think they are at (the full points is 5)

However, the level of their knowledge about gamification doesn't seem to be promising. Their their knowledge on gamification can be judged by points ranging from 1 to 5 and most of them considered themselves at 3-4 level or 2-3 level, which indicates that they are not very likely to apply gamifications in real context (see Figure 2). Moreover, for the participants who give themselves a 4-5 level of likelihood to apply gamifications in the future, the self-reported data are not likely to be reliable since because all the participants took the same curricula structure as other participants.

According to the survey responses, the most popular kind of gamification is memorization games, up to 90% of participants have had played in such kind of game in class before. Musical games come second (see Figure 3).

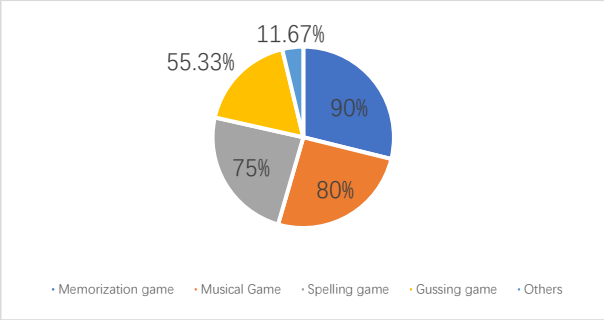

Figure 3. The Kind of Gamification that the Participants Have Experience

Unfortunately, mere students choose the "others" option, so we can infer that the kind of games is not diversified. All the participants who completed the survey hold the view that gamification can boom students' passion and motivate them to actively join in the class process (See figure 4).

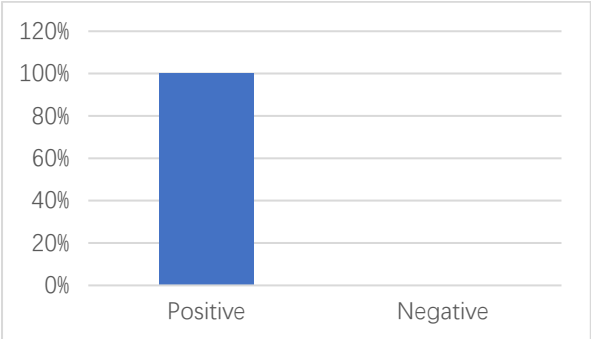

Figure 4. All the Participants Hold the View that Gamification can Motivate the Students.

However, when it comes to whether gamification can improve the learning efficiency of the students, the result becomes unexpected, that 3.33% of participants chose gamification does no good to students learning results, which means they know almost nothing about gamification (See Figure 5).

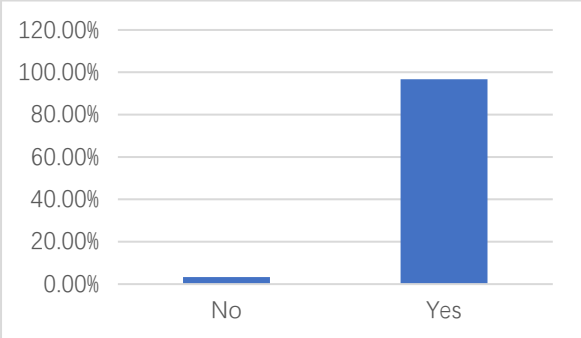

Figure 5. How do the Participants Think of the Influence of Gamification on Students' Learning Efficiency

The width of application of gamification in Chinese education is doubtful according to the outcome: 50% of the participants found it widely used while the other 50% find it rare in the Chinese education system. (see Figure 6)

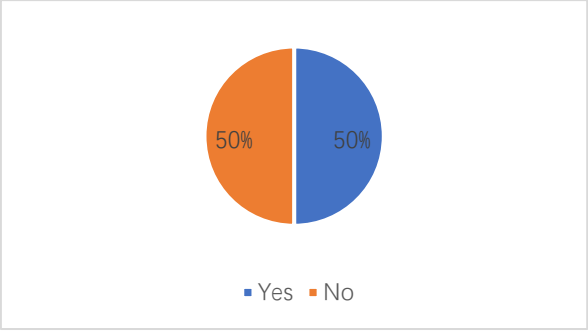

Figure 6. The Width of Application of Gamification in Chinese Education

90% of participants hold that gamification can be well applied in the Chinese education system while 10% participants think it impossible for gamification to fit in the system.(See Figure 7)

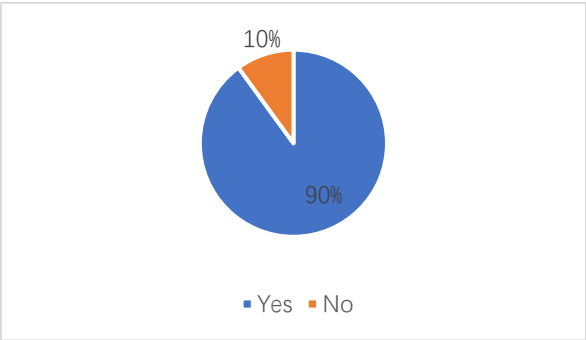

Figure 7. How do the Participants Think Whether Gamification can fit Chinese Education System Well

Whether gamification can fit in the Chinese education system depends largely on the evaluation of students' learning effects. What and how much they have learned is not judged by themselves but by the teachers. Chinese learning evaluation is largely measured by papers and scores, which pay much attention to the content of the course and certain kinds of knowledge, with less element about the application of the knowledge. As a result, many students who learn by DGBLL and gamification may be underperformed in such testing system, though they can have a longer memory and a better applying ability than those taught by traditional teaching methods, they can't just copy and paste precisely what the teacher has told, leading to the result that they get undesirable academic grades and teachers hesitate to use DGBLL and gamification on them.

Fortunately, 100% of participants show that they are willing to apply gamification in their future careers.(See Figure 8)

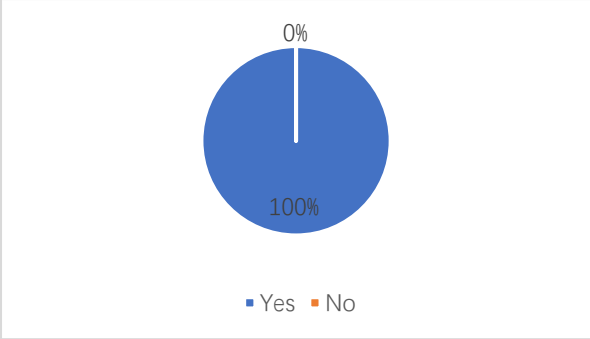

Figure 8. Whether the Participants are Willing to use Gamification in Their Future Career

According to the result of the form of teacher's leadership, participants showed a really good outcome, the average points are higher than my expectation.

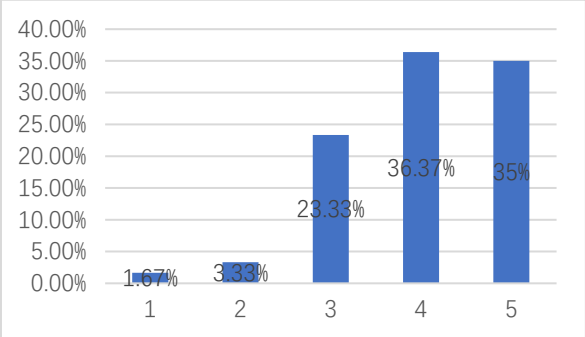

Figure 9. The Level of the Participants' Willingness to Innovate Their Teaching Methods

Especially the level of willingness to innovate the teaching method is rather high, which is 36.37% (See Figure 9). The result is promising. Gamification is a field that needs innovation and bravery of trying and the pre-service teachers are ready to face difficulties and make a try. Although teachers' leadership shows a good result, there's still a long way for the preservice teachers to go. Also, normal schools are expected to add specific courses to train them about their leadership, such as how to design certain gamification in class and how to manage the whole class which is in chaos.

As a prospective EFL teacher, I conducted surveys on my schoolmates, to figure out their knowledge level of gamification. Fortunately, most of them have already known about the definition of gamification and are familiar with several kinds of games that are common in the teaching field such as situational approaches, spelling games, musical methods, etc. However, even though they have already heard of such kinds of games, they know little about the purpose of applying them. According to most normal schools' curricula, there are few formal courses to teach the prospective teachers anything about gamification. The knowledge of gamification merely comes from several psychology lessons and their forces as primary school students, which is not enough for them to use in their future career as a teacher her. Unfortunately, there's a large arrange of people who find

gamification application very rare in the Chinese educational field and they consider it unsuitable for the wrong education system. There are also a few students who take a wrong view about gamification, considering it not good for students' learning results. Such a phenomenon uncovers the situation that what is already known about gamification by the prospective teachers is quite not enough

6. CONCLUSION

This study found out most pre-service teachers have a positive attitude toward using gamification in their future classrooms. The review of the literature generally indicated that in-service teachers are usually reluctant to apply gamification/DGBLL in their classrooms because they might not have enough knowledge about gamification/DGBLL. This study contributes to a larger body of literature on teachers' attitudes on gamification/DGBLL by surveying pre-service teachers' experiences and knowledge. The positive results of this study provide a promising future for applying more and diverse DGBLL/gamification in TESOL classrooms since they will be entering the teacher workforce soon, in addition to the fact that their leadership capability is generally high.

However, the results of this study also indicated some negative results. Even though they mostly indicated they have learned about gamification in some ways, their levels of understanding are not high enough for them to be able to actively integrate gamification/DGBLL in their classrooms. Also, the variety of games they are familiar with is diverse enough to support all kinds of teaching aims in TESOL classrooms. Moreover, the data showed that some pre-service teachers who responded to the survey indicated that they barely know about gamification/DBGLL. Therefore, the teacher education programs in higher education in China need to change their course development to include more courses on integrating technology, specifically integrating gamification/DGBLL, in their course structures. In method courses, more technology-based curriculum and technology integrated instructional methods need to be included to meet the future demands posted on pre-service teachers. The practicum courses in teacher education programs in China should include more components for students to be able to apply the curriculum and instructional knowledge on gamification/DGBLL in a real teaching context.

Future assessments on students' performance should be more diverse to capture students' development brought by gamification/DGBLL in the classrooms. Literature generally indicated that the students' development brought by gamification/DGBLL is multifold not just including remembering knowledge but also including applying knowledge in a real context.

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