

**THE USE OF GAMIFICATION TO IMPROVE PRONUNCIATION ABILITY
OF ENGLISH CONSONANT CLUSTERS OF STUDENTS
AT CHIANG MAI RAJABHAT UNIVERSITY**

การใช้เกมมิฟิเคชันในการพัฒนาการออกเสียงพยัญชนะควบกล้ำภาษาอังกฤษ
ของนักศึกษามหาวิทยาลัยราชภัฏเชียงใหม่

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ABSTRACT

The objectives of this research were to compare the students' pronunciation ability of English consonant clusters before and after learning through the integration of gamification, and to investigate the students' opinions on the integration of gamification in teaching pronunciation. The study was a quasi-experimental research with a one-group pretest-posttest design. The population of the study was composed of 105 Thai second-year students of the International College at Chiang Mai Rajabhat University. The sample group was composed of 40 students selected by applying the purposive sampling method. The study was conducted in the second semester of the 2019 academic year. Three research instruments; English consonant clusters pronunciation lessons, a pronunciation pretest and posttest, and a questionnaire were employed in the study. The data were statistically analyzed for mean, standard deviation, and t-test dependent.

The results revealed that the posttest mean was higher than the pretest mean with the mean scores of 19.65 and 43.05 respectively. The t-test indicates that there is a statistically significant difference between the pretest and posttest means at the .05 level. It could be concluded that integrating the gamification approach could significantly enhance the students' English consonant cluster pronunciation ability. Furthermore, the students expressed a positive opinion with the highest level of 4.53 on the integration of gamification in their learning process.

Keywords : Classcraft Application, Gamification, English Marked Consonant Clusters

III

หัวข้อการค้นคว้าอิสระ : การใช้เกมมิฟิเคชันในการพัฒนาการออกเสียงพยัญชนะควบกล้ำ
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บทคัดย่อ

วัตถุประสงค์ของการวิจัยนี้มีดังนี้ เพื่อเปรียบเทียบความสามารถในการออกเสียงพยัญชนะควบกล้ำภาษาอังกฤษก่อนและหลังการเรียนรู้ผ่านการบูรณาการเกมมิฟิเคชัน และเพื่อสำรวจความคิดเห็นของนักศึกษาที่มีต่อการบูรณาการเกมมิฟิเคชันในการสอนการออกเสียง การวิจัยนี้เป็นการวิจัยกึ่งทดลอง แบบแผนกลุ่มเดียวทดสอบก่อนและหลัง ประชากรที่ใช้ในการศึกษาเป็นนักศึกษาปริญญาตรี ชั้นปีที่ 2 ของวิทยาลัยนานาชาติ มหาวิทยาลัยราชภัฏเชียงใหม่ จำนวน 105 คน กำหนดตัวอย่างด้วยวิธีการเลือกตัวอย่างแบบเจาะจง จำนวน 40 คน ดำเนินการเก็บรวบรวมข้อมูลการวิจัยในภาคการศึกษาที่ 2 ปีการศึกษา 2562 เครื่องมือที่ใช้ในการวิจัยมี 3 ประเภท ได้แก่ บทเรียนเรื่องการออกเสียงพยัญชนะควบกล้ำภาษาอังกฤษ แบบทดสอบการออกเสียงก่อนเรียนและหลังเรียน และแบบสอบถามความคิดเห็นของนักศึกษา สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที

ผลการวิเคราะห์ข้อมูล พบว่า ค่าเฉลี่ยของคะแนนการทดสอบหลังเรียนสูงกว่าก่อนเรียน 43.05 และ 19.65 ตามลำดับ จากการทดสอบค่าที พบว่า ค่าเฉลี่ยระหว่างคะแนนการทดสอบหลังเรียนและก่อนเรียนแตกต่างกัน อย่างมีนัยสำคัญที่ระดับ .05 จึงสรุปได้ว่า การบูรณาการการสอนด้วยเกมมิฟิเคชันสามารถพัฒนาความสามารถในการออกเสียงพยัญชนะควบกล้ำภาษาอังกฤษของนักศึกษาได้อย่างมีนัยสำคัญ นอกจากนี้ นักศึกษายังแสดงความคิดเห็นเชิงบวกต่อการใช้เกมมิฟิเคชันในกระบวนการเรียนรู้การออกเสียงพยัญชนะควบกล้ำในระดับมากที่สุด (4.53)

คำสำคัญ : แอปพลิเคชันคลาสมารฟต์, เกมมิฟิเคชัน, พยัญชนะควบกล้ำภาษาอังกฤษ

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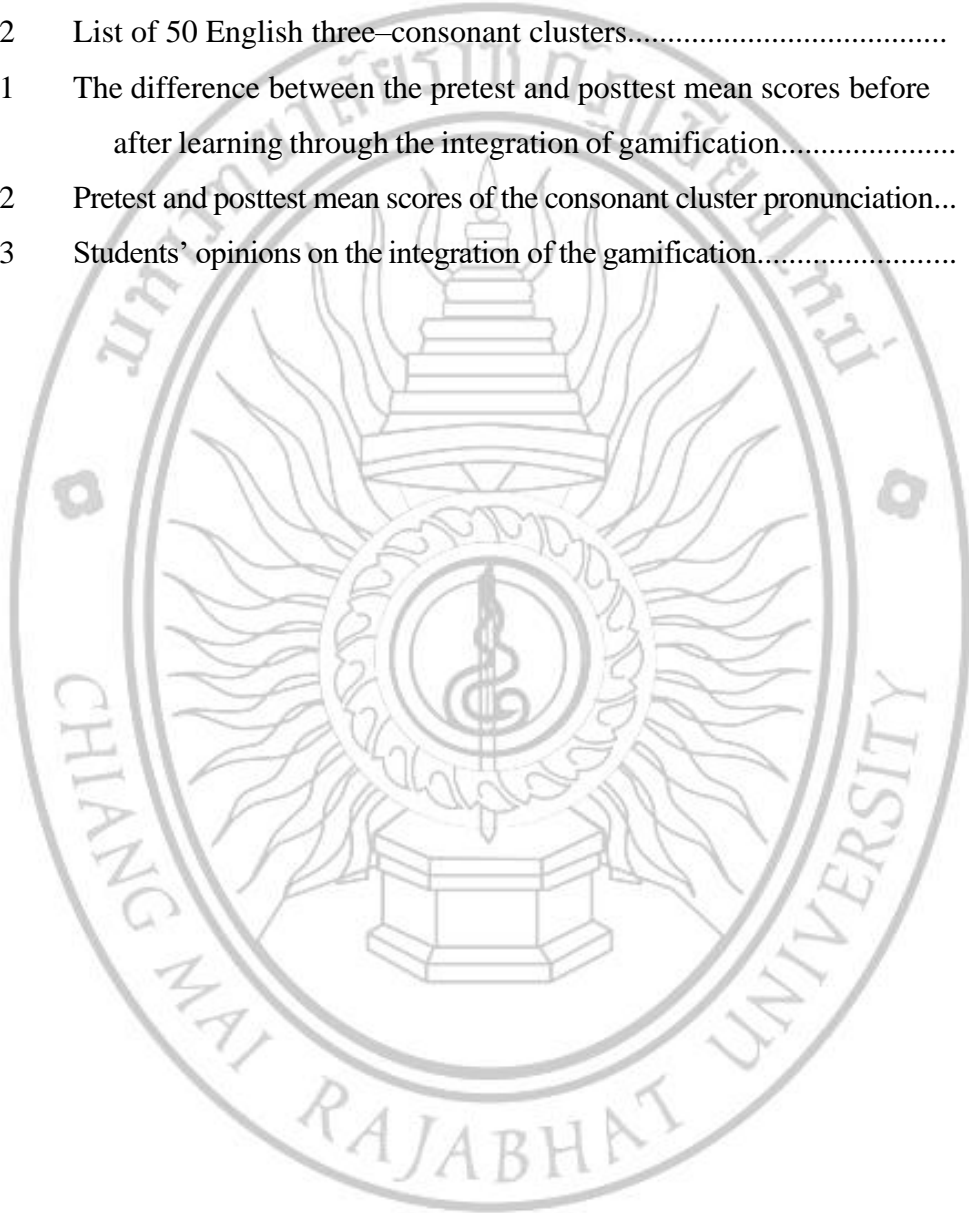
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CHAPTER 1

INTRODUCTION

Background and Rationale

As English is regarded as ‘an international language’, it plays a crucial role in various domains of communication all over the world. In the past, English was used as an additional language for intercultural communication in Thailand. However, within decades of change, it has become a pivotal part of people’s daily life nowadays. The business, science, social and economic changes, and technological advancement, particularly in the adoption and exploitation of the internet, have resulted in a major transition of Thai society and traditional ways of Thai people. Consequently, English language skills are in a very high demand in today’s social and professional situations.

Among the four skills in English language learning, pronunciation is a major concern in learning English (Ketkumbonk, 2015). According to Gilakjani (2016), not only will knowing grammar and vocabulary enable learners to construct the sentences but also the correct pronunciation will enhance them to become more effective communicators. Learners with good English pronunciation are likely to be understood even if they make errors in other areas, whereas learners with bad pronunciation will not be understood, even if their grammar is perfect. Moreover, Gilakjani (2016) stated that if the speakers have unacceptable pronunciation, their utterances will not be comprehensible to listeners and as a result, they will not be successful in their communication.

Regarding a second language (L2) pronunciation teaching, it is believed that whenever L2 sounds are similar to those in a first language (L1), they could be easy to acquire. In contrast, if L2 sounds are quite different from those in L1 sounds, the speakers will probably have difficulty to acquire them (Strange & Shafter, 2008; Major, 2008; Zampini, 2008). This principle can apply to the consonant cluster acquisition in the sense that the consonant structures of the target language are more complicated than those of native language. Similarly, Thai learners encounter a number

of difficulties in producing English consonant clusters because the Thai language does not allow to have complex consonants in the initial and final consonant cluster positions. This aspect has received a large amount of attention. As a result, a number of Thai scholars have conducted studies on English consonant cluster in Thai context. Boonjumnong (2010) studied the problems of English initial and final consonant clusters pronunciation by Thai students, focusing on /sk/, /sp/ and /st/ at the initial and final positions. The results revealed that the participants had more problems in consonant cluster sounds of /sk/, /sp/ and /st/ in the final position than in the initial position. The study also showed that the factors affecting consonant cluster pronunciation problems included their mother tongue, Thai and students' confidence to perform correct and clear English pronunciation, as well as, the teachers who lacked confidence to perform correct and clear English pronunciation. Moreover, Mano-im (1999) analyzed the pronunciation of double final consonants in English by Thai students. The results showed that there were five types of variation: 1) correct pronunciation of both sounds, 2) deletion of one of the two sounds, 3) replacement of one or both sounds, 4) deletion of one sound and replacement of the other, and 5) insertion of an extra sound. Based on the research conducted by Rungruang (2017), Thai students could pronounce consonant clusters slightly better in the initial position than in the final position.

Furthermore, even though several prior studies have attempted to study the factors affecting the consonant cluster pronunciation problem, as well as implement appropriate materials and different approaches to meet the suitable solutions for solving this problem, consonant cluster sounds are still a problematic aspect in learning English in Thailand and is regarded as a chronic problem and a major constraint on development in learning English. To find sensible approach to fulfill this kind of gap, technology need to be required to perform functions as a driven key in Thai educational system.

Regarding technological advancement, gamification has been implemented in an educational setting. Still, it could play a major role in second language classroom. The gamification concept aims to create student's engagement, active learning, and motivation by learning experience in the real situation, e.g., language classroom. (Borges, Reis, Durelli & Isotani, 2014). Gamification is the teaching method that creates student's engagement and motivation. It is an innovative approach using game mechanics

in a non-game setting. Using game mechanics improves motivation and learning in formal and informal conditions (Dichev & Dicheva, 2017). Not only, gamification can be found in business fields successfully, it is now being implemented in many educational programs as well. In the educational setting, the gamification has been integrated or gamified in a language learning via an application in order to enhance collaboration, motivation, engagement and joy both in class and out-of-class. Flores (2015) stated that using gamification in L2 classroom benefits both an instructor and a learner, especially in pronunciation courses. Gamification allows the instructors to persuade learners about the new teaching method. Besides, Valencia (2015) revealed that one gamification application, called 'Tip Top Talk!', helps users with a low level of competence to improve L2 in both pronunciation and phoneme discrimination. Moreover, gamification techniques are used in higher education settings to enhance not only learners' learning behaviors but also critical thinking and teamwork skills. Srisomboon (2018) developed a learning system in three aspects: learner's teamwork skill, learner's engagement, and learner's enjoyment with a framework for virtual team gamification model via cloud technology. His findings revealed that these three aspects were high after the experiment. Moreover, Jaroenphol (2015) developed an interactive video streaming system based on gamification concept with mastery learning to enhance self-regulation ability in undergraduate students. Her findings indicated that undergraduate students in the experiment group had significantly higher self-regulation ability and post-self-assessment mean scores than their self-regulation ability and pre-self-assessment mean scores at the .05 level.

For teaching pronunciation at Chiang Mai Rajabhat University (CMRU), it is found that the students have been struggling with English pronunciation problem. According to Arunsirot (2017), the students have encountered endless difficulties in their attempt to develop their pronunciation skills as a key to gaining full communicative competence because most of them are from rural schools where academic issues are not much a concern and English is considered as a third language alongside their mother tongues. It was also noted that pronunciation teaching strategies are not correspondent to students' needs, as technology has played a major role in their daily lives nowadays. The new generations are generally known as the digital natives (Prensky, 2001). As a result, it has a big impact to the students even in their learning process. Likewise,

the students in CMRU become addicted to the internet which leads to distraction in their studies. Consequently, they do not pay adequate attention in class which result in the failure of their study (Rafatjou, 2019). Furthermore, the researcher has found that the students seem to have a difficulty in pronouncing English consonant clusters, which can lead to a barrier for their communication.

Therefore, to turn a crisis into an opportunity, this study aims to improve the students' English pronunciation ability which focuses on marked consonant clusters. The gamification approach is integrated into the teaching process in pronunciation as an additional tool in order to improve the students' pronunciation ability as well as their motivation and engagement in English classroom.

Research Objectives

1. To compare students' English consonant clusters pronunciation ability before and after learning through the integration of gamification.
2. To investigate students' opinions toward the integration of gamification in teaching pronunciation.

Expected Results

1. Students are able to pronounce English consonant clusters correctly.
2. English teachers are able to integrate the gamification approach in their classes for improving students' pronunciation ability.

Research Hypothesis

The English consonant clusters pronunciation ability of the students after learning through the integration of gamification was higher than that of before learning.

Research Scope

Population and Sample Group

The population of this study consisted 105 Thai second– year students who enrolled in ENGL 1102 English Phonetics course in the first semester of 2019 academic year, and studying in the International Communication program of the

International College at Chiang Mai Rajabhat University. The sample group was composed of 40 students purposively selected to participate in the study.

Variables

Independent Variable

Teaching pronunciation by integrating gamification

Dependent Variable

1. English consonant cluster pronunciation ability
2. Students' opinions on the integration of gamification

Scope of Content

This study focuses on English consonant clusters, and the two categories of these clusters are marked and unmarked clusters. English has consonant clusters with 2 (CC-) to 3 (CCC-) for onset clusters, and 2 (-CC) to 4 (-CCCC) for coda clusters. CC- is the easiest cluster and it is considered to be unmarked cluster such as /pl-/ as in 'plan' whereas -CCCC is the most difficult and problematic cluster (marked cluster) such as /-ndθs/ as in 'thousandths'. English marked consonant clusters comprised three consonant sounds for either the initial or final consonant positions. The three-initial consonant clusters consist of 9 phonemes: /spl-/ , /spr-/ , /spj-/ , /str-/ , /stj-/ , /skl-/ , /skr-/ , /skw-/ , and /skj-/ . Meanwhile, three-final consonant clusters consist of 16 phonemes: /-pθs/ , /-pts/ , /-pst/ , /-tθs/ , /-kts/ , /-kst/ , /-mps/ , /-mfs/ , /-nts/ , /-ndz/ , /-ŋst/ , /-fθs/ , /-fts/ , /-sts/ , /-lpt/ , and /-lps/ , with a total of 25 phonemes.

Scope of Time

The study was conducted in the second semester of the 2019 academic year from January 2020 – March 2020. The treatment period took eight weeks with three hours per week, with a total of 24 hours excluding two weeks of orientation, pretest and posttest.

Definitions of Terms

English Marked Consonant Clusters

English marked consonant clusters referred to the combination of three-letter consonants that occur either in the initial or final positions of the English syllable structure. Three-letter initial consonant clusters consist of 9 phonemes: /spl-/ , /spr-/ ,

/spj-/, /str-/, /stj-/, /skl-/, /skr-/, /skw-/, and /skj-/. Otherwise, three-letter final consonant clusters consist of 16 phonemes: /-pθs/, /-pts/, /-pst/, /-tθs/, /-kts/, /-kst/, /-mps/, /-mfs/, /-nts/, /-ndz/, /-ŋst/, /-fθs/, /-fts/, /-sts/, /-lpt/, and /-lps/, with a total of 25 phonemes.

Teaching Pronunciation by Integrating Gamification

Teaching pronunciation by integrating gamification referred to the teaching method adapted from the notion of Celce–Murcia, Brinton & Goodwin (1996) integrated with the gamification approach. Teaching pronunciation by integrating gamification via using Classcraft application was divided into four steps: content presentation, pronunciation practice, pronunciation production, and pronunciation evaluation. In the content presentation, the teacher presented each letter sound corresponding to the targeted consonant clusters with integrating of two types of game mechanisms known as points and a progress bar. Next, the pronunciation practice focused on improving the students' pronunciation competence with the integration of points, and a progress bar in gamification approach. After that, the students must complete the tasks given from easy to more difficult tasks with the integration of gamification in terms of points, rewards, and levels in the pronunciation production. Finally, the students were evaluated in the form of competition, and rewards in gamification approach for their pronunciation competence in the pronunciation evaluation.

Gamification

Gamification is the use of game mechanics in educational settings. In this study, Classcraft application, an online platform, is used to gamify the pronunciation class in order to motivate and engage the students in their learning. The integration of game mechanisms including points, progress bar, levels, rewards and competition is incorporated into the pronunciation teaching method adapted from Celce–Murcia, Brinton & Goodwin (1996) in an attempt to boost the students' effort to achieve their learning objectives in the pronunciation class in this study.

English Consonant Cluster Pronunciation Ability

English Consonant Clusters Pronunciation Ability referred to the students' pronunciation competence of English consonant clusters tested by using a constructed

English consonant cluster pronunciation oral test to evaluate the students' pronunciation ability. The tests consisted of 50-English consonant cluster words. It was administered before and after the intervention of the integration of gamification in the class. Each word contains the following sounds /spl-/ , /spr-/ , /spj-/ , /str-/ , /stj-/ , /skl-/ , /skr-/ , /skw-/ , and /skj-/ in the initial positions and /-pθs/ , /-pts/ , /-pst/ , /-tθs/ , /-kts/ , /-kst/ , /-mps/ , /-mfs/ , /-nts/ , /-ndz/ , /-ŋst/ , /-fθs/ , /-fts/ , /-sts/ , /-lpt/ , and /-lps/ in the final positions.

Student's Opinion

Student's opinion refers to the students' feedbacks in the aspects of the learning system by integrating gamification approach including the advantages of integrating gamification approach in the pronunciation teaching, the students' accomplishments, the appropriateness of this approach in teaching pronunciation, and the effects of gamification approach on the students' learning skills and experiences.

Conceptual Framework

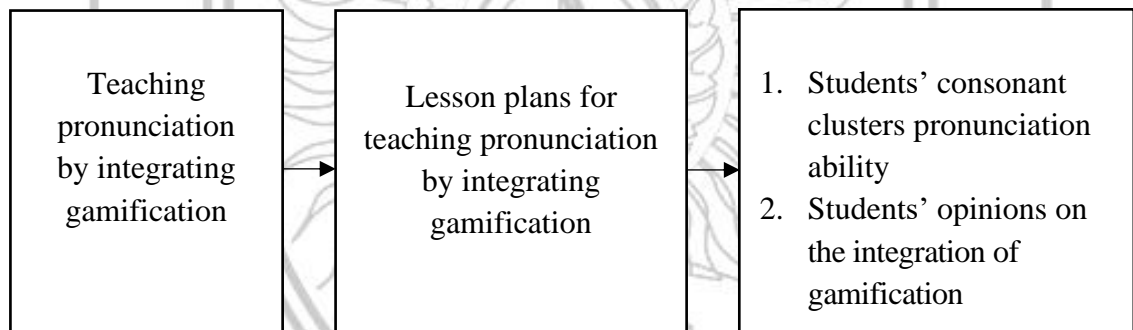


Figure 1.1 The Conceptual Framework

CHAPTER 2

LITERATURE REVIEW

This chapter reviews English consonant clusters pronunciation problems of Thai students, teaching English pronunciation, gamification approach, and previous studies relevant to this study in order to provide the overview of the main concepts and a brief description of the prior research studies. The chapter is presented in four sections as follows:

1. English consonant clusters pronunciation problems of Thai students
2. Teaching English pronunciation
3. Gamification
4. Related research studies

English Consonant Clusters Pronunciation Problems of Thai Students

Pronunciation is one of the English skills that plays a crucial role in learning English language. To improve the pronunciation competence of non-speaking English countries, the section will provide information about pronunciation problems of Thai students in the following topics.

The Importance of Pronunciation

Pronunciation is much important and pervasive feature of communication than is generally recognized. It is the crucial starting point for all spoken language, since thoughts must be articulated in sound in order to be heard and to become a message that can be communicated with one another (Pennington & Rogerson–Revell, 2019). Pronunciation is required not merely for talking, but for communicating and making sense to another person, that is, for making meaning in both an audible and an understandable form.

Moreover, intelligible pronunciation helps people understand others' English, and the pronunciation errors account for reduced intelligibility (Basson, 1986).

Unintelligible pronunciation is definitely a barrier for native speakers to understand. Thus, removal of that barrier necessitates intelligible pronunciation (Wei & Zhou, 2002). Even though intelligibility of English pronunciation is crucial factor for non-native speakers, there is the fact that many of them find it difficult to listen certain phonetic features. As a result, they produced a particular English sound in the incorrect way.

The Comparison of Consonant Clusters in English and Thai Sound Systems

The consonant clusters are the combination of consonant sounds occurring together and has no intervening vowels (Wilkins, 1976). According to Oxford Advanced Learner's Dictionary (2015, p.275), the consonant clusters is "a group of consonants which come together in a word or phrase", e.g., /str-/ at the beginning of the word 'stress', and /-kst/ at the final position of the word 'next'. In conclusion, the consonant clusters are a group or sequence of consonants that appear together in a syllable without intervening vowels.

English has consonant clusters with 2 (CC-) to three 3 (CCC-) for the initial positions (onset clusters), and 2 (-CC) to 4 (-CCCC) for the final positions (coda clusters). CC- is the easiest cluster and it is considered to be unmarked cluster such as /pl-/ as in 'plan' whereas -CCCC is the most difficult and problematic cluster (marked cluster) such as /-ndθs/ as in 'thousandths'. Comparing the differences between Thai and English sound systems, Thai syllable structure consists of a syllable with 2 (CC-) for the initial positions (onset clusters) and no clusters in the final positions (coda clusters). As a consequence, the consonant clusters cause problems for Thai students whose Thai language does not allow to have many consonants together in the onset and coda positions.

According to Narksompong (2007), there are two common problems of Thai people when they pronounced English initial clusters. The first is that they tend to add a short vowel in between the first and the second consonants, e.g., /str-/ as in 'strike', it is pronounced as 'sa-trike'. Second mistake is that they drop the second or third consonant of the clusters, e.g., /skr/ as in /scrabble/, it is pronounced like 'scabble', which is the incorrect sound.

The Problems of Consonant Clusters found in Thailand

In addition, Boonjumnong (2010) studied the problems of English initial and final consonant clusters pronunciation by Thai students. Only /sk/, /sp/ and /st/ at the initial and final positions were investigated. The result revealed that the participants have high problems in consonant cluster sounds of /sk/, /sp/ and /st/ in the final position more than the initial one. The study, also, showed that the factors affecting consonant cluster pronunciation problems included their mother tongue, Thai and students' confidence to perform correct and clear English pronunciation, as well as, the teachers who lack confidence to perform correct and clear English pronunciation.

Sahatsathasana (2017) mentioned that the fricative sounds are difficult for Thai students to pronounce such as /-tθs/ as in 'eighths' and /-pθs/ as in 'depths', because they do not occur in Thai. Additionally, Wei & Zhou (2002) stated that Thai students encountered pronunciation problem with English consonant clusters, because Thai final consonants are always unaspirated and unvoiced. Thus, it is difficult for Thai students to pronounce aspirated /p/ and /k/ or voiced /m/ and /n/ in English words. Based on Kalackal's study (Kalackal, 1985), one of the ways of countering the mother tongue interference in the pronunciation of foreign language is to provide students with articulatory descriptions of the mother tongue and the target language, so that they may realize what they are doing and how they can rectify it.

Moreover, Mano-im (1999) analyzed the pronunciation of double final consonants in English by Thai students. The results showed that there were five types of variation: 1) correct pronunciation of both sounds, 2) deletion of one of the two sounds, 3) replacement of one or both sounds, 4) deletion of one sound and replacement of the other, and 5) insertion of an extra sound. According to Rungruang (2017), Thai students could pronounce consonant clusters slightly better in the initial position than in the final position.

Furthermore, Chainara (2010) conducted the research by using task-based learning with focus on group interaction to improve students' pronunciation of English words with initial consonant clusters. Based on her investigation, the use of task-based learning with focus on group interaction is an effective solution to improve students' pronunciation of English words with initial consonant clusters.

In conclusion, English consonant cluster pronunciation is concerned as one of problems for Thai people in learning English pronunciation, because of the differences between Thai and English Phonetics systems. Therefore, to become like an English native speaker or an effective communicator in English, Thai learners should be taught to pronounce English sounds as naturally as possible with the effective and appropriate processes in teaching pronunciation.

Teaching English Pronunciation

Teaching English pronunciation is the significant process that English as a Foreign Language (EFL) and English as a Second Language (ESL) teachers should not neglect, because English is pronounced differently from other languages including Thai. In accordance with Gilakjani (2016), teachers should believe in the importance of intelligible pronunciation. However, teaching English for communication is a complicated task for all teachers (Chainara, 2010). Learners as well, they need to improve their pronunciation skill frequently as much as possible in order to speak naturally as an English native speaker.

Techniques Used in Teaching Pronunciation

To solve English pronunciation problems of those Thai students, a number of educators have suggested some new directions in teaching pronunciation, e.g., Celce-Murcia, Brinton & Goodwin (1996). They have presented two techniques for teaching pronunciation. The first is the time-tested classroom technique (Traditional classroom). This technique includes the use of a phonetic alphabet, transcription practice, and diagnostic passages, detailed description of the articulatory system, recognition/ discrimination tasks, approximation drills, focused production tasks (e.g., minimal pair drills, contextualized sentence practice, reading of short passages or dialogues), and other techniques such as tongue twisters and games (e.g., "Pronunciation Bingo"). Time-tested or traditional classroom technique is a process that uses listening, imitating, reading and pronouncing skills consisting of articulatory descriptions, articulatory diagrams, phonetic alphabet, minimal pairs, visual aids-sound-color charts, pictures, mirrors, tongue twisters, developmental approximation drills, practice of vowel shifts and stress shifts related by affixation, reading aloud/recitation and recordings of learners' production.

Another is a newer technique with resources available to teachers for second language pronunciation. These techniques include visual reinforcement, auditory reinforcement, memory peg, tactile reinforcement; mirroring, tracking, shadowing, sociodrama, kinesthetic reinforcement, jazz chant, guided imagery activity, neurolinguistic programming, simulation, oral dialogue journal and speech spectrographic devices. The newer technique is a process that uses instruments such as charts, diagrams, sketches, videos and mirrors, connects with natural sounds, touches pronunciation positions. The process also uses hand signals and body movements, uses rhythm, and recalls knowledge. It consists of visual reinforcement, auditory reinforcement, memory peg, tactile reinforcement, mirroring, tracking, shadowing, sociodrama, kinesthetic reinforcement, jazz chants, guided imagery activities, neurolinguistic programming, simulation, oral dialogue journal and speech spectrographic.

Approaches Used in Teaching Pronunciation

In the 1980s, Communicative Language Teaching Approach (CLT) came into attention. This approach strongly emphasizes on oral communication as a primary use of language and, as a result, should be central in language instruction. Celce–Murcia, Brinton, and Goodwin (1996) stated that in order for EFL and ESL learners to have meaningful communication, it is important to consider pronunciation like other elements of language such as grammar and syntax (Nikbakht, 2011). “The very act of pronouncing, not just the words we transmit, is an essential part of what we communicate about ourselves as people” (Beebe, 1978, p. 3).

The ultimate goal of CLT is communication. Teaching is urgent and intelligible pronunciation is seen as necessary in oral communication. The techniques used to teach pronunciation are listening, imitating, phonetic training, minimal pair drills, contextualized minimal pairs, visual aids, tongue twister, developmental approximation drills, practice of vowel shifts and stress shifts related by affixation, reading aloud, and recording learner’s production/sound/utterance (Nikbakht, 2011). These teaching methods/activities are similar to Celce–Murcia, Brinton, and Goodwin’s (1996) pronunciation instruction framework.

Celce–Murcia, Brinton, and Goodwin (1996) presented a framework for the sequencing of activities within instruction. Their five teaching stages include description and analysis, listening discrimination, controlled practice, guided practice, and communicative practice. These stages are similar to a presentation, practice, and production sequence. Keeping such a framework in mind helps English teachers to plan lessons that move the students forward in a principled way. Building the foundation for more intelligible spontaneous production is as follow:

1. Description and Analysis Initially

The teacher presents a feature showing when and how it occurs. The teacher might use charts (consonant, vowel, or organs of speech) or he/she might present the rules for occurrence either inductively or deductively. For example, the teacher can either present the rules for *–ed* endings or provide multiple examples and ask the learners to figure out the rules themselves. (Celce–Murcia, Brinton, and Goodwin, 1996).

2. Listening Discrimination

Listening activities include contextualized minimal pair discrimination exercises such as the following from Gilbert (1993, p. 20). The speaker (who may be the teacher or another student) pronounces either sentence a or b. The listener responds with the appropriate rejoinder. Listening a transcript with a short listening passage, learners can mark the pauses and/or circle the prominent elements they hear. In general, the listener's task should be clearly defined and focused on only one or two features at a time. At this stage, the teachers need to focus learners' attention directly on a feature that they might not be recognizing yet. The three final stages, which involve practice and production, actually progress on a continuum. It is less important to define an exercise as strictly controlled, guided, or communicative. Rather, it is important to sequence our oral production activities so that they move forward systematically (Celce–Murcia, Brinton, and Goodwin, 1996).

3. Controlled Practice

At the beginning, in more controlled activities, the learner's attention should be focused almost completely on form. Any kind of choral reading can work if the learner's attention is clearly focused on the target feature. Poems, rhymes, dialogues, and dramatic monologues; all of these can be used if the content and level

engage a learner's interest. When performed with student partners, contextualized minimal pair activities as mentioned above are a combination of controlled practice for the speaker and listening discrimination for his or her partner. (Celce–Murcia, Brinton, and Goodwin, 1996).

4. Guided Practice

In guided activities, the learner's attention is no longer entirely on form. The learner now begins to focus on meaning, grammar, and communicative intent as well as pronunciation. Teachers need to develop a continuum of bridging activities, which shift attention gradually to a new cognitive task while the learner attempts to maintain control of the pronunciation target. As an example, Hewings and Goldstein (1998, p. 127) make use of a memory activity while practicing, e.g., /-pθs/, /-tθs/, /-mps/ endings. Students are instructed to study a picture containing a number of common objects for one minute. With the picture hidden, they then try to recite the correct number of each item, while concentrating on pronouncing those sounds correctly. (Celce–Murcia, Brinton, and Goodwin, 1996).

5. Communicative Practice

In this stage, activities strike a balance between form and meaning. Examples include role plays, debates, interviews, simulations, and drama scenes. As the activities become gradually more communicative, the learner's attention should still be focused on one or two features at a time. It is overwhelming to suddenly monitor all pronunciation features at once. Set an objective, which can be different for different learners, and let students know it in advance. (Celce–Murcia, Brinton, and Goodwin, 1996).

Both the Communicative framework for teaching pronunciation and the Communicative Language Teaching Approach (CLT) can be adapted to be the four steps for teaching pronunciation process by integrating the gamification in this study, e.g., content presentation, pronunciation practice, pronunciation production and pronunciation evaluation.

This teaching process can help learners to improve their English pronunciation. However, adapting the techniques to be parts of classroom activities with communicative purpose is another teacher's work. The gamification approach is the additional tool for this study which can be applied in the learning activities of pronunciation teaching. As there are various ways of teaching pronunciation, it is up to

the teachers to choose the techniques for their teaching, because the most important thing in teaching languages that cannot be neglected is communicative purpose. Any activities created for classroom teaching has to deal with this goal.

Gamification Approach

Gamification is the teaching method that create student's engagement and motivation, it is an innovative approach using game mechanics in a non-game setting. As Kapp (2012, p. 99) defined gamification as "using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems,". It is the use of game thinking, approaches and elements in a context different from the games. Using game mechanics improves motivation and learning in formal and informal conditions (Dichev & Dicheva, 2017). Unless, gamification was found in business field successfully, it is now being implemented in many educational programs as well. One reason that gamification has become more interest in the recent years is its effects on the increase of motivation and engagement towards learning process.

Gamification is an integration of game elements and game thinking in activities that are not games. Games have some distinctive features which play a key role in gamification, e.g., *game master* are teachers/instructors who control the learning process, *players* are students; *challenges/tasks* are players perform and progress towards defined objectives; *points and rewards* are accumulated as a result of executing tasks, class-related behaviors, and students' performance; *levels* in which players pass depending on the points; *progress bar* for monitoring one's advancement through levels of gamification.; *badges* serve as rewards for completing actions; and *leaderboard* reports their achievements which encourages competition between learners and motivate them to be more active participants in the learning process.

According to Anderson, Reynolds & Powers (2017), gamification provides the motivation for learners to solve problems, do activities and apply to the real – world. Learners will get the learning motivation by getting points, rewards, levels, badges and leaderboard (achievements) as mentioned above. In other words, the learners are encouraged to concentrate on their studies and enhance their motivations through using the gamification, the process of game in the education context.

Concept and Framework

Gamification in education is the use of game mechanics and elements in educational environment. Teachers try to use new techniques and approaches to provoke students' activity and motivate them to participate in training. One possible solution is to reward the efforts and achieved results by awards, which leads to increased motivation for participation and activity. That decision is based on the use of game elements in the learning process.

Users' actions in games are aimed at achieving a specific goal (or win) in the presence of obstacles. In education, there is a learning objective, which has to be achieved by performing specific learning activities or interaction with educational content. Tracking the players' progress in games is an important element, because next steps and moves are based on their results. Tracking the students' progress is essential to achieve the learning objectives. Students' learning path is determined by the achieved levels of knowledge and skills (Glover, 2013).

Three components which are the keys to successful gamification are mechanics, dynamics and emotions. Firstly, mechanics consist of the designed aspects of the gamified system, including goals, rules, contexts, boundaries, and types of interactions. Additionally, three types of mechanics are proposed in the Mechanics Dynamics and Emotions Framework (MDE framework). Setup mechanics refer to the context of the experience. Rule mechanics refers to the goals, allowable actions and constraints, and progression mechanics refer to the rewards and reinforcements that are used to influence player behavior. Secondly, dynamics relate to the actions of the player which may approach a game with different strategies, and may react to game mechanics in different ways. Finally, emotions are regarded as the most important component, highlighting the emotional experiences in motivating the players' behavior.

Robson et al. (2015) proposed the framework of gamification design which is illustrated as follows:

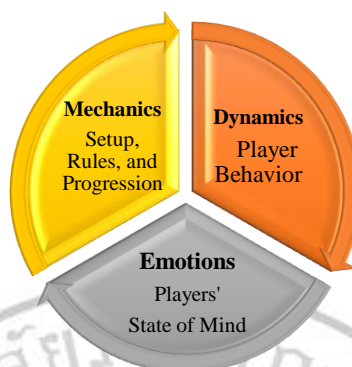


Figure 2.1 MDE Gamification Framework Design

Source: Adapted from Robson et al., 2015

Benefits of Gamification

Although gamification is getting a great deal of intention from educators and instructors, there is little study shown the use of gamification in second language classroom. Here are some studies in which the use of gamification affects to language classroom.

In particular, many educators and instructors introduce the gamification in a second language classroom, some of them believed that it can motivate and enhance their students to learn a target language. As the benefits, gamification itself combined with constructivism, social constructivism, behaviorism, cognitivism, experience – based (situated) learning and also self-paced learning theory, and these theoretical backgrounds would develop the language learners in a communicative competence in which setting, participant, purpose, channel and topic are mainly focused.

According to Flores (2015), the use of gamification reveals the benefits for learners in term of motivation and enhancement. Learners are reduced their shyness automatically and more focus on their pace. Gamifying the L2 classroom enhances the learning of writing, reading, and speaking and motivates collaboration and interaction, because they learn experience based on the information presented as the game elements. Extrinsic motivation through the use of reward systems can interfere with the main objectives of learning languages.

Moreover, using gamification in second language classroom can create learner's mentality and critical thinking that related to Piaget's constructivism theory. By focusing on the process's students will participate in, student behaviors and attitudes can be influenced, which can have positive influences on learning and motivation. This can be of great benefit in second language acquisition, as motivation is one aspect of research that is always of interest. If gamification of learning can also be applied to second language acquisition, then it is clear that it is necessary to determine what aspects of gamification can be most beneficial for language learning.

Motivation is a major concern in the gamification. It is considered goal directed and defined as "the combination of effort plus desire to achieve the goal of learning the language plus favorable attitudes toward learning the language" (Gardner, 1985). Motivation is also a significant contributor to language achievement in terms of linguistic outcomes, which traditionally embrace the knowledge structure of the language, e.g., vocabulary, grammar and pronunciation and the four basic skills of the language, including listening, understanding, reading and writing. In second and foreign language learnings. Learnings may be affected differently by different types of motivation.

The discussion about the intrinsic and extrinsic motivation is a popular topic within the gamification research. Chou (2015) claims that the Self-Determination Theory and Daniel Pink's (2009) work is accurate, yet he states that his terminology somewhat differs. Chou (2015) argues that Pink's (2009) definition of Mastery as an intrinsic motivation is really an extrinsic motivation. According to Pink's (ibid) theory, a person that wants to accomplish something, e.g., be a fluent native speaker, is driven by an intrinsic motivation.

However, Chou (2015) claims that Mastery is an extrinsic motivation, because the task itself is not rewarding. He states that a simple way to determine whether the task is driven by extrinsic or intrinsic motivation, is to remove the goal and check if the person is still motivated to continue doing the task or not. Chou (2015) brings up the issue about extrinsic traps, as he calls them. These traps typically happen when a person is exposed to extrinsic motivation in a task that was originally inspired intrinsically. This makes us more goal oriented and more likely to not pay attention to the task at hand.

Classcraft Application

Classcraft Application is a role-playing game designed for teachers and students to play together in the classroom. Each student takes on the role of a character and works to unlock special abilities. As the teacher, he/she will assume the role of Game Master (GM) and manage the gameplay experience in his/her classroom. Classcraft transforms how students experience class in everyday. It can be considered to metaphorize the functioning of a classroom as a battlefield combining collaboration and competition. Classcraft is not related to a specific school subject, and the duration of the game depends on the teacher's expectations. The students play the game during school hours and outside of class (Classcraft, 2019).

Before playing, students will get to be a warrior, a healer, or a mage, each with special powers that can be used in real life and will let you do things like get extra time on an exam or listen to music in class. These powers can be unlocked by participating in class. The Hero Pact represents the commitment to playing Classcraft until the end of your class, be it the semester or the school year. Players can't play Classcraft unless you sign the pact, and they can't stop playing once the pact is signed. In signing the Hero Pact, teachers recognize the authority of the Game Master (GM) and students can't contest his/her decisions at any point in the game.



Figure 2.2

Classcraft Application

Source:

Classcraft, 2019

Game rules are quite simple. A student by demonstrating positive behavior in class can earn:

1. Health Points (HP), every player has HP. When students lose all of their HP, you will fall in battle and will then be subject to potentially negative consequences. They lose HP when they behave negatively in class, for example, incomplete an assignment; inappropriate language; not following instructions; arriving late to class; and forgetting class materials.

2. Experience Points (XP), students also have XP. XP allows them to level up in the game and unlock powers. To earn XP, they must behave in a positive way in class. Here's a list of some behaviors that can earn the XP: complete tasks before a class finish; complete assignments before a class start; concentrate to study in class; have a good relation and work well with others; and have a self-confidence when pronounce a word in front of class.

3. Action Points (AP), in addition to HP and XP, students also gain AP. AP enables them to use the powers they have earned. For example, if a healer wants to use the 'Heal' for 1 power, it will cost them 15 AP. When they don't have enough AP, they can't use any powers.

4. Power Points (PP), at the beginning of the game, every player starts at Level 1. To level up, students must earn 1,000 XP. Every time they do, they will earn a PP. It's with PP that they can buy powers. Powers can cost between 1 and 3 PP depending on how strong they are.

5. Gold Pieces (GP), special currency (money) used in Classcraft. Earned by players or given by parents or teachers.

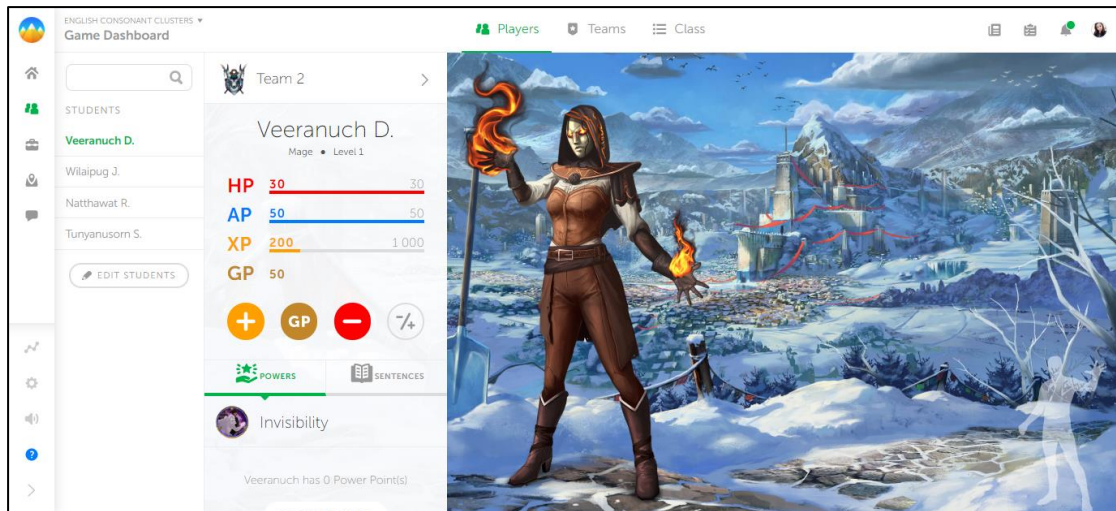


Figure 2.3 Game Dashboard with the students' performance: Health Points (HP), Experience Points (XP), Action Points (AP), and Gold Pieces (GP)

Source: Classcraft, 2019

Coins are used to buy gear that students can equip to customize their character and make it look awesome. There are four ways they can get coins: they can earn every time you level up; they can train your pets; If their class is playing the Premium version, teachers can reward students with coins if they do well in class; or If their class is playing the Freemium version, they can buy coins in iTunes or in the game (Classcraft, 2019).

Quests lays a teacher's existing lesson plan over a fantasy world that students traverse by completing assignments, or quests. Completing each task, which may be an assignment, discussion, in class activity or something else, unlocks the next. Each journey across the map is personalized by how students perform on each task and progress through the lessons. Quests also offers classroom management tools, such as the ability to award points based on participation in discussion or early submission of an assignment, Bolkan (2017). These quests include:

1. Random Picker (The Wheel of Destiny), choose a random student or team to answer questions, pick students for group activities, and more.

2. Random Events (The Riders of Vay), add some surprise to the day by starting class with a fun event or condition.

3. Timer (The White Mountains), a timer to pace classwork, tests/quizzes, or other class events.

4. Stopwatch (The Forest Run), a stopwatch that can be used with any classroom activity.

5. Boss Battles (Adventures in the Wild), review for formative assessments or do an in-class pop quiz with short answer or multiple-choice questions.

6. Volume Meter (The Makus Valley), measure a classroom volume and encourage students to quiet down.

7. Grade Converter (Treasures of Tavuros), reward points to students for scores on assignments or exams.

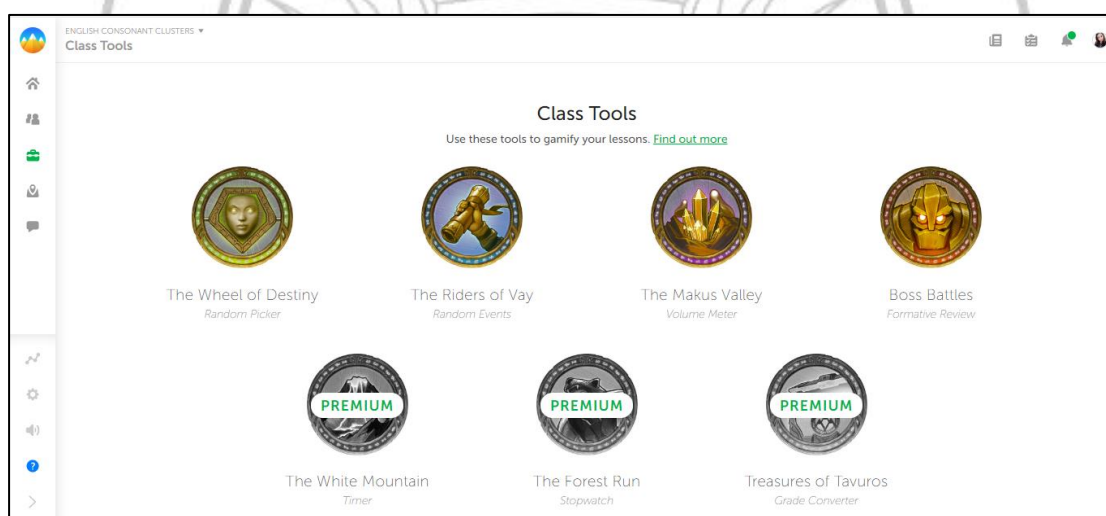
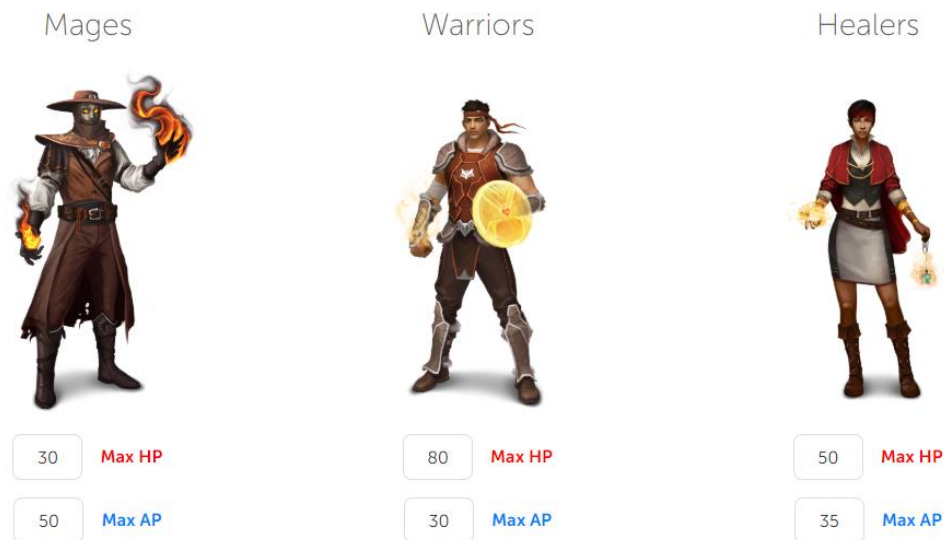


Figure 2.4

Quests in Classcraft Application

Source:

Classcraft, 2019

**Figure 2.5**

Warrior, Mage and Healer Characters

Source:

Classcraft, 2019

In Classcraft, students are placed in teams of eight to ten members and play as, Warriors, Mages, or Healers. Each group has unique properties and powers and is designed for different types of students. Each team has at least one Warrior, one Mage, and one Healer so they can help each other succeed in class tasks. The teacher played the game with his students in the school computer lab. Teacher used the video projector in order for the students to watch the game during the whole teaching hour. At the beginning of the teaching hour, the teacher used the game class announcement tool to send messages to students, to reward or punish them for their performance, e.g., arriving in class late. Also, during the teaching hour, the students were rewarded, or punished, for good or bad behavior or for their contribution in class, accordingly (Papadakis & Kalogiannakis, 2017).

In this study, Classcraft was incorporated into the teaching process in pronunciation as an additional tool in order to improve the students' pronunciation ability as well as their motivation and engagement in English classroom. The reason why the Classcraft application was selected was that it makes an English pronunciation class more meaningful for students by creating playful and collaborative learning experiences. By leveraging technology, games, and storytelling, Classcraft helps

students to be more active, motivated, and engaged in the class. Besides, teacher can create a learning environment that is culturally relevant to today's youths. Also game elements/mechanics in the Classcraft can make students improve their English pronunciation ability better.

Moreover, using the Classcraft, students learn how to better work together and accomplish more in the pronunciation class while having fun. The emphasis on collaboration within the game rules helps foster non – cognitive, social and emotional skills such as empathy, leadership, and communication. These skills are critical in today's job market but are rarely taught in traditional curriculum.

Related Research Studies

Pronunciation is essential for effective communication. If a speaker mispronounces words, the listeners will misunderstand exactly what the speaker intends to convey. Therefore, it is important that words are pronounced correctly and clearly. Nevertheless, a large number of EFL/ESL learners are still unable to pronounce English words correctly. As a consequence, they still encounter problems of English pronunciation, which are due to several factors. There are many factors underlying students' mispronunciation of English words, including the phonetic difference between English and their mother tongue, teachers teaching styles, students' learning habits, the process of teaching and learning, as well as the classroom environment.

Many studies focused on teaching pronunciation by using/integrating the gamification, and the gamification principle was adapted into the applications that users can download or use via the internet/online in order to practice and improve their English pronunciation ability. Here are some studies related to pronunciation teaching and language studies with the integration of the gamification.

To begin with Gilbert (1984) observed the interdependency of listening comprehension and pronunciation and therefore stated that students cannot hear English well, they are cut off from the language. If they cannot be understood easily, they are cut off from conversation with native speakers" (p. 57).

Celce-Murcia, Marianne, Briton, Donna M. & Goodwin, Janet M. (1996), presented two techniques for teaching pronunciation. The first is the time-tested or traditional classroom technique. This technique includes the use of a phonetic alphabet,

transcription practice, and diagnostic passages, detailed description of the articulatory system, recognition/discrimination tasks, approximation drills, focused production tasks (e.g. minimal pair drills, contextualized sentence practice, reading of short passages or dialogues), and other techniques such as tongue twisters and games. The other is a newer technique with resources available to teachers for second language pronunciation. These techniques include visual reinforcement, auditory reinforcement, memory peg, tactile reinforcement; mirroring, tracking, shadowing, sociodrama, kinesthetic reinforcement, jazz chant, guided imagery activity, neurolinguistic programming, simulation, oral dialogue journal, and speech spectrographic devices.

Hismanoglu (2006) mentioned some researchers have offered various pronunciation teaching techniques and activities related to each intelligence type, which included within the theory of Multiple Intelligences by Howard Gardner's (1983), for example, students with visual/spatial intelligence. They can make the best use of techniques such as using a mirror, wall charts, card games, etc., while techniques like tossing a ball, using a rubber band, knee bending / body language, balloon squealing, etc. can be best for those with bodily / kinesthetic intelligence (Thompson, Taylor, & Gray, 2001).

Landers & Landers (2014) conducted the framework in online games for university courses by using leaderboards, one of the game elements in the gamification approach. Leaderboards are a method of ranking students that presents learners with a challenge, clearly defined rules and goals, as well as a means of assessment. In the course, an online Wiki was used, on which students were required to create a page. As a result, they stated that gamification could increase time on task, and learning motivation.

Munday (2016) implemented 'Duolingo' applications to develop Spanish pronunciation ability. This study explored the idea of using an already existing language learning app in order to complement traditional college level Spanish as second language courses. These types of apps used adaptive learning technologies, which were able to tailor the tasks to the level of each student. In this study, Duolingo was used as part of the program of studies in two Spanish university courses, one a beginner's Spanish course (level A1) and the other an advanced intermediate course (B2). The students used the app online, either in its mobile version or in their web browser.

Preliminary results suggested that Duolingo is an easy-to-use app that is useful and has potential, although its main lessons were not based on communicative competence. It is usually enjoyed by students because of several elements, such as the accessibility on a mobile device, its gamification aspect, and the variety of tasks.

According to Papp (2017), this study reported the effects of gamification elements on primary and college students' motivation and learning. Business communication classes and mathematics classes experienced gamification by introducing game elements and frameworks in the classrooms while maintaining the integrity of the learning outcomes. The result revealed that students expressed increased motivation and engagement at both the primary and college level as well as improved learning.

Papadakis & Kalogiannakis (2017) implemented gamification for supporting an introductory programming course: the case of Classcraft in a secondary education classroom. They mentioned that the gamification technology had a great advantage to solve the problems as it could improve learning motivation of students. Various studies have shown that gamification under appropriate conditions may create an environment that can lead to learning and large increases in students' interest in programming. Classcraft is a game that can be used in the classroom to help students to have fun, promote teamwork, and become better learners.

Jongmuenwai, et al. (2018) studied 'Gamification for learning'. The educational gamification to learn is a study type and concept of gamification. The result revealed that gamification could be adaptive to learning in the digital age, which is driven by information technology and communication by game mechanics. Therefore, the learner is engaged in active learning during study, and gamification can be applied to teaching all levels and disciplines.

It is concluded that gamification is a path connected between education and technology. It is considered as an effective instructional tool which can be integrated into the language classroom by using technology as a mechanism driving the students to have positive attitudes in learning, to reduce disruptive behavior, to improve students' thinking processes, and to have better skills in language learning.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter presents the research methodology, and the population and sample group of this study. A brief detail of the developed lesson plans integrated with the gamification approach, pre- and post- tests, and the questionnaire are described in the following sections. Moreover, the data collection processes and the data analysis are shown in the last section. The topics are presented as follows:

1. Research Design
2. Population and Sample Group
3. Research Instruments
4. Data Collection
5. Data Analysis

Research Design

This study was a quasi-experimental research with a one-group pre-test post-test design (Fitz-Gibbon & Morris, 1987, p. 113) in order to compare the students' consonant clusters pronunciation ability before and after teaching pronunciation by integrating the gamification approach. Figure 3.1 illustrates the research design used in this study.

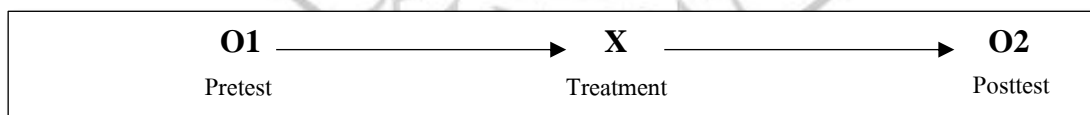


Figure 3.1 : The research design used in the present study

Given:

O ₁	represents	Pretest
X	represents	Teaching pronunciation by integrating the gamification approach (Treatment or intervention)
O ₂	represents	The students' consonant clusters pronunciation ability and their opinions (Posttest)

Population and Sample Group

Population

The population of this study consisted of 105 Thai second-year students in the International Communication program, the International College, Chiang Mai Rajabhat University, who enrolled in ENGL 1102 English Phonetics course in the first semester of the academic year 2019.

Sample Group

The sample group was composed of 40 Thai second-year students in the International Communication program, the International College, Chiang Mai Rajabhat University in the first semester of the 2019 academic year. The purposive sampling method was used to select the sample group with the students who had scores below 60 percent in the preliminary test.

Research Instruments

Three research instruments were employed in this study, and they were divided up into two types. The instrument for treatment was eight lesson plans with the integration of gamification approach. The data collection instruments were composed of the pre- and post-tests, and the questionnaire.

Lesson plans

There were eight lesson plans designed for teaching consonant cluster pronunciation with the integration of gamification approach. Each lesson plan included four steps of teaching pronunciation, e.g. content presentation, pronunciation practice, pronunciation production, and pronunciation evaluation. Each lesson plan lasted for 3 hours. Table 3.1 presents the consonant cluster sounds taught in this study.

Table 3.1 The consonant cluster sounds taught in this study

Week	Lesson Plan	Consonant cluster sounds
1	1	/str-/ , /stj-/ , /spl-/
2	2	/spr-/ , /spj-/ , /skl-/
3	3	/skr-/ , /skw-/ , /skj-/
4	4	/-lpt/ , /-lps/ , /-mps/
5	5	/-mfs/ , /-nts/ , /-ndz/ , /-ŋst/
6	6	/-pθs/ , /-pts/ , /-pst/
7	7	/-fθs/ , /-fts/ , /-sts/
8	8	/-tθs/ , /-kts/ , /-kst/

In teaching pronunciation, the model used in this study was divided into four steps: content presentation, pronunciation practice, pronunciation production, and pronunciation evaluation as mentioned above. The integration of gamification through the Classcraft application in pronunciation lessons is as follows:

Step 1: Content Presentation

In the first step, the students were exposed to consonant cluster sounds in each week. After that, the teacher presented each letter sound corresponding to the targeted consonant clusters by using the flashcards, phonetic charts, and articulatory diagrams. Additionally, the visual aids such as video clips, YouTube and the animations were shown to the students in order to describe how to produce each sound correctly and to hear the correct sounds from a native speaker. After knowing individual letter sounds, the students were required to produce the consonant cluster sounds correctly and spontaneously. Teacher or game master could give an extra point for students' participation, engagement, and behavior in a class, if they pronounce individual cluster sounds correctly. If not, they could lose the points. The points would be given to the students via Classcraft. The progress bar in Classcraft could be shown to the students to display their progression in English pronunciation in order to boost their motivation.

Step 2: Pronunciation Practice

In the second step, the teacher blended three-letter sounds to teach pronunciation and provided the students a list of consonant cluster words. The minimal pair drills were used to help the students to differentiate both the similar and different sounds in English consonant clusters, which could lead to developing their production in pronunciation. In addition, the listen and repeat technique was incorporated into the students' learning activities, which would improve both the oral production and auditory perception of the students. Teacher or game master could give an extra point for students' participation, engagement, and behavior in the class if they pronounce English consonant cluster words correctly. If not, they could lose the points. The points would be given to the students via Classcraft. The progress bar in Classcraft can be shown to the students to display their progression in English pronunciation.

Step 3: Pronunciation Production

In this step, the students were asked to complete the exercises from easy to more difficult tasks to see their progress in pronunciation. The teacher created an assignment/a task and the different class tools in Classcraft to gamify the tasks to become more fun, motivating and engaging. Each team competed with one another via using the class tool selected from the teacher. Finally, the teacher gave the points to the teams. The best team could win and earned more powers to level up. The points could be given to each team through Classcraft.

Step 4: Pronunciation Evaluation

When the boss battle began in the Classcraft, the fastest team would get a chance to pronounce the word loudly. If the students as a team pronounced the word correctly, they would deal damage to the boss. If they pronounced incorrectly, the boss could attack them and did critical damage to the team. Finally, the team who could kill the boss would be the winner to whom the teacher could give the rewards for their teamwork, collaboration, and effort.

As gamification approach is a fun and enjoyable method to support learning English and a gap-filling tool between students' learning and education practices, its concept was integrated into the four steps of pronunciation teaching method mentioned earlier.

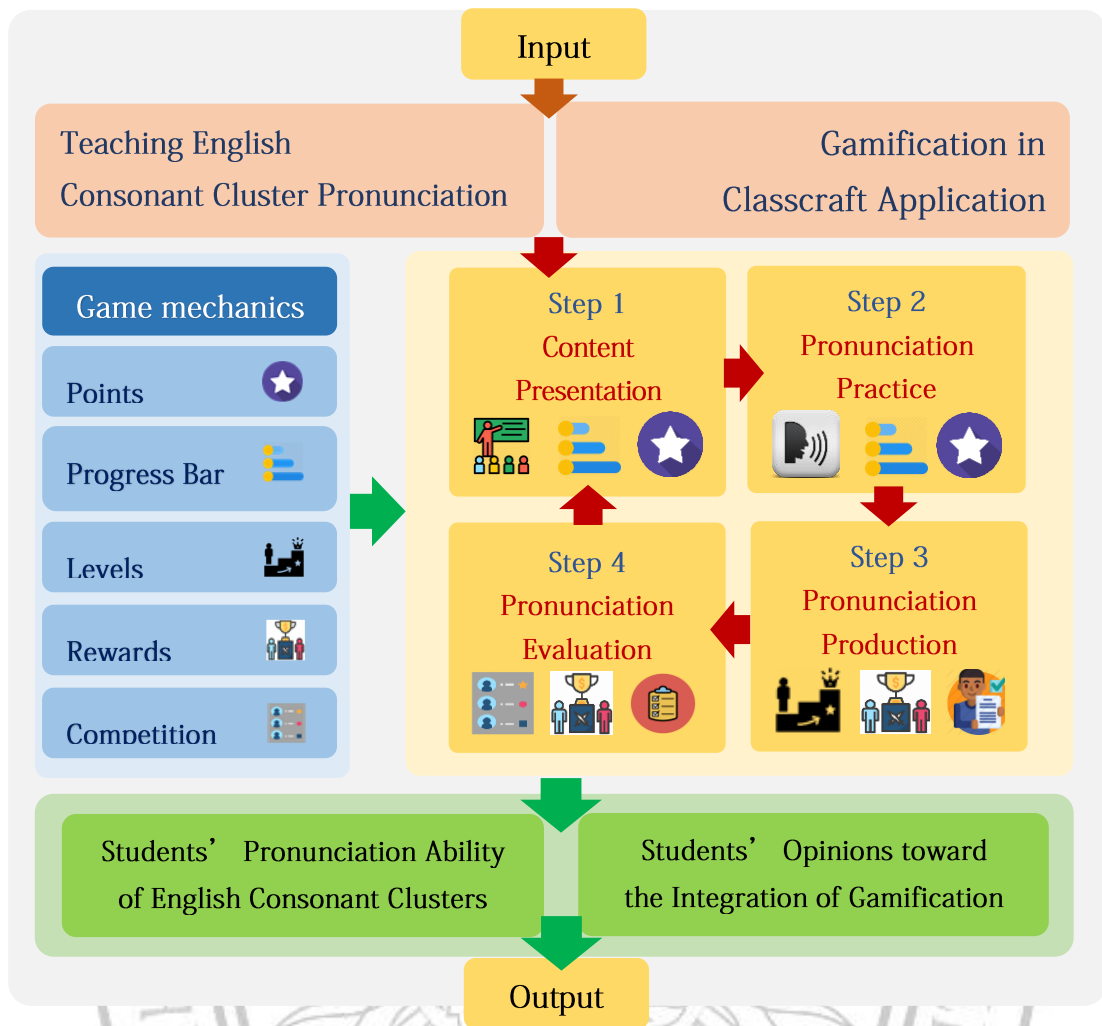


Figure 3.2 The learning system in pronunciation teaching method with the integration of gamification approach

From Figure 3.2, before the intervention took place, the overview of Classcraft application, and the step-by-step instruction for using Classcraft were introduced to the students. Next, each student was required to sign up as a 'player' to join the class through Classcraft application, an online platform used to gamify the pronunciation teaching in the classroom. After that, the oral test was administered in order to measure the students' s pronunciation ability of the consonant clusters. Finally, the teacher as a 'game master', assigned the students to form their teams, and to choose their own characters or avatars. Each avatar has different powers related to what avatar the students had chosen. Afterwards, the game rules which represented the actual classroom

rules were introduced to organize the students' behavior both in-class and out-of-class learning. Figure 3.3 presents the avatars with their powers in Classcraft application.

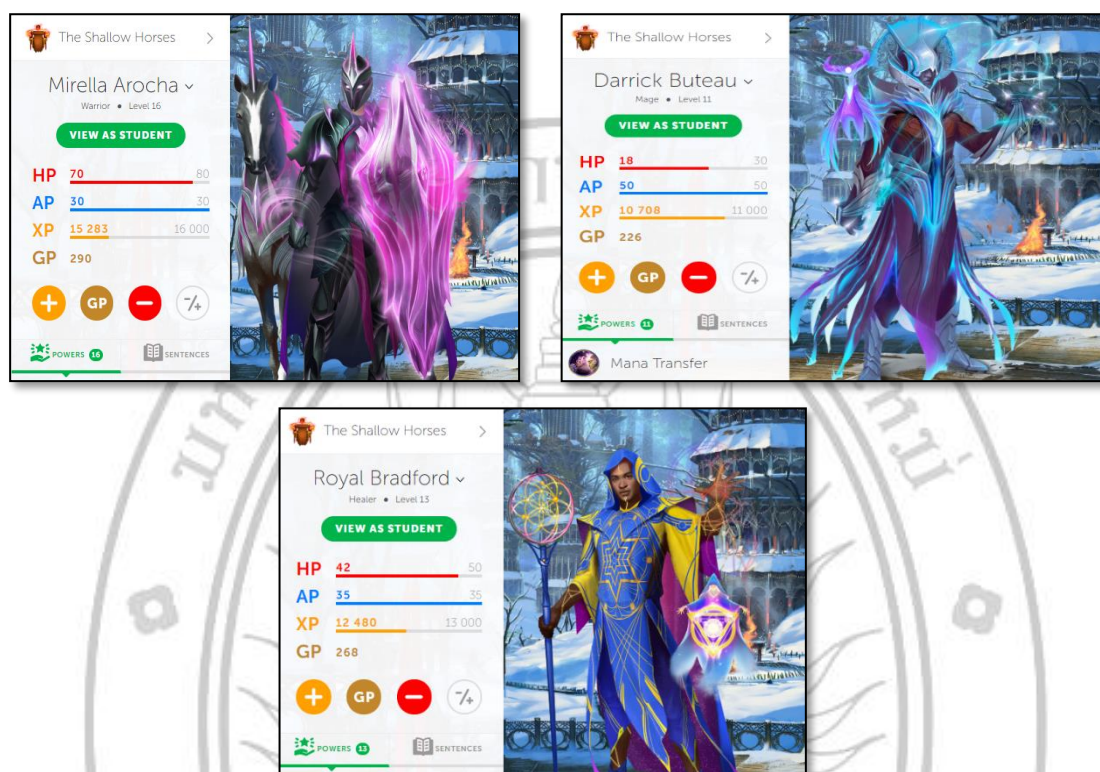


Figure 3.3 The avatars with their powers in Classcraft application

During an intervention, game mechanics, the basic principles of gamification approach, were used as additional tools in the development of the consonant cluster pronunciation. Points and progress bars were used in both the content preparation and pronunciation practice steps to score the powers of student's avatars and to show their progress both in consonant clusters pronunciation ability and behavior. To get more powers, the students had to earn their experience points (XP) by behaving in a positive way that made them to become better learners, e. g., completing the task, answering the questions in class, working together or finishing the exercises on time. However, the students would lose their health points (HP) for behaving in a negative way, e. g., being late in class, late submission of assignments/homework, or chatting in class. Also, the teacher as the game master could set up the behavior criteria or game rules to

increase or reduce any powers of the students' avatars. Figure 4 illustrates the behavior or game rules and criteria set by the teacher.

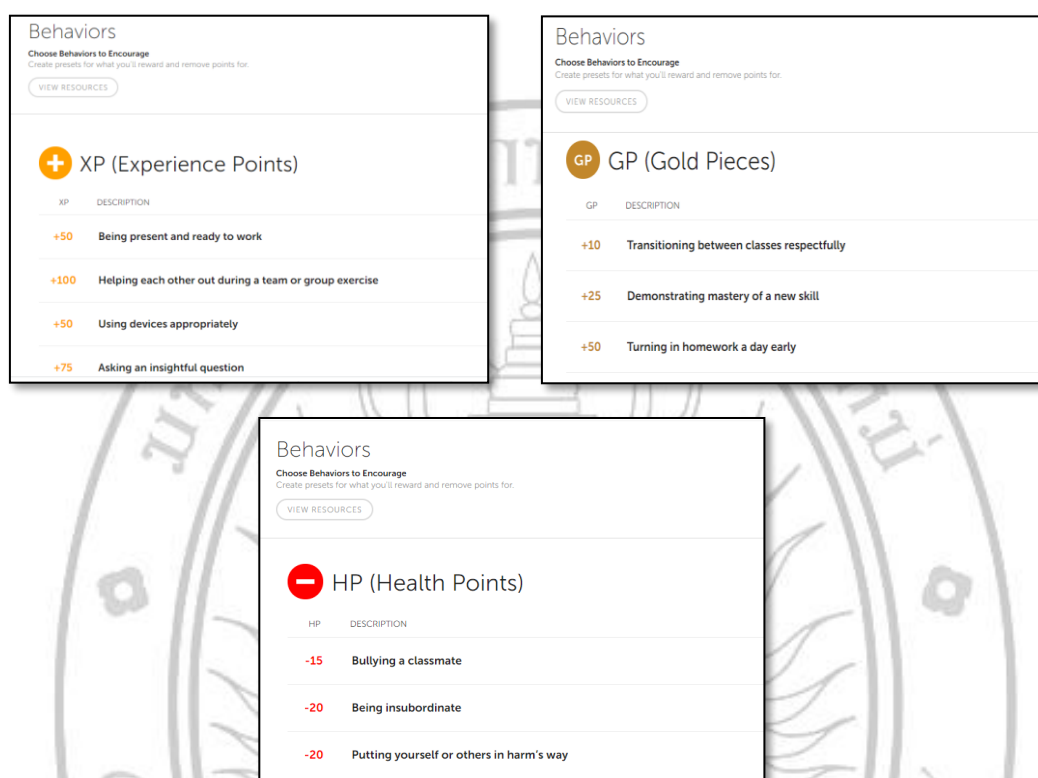


Figure 3.4 The behavior or game rules and criteria set by the teacher

For the pronunciation production, levels and competitions were used to make the classroom atmosphere to become game-like environment. The teacher could choose the different class tools to gamify any activities in the class to generate more fun and engagement. Figure 3.5 illustrates the class tools in Classcraft.

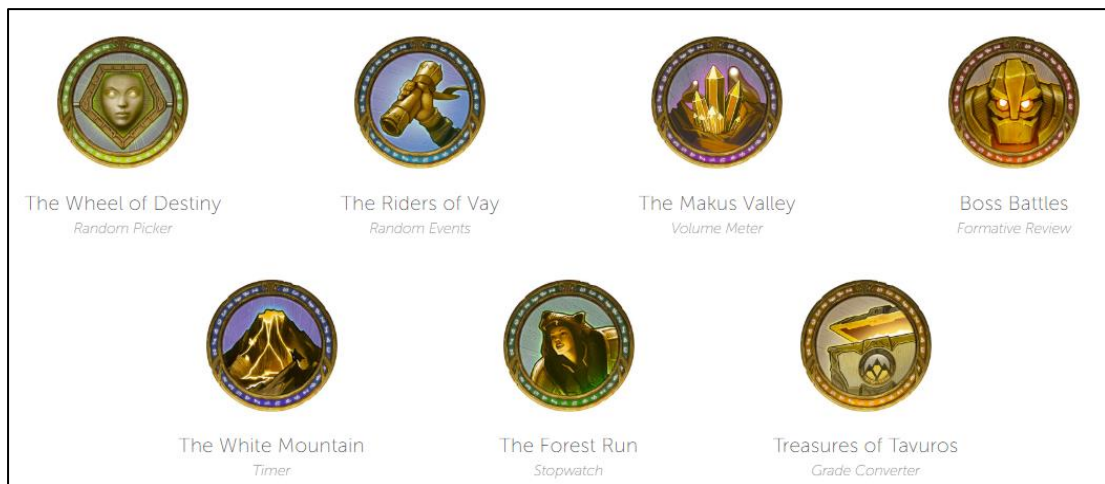


Figure 3.5 The class tools in Classcraft application

With different class tools, the students as a separate team were competing with one another. For example, the white mountain is a timer to pace classroom, tests/quizzes, or other class events. The teacher would set the time for the students to finish the assigned tasks or quizzes. The faster team would win and earn more powers to level up. Finally, in the pronunciation evaluation, the boss battles were used to review the formative assessments. Every team was randomly selected to participate in the competitions. The winner earned the powers and the teachers could give the rewards to any teams for their teamwork, collaboration, and effort.

For the teachers as the game master, he/she plays not only as an instructor but also as a facilitator, a monitor, and a coach. Firstly, the teacher set what students should be able to do after completing the course. Therefore, the learning objective in this study was that students should be able to pronounce words within consonant clusters words correctly. Next, he/she needed to establish the game rules in Classcraft for the classroom management to show how scores would be given to the students. After that, the teacher designed the storyline to create the quests which turned the lesson plans into a game. According to the lesson plans designed for this study, there were eight quests. To design the quests, the teacher needed to create his/her own fantasy storyline to connect between one quest/lesson plan to the others. The quests used in this study are illustrated in Figure 3.6.



Figure 3.6 An example of the quests used in this study

After that, the teacher created Fantasy stories about the very characters that students played in the Classcraft application. The warriors, mages, healer, so on were chosen in order to build up the student's enjoyment and attention in their class, set up the scores, and assign the tasks for the students to complete. Nevertheless, the content in pronunciation was taught directly by the teacher. In this phase, the students can interact with their teacher through the discussion section. Also, setting up the game rules could allow the teacher to manipulate the students and to keep them on track in the classroom management. With the features in Classcraft application, the teacher could monitor the students' progress, manage their scores easily, as well as, assess their achievements.

English Consonant Clusters Pronunciation Test

English Consonant Clusters Pronunciation Tests were the pre- and post- oral test with a list of 50-marked consonant clusters designed to evaluate the students' pronunciation ability of English consonant clusters. They consisted of 9 phonemes of the three-initial consonant clusters, and 16 phonemes of the three-final consonant

clusters. The words are detailed in Table 3.2. The pre–oral test was administered in the first week and the post–oral test was administered in last week so as to determine whether there had been any improvement in the student’s levels of pronunciation. To avoid subjectivity, an English native speaker and the Speech Analyzer Software were involved and implemented to assess the students’ pronunciation ability of English consonant clusters. The students who could pronounce the word correctly got one point whereas those who pronounce the word incorrectly got no point. In the tests, the consonant clusters token was checked by two phonetics instructors with the IOC scores of 1.0.

Table 3.2 List of 50 English Three – Consonant Clusters

List of 50 English Three – Consonant Clusters				
Straight	Spurious	Squad	Bootcamps	Prompts
Strangulation	Sputum	Squarish	Absents	Bankrupts
Strategic	Sclera	Squeeze	Accounts	Transcripts
Stratum	Sclerosis	Squirrel	Movements	Twelfth
Stressful	Scramble	Skua	Gents	Warcrafts
Studious	Scratchy	Sculpt	Defends	Swifts
Splash	Scream	Helps	Reminds	Gymnasts
Splendid	Scrotum	Sculps	Thousands	Neutralists
Spreader	Screeners	Thumps	Amongst	Context
Sprout	Scrambler	Shrimps	Depths	Ciphertext

Questionnaire

A questionnaire was developed by the researcher in order to evaluate the students’ opinions on the integration of gamification. This questionnaire is a close–ended question type with a 5–level rating scale. It is divided into two parts. The first part was concerned with the background information of the respondents. The second part explore the levels of students’ opinions in the aspects of the learning system including the advantages of integrating gamification approach in the pronunciation teaching, the students’ accomplishments, the appropriateness of this approach in teaching pronunciation, and the effects of gamification approach on the

students' learning skills and experiences. To verify the questionnaire, three specialists were requested to verify the validity and reliability with the IOC scores of 0.85.

Data Collection

The data were collected in the second semester of the 2019 academic year from January 2020 to March 2020. The data collection was divided into three steps as follows.

1. Orientation

The first week was dedicated to the Classcraft orientation and the pre-test administration. The orientation session took three hours to provide instructions regarding the use of Classcraft dashboard, Classcraft and gaming terms, character roles and powers, and game features. Then the students were assigned to sign up as 'players' in the Classcraft Application. In order to promote social skill, and teamwork, the students were asked to form into groups of ten. Each group member was assigned responsibilities in the team. The warriors are the game's protectors, mages are the game's suppliers, and healers perform healing functions in the game. At the end of the orientation, the pretest was administered.

2. During the intervention

The pronunciation teaching model with the integration of gamification approach included content presentation, pronunciation practice, pronunciation production, and pronunciation evaluation were implemented during the experiment for three hours a week, with a total of 24 hours.

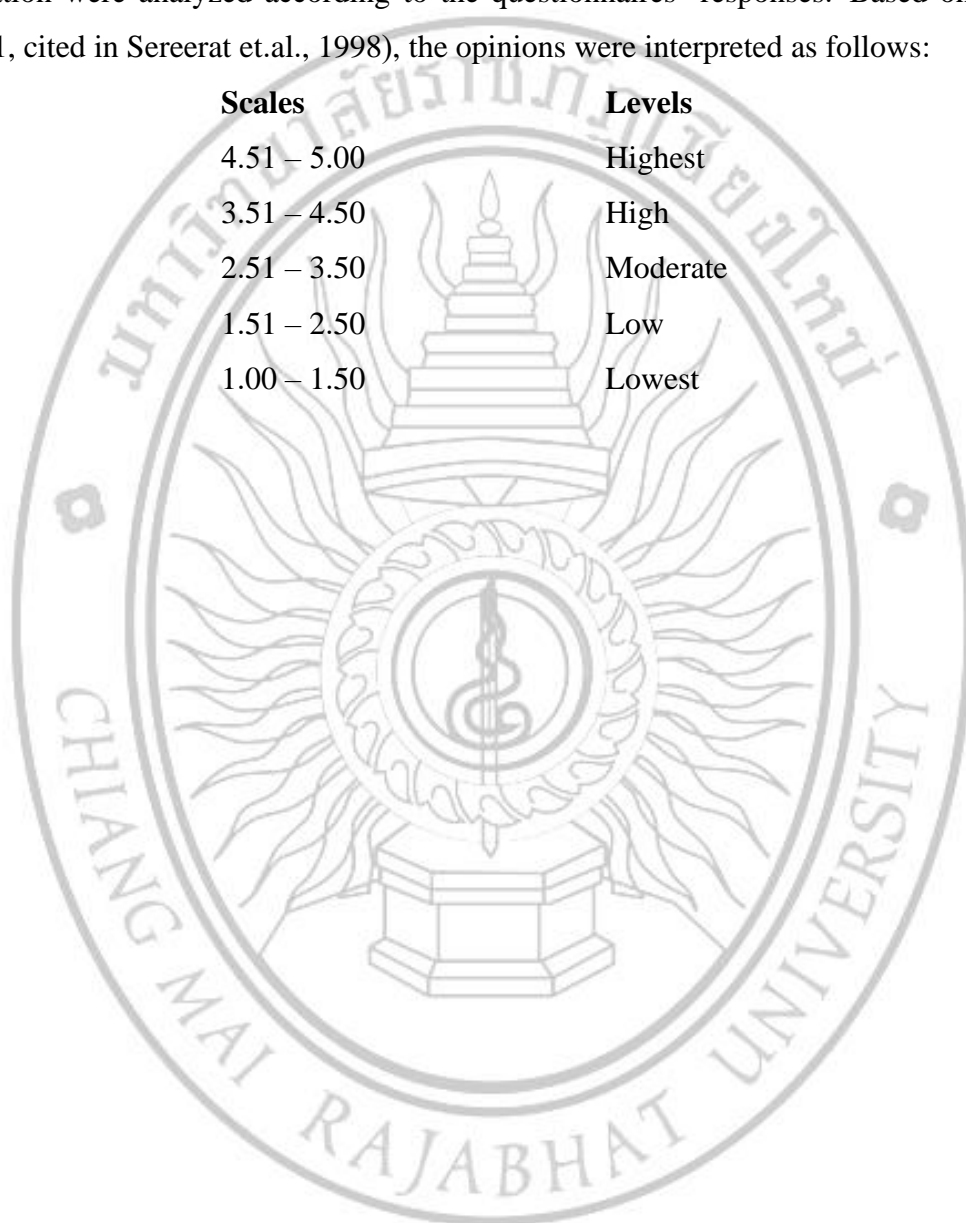
3. After the intervention

At the end of the course, the post-test was administered to evaluate the students' progress in English consonant cluster pronunciation for three hours. Moreover, in order to investigate the students' opinions, the questionnaire was distributed to the students immediately after the class in order to capture the intense and immediate responses of the students towards the integration of gamification approach in pronunciation teaching.

Data Analysis

The descriptive statistics used in this study were mean (\bar{x}), standard deviations (SD.), and t-test for comparing the pre- and post- test scores of teaching pronunciation by integrating gamification approach. In terms of questionnaire, mean and standard deviation were analyzed according to the questionnaires' responses. Based on Best (1981, cited in Sereerat et.al., 1998), the opinions were interpreted as follows:

Scales	Levels
4.51 – 5.00	Highest
3.51 – 4.50	High
2.51 – 3.50	Moderate
1.51 – 2.50	Low
1.00 – 1.50	Lowest



CHAPTER 4

RESULTS AND DATA ANALYSIS

This chapter presents results and data analysis of the study, entitled “The Use of Gamification to Improve English Consonant Cluster Pronunciation Ability of Students at Chiang Mai Rajabhat University”. The findings aim at covering these two research objectives; 1) to compare the students’ pronunciation ability of English consonant clusters before and after learning through the integration of gamification, and 2) to investigate the students’ opinions on the integration of the gamification. As a consequence, the results and data analysis are divided into two parts as follows.

Part 1 Students’ pronunciation ability of English consonant clusters before and after learning through the integration of the gamification.

To answer the first research objective, this part shows the comparison of the students’ pronunciation ability of English consonant clusters before and after learning through the integration of the gamification. English consonant clusters pronunciation tests were used as the research instruments to evaluate their pronunciation ability of English consonant clusters. The pretest and posttest consisted of 50-words, comprising words with three-initial (onset) and three-final (coda) positions of English consonant clusters.

Table 4.1 The difference between the pretest and posttest mean scores before and after learning through the integration of gamification

Test type	Mean	SD.	t	Sig.
Pre-test	19.65	7.308	-24.582	.000*
Post-test	43.05	3.993		
Pretest & posttest comparison	23.40			

* $p \leq .05$

Table 4.1 illustrates an overall mean score of the pretest and posttest of the students' pronunciation ability with the integrations of the gamification in their English pronunciation course. The results revealed that the pretest and posttest mean scores were 19.65 and 43.05 respectively. Obviously, the posttest mean was dramatically higher than the pretest with the difference of 23.40. In addition, the standard deviations (SD.) of the pretest and posttest were 7.31 and 3.99, respectively. The t-test indicated that there was a statistically significant difference between the pretest and posttest means at the .05 level ($t = -24.582$). The results indicated that the integration of gamification in the study could improve the students' pronunciation ability of English consonant cluster.

To consider the quantitative findings in details, the pretest and posttest mean scores of the 25–three onset clusters and the 25–three coda clusters are presented as follows.

Table 4.2 Pretest and posttest mean scores of the consonant cluster pronunciation

Pretest & Posttest	Mean of Correct (N = 25)	% Correct	t	Sig.
/CCC-/ Onset Cluster				
Pretest	15.08	60.30 %	-10.203	.001
Posttest	21.60	86.40 %		
/-CCC/ Coda Cluster				
Pretest	4.57	18.30 %	-19.720	.248
Posttest	21.45	85.80 %		

* $p \leq .05$

Table 4.2 shows the pretest and posttest mean scores of three–onset and three–coda clusters. The data revealed that there was a substantial difference between the pretest and posttest mean scores of the onset clusters, which were 15.08 (60.30 %) and 21.60 (86.40 %) respectively. Similarly, the pretest and posttest mean scores of the coda clusters were 4.58 (18.30 %) and 21.45 (85.80 %) respectively. It could be concluded that there was a dramatical difference between the pretest and posttest mean scores of the onset clusters.

Part 2 Students' opinions on the integration of the gamification.

To evaluate the students' opinions on the integration of the gamification, a questionnaire was constructed based on a 5-point rating Likert scale. The questionnaire was a close-ended question type which was divided into two parts. The first part dealt with the background information of the respondents. The second part explored the levels of students' opinions in the aspects of the learning system by integrating gamification approach. The results of the students' opinions on the use of gamification are presented in Table 4.4

Table 4.3 Students' opinions on the integration of the gamification

			(N = 40)
	Items	Mean	Levels of opinion
1	Pronunciation teaching method in this study is suitable and the procedures could be followed the instructions step-by-step.	4.53	Highest
2	English consonant cluster pronunciation lessons provide the appropriate use of multimedia such as sound, image and video clip.	4.38	High
3	The integration of gamification provides the appropriate use of game mechanics, sound clips and video clips	4.55	Highest
4	The integration of gamification approach could enhance the student's motivation, active learning, and engagement in the class.	4.90	Highest
5	Classcraft application is easy to use and it could be used in the language classroom.	4.38	High
6	Gamification increases the learner's affective domain such as teamwork, engagement, and enjoyment.	4.48	High
7	Gamification facilitates students to be more self – regulated and self – paced.	4.35	High

Table 4.3 (Cont.)

			(N = 40)
	Items	Mean	Levels of opinion
8	Gamification technology in the classroom is more interesting than a traditional one.	4.50	High
9	My English pronunciation ability has improved a lot after I have been taught by the teaching methods.	4.48	High
10	When I use the gamification for learning English pronunciation, I feel more competitive and challenged.	4.38	High
11	Teaching pronunciation by integrating the gamification improves my pronunciation skill.	4.63	Highest
12	I am able to pronounce English consonant clusters correctly after I have been taught by integrating gamification in class.	4.53	Highest
13	I appreciate the use of gamification while I am studying English consonant clusters pronunciation.	4.43	High
14	I get more motivated after I have learned by integrating gamification.	4.53	Highest
15	If I were an English teacher, I would apply the gamification in my English pronunciation course.	4.93	Highest
Overall		4.53	Highest

Table 4.3 illustrates the students' opinions on the integration of gamification in the English pronunciation lessons. An overall score was at the highest level (4.53). It can be concluded that the students expressed positive feedback on the integration of the gamification approach in their learning process. As the benefits of gamification are versatile, implementation of the gamification approach in the future career as an English teacher plays a prominent role in this study with the highest mean scores at 4.93,

followed by the integration of gamification which is considered as a tool for enhancing the student's motivation, active learning, and engagement with the mean score of 4.90.

Surprisingly, the students expressed the lowest level of their opinions on the integration of the gamification which supported students to be more self-regulated and self-paced with the mean of 4.35. Likewise, 2-item questions of English consonant cluster pronunciation lessons provided the appropriate use of multimedia such as sound, image and video clip, and the gamification was easy to use, and it could be used in the language classroom were rated with the mean scores of 4.38.

In addition, most of the students expressed positive comments after they had learned English consonant cluster pronunciation lessons with the integration of the gamification in the aspects of the gamification approach and the pronunciation ability. Their comments are summarized as follows:

Firstly, the students' opinions on the gamification approach revealed that this gamification approach was very useful and interesting, and it motivated them to be more active in the class. Also, the gamification might be useful for a future class. The gamification was a good tool to motivate their learning and it was a practical game that could motivate their interest.

Moreover, some of them mentioned that the Classcraft game could be one of the good methods for teaching students because it was easy to control their behaviors and responsibility in the class. The game could improve their pronunciation ability to be better and the Classcraft application could enhance their learning motivation in learning English pronunciation course. It could be used as an additional tool for English teachers to create a fun and relaxing atmosphere while they were using the Classcraft for learning English pronunciation. Additionally, they loved to play the game; therefore, they were happy after they had got more scores and level ups. They also mentioned that teachers at their institution should apply this approach in an English class.

Secondly, the students' opinions on the pronunciation ability revealed that their English pronunciation was better after they had learned through the integration of gamification. The lessons helped them to improve their English pronunciation ability as well as increase their motivation during studying. Besides, the pronunciation lessons were one of the best ways to practice their pronunciation. It was also found that this

teaching style was more interesting than the traditional one because the teacher allowed them to play the gamification freely with the results of learning motivation and pronunciation skill improvement.

Finally, the overall opinions were that the class was very interesting, because this teaching was useful for professional look in order to promote the levels of career opportunities. The gamification class might be applied in other classes, and it was suitable for everybody. This approach could improve English skills and, it was one of the best applications for motivating students' learning. Teaching with the gamification was good for the students and the gamification could truly benefit English major students.

Nevertheless, some of them provided additional suggestions about the implementation of gamification in an English classroom. It was found that this kind of teaching was not so interesting for students at the university level, because students at this level might be more concerned with scores or real grades. It would be very good if an XP score in the game was a part of the real scores in some subjects. Furthermore, more time in each competition should be allocated, and teachers could add more alternative choices in the game. For instance, participants could fight with their friends to get more points or scores by means of the competitions in other skills.

In summary, the findings in this chapter are congruent with the research hypothesis in that the pronunciation ability of the English consonant clusters of the students after learning through the use of gamification was higher than before the intervention. Moreover, the overall student feedback on the integration of gamification in their learning was expressed in a positive attitude in terms of three different aspects of gamification approach, pronunciation ability, and pronunciation lessons.

CHAPTER 5

CONCLUSION, DISCUSSIONS, LIMITATIONS AND RECOMMENDATIONS

This chapter presents the conclusion of the study, discussions of the findings, limitations and some recommendations derived from the research study.

Conclusion

1. As seen from the comparison of the English consonant cluster pronunciation pretest and posttest mean scores, the posttest mean was higher than that of the pretest. The statistically significant difference between the pretest and posttest mean was at the .05 level. It could be concluded that students' pronunciation ability of the English consonant clusters after learning through the integration of gamification was higher than before learning. This finding indicated that the approach was able to improve their pronunciation ability of English consonant clusters

2. The investigation of the students' opinions on the integration of gamification could be concluded that the students expressed positive attitudes toward the integration of gamification approach in their learning process with the mean scores of 4.53.

Discussions

The discussion part focuses on the significant improvement of the students' pronunciation ability of English consonant clusters after integrating the gamification and the students' positive attitudes toward the integration of gamification in their learning process.

Finding 1: The students' pronunciation ability significantly improved after the integration of gamification

According to the findings, the integration of gamification in the students' learning process significantly improved their pronunciation ability of English consonant clusters. In class, the participants showed outstanding performance in their pronunciation as evidenced by the dramatic difference of their mean scores in both pretest and posttest which obviously different (19.65 and 43.05, respectively). This is consistent with Huang & Soman (2013) and Papadakis & Kalogiannakis (2017), who stated that gamification could affect the students' knowledge and skills after their motivation and engagement were raised and after the learners were more engaged in their study with gamification (Jongmuenwai, et al., 2018). Moreover, gamification is the combination of social constructivism, behaviorism, cognitivism, experience-based learning and self-paced learning theories, and it has an impact on the student's knowledge (Glover, 2013). Additionally, the integration of gamification brought about the benefits in terms of collaboration and interaction of the students, which led to the enhancement of students' learning system (Srisomboon, 2018). Furthermore, students' engagement in a gamified learning activity could result in a better learning outcome (Barata, Gama, Fonseca, & Gonçalves, 2013; Eleftheria, Charikleia, Iason, Athanasios, & Dimitrios, 2013; Kuo & Chuang, 2016). It could be said that points, progress bars, levels, rewards, and competition as the game elements in gamification were used to bring gaming into the classroom with an intent to maximize the students' enjoyment and engagement through capturing their interest and inspiring them to improve their knowledge and skills in English consonant cluster pronunciation in this study.

2. The integration of the gamification in the English consonant cluster pronunciation lessons contributed positively to the growth of students' interest and attitudes in their learning process. In this study, Classcraft application, the tool for the integration of gamification approach, helped the students to become more enjoyable and, engaged more in the class to enhance their motivation, and to encourage their participation. According to these advantages, the students could implement the gamification approach in their future careers. The result is in line with the previous studies (Aiksoy, 2017; Davis, Sridharan, Koepke, Singh, & Boiko, 2018), revealing that applying gamification techniques in curriculum could help provide a more inclusive activity through its effect on students' sense of competition, interaction, and motivation. Still, many previous studies have shown that gamification offered another best option

to the students. Farber (2013) mentioned that the critical thinking skill could be activated in an education context due to gamification approach. Additionally, it is able to enhance the collaborative, cooperative learning, learning motivation of the students when they need to earn more XP and AP, and needing to level up in the game competition. Being on top of the leaderboard and the game challenge is another feature that could motivate students to be more active both in class and in a role-play game. Therefore, these game mechanics, the dynamics along with the students' emotions towards the gamification, were considered as the most important components or the keys of successful gamification in the students' learning system (Robson & et al., 2015). Accordingly, Zickermann (2010) reiterated that the feeling of fun created in the players through the gamification approach could gain more on the motivation, engagement and effort. Similarly, Hamari, Koivisto & Sarsa (2014) stated that gamification was mainly focused on motivational affordances resulting in behavioral changes as an outcome of the study. Hence, it could be concluded that gamification is an effective approach as an initiator of a gameful and playful environment within the educational settings in the digital transformation in revolutionizing educational industry nowadays.

Limitations

1. Due to the freemium version of Classcraft application used in this study, there is limited access to certain features. This provides only three features: a gamified classroom management, customizable characters, and parent features. There are no features of student analytics, school dashboard, school climate index, enhanced security, phone support and custom Professional Development Training (PD Training) support which provide teachers as the whole the deeper analytics of their students to get a better overview of what's happening in their class. These features may also include heightened security, teacher and student rostering, and group settings. PD training and personalized support enable teachers to manage more powerful strategies for their classrooms and pursue the students with an effective analytical tool to keep track of student learning for their success.

2. The intervention is not a part of the students' course requirement. Some students were concerned that to participate in this study might have some negative effects on their studies e.g. lots of exercises, insufficient time for their own studies. As a result, some students sometimes missed the class.

3. Due to the impact of Covid-19 pandemic, some parts of the contents were taught online which required more time than on-campus class. Moreover, without the teacher closely monitoring the students to stay on task, the students have more freedom which is sometimes difficult to handle.

Recommendations

Recommendations from this present research

The data from this study could be useful for teachers to acquire the tools with the combination of technology and gameful activities in students' learning system and provide the teaching pronunciation method integrated by the gamification approach to improve students' English consonant cluster pronunciation. The results of this study are recommended to the teachers as follow:

1. The teachers should know about the terminologies used in the game and various kinds of power used for each avatar in order to manage the classroom effectively.

2. The teachers should orient the students with the tips on how to use Classcraft to strengthen the students' learning process to be more successful.

3. The teachers should study the gamification principles in details in order to design appropriate kinds of games that offer mechanics that can be mined for the teachers' gamified purposes.

4. As the gamification focuses on encouraging the teamwork skill, the teachers should evaluate the students' achievement as a team, not as individual players.

Recommendations for further research

Based on the results of this study, some recommendations for further study are proposed as follows:

1. A further research should be investigated on an integration of the gamification approach in other English learning skills, for example, writing and reading skills.

2. A sample group should be divided into two groups: experimental and control groups, in order to find out the differences of the mean scores and learning achievements between these two groups.

3. The gamification approach should be integrated in the teaching methods in classes for the different levels, e.g., high school, undergraduate or graduate levels.



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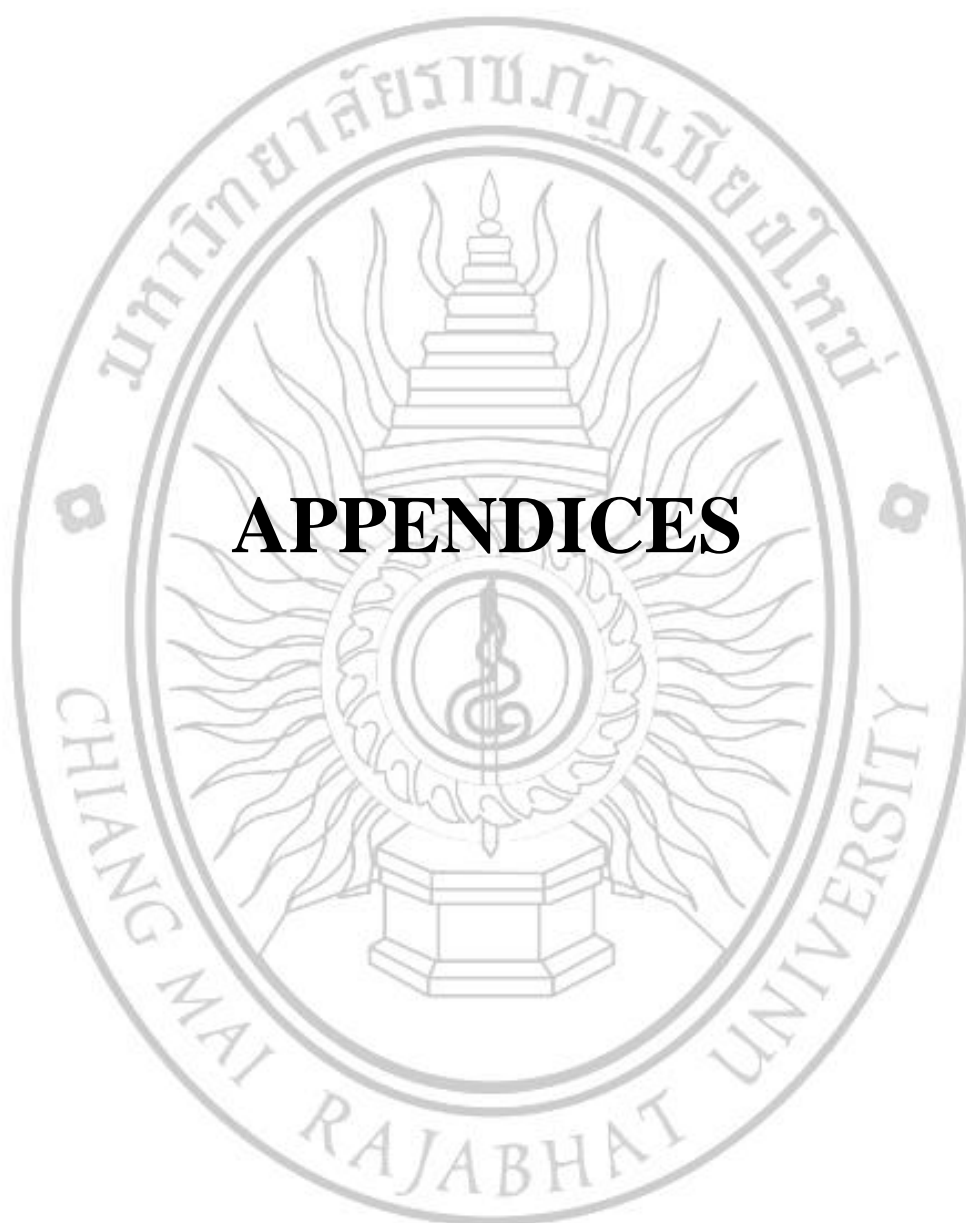
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Appendix A


List of Research Instrument Specialists

1. List of Research Instrument Specialists

2. An example of Invitation Letters for Verifying the Instruments and Collecting Data

1. Lecturer Jarunee Pattharawongthana
Department of Information Technology, Faculty of Science and Technology,
Far Eastern University
2. Assistant Professor Dr. Chalermchai Chaichomphoo
Department of Western Language, Faculty of Humanities and Social Sciences,
Chiang Mai Rajabhat University
3. Assistant Professor Dr. Dusadee Rangseechatchawan
Department of Western Language, Faculty of Humanities and Social Sciences,
Chiang Mai Rajabhat University
4. Lecturer Poonrat Sangnoom
Department of Western Language, Faculty of Humanities and Social Sciences,
Chiang Mai Rajabhat University
5. Assistant Professor Dr. Rachod Nusen
Department of Western Language, Faculty of Humanities and Social Sciences,
Chiang Mai Rajabhat University
6. Dr. Tiwawan Takran
Department of Computer Science, Faculty of Science and Technology,
Chiang Mai Rajabhat University

An example of Invitation Letters for Verifying the Instruments



ที่ อว. ๐๖๑๒.๑๔.๐๑/ว.๒๔๓

บัณฑิตวิทยาลัย
มหาวิทยาลัยราชภัฏเชียงใหม่
๒๐๒ ถนนช้างเผือก อ.เมือง
จ.เชียงใหม่ ๕๐๓๐๐

๖ มีนาคม ๒๕๖๓

เรื่อง ขอความอนุเคราะห์เป็นผู้เชี่ยวชาญตรวจสอบเครื่องมือในการทำการค้นคว้าอิสระ

เรียน อาจารย์จารุณี ภักทรวงษ์ธนา


สิ่งที่ส่งมาด้วย เครื่องมือในการทำการค้นคว้าอิสระ จำนวน ๑ ชุด

ด้วยบัณฑิตวิทยาลัย มหาวิทยาลัยราชภัฏเชียงใหม่ ได้อนุมัติให้ **นางสาววิรุษา ดรณสนธยา** นักศึกษาระดับปริญญาโท หลักสูตรศิลปศาสตรมหาบัณฑิต สาขาวิชาภาษาอังกฤษศึกษา การทำการค้นคว้าอิสระ เรื่อง “การใช้เกมมิฟิเคชันในการพัฒนาการออกเสียงพยัญชนะควบกล้ำภาษาอังกฤษของนักศึกษา มหาวิทยาลัยราชภัฏเชียงใหม่” โดยมี ผู้ช่วยศาสตราจารย์ ดร.ณัฐฤทัย อรุณศิริโรจน์ เป็นอาจารย์ที่ปรึกษาการค้นคว้าอิสระ

บัณฑิตวิทยาลัย เห็นว่าท่านเป็นผู้มีประสบการณ์เกี่ยวกับเรื่องดังกล่าวเป็นอย่างดี โดยนักศึกษาได้ประสานกับท่านแล้ว บัณฑิตวิทยาลัย จึงใคร่ขอความอนุเคราะห์จากท่านในการตรวจสอบ และให้ความเห็นเกี่ยวกับเครื่องมือในการทำการค้นคว้าอิสระดังกล่าวที่แนบมาพร้อมนี้

จึงเรียนมาเพื่อโปรดพิจารณา และขอขอบคุณมา ณ โอกาสนี้


ขอแสดงความนับถือ



(ผู้ช่วยศาสตราจารย์ ดร.กมลณัฐ พลวัน)
คณบดีบัณฑิตวิทยาลัย
มหาวิทยาลัยราชภัฏเชียงใหม่

บัณฑิตวิทยาลัย
โทรศัพท์. ๐๕๓-๘๘๕๙๙๙
โทรสาร. ๐๕๓-๘๘๕๙๙๙

An example of Invitation Letters for Collecting Data



ที่ ขว ๐๖๑๒.๑๔.๐๑/

บัณฑิตวิทยาลัย
มหาวิทยาลัยราชภัฏเชียงใหม่
๒๐๒ ถนนช้างเผือก อ.เมือง
จ. เชียงใหม่ ๕๐๓๐๐

๙ มีนาคม ๒๕๖๓

เรื่อง ขออนุญาตเก็บข้อมูลเพื่อทำการค้นคว้าอิสระ


เรียน คณบดีวิทยาลัยนานาชาติ มหาวิทยาลัยราชภัฏเชียงใหม่

ด้วยบัณฑิตวิทยาลัย มหาวิทยาลัยราชภัฏเชียงใหม่ ได้อนุมัติให้ นางสาววิรุณฯ ดร.ณสนธยา นักศึกษาระดับปริญญาโท หลักสูตรศิลปศาสตรมหาบัณฑิต สาขาวิชาภาษาอังกฤษศึกษา การทำการค้นคว้าอิสระ เรื่อง “การใช้เกมมิฟิเคชันในการพัฒนาการออกเสียงพยัญชนะควบกล้ำ ภาษาอังกฤษของนักศึกษา มหาวิทยาลัยราชภัฏเชียงใหม่” โดยมี ผู้ช่วยศาสตราจารย์ ดร.ณัฐฤทัย อรุณศิริโรจน์ เป็นอาจารย์ที่ปรึกษาการค้นคว้าอิสระ

บัณฑิตวิทยาลัย มหาวิทยาลัยราชภัฏเชียงใหม่ จึงขออนุญาตให้นักศึกษาเก็บข้อมูล เพื่อทำการค้นคว้าอิสระ ในระหว่างวันที่ ๑๐ มีนาคม – ๑๐ พฤษภาคม ๒๕๖๓ ส่วนรายละเอียดอื่น ๆ นักศึกษาจะประสานกับท่านโดยตรงต่อไป

จึงเรียนมาเพื่อโปรดพิจารณา และขอขอบคุณมา ณ โอกาสนี้

ขอแสดงความนับถือ



(ผู้ช่วยศาสตราจารย์ ดร.กมลณัฐ พูลวัน)

คณบดีบัณฑิตวิทยาลัย
มหาวิทยาลัยราชภัฏเชียงใหม่

บัณฑิตวิทยาลัย
โทรศัพท์. ๐๕๓-๘๘๕๙๙๙
โทรสาร. ๐๕๓-๘๘๕๙๙๙

Appendix B

Research Instruments

1. English Consonant Cluster Pronunciation Lessons
2. Pronunciation Pretest and posttest
3. Questionnaire

Table B–1: English Consonant Cluster Pronunciation Lessons

Lesson	Topics	Time	Activities	Media
1	- Three initial clusters /str-/, /stj-/, /spl-/	3 hrs.	Step 1: content presentation <ol style="list-style-type: none"> 1. The teacher shows English phonetic chart and articulatory diagram to the students. 2. The teacher points to the /s/, /t/, /r/, /j/, /p/, and /l/ phonemes in the phonetic chart and pronounces each sound slowly. 3. The teacher explains how to pronounce the sound by using the visual aids such as video clips, YouTube and the animations. 4. The teacher asks the students to repeat after the teacher and lets them to read again by themselves. 5. The teacher gives the extra points for their participation, engagement, and behavior in the class by 	Classcraft application

Lesson	Topics	Time	Activities	Media
			<p>using Classcraft application.</p> <p>6. After knowing individual letter sounds, the teacher starts the game by showing each flashcard and asks the students as a team to pronounce the sound. If they pronounce the sound correctly, they will get the points to unlock new powers. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>7. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in English pronunciation in order to boost their motivation.</p> <p>Step 2: pronunciation practice</p> <p>1. The teacher blends each sound into three-letter sounds.</p> <p>2. The teacher gives the students a list of consonant cluster words with the three initial /str-/, /stj-/, /spl-/ clusters.</p> <p>3. The teacher reads each word out loud and asks the students to repeat it.</p> <p>4. The minimal pair will be shown to the</p>	

Lesson	Topics	Time	Activities	Media
			<p>students in order to train the students to discriminate those sounds.</p> <p>6. The teacher uses the text to speech software for converting text to spoken audio and asks the student to listen and repeat.</p> <p>7. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft Application.</p> <p>8. After knowing each consonant cluster, the teacher starts the game by showing each word and asks the students as a team to pronounce the word. If they pronounce the word correctly, they will get the points. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>9. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in pronouncing English consonant clusters in order to boost their motivation.</p>	

Lesson	Topics	Time	Activities	Media
			<p>Step 3: pronunciation production</p> <ol style="list-style-type: none"> 1. The teacher gives the exercises from easy to more difficult tasks to the students. 2. The teacher chooses the different class tools in Classcraft Application to gamify the tasks to become more fun, motivated and engaged. The class tools used in this period include the Wheel of Destiny, the Riders of Vay, the Makus Valley, the White Mountain, the Forest Run, and Treasures of Tavuos. 3. Each team competes with one another via using the class tool selected from the teacher. 4. The teacher gives the points to the teams. The best team will win and earn more powers to level up. The points will be given to each team through Classcraft application. <p>Step 4: pronunciation evaluation</p> <ol style="list-style-type: none"> 1. The teacher creates a boss battle by selecting a creature the students will need to defeat and set the boss's HP via Classcraft Application. 2. The teacher sets the total number of HP value of each 	

Lesson	Topics	Time	Activities	Media
			<p>consonant cluster word.</p> <p>3. The teacher starts a boss battle by selecting the boss battle in the list.</p> <p>4. When the boss battle begins, the fastest team will get a chance to pronounce the word.</p> <p>5. The teacher shows the cluster word and asks them to pronounce it loudly</p> <p>6. If the students as a team pronounce the word correctly, they will deal damage to the boss. If they pronounce incorrectly, the boss will attack and do critical damage to the team.</p> <p>7. The team who can kill the boss will be the winner.</p> <p>8. The teacher can give the rewards for any teams for their teamwork, collaboration, and effort.</p>	
2	<p>– Three initial clusters /spr–/, /spj–/, /skl–/</p>	3 hrs.	<p>Step 1: content presentation</p> <p>1. The teacher shows English phonetic chart and articulatory diagram to the students.</p> <p>2. The teacher points to the /s/, /p/, /r/, /j/, /k/, and /l/ phonemes in the phonetic chart and</p>	Classcraft application

Lesson	Topics	Time	Activities	Media
			<p>pronounces each sound slowly.</p> <p>3. The teacher explains how to pronounce the sound by using the visual aids such as video clips, YouTube and the animations.</p> <p>4. The teacher asks the students to repeat after the teacher and lets them to read again by themselves.</p> <p>5. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft application.</p> <p>6. After knowing individual letter sounds, the teacher starts the game by showing each flashcard and asks the students as a team to pronounce the sound. If they pronounce the sound correctly, they will get the points to unlock new powers. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>7. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in English pronunciation in order to boost their motivation.</p>	

Lesson	Topics	Time	Activities	Media
			<p>Step 2: pronunciation practice</p> <ol style="list-style-type: none"> 1. The teacher blends each sound into three-letter sounds. 2. The teacher gives the students a list of consonant cluster words with the three initial /spr-/ , /spj-/ , /skl-/ clusters. 3. The teacher reads each word out loud and asks the students to repeat it. 4. The minimal pair will be shown to the students in order to train the students to discriminate those sounds. 6. The teacher uses the text to speech software for converting text to spoken audio and asks the student to listen and repeat. 7. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft Application. 8. After knowing each consonant cluster, the teacher starts the game by showing each word and asks the students as a team to pronounce the word. If they pronounce the word correctly, they will get the points. If not, they will lose the points. The points will be given to the students 	

Lesson	Topics	Time	Activities	Media
			<p>via Classcraft application.</p> <p>9. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in pronouncing English consonant clusters in order to boost their motivation.</p> <p>Step 3: pronunciation production</p> <ol style="list-style-type: none"> 1. The teacher gives the exercises from easy to more difficult tasks to the students. 2. The teacher chooses the different class tools in Classcraft Application to gamify the tasks to become more fun, motivated and engaged. The class tools used in this period include the Wheel of Destiny, the Riders of Vay, the Makus Valley, the White Mountain, the Forest Run, and Treasures of Tavuos. 3. Each team competes with one another via using the class tool selected from the teacher. 4. The teacher gives the points to the teams. The best team will win and earn more powers to level up. The points will be given to each 	

Lesson	Topics	Time	Activities	Media
			<p>team through Classcraft application.</p> <p>Step 4: pronunciation evaluation</p> <ol style="list-style-type: none"> 1. The teacher creates a boss battle by selecting a creature the students will need to defeat and set the boss's HP via Classcraft Application. 2. The teacher sets the total number of HP value of each consonant cluster word. 3. The teacher starts a boss battle by selecting the boss battle in the list. 4. When the boss battle begins, the fastest team will get a chance to pronounce the word. 5. The teacher shows the cluster word and asks them to pronounce it loudly 6. If the students as a team pronounce the word correctly, they will deal damage to the boss. If they pronounce incorrectly, the boss will attack and do critical damage to the team. 7. The team who can kill the boss will be the winner. 8. The teacher can give the rewards for any teams for their teamwork, 	

Lesson	Topics	Time	Activities	Media
			collaboration, and effort.	
3	– Three initial clusters /skr-/, /skw-/, /skj-/	3 hrs.	Step 1: content presentation <ol style="list-style-type: none"> 1. The teacher shows English phonetic chart and articulatory diagram to the students. 2. The teacher points to the /s/, /k/, /r/, /w/, and /j/ phonemes in the phonetic chart and pronounces each sound slowly. 3. The teacher explains how to pronounce the sound by using the visual aids such as video clips, YouTube and the animations. 4. The teacher asks the students to repeat after the teacher and lets them to read again by themselves. 5. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft application. 6. After knowing individual letter sounds, the teacher starts the game by showing each flashcard and asks the students as a team to pronounce the sound. If they pronounce the sound correctly, they will get the points to unlock 	Classcraft application

Lesson	Topics	Time	Activities	Media
			<p>new powers. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>7. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in English pronunciation in order to boost their motivation.</p> <p>Step 2: pronunciation practice</p> <ol style="list-style-type: none"> 1. The teacher blends each sound into three-letter sounds. 2. The teacher gives the students a list of consonant cluster words with the three initial /skr-/, /skw-/, /skj-/ clusters. 3. The teacher reads each word out loud and asks the students to repeat it. 4. The minimal pair will be shown to the students in order to train the students to discriminate those sounds. 6. The teacher uses the text to speech software for converting text to spoken audio and asks the student to listen and repeat. 7. The teacher gives the extra points for their participation, engagement, and 	

Lesson	Topics	Time	Activities	Media
			<p>behavior in the class by using Classcraft Application.</p> <p>8. After knowing each consonant cluster, the teacher starts the game by showing each word and asks the students as a team to pronounce the word. If they pronounce the word correctly, they will get the points. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>9. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in pronouncing English consonant clusters in order to boost their motivation.</p> <p>Step 3: pronunciation production</p> <p>1. The teacher gives the exercises from easy to more difficult tasks to the students.</p> <p>2. The teacher chooses the different class tools in Classcraft Application to gamify the tasks to become more fun, motivated and engaged. The class tools used in this period include the Wheel of Destiny, the Riders of Vay,</p>	

Lesson	Topics	Time	Activities	Media
			<p>the Makus Valley, the White Mountain, the Forest Run, and Treasures of Tavuos.</p> <ol style="list-style-type: none"> Each team competes with one another via using the class tool selected from the teacher. The teacher gives the points to the teams. The best team will win and earn more powers to level up. The points will be given to each team through Classcraft application. <p>Step 4: pronunciation evaluation</p> <ol style="list-style-type: none"> The teacher creates a boss battle by selecting a creature the students will need to defeat and set the boss's HP via Classcraft Application. The teacher sets the total number of HP value of each consonant cluster word. The teacher starts a boss battle by selecting the boss battle in the list. When the boss battle begins, the fastest team will get a chance to pronounce the word. The teacher shows the cluster word and asks them to pronounce it loudly If the students as a team pronounce the word correctly, they 	

Lesson	Topics	Time	Activities	Media
			<p>will deal damage to the boss. If they pronounce incorrectly, the boss will attack and do critical damage to the team.</p> <p>7. The team who can kill the boss will be the winner.</p> <p>8. The teacher can give the rewards for any teams for their teamwork, collaboration, and effort.</p>	
4	– Three coda clusters /–lpt/, /–lps/, /–mps/	3 hrs.	<p>Step 1: content presentation</p> <p>1. The teacher shows English phonetic chart and articulatory diagram to the students.</p> <p>2. The teacher points to the /l/, /p/, /t/, /s/, and /m/ phonemes in the phonetic chart and pronounces each sound slowly.</p> <p>3. The teacher explains how to pronounce the sound by using the visual aids such as video clips, YouTube and the animations.</p> <p>4. The teacher asks the students to repeat after the teacher and lets them to read again by themselves.</p> <p>5. The teacher gives the extra points for their participation, engagement, and behavior in the class by</p>	Classcraft application

Lesson	Topics	Time	Activities	Media
			<p>using Classcraft application.</p> <p>6. After knowing individual letter sounds, the teacher starts the game by showing each flashcard and asks the students as a team to pronounce the sound.</p> <p>If they pronounce the sound correctly, they will get the points to unlock new powers. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>7. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in English pronunciation in order to boost their motivation.</p> <p>Step 2: pronunciation practice</p> <p>1. The teacher blends each sound into three-letter sounds.</p> <p>2. The teacher gives the students a list of consonant cluster words with the three initials /-lpt/, /-lps/, /-mps/ clusters.</p> <p>3. The teacher reads each word out loud and asks the students to repeat it.</p> <p>4. The minimal pair will be shown to the</p>	

Lesson	Topics	Time	Activities	Media
			<p>students in order to train the students to discriminate those sounds.</p> <p>6. The teacher uses the text to speech software for converting text to spoken audio and asks the student to listen and repeat.</p> <p>7. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft Application.</p> <p>8. After knowing each consonant cluster, the teacher starts the game by showing each word and asks the students as a team to pronounce the word. If they pronounce the word correctly, they will get the points. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>9. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in pronouncing English consonant clusters in order to boost their motivation.</p>	

Lesson	Topics	Time	Activities	Media
			<p>Step 3: pronunciation production</p> <ol style="list-style-type: none"> 1. The teacher gives the exercises from easy to more difficult tasks to the students. 2. The teacher chooses the different class tools in Classcraft Application to gamify the tasks to become more fun, motivated and engaged. The class tools used in this period include the Wheel of Destiny, the Riders of Vay, the Makus Valley, the White Mountain, the Forest Run, and Treasures of Tavuos. 3. Each team competes with one another via using the class tool selected from the teacher. 4. The teacher gives the points to the teams. The best team will win and earn more powers to level up. The points will be given to each team through Classcraft application. <p>Step 4: pronunciation evaluation</p> <ol style="list-style-type: none"> 1. The teacher creates a boss battle by selecting a creature the students will need to defeat and set the boss's HP via Classcraft Application. 2. The teacher sets the total number of HP value of each 	

Lesson	Topics	Time	Activities	Media
			<p>consonant cluster word.</p> <p>3. The teacher starts a boss battle by selecting the boss battle in the list.</p> <p>4. When the boss battle begins, the fastest team will get a chance to pronounce the word.</p> <p>5. The teacher shows the cluster word and asks them to pronounce it loudly</p> <p>6. If the students as a team pronounce the word correctly, they will deal damage to the boss. If they pronounce incorrectly, the boss will attack and do critical damage to the team.</p> <p>7. The team who can kill the boss will be the winner.</p> <p>8. The teacher can give the rewards for any teams for their teamwork, collaboration, and effort.</p>	
5	– Three coda clusters /–mfs/, /–nts/, /–ndz/, /–ŋst/	3 hrs.	<p>Step 1: content presentation</p> <p>1. The teacher shows English phonetic chart and articulatory diagram to the students.</p> <p>2. The teacher points to the /m/, /f/, /s/, /n/, and /t/, /ʃ/, /d/, /z/ and /ŋ/ phonemes in the phonetic chart and</p>	Classcraft application

Lesson	Topics	Time	Activities	Media
			<p>pronounces each sound slowly.</p> <p>3. The teacher explains how to pronounce the sound by using the visual aids such as video clips, YouTube and the animations.</p> <p>4. The teacher asks the students to repeat after the teacher and lets them to read again by themselves.</p> <p>5. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft application.</p> <p>6. After knowing individual letter sounds, the teacher starts the game by showing each flashcard and asks the students as a team to pronounce the sound. If they pronounce the sound correctly, they will get the points to unlock new powers. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>7. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in English pronunciation in order to boost their motivation.</p>	

Lesson	Topics	Time	Activities	Media
			<p>Step 2: pronunciation practice</p> <ol style="list-style-type: none"> 1. The teacher blends each sound into three-letter sounds. 2. The teacher gives the students a list of consonant cluster words with the three initials /-mfs/, /-nts/, /-ndz/, /-ŋst/ clusters. 3. The teacher reads each word out loud and asks the students to repeat it. 4. The minimal pair will be shown to the students in order to train the students to discriminate those sounds. 6. The teacher uses the text to speech software for converting text to spoken audio and asks the student to listen and repeat. 7. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft Application. 8. After knowing each consonant cluster, the teacher starts the game by showing each word and asks the students as a team to pronounce the word. If they pronounce the word correctly, they will get the points. If not, they will lose the points. 	

Lesson	Topics	Time	Activities	Media
			<p>The points will be given to the students via Classcraft application.</p> <p>9. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in pronouncing English consonant clusters in order to boost their motivation.</p> <p>Step 3: pronunciation production</p> <ol style="list-style-type: none"> 1. The teacher gives the exercises from easy to more difficult tasks to the students. 2. The teacher chooses the different class tools in Classcraft Application to gamify the tasks to become more fun, motivated and engaged. The class tools used in this period include the Wheel of Destiny, the Riders of Vay, the Makus Valley, the White Mountain, the Forest Run, and Treasures of Tavuos. 3. Each team competes with one another via using the class tool selected from the teacher. 4. The teacher gives the points to the teams. The best team will win and earn more powers to level up. The points 	

Lesson	Topics	Time	Activities	Media
			<p>will be given to each team through Classcraft application.</p> <p>Step 4: pronunciation evaluation</p> <ol style="list-style-type: none"> 1. The teacher creates a boss battle by selecting a creature the students will need to defeat and set the boss's HP via Classcraft Application. 2. The teacher sets the total number of HP value of each consonant cluster word. 3. The teacher starts a boss battle by selecting the boss battle in the list. 4. When the boss battle begins, the fastest team will get a chance to pronounce the word. 5. The teacher shows the cluster word and asks them to pronounce it loudly 6. If the students as a team pronounce the word correctly, they will deal damage to the boss. If they pronounce incorrectly, the boss will attack and do critical damage to the team. 7. The team who can kill the boss will be the winner. 8. The teacher can give the rewards for any teams for their teamwork, 	

Lesson	Topics	Time	Activities	Media
			collaboration, and effort.	
6	– Three coda clusters /–pθs/, /–pts/, /–pst/	3 hrs.	Step 1: content presentation <ol style="list-style-type: none"> 1. The teacher shows English phonetic chart and articulatory diagram to the students. 2. The teacher points to the /p/, /θ/, /s/ and /t/ phonemes in the phonetic chart and pronounces each sound slowly. 3. The teacher explains how to pronounce the sound by using the visual aids such as video clips, YouTube and the animations. 4. The teacher asks the students to repeat after the teacher and lets them to read again by themselves. 5. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft application. 6. After knowing individual letter sounds, the teacher starts the game by showing each flashcard and asks the students as a team to pronounce the sound. If they pronounce the sound correctly, they will get the points to 	Classcraft application

Lesson	Topics	Time	Activities	Media
			<p>unlock new powers. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>7. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in English pronunciation in order to boost their motivation.</p> <p>Step 2: pronunciation practice</p> <ol style="list-style-type: none"> 1. The teacher blends each sound into three-letter sounds. 2. The teacher gives the students a list of consonant cluster words with the three initials /-pθs/, /-pts/, /-pst/ clusters. 3. The teacher reads each word out loud and asks the students to repeat it. 4. The minimal pair will be shown to the students in order to train the students to discriminate those sounds. 6. The teacher uses the text to speech software for converting text to spoken audio and asks the student to listen and repeat. 7. The teacher gives the extra points for their 	

Lesson	Topics	Time	Activities	Media
			<p>participation, engagement, and behavior in the class by using Classcraft Application.</p> <p>8. After knowing each consonant cluster, the teacher starts the game by showing each word and asks the students as a team to pronounce the word. If they pronounce the word correctly, they will get the points. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>9. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in pronouncing English consonant clusters in order to boost their motivation.</p> <p>Step 3: pronunciation production</p> <p>1. The teacher gives the exercises from easy to more difficult tasks to the students.</p> <p>2. The teacher chooses the different class tools in Classcraft Application to gamify the tasks to become more fun, motivated and engaged. The class tools used in this period include the</p>	

Lesson	Topics	Time	Activities	Media
			<p>Wheel of Destiny, the Riders of Vay, the Makus Valley, the White Mountain, the Forest Run, and Treasures of Tavuos.</p> <p>3. Each team competes with one another via using the class tool selected from the teacher.</p> <p>4. The teacher gives the points to the teams. The best team will win and earn more powers to level up. The points will be given to each team through Classcraft application.</p> <p>Step 4: pronunciation evaluation</p> <p>1. The teacher creates a boss battle by selecting a creature the students will need to defeat and set the boss's HP via Classcraft Application.</p> <p>2. The teacher sets the total number of HP value of each consonant cluster word.</p> <p>3. The teacher starts a boss battle by selecting the boss battle in the list.</p> <p>4. When the boss battle begins, the fastest team will get a chance to pronounce the word.</p> <p>5. The teacher shows the cluster word and asks them to pronounce it loudly</p>	

Lesson	Topics	Time	Activities	Media
			6. If the students as a team pronounce the word correctly, they will deal damage to the boss. If they pronounce incorrectly, the boss will attack and do critical damage to the team. 7. The team who can kill the boss will be the winner. 8. The teacher can give the rewards for any teams for their teamwork, collaboration, and effort.	
7	– Three coda clusters /–fθs/, /–fts/, /–sts/	3 hrs.	Step 1: content presentation 1. The teacher shows English phonetic chart and articulatory diagram to the students. 2. The teacher points to the /f/, /θ/, /s/ and /t/ phonemes in the phonetic chart and pronounces each sound slowly. 3. The teacher explains how to pronounce the sound by using the visual aids such as video clips, YouTube and the animations. 4. The teacher asks the students to repeat after the teacher and lets them to read again by themselves. 5. The teacher gives the extra points for their	Classcraft application

Lesson	Topics	Time	Activities	Media
			<p>participation, engagement, and behavior in the class by using Classcraft application.</p> <p>6. After knowing individual letter sounds, the teacher starts the game by showing each flashcard and asks the students as a team to pronounce the sound. If they pronounce the sound correctly, they will get the points to unlock new powers. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>7. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in English pronunciation in order to boost their motivation.</p> <p>Step 2: pronunciation practice</p> <p>1. The teacher blends each sound into three-letter sounds.</p> <p>2. The teacher gives the students a list of consonant cluster words with the three initials /-fθs/, /-fts/, /-sts/ clusters.</p> <p>3. The teacher reads each word out loud and asks</p>	

Lesson	Topics	Time	Activities	Media
			<p>the students to repeat it.</p> <p>4. The minimal pair will be shown to the students in order to train the students to discriminate those sounds.</p> <p>6. The teacher uses the text to speech software for converting text to spoken audio and asks the student to listen and repeat.</p> <p>7. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft Application.</p> <p>8. After knowing each consonant cluster, the teacher starts the game by showing each word and asks the students as a team to pronounce the word. If they pronounce the word correctly, they will get the points. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>9. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in pronouncing English consonant clusters in order to boost their motivation.</p>	

Lesson	Topics	Time	Activities	Media
			<p>Step 3: pronunciation production</p> <ol style="list-style-type: none"> 1. The teacher gives the exercises from easy to more difficult tasks to the students. 2. The teacher chooses the different class tools in Classcraft Application to gamify the tasks to become more fun, motivated and engaged. The class tools used in this period include the Wheel of Destiny, the Riders of Vay, the Makus Valley, the White Mountain, the Forest Run, and Treasures of Tavuos. 3. Each team competes with one another via using the class tool selected from the teacher. 4. The teacher gives the points to the teams. The best team will win and earn more powers to level up. The points will be given to each team through Classcraft application. <p>Step 4: pronunciation evaluation</p> <ol style="list-style-type: none"> 1. The teacher creates a boss battle by selecting a creature the students will need to defeat and set the boss's HP via Classcraft Application. 2. The teacher sets the total number of HP value of each 	

Lesson	Topics	Time	Activities	Media
			<p>consonant cluster word.</p> <p>3. The teacher starts a boss battle by selecting the boss battle in the list.</p> <p>4. When the boss battle begins, the fastest team will get a chance to pronounce the word.</p> <p>5. The teacher shows the cluster word and asks them to pronounce it loudly</p> <p>6. If the students as a team pronounce the word correctly; they will deal damage to the boss. If they pronounce incorrectly, the boss will attack and do critical damage to the team.</p> <p>7. The team who can kill the boss will be the winner.</p> <p>8. The teacher can give the rewards for any teams for their teamwork, collaboration, and effort.</p>	
8	– Three coda clusters /–tθs/, /–kts/, /–kst/	3 hrs.	<p>Step 1: content presentation</p> <p>1. The teacher shows English phonetic chart and articulatory diagram to the students.</p> <p>2. The teacher points to the /t/, /θ/, /s/, /k/ and /t/ phonemes in the phonetic chart and</p>	Classcraft application

Lesson	Topics	Time	Activities	Media
			<p>pronounces each sound slowly.</p> <p>3. The teacher explains how to pronounce the sound by using the visual aids such as video clips, YouTube and the animations.</p> <p>4. The teacher asks the students to repeat after the teacher and lets them to read again by themselves.</p> <p>5. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft application.</p> <p>6. After knowing individual letter sounds, the teacher starts the game by showing each flashcard and asks the students as a team to pronounce the sound.</p> <p>If they pronounce the sound correctly, they will get the points to unlock new powers. If not, they will lose the points. The points will be given to the students via Classcraft application.</p> <p>7. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in English pronunciation in order to boost their motivation.</p>	

Lesson	Topics	Time	Activities	Media
			<p>Step 2: pronunciation practice</p> <ol style="list-style-type: none"> 1. The teacher blends each sound into three-letter sounds. 2. The teacher gives the students a list of consonant cluster words with the three initials /–tθs/, /–kts/, /–kst/ clusters. 3. The teacher reads each word out loud and asks the students to repeat it. 4. The minimal pair will be shown to the students in order to train the students to discriminate those sounds. 6. The teacher uses the text to speech software for converting text to spoken audio and asks the student to listen and repeat. 7. The teacher gives the extra points for their participation, engagement, and behavior in the class by using Classcraft Application. 8. After knowing each consonant cluster, the teacher starts the game by showing each word and asks the students as a team to pronounce the word. If they pronounce the word correctly, they will get the points. If not, they will lose the points. 	

Lesson	Topics	Time	Activities	Media
			<p>The points will be given to the students via Classcraft application.</p> <p>9. The progress bar, a feature in Classcraft application, will be shown to the students in the class to display their progression in pronouncing English consonant clusters in order to boost their motivation.</p> <p>Step 3: pronunciation production</p> <ol style="list-style-type: none"> 1. The teacher gives the exercises from easy to more difficult tasks to the students. 2. The teacher chooses the different class tools in Classcraft Application to gamify the tasks to become more fun, motivated and engaged. The class tools used in this period include the Wheel of Destiny, the Riders of Vay, the Makus Valley, the White Mountain, the Forest Run, and Treasures of Tavuos. 3. Each team competes with one another via using the class tool selected from the teacher. 4. The teacher gives the points to the teams. The best team will win and earn more powers to level up. The points 	

Lesson	Topics	Time	Activities	Media
			<p>will be given to each team through Classcraft application.</p> <p>Step 4: pronunciation evaluation</p> <ol style="list-style-type: none"> 1. The teacher creates a boss battle by selecting a creature the students will need to defeat and set the boss's HP via Classcraft Application. 2. The teacher sets the total number of HP value of each consonant cluster word. 3. The teacher starts a boss battle by selecting the boss battle in the list. 4. When the boss battle begins, the fastest team will get a chance to pronounce the word. 5. The teacher shows the cluster word and asks them to pronounce it loudly 6. If the students as a team pronounce the word correctly, they will deal damage to the boss. If they pronounce incorrectly, the boss will attack and do critical damage to the team. 7. The team who can kill the boss will be the winner. 8. The teacher can give the rewards for any teams for their teamwork, collaboration, and effort. 	

Pronunciation Pretest and posttest

Table B–2: List of 50 English Three – Consonant Clusters

No.	Vocabulary	Phonetic Transcription	No.	Vocabulary	Phonetic Transcription
1	Straight	/streɪt/	26	Sculpt	/skʌlpt/
2	Strangulation	/ˌstræŋɡjuˈleɪʃn/	27	Helps	/helps/
3	Strategic	/strəˈtiːdʒɪk/	28	Sculps	/skʌlps/
4	Stratum	/ˈstrɑːtəm/, /ˈstreɪtəm/	29	Thumps	/θʌmps/
5	Stressful	/ˈstresfl/	30	Shrimps	/frɪmps/
6	Studious	/ˈstjuːdiəs/	31	Bootcamps	/buːt kæmps/
7	Splash	/splæʃ/	32	Absents	/æbˈsents/
8	Splendid	/ˈsplendɪd/	33	Accounts	/əˈkaʊnts/
9	Spreader	/ˈspredə(r)/, /ˈspredər/	34	Movements	/ˈmuːvmənts/
10	Sprout	/spraʊt/	35	Gents	/dʒents/
11	Spurious	/ˈspjʊəriəs/, /ˈspjəriəs/	36	Defends	/dɪˈfendz/
12	Sputum	/ˈspjuːtəm/	37	Reminds	/rɪˈmaɪndz/
13	Sclera	/ˈskliərə/, /ˈskliərə/	38	Thousands	/ˈθaʊzndz/
14	Sclerosis	/skləˈrəʊsɪs/	39	Amongst	/əˈmʌŋst/
15	Scramble	/ˈskræmbl/	40	Depths	/ˌdepθs/
16	Scratchy	/ˈskrætʃi/	41	Prompts	/prɒmpts/, /prɑːmpts/
17	Scream	/skriːm/	42	Bankrupts	/ˈbæŋkrʌpts/
18	Scrotum	/ˈskrɒtəm/	43	Transcripts	/ˈtrænskripts/
19	Screeners	/ˈskriːnər/	44	Twelfth	/twelfθ/
20	Scrambler	/ˈskræmblər/	45	Warcrafts	/wɔːrkɹæfts/
21	Squad	/skwɒd/, /skwɑːd/	46	Swifts	/swɪfts/
22	Squarish	/ˈskweərɪʃ/, /ˈskwerɪʃ/	47	Gymnasts	/ˈdʒɪmnæsts/
23	Squeeze	/skwiːz/	48	Neutralists	/ˈnjuːtrəlists/
24	Squirrel	/ˈskwɪrəl/, /ˈskwɜːrəl/	49	Context	/ˈkɒntekst/
25	Skua	/ˈskjuːə/	50	Ciphertext	/ˈsaɪfə(r)tekst/

Questionnaire

As part of my Master of Arts program in English Studies research title “*The Use of Gamification to Improve English Consonant Cluster Pronunciation of Students at Chiang Mai Rajabhat University*”, I conducted a questionnaire to investigate CMRU students’ opinions on the use of gamification.

Part I General Information

Direction: Please check the relevant box.

Gender ☐ Male ☐ Female
 Classcraft Character ☐ Warrior ☐ Mage ☐ Healer
 Classcraft Team ☐ Team A ☐ Team B ☐ Team C ☐ Team D

Part II Students’ opinion on the use of gamification

This part comprised 15 statements on reasons for integrating the gamification in consonant clusters pronunciation course in which student are asked to rate below:

5 refers Strongly Agree
 4 refers Agree
 3 refers Undecided
 2 refers Disagree
 1 refers Strongly Disagree

Direction: Please respond to the following questions by placing a check mark (✓) in the answer box that corresponds to your opinion.

No.	Statements	5-Scale Level				
		5	4	3	2	1
1	Pronunciation teaching method in this study is suitable and the procedures could be followed the instructions step-by-step.					

No.	Statements	5-Scale Level				
		5	4	3	2	1
2	English consonant cluster pronunciation lessons provide the appropriate use of multimedia such as sound, image and video clip.					
3	The integration of gamification provides the appropriate use of game mechanics, sound clips and video clips					
4	The integration of gamification approach could enhance the student's motivation, active learning, and engagement in the class.					
5	Classcraft application is easy to use and it could be used in the language classroom.					
6	Gamification increases the learner's affective domain such as teamwork, engagement, and enjoyment.					
7	Gamification facilitates students to be more self – regulated and self – paced.					
8	Gamification technology in the classroom is more interesting than a traditional one.					
9	My English pronunciation ability has improved a lot after I have been taught by the teaching methods.					
10	When I used the gamification for learning English pronunciation, I feel more competitive and challenge.					
11	Teaching pronunciation by integrating the gamification benefits for improving pronunciation skill.					
12	I am able to pronounce English consonant clusters correctly after I have been taught by integrating gamification in class.					
13	I appreciate the use of gamification while I am studying English consonant clusters pronunciation.					
14	I get more motivated after I have learned by integrating gamification.					

No.	Statements	5-Scale Level				
		5	4	3	2	1
15	If I were an English teacher, I would apply the gamification in my English pronunciation course.					

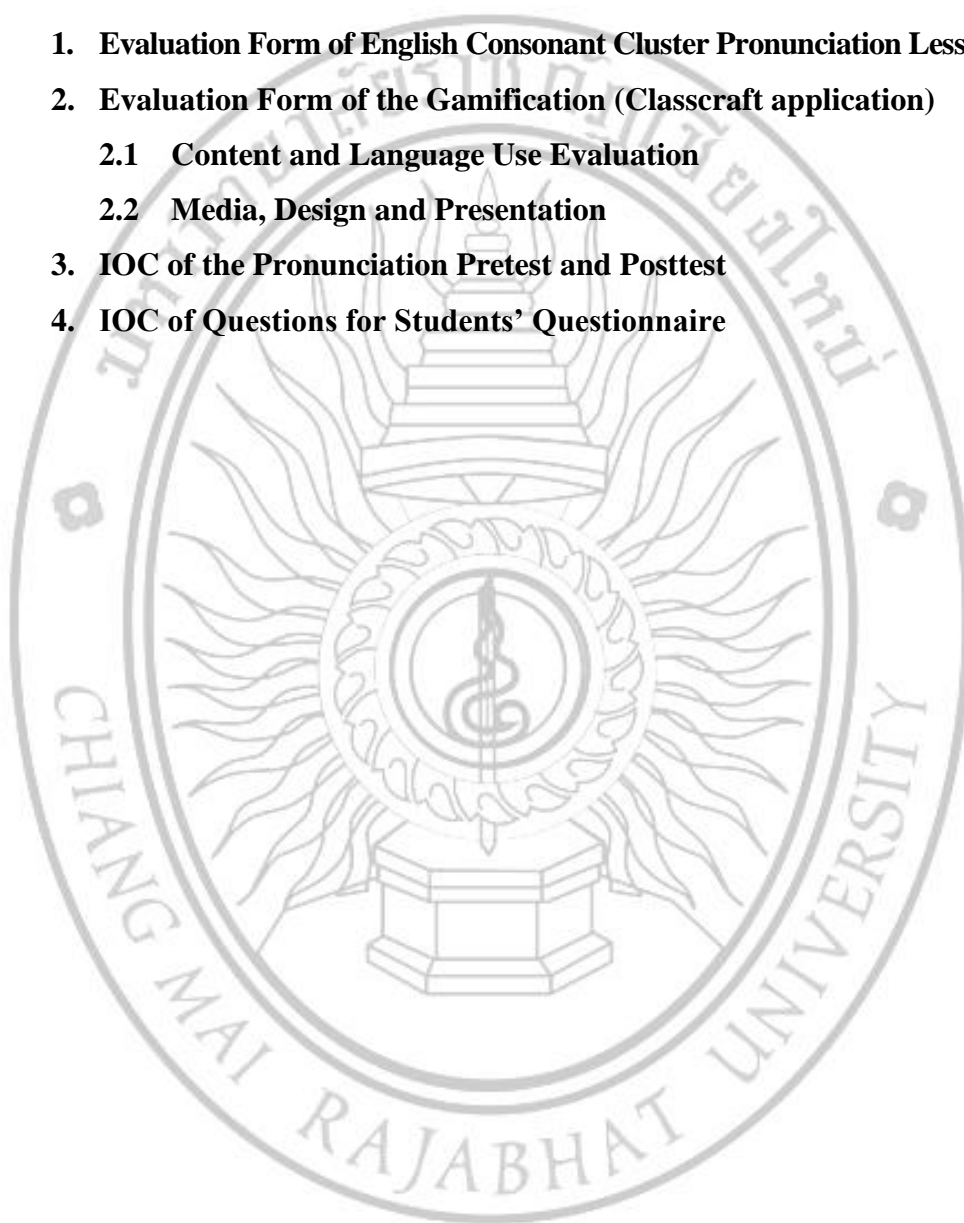
Comments:



Appendix C

Evaluation Form and IOC Form

1. Evaluation Form of English Consonant Cluster Pronunciation Lessons
2. Evaluation Form of the Gamification (Classcraft application)
 - 2.1 Content and Language Use Evaluation
 - 2.2 Media, Design and Presentation
3. IOC of the Pronunciation Pretest and Posttest
4. IOC of Questions for Students' Questionnaire



**Evaluation Form of English Consonant Cluster Pronunciation Lessons
Used in the Independent Study: The Use of Gamification to Improve English
Consonant Cluster Pronunciation of Students
at Chiang Mai Rajabhat University**

Expert's name: _____

Instruction: Please rate the following elements of English consonant cluster pronunciation lessons, according to the following criteria:

Excellent = 5
Good = 4
Fair = 3
Poor = 2
Very Poor = 1

Evaluation lists	5	4	3	2	1
Lessons					
1. Congruence of lessons and objective					
2. Subdivision of each lesson					
3. Sequencing of the lessons					
4. Difficulty of the lessons					
5. Interestedness of the lessons					
Overall Lessons					
1. The lessons are appropriate to improve students' English consonant clusters pronunciation ability by integrating the gamification.					
2. The lessons are clear and relevant.					
3. The lessons are correct and reliable.					
4. The lessons provide the appropriate use of multimedia.					
5. Length of each lesson is appropriate for the allocation time (3 hours).					

Suggestion

Signature

(.....)

Evaluation Form of the Gamification (Classcraft application)
Used in the Independent Study: The Use of Gamification to Improve English
Consonant Cluster Pronunciation of Students at Chiang Mai Rajabhat University
(Content and Language Use Evaluation)

Expert's name: _____

Instruction: Please rate the following elements of English consonant cluster pronunciation lessons using gamification, according to the following criteria:

Excellent = 5
 Good = 4
 Fair = 3
 Poor = 2
 Very Poor = 1

Evaluation lists		5	4	3	2	1
Content						
1. Congruence of contents and research objective						
2. Subdivision of contents						
3. Sequencing of contents						
4. Continuity of contents						
5. Correctness of contents						
6. Appropriateness of contents						
7. Difficulty of contents						
8. Interestedness of contents						
Language Use						
1. Appropriateness of language use						
2. Correctness and Clarity of language use						

Suggestion

Signature
 (.....)

Evaluation Form of the Gamification (Classcraft application)
Used in the Independent Study: The Use of Gamification to Improve English
Consonant Cluster Pronunciation of Students at Chiang Mai Rajabhat University
(Media, Design and Presentation)

Expert's name: _____

Instruction: Please rate the following elements of English consonant cluster pronunciation lessons using gamification, according to the following criteria:

Excellent = 5
 Good = 4
 Fair = 3
 Poor = 2
 Very Poor = 1

Evaluation lists	5	4	3	2	1
Media, Design and Presentation					
1. Appropriateness of medias used in the lessons					
2. Design and lesson presentations					
3. Appropriateness of lessons / stories					
4. Appropriateness of tasks / activities					
5. Appropriateness of sound clips and video clips					
6. Correctness and clarity of sounds					
7. Text quality					
8. User-friendly organization of the lessons					
9. Length of each lesson					
10. Overall design					

Suggestion

Signature
 (.....)

IOC of the Pronunciation Pretest and Posttest
Used in the Independent Study: The Use of Gamification to Improve English
Consonant Cluster Pronunciation of Students at Chiang Mai Rajabhat University

Expert's name: _____

Instruction: Please rate the following elements of the students' questionnaire, according to the degree of index of item – objective congruence.

- 1 = Incongruent 0 = Questionable or unclear 1 = Congruent

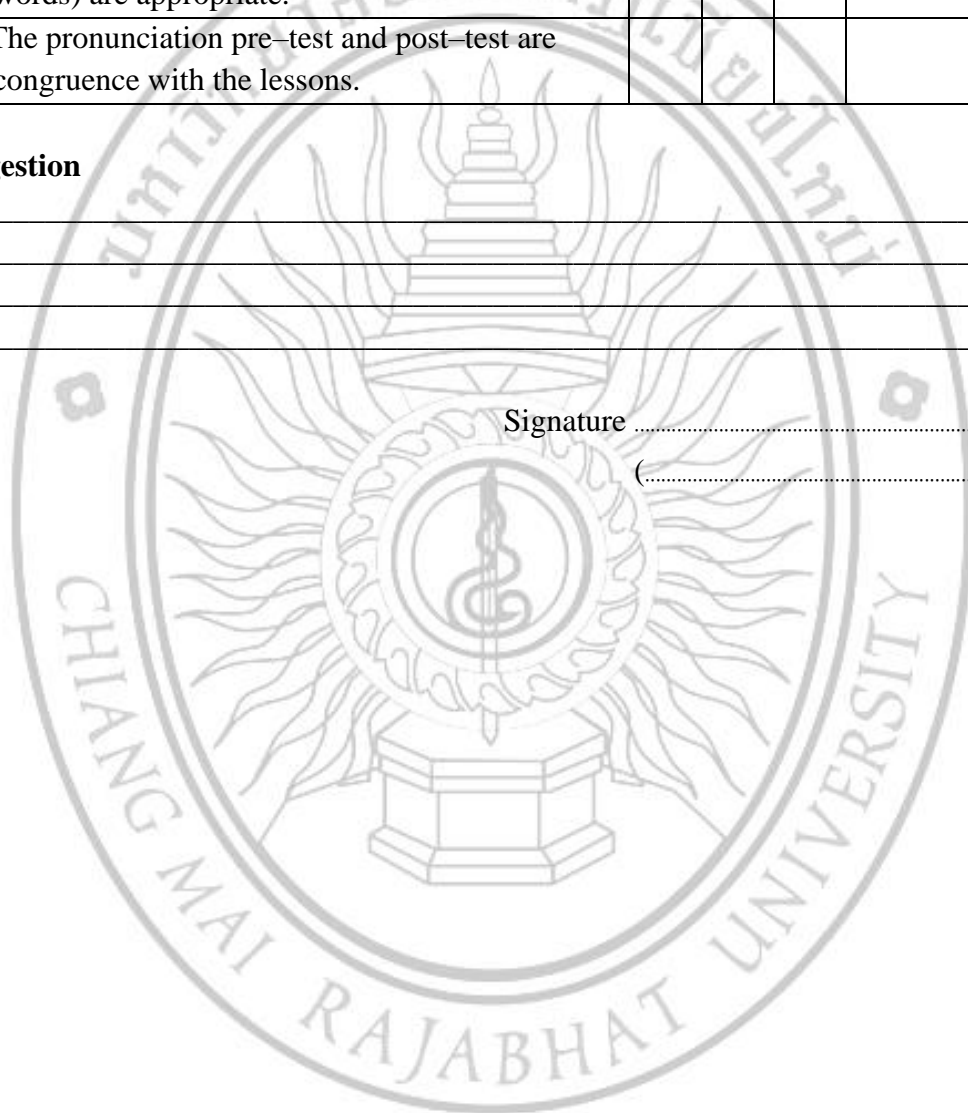
Pronunciation Pre – posttests			IOC Values			Comments
			- 1	0	1	
3-Initial clusters (CCC–)						
1	/str-/	Straight, Strangulation, Strategic, Stratum, Stressful				
2	/stj-/	Studious				
3	/spl-/	Splash, Splendid				
4	/spr-/	Spreader, Sprout				
5	/spj-/	Spurious, Sputum				
6	/skl-/	Sclera, Sclerosis				
7	/skr-/	Scramble, Scratchy, Scream, Scrotum, Screener, Scrambler				
8	/skw-/	Squad, Squarish, Squeeze, Squirrel				
9	/skj-/	Skua				
3-Final clusters (–CCC)						
1	/-lpt/	Sculpt				
2	/-lps/	Helps, Sculpt				
3	/-mps/	Thumps, Shrimps, Bootcamps				
4	/-nts/	Absents, Accounts, Movements, Gents				
5	/-ndz/	Defends, Reminds, Thousands				
6	/-ŋst/	Amongst				
7	/-pθs/	Depths				
8	/-pts/	Prompts, Bankrupts, Transcripts				
9	/-fθs/	Twelfth				
10	/-fts/	Warcrafts, Swifts				
11	/-sts/	Gymnasts, Neutralists				
12	/-kts/	Context, Ciphertext				
1. The pronunciation pre–test and post–test are appropriate for measure the students’ English consonant clusters pronunciation ability.						

Pronunciation Pre – posttests	IOC Values			Comments
	- 1	0	1	
2. The pronunciation pre–test and post–test are clear and relevant to the lessons.				
3. The pronunciation pre–test and post–test are parallel.				
4. Number of the pronunciation pre–test and post–test (List of 50 English three–consonant clusters words) are appropriate.				
5. The pronunciation pre–test and post–test are congruence with the lessons.				

Suggestion

Signature

(.....)



IOC of Questions for Students' Questionnaire
Used in the Independent Study: The Use of Gamification to Improve English
Consonant Cluster Pronunciation of Students at Chiang Mai Rajabhat University

Expert's name: _____

Instruction: Please rate the following elements of the students' questionnaire, according to the degree of index of item – objective congruence.

- 1 = Incongruent 0 = Questionable or unclear 1 = Congruent

No.	Statements	IOC Values			Comments
		- 1	0	1	
1	Pronunciation teaching method in this study is suitable and the procedures could be followed the instructions step-by-step.				
2	English consonant cluster pronunciation lessons provide the appropriate use of multimedia such as sound, image and video clip.				
3	The integration of gamification provides the appropriate use of game mechanics, sound clips and video clips				
4	The integration of gamification approach could enhance the student's motivation, active learning, and engagement in the class.				
5	Classcraft application is easy to use and it could be used in the language classroom.				
6	Gamification increases the learner's affective domain such as teamwork, engagement, and enjoyment.				
7	Gamification facilitates students to be more self – regulated and self – paced.				
8	Gamification technology in the classroom is more interesting than a traditional one.				
9	My English pronunciation ability has improved a lot after I have been taught by the teaching methods.				
10	When I used the gamification for learning English pronunciation, I feel more competitive and challenge.				

No.	Statements	IOC Values			Comments
		- 1	0	1	
11	Teaching pronunciation by integrating the gamification benefits for improving pronunciation skill.				
12	I am able to pronounce English consonant clusters correctly after I have been taught by integrating gamification in class.				
13	I appreciate the use of gamification while I am studying English consonant clusters pronunciation.				
14	I get more motivated after I have learned by integrating gamification.				
15	If I were an English teacher, I would apply the gamification in my English pronunciation course.				
Overall Questionnaire		IOC Values			Comments
		- 1	0	1	
1	The close-ended questionnaire is appropriate to investigate students' opinions on the use of gamification.				
2	The language use and the questionnaire's direction are clear and reliable.				
3	The statements do not encompass issues of complex questions, double-barreled questions with jargons or technical languages.				
4	The statements do not encompass issues of leading questions.				
5	The total number of the statements (15 statements) are appropriate and sufficient to measure students' opinions on the use of gamification.				

Suggestion

Signature

(.....)

Appendix D

Evaluation Results

Table D–1: Quality of the English Consonant Cluster Pronunciation Lessons

Evaluation lists	Expert 1	Expert 2	Expert 3	\bar{X}	Results
Lessons					
1. Congruence of lessons and objective	5	5	5	5	Excellent
2. Subdivision of each lesson	5	5	5	5	Excellent
3. Sequencing of the lessons	5	5	5	5	Excellent
4. Difficulty of the lessons	4	5	5	4.67	Excellent
5. Interestedness of the lessons	5	4	5	4.67	Excellent
Overall Lessons					
1. The lessons are appropriate to improve students' English consonant clusters pronunciation ability by integrating the gamification.	5	5	4	4.67	Excellent
2. The lessons are clear and relevant.	5	5	5	5	Excellent
3. The lessons are correct and reliable.	5	5	4	4.67	Excellent
4. The lessons provide the appropriate use of multimedia.	4	4	4	4	Good
5. Length of each lesson is appropriate for the allocation time (2 hours).	5	5	5	5	Excellent
Total	5	5	5	4.77	Excellent

According to table D–1, a specialist was very satisfied with the English consonant cluster pronunciation lessons with the integration of gamification as the overall mean of the evaluation was at “excellent” level ($\bar{X} = 4.77$). As a consequence, researcher could use the lessons for collecting data.

Table D–2: Evaluation of the Gamification (Classcraft application)
(Content and Language Use Evaluation)

Evaluation lists	Expert 1	Expert 2	Expert 3	\bar{X}	Results
Content					
1. Congruence of contents and research objective	5	4	-	4.5	Excellent
2. Subdivision of contents	4	5	-	4.5	Excellent
3. Sequencing of contents	4	5	-	4.5	Excellent
4. Continuity of contents	4	5	-	4.5	Excellent
5. Correctness of contents	5	5	-	5	Excellent
6. Appropriateness of contents	5	5	-	5	Excellent
7. Difficulty of contents	5	4	-	4.5	Excellent
8. Interestedness of contents	5	5	-	5	Excellent
Language Use					
1. Appropriateness of language use	5	5	-	5	Excellent
2. Correctness and Clarity of language use	5	4	-	4.5	Excellent
Total	4.70	4.70	-	4.70	Excellent

According to table D–2, a specialist was quite satisfied with the integration of gamification in terms of content and language use evaluation as the overall mean of the evaluation was at “excellent” level ($\bar{X} = 4.70$). However, the subdivision of contents, the sequencing of contents, and the continuity of contents need to be adjusted in order to be reliable and variable as the main research instrument.

Table D–3: Evaluation of the Gamification (Classcraft application)
(Media, Design and Presentation)

Evaluation lists	Expert 1	Expert 2	Expert 3	\bar{X}	Results
Media, Design and Presentation					
1. Appropriateness of medias used in the lessons	5	5	-	5	Excellent
2. Design and lesson presentations	4	4	-	4	Good
3. Appropriateness of lessons / stories	4	4	-	4	Good
4. Appropriateness of tasks / activities	4	4	-	4	Good
5. Appropriateness of sound clips and video clips	3	4	-	3.5	Fair
6. Correctness and clarity of sounds	3	4	-	3.5	Fair
7. Text quality	4	5	-	4.5	Good
8. User–friendly organization of the lessons	4	5	-	4.5	Good
9. Length of each lesson	4	5	-	4.5	Good
10. Overall design	4	5	-	4.5	Good
Total	3.90	4.50	-	4.20	Good

According to table D–3, a specialist was rarely satisfied with the integration of gamification in terms of media, design and presentation as the overall mean of the evaluation was at “Good” level ($\bar{X} = 4.20$). The reason was that the Classcraft application used in the study, was a freemium version, some features like sound clips and video clips on the app was restricted. However, the sound clips and the video clips could be uploaded by the students as an assignment/task in which provided in the Quests.

Table D-4: Evaluation of the pronunciation pretest and posttest using the index of item-objective congruence (IOC)

Pronunciation Pretest and posttest			Expert 1	Expert 2	Expert 3	\bar{X}	Remarks
3-Initial clusters (CCC-)							
1	/str-/	Straight, Strangulation, Strategic, Stratum, Stressful	1	1	1	1	Accepted
2	/stj-/	Studious	1	1	1	1	Accepted
3	/spl-/	Splash, Splendid	1	1	1	1	Accepted
4	/spr-/	Spreader, Sprout	1	1	1	1	Accepted
5	/spj-/	Spurious, Sputum	1	1	1	1	Accepted
6	/skl-/	Sclera, Sclerosis	1	1	1	1	Accepted
7	/skr-/	Scramble, Scratchy, Scream, Scrotum, Screener, Scrambler	1	1	1	1	Accepted
8	/skw- /	Squad, Squarish, Squeeze, Squirrel	1	1	1	1	Accepted
9	/skj-/	Skua	1	1	1	1	Accepted
3-Final clusters (-CCC)							
1	/-lpt/	Sculpt	1	1	1	1	Accepted
2	/-lps/	Helps, Sculpt	1	1	1	1	Accepted
3	/-mps/	Thumps, Shrimps, Bootcamps	1	1	1	1	Accepted
4	/-nts/	Absents, Accounts, Movements, Gents	1	1	1	1	Accepted
5	/-ndz/	Defends, Reminds, Thousands	1	1	1	1	Accepted
6	/-ŋst/	Amongst	1	1	1	1	Accepted
7	/-pθs/	Depths	1	1	1	1	Accepted
8	/-pts/	Prompts, Bankrupts, Transcripts	1	1	1	1	Accepted
9	/-fθs/	Twelfth	1	1	1	1	Accepted
10	/-fts/	Warcrafts, Swifts	1	1	1	1	Accepted
11	/-sts/	Gymnasts, Neutralists	1	1	1	1	Accepted
12	/-kts/	Context, Ciphertext	1	1	1	1	Accepted
Total			1	1	1	1	Accepted

According to Table D-4, all items in the pronunciation pretest and posttest received IOC scores higher than 0.50 which indicated that they were accepted.

**Table D-5 : Evaluation of the questions for students' questionnaire
using the index of item-objective congruence (IOC)**

Item No.	Expert 1	Expert 2	Expert 3	\bar{X}	Remarks
1. Pronunciation teaching method in this study is suitable and the procedures could be followed the instructions step-by-step.	1	1	1	1	Accepted
2. English consonant cluster pronunciation lessons provide the appropriate use of multimedia such as sound, image and video clip.	1	1	1	1	Accepted
3. The integration of gamification provides the appropriate use of game mechanics, sound clips and video clips	1	1	1	1	Accepted
4. The integration of gamification approach could enhance the student's motivation, active learning, and engagement in the class.	1	1	0	0.67	Accepted
5. Classcraft application is easy to use and it could be used in the language classroom.	0	1	1	0.67	Accepted
6. Gamification increases the learner's affective domain such as teamwork, engagement, and enjoyment.	1	1	1	1	Accepted
7. Gamification facilitates students to be more self – regulated and self – paced.	0	1	1	0.67	Accepted
8. Gamification technology in the classroom is more interesting than a traditional one.	1	0	1	0.67	Accepted
9. My English pronunciation ability has improved a lot after I have been taught by the teaching methods.	1	1	1	1	Accepted
10. When I used the gamification for learning English	1	0	1	0.67	Accepted

Item No.	Expert 1	Expert 2	Expert 3	\bar{X}	Remarks
pronunciation, I feel more competitive and challenge.					
11. Teaching pronunciation by integrating the gamification benefits for improving pronunciation skill.	1	1	1	1	Revised
12. I am able to pronounce English consonant clusters correctly after I have been taught by integrating gamification in class.	1	1	1	1	Accepted
13. I appreciate the use of gamification while I am studying English consonant clusters pronunciation.	1	0	1	0.67	Accepted
14. I get more motivated after I have learned by integrating gamification.	1	1	1	1	Accepted
15. If I were an English teacher, I would apply the gamification in my English pronunciation course.	1	0	1	0.67	Accepted

According to table D-5, almost all items received IOC scores higher than the qualified criteria, therefore, the questions for students' questionnaire could be applied as the research instrument for the study.

Appendix E

Achievement Scores of Assignments and Pretest and Posttest scores

1. Achievement Scores of Students' Assignments
2. Pronunciation Pretest and Posttest scores

Table A-8: Achievement Scores of Students' Assignments

Student No. (N = 40)	Achievement Scores of Students' Assignments (N = 50)			
	Activities			
	Lucky Draw	Dictation	Flash Card	Fill ME Please
1	40	45	45	46
2	25	38	40	42
3	37	42	44	45
4	23	43	48	49
5	25	36	43	45
6	25	40	42	45
7	42	50	50	49
8	43	39	42	42
9	43	44	46	47
10	43	44	46	48
11	33	44	45	46
12	33	37	40	42
13	44	45	48	50
14	39	38	42	46
15	44	42	40	45
16	42	47	42	45
17	47	40	42	44
18	49	44	50	50
19	42	48	45	50
20	42	45	45	50
21	35	50	47	47
22	47	43	48	48
23	40	44	46	46
24	45	47	46	42
25	45	48	45	43
26	49	46	49	45
27	49	46	48	47

Table A-8: Cont.

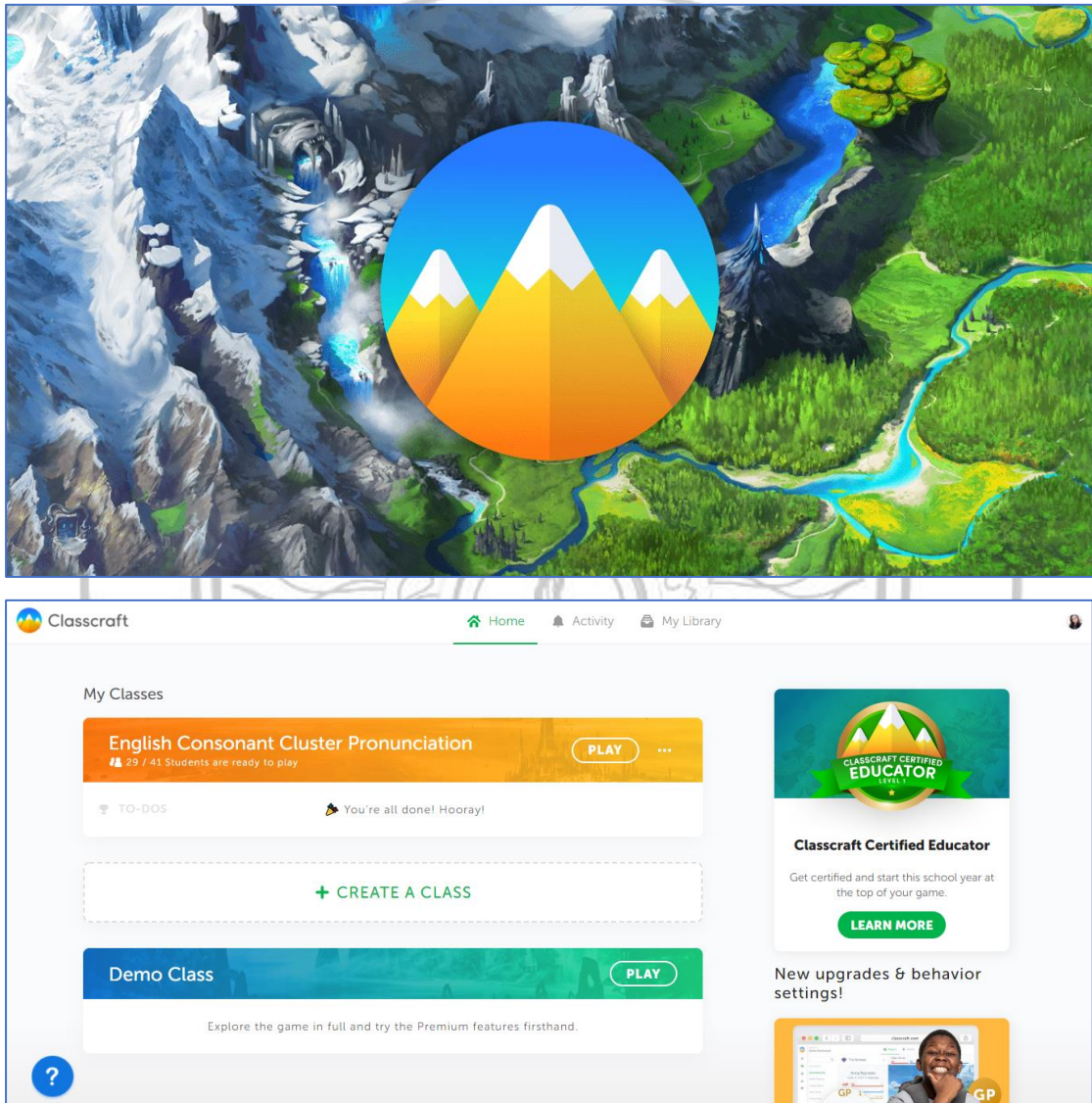
Student No. (N = 40)	Achievement Scores of Students' Assignments (N = 50)			
	Lucky Draw	Dictation	Flash Card	Fill ME Please
28	30	45	29	39
29	45	48	43	40
30	45	46	43	42
31	46	40	43	45
32	6	40	38	43
33	42	41	39	41
34	40	42	47	43
35	31	35	42	42
36	43	36	40	46
37	47	49	47	45
38	44	40	45	50
39	44	37	45	49
40	47	46	44	46
Mean Scores	39.53	43.13	43.98	45.38

Table A-9: Pronunciation Pretest and Posttest scores

Students No.	Pretest (50)	Posttest (50)
1	31	47
2	21	45
3	20	42
4	13	48
5	21	47
6	32	41
7	26	50
8	15	42
9	28	41
10	25	42
11	16	42
12	28	39
13	25	50
14	20	38
15	14	40
16	15	41
17	20	43
18	22	50
19	14	41
20	18	45
21	31	48
22	12	38
23	21	40
24	23	43
25	13	39
26	29	49
27	39	50
28	16	42
29	7	36
30	15	38
31	28	47
32	9	38
33	16	37
34	22	46
35	13	42
36	9	43
37	16	45
38	17	45
39	10	40
40	16	42
Total	786	1,722
\bar{X}	19.65	43.05
S.D.	7.308	3.993

Appendix F

Integration of Classcraft Application in the Study



Game Dashboard

ENGLISH CONSONANT CLUSTER PRONUNCIATION

Players Teams Class

Team B

วิสุทธา ไชยวัฒน์

Healer • Level 100

HP 50 / 50

AP 35 / 35

XP 5 000 / 5 000

GP 26 228

+ - ...

POWERS 97 PLEDGES

Sainthood

Favor of the Gods

วิสุทธา has 97 Power Points

Game Dashboard

ENGLISH CONSONANT CLUSTER PRONUNCIATION

Players Teams Class

Team A Team B Team C Team D

Team D

MANAGE TEAM

NAME	ABSENT	MANAGE POINTS	TYPE	LEVEL	HP	AP	XP	GP
ภาณุวัฒน์ สักดิ์ประเสริฐ		SET UP CHARACTER						
กิตติภาพ แซ่เจียง	<input type="checkbox"/>	+ - ...	Mage	3	30 / 30	50 / 50	126 / 150	95
จิรายุ ขมอุป้า	<input type="checkbox"/>	+ - ...	Mage	3	30 / 30	50 / 50	131 / 150	595
ณัฐธยาน์ ดวงไทย	<input type="checkbox"/>	+ - ...	Guardian	92	80 / 80	30 / 30	4 561 / 4 600	22 345
กษิญาพร พรหมไย	<input type="checkbox"/>	+ - ...	Guardian	100	80 / 80	30 / 30	5 000 / 5 000	26 485
รวีพร วนาหงสากุล	<input type="checkbox"/>	+ - ...	Guardian	100	80 / 80	30 / 30	5 000 / 5 000	26 046
รฤยธิดา บุญเรือง	<input type="checkbox"/>	+ - ...	Healer	3	50 / 50	35 / 35	116 / 150	245

Game Dashboard

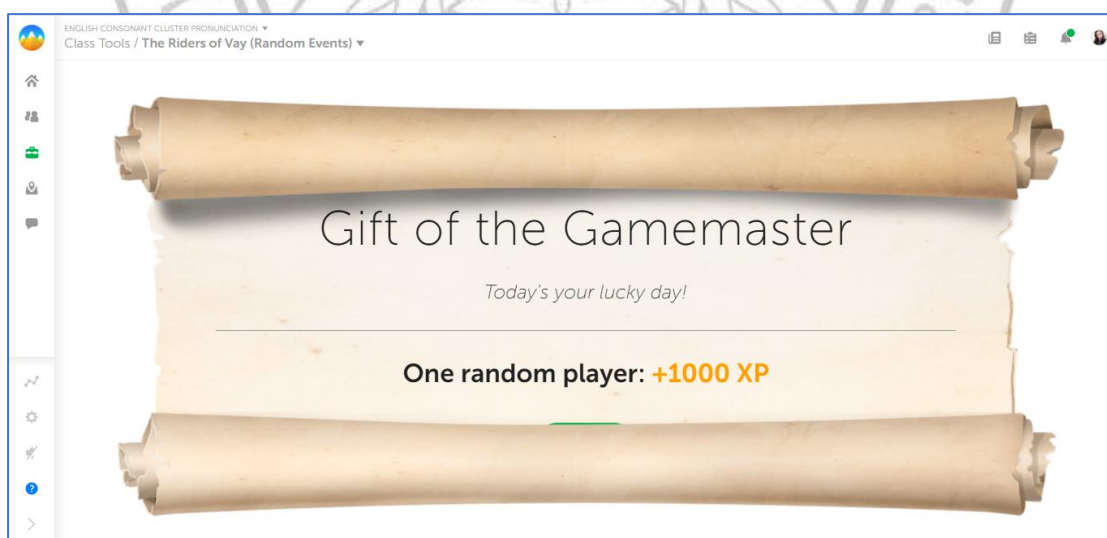
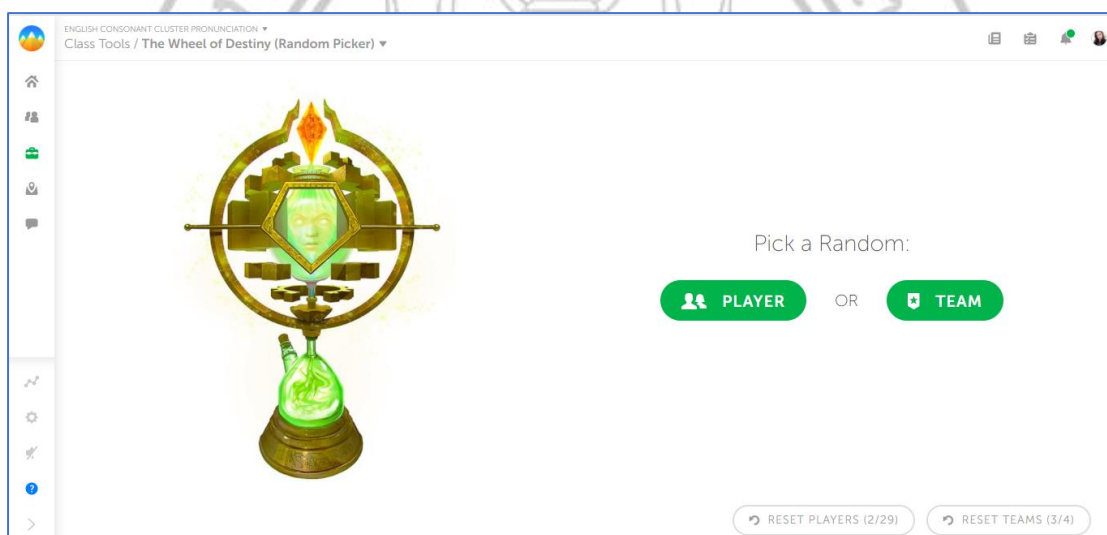
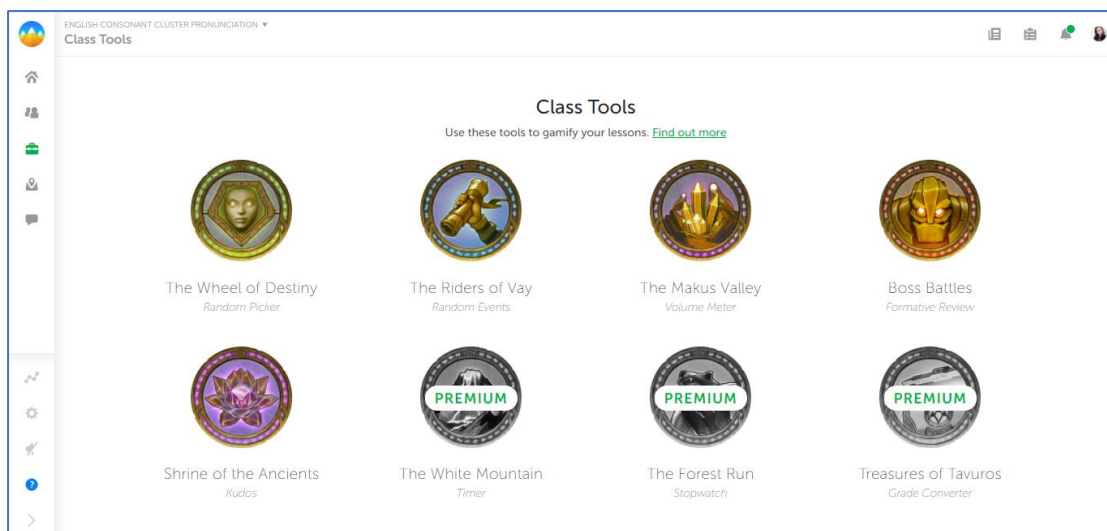
ENGLISH CONSONANT CLUSTER PRONUNCIATION

Players Teams Class

Filter by Type

MANAGE POINTS + - ...

<input type="checkbox"/>	จิรายุ ขมอุป้า	<input type="checkbox"/>	+ - ...	Mage	3	30 / 30	50 / 50	131 / 150	595
<input type="checkbox"/>	ไวษิดา กฤษณ์มร์	<input type="checkbox"/>	+ - ...	Healer	3	50 / 50	35 / 35	111 / 150	95
<input type="checkbox"/>	ณัฐธยาน์ ใจพัฒน	<input type="checkbox"/>	+ - ...	Healer	51	50 / 50	35 / 35	2 511 / 2 550	7 675
<input type="checkbox"/>	ณัฐธยาน์ คอทโจร	<input type="checkbox"/>	+ - ...	Guardian	6	80 / 80	30 / 30	286 / 300	700
<input type="checkbox"/>	ณัฐธยาน์ ดวงไทย	<input type="checkbox"/>	+ - ...	Guardian	92	80 / 80	30 / 30	4 561 / 4 600	22 345
<input type="checkbox"/>	ณัฐธยาน์ ไชยวัฒน์	<input type="checkbox"/>	+ - ...	Guardian	100	80 / 80	30 / 30	5 000 / 5 000	26 785
<input type="checkbox"/>	ทศนีย์ กุญเฑาะ	<input type="checkbox"/>	+ - ...	Mage	93	30 / 30	50 / 50	4 616 / 4 650	23 320
<input type="checkbox"/>	ปาริชาติ ขุนศรี	<input type="checkbox"/>	+ - ...	Healer	10	50 / 50	35 / 35	466 / 500	910
<input type="checkbox"/>	กษิญาพร พรหมไย	<input type="checkbox"/>	+ - ...	Guardian	100	80 / 80	30 / 30	5 000 / 5 000	26 485
<input type="checkbox"/>	มณฤดี กุลมงคลชัย	<input type="checkbox"/>	+ - ...	Mage	100	30 / 30	50 / 50	5 000 / 5 000	25 745
<input type="checkbox"/>	รวีพร วนาหงสากุล	<input type="checkbox"/>	+ - ...	Guardian	100	80 / 80	30 / 30	5 000 / 5 000	26 046
<input type="checkbox"/>	รัชนิกร สุรณกาล	<input type="checkbox"/>	+ - ...	Mage	100	30 / 30	50 / 50	5 000 / 5 000	26 785
<input type="checkbox"/>	รฤยธิดา บุญเรือง	<input type="checkbox"/>	+ - ...	Healer	3	50 / 50	35 / 35	116 / 150	245
<input type="checkbox"/>	รุ่งนภา ไชยวัฒน์	<input type="checkbox"/>	+ - ...	Guardian	35	80 / 80	30 / 30	1 731 / 1 750	2 803



ENGLISH CONSONANT CLUSTER PRONUNCIATION ▼
Class Tools / The Makus Valley (Volume Meter) ▼

Volume Meter

If your students want to find the treasure, they will need to stay quiet and follow the spirits.
Please indicate the value of the treasure and the potential penalty if they're too loud.

Reward GP

Penalty (optional)

Timer
You can set the volume meter to last a specific amount of time.

[+ ADD TIMER](#)

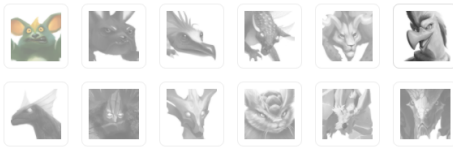
[NEXT](#)


ENGLISH CONSONANT CLUSTER PRONUNCIATION ▼
Class Tools / Boss Battles (Formative Review) ▼

Create a New Battle

Boss Questions Options

Boss Battle Name Boss HP





Bluebeak Ganet

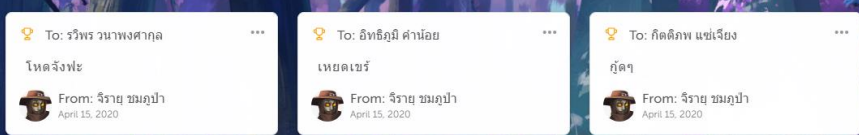
[PREMIUM](#)

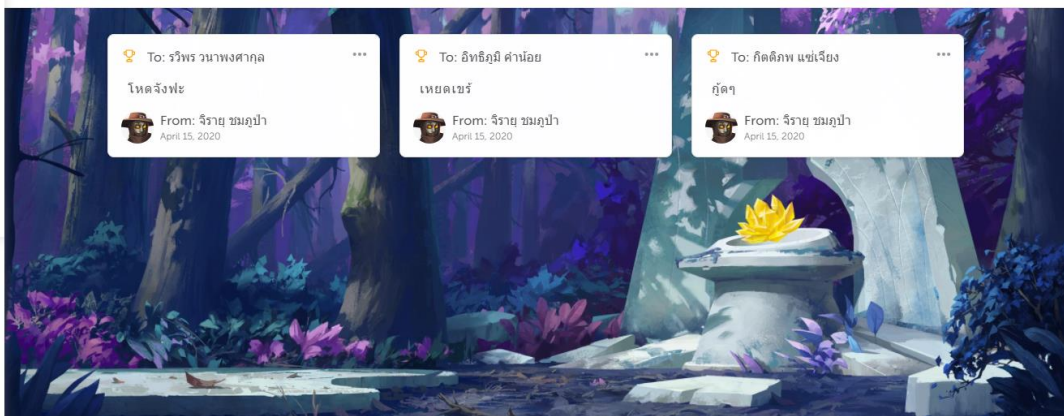
ENGLISH CONSONANT CLUSTER PRONUNCIATION ▼
Class Tools / Shrine of the Ancients (Kudos) ▼

Class Wall Inbox


View
[All Time \(3\)](#)

[PRESENT KUDOS](#)






ENGLISH CONSONANT CLUSTER PRONUNCIATION ▾
Class Tools / The White Mountain (Timer) ▾



Stay on Task with the Timer




Display a timer to help students pace themselves during classwork and tests!


UPGRADE TO PREMIUM

[? Learn more about the Timer](#)

ENGLISH CONSONANT CLUSTER PRONUNCIATION ▾
Class Tools / The Forest Run (Stopwatch) ▾



Challenge Students with the Stopwatch




Turn activities into a fun challenge with students racing to the finish!


UPGRADE TO PREMIUM

[? Learn more about the Stopwatch](#)

ENGLISH CONSONANT CLUSTER PRONUNCIATION ▾
Class Tools / Treasures of Tavuros (Grade Converter) ▾



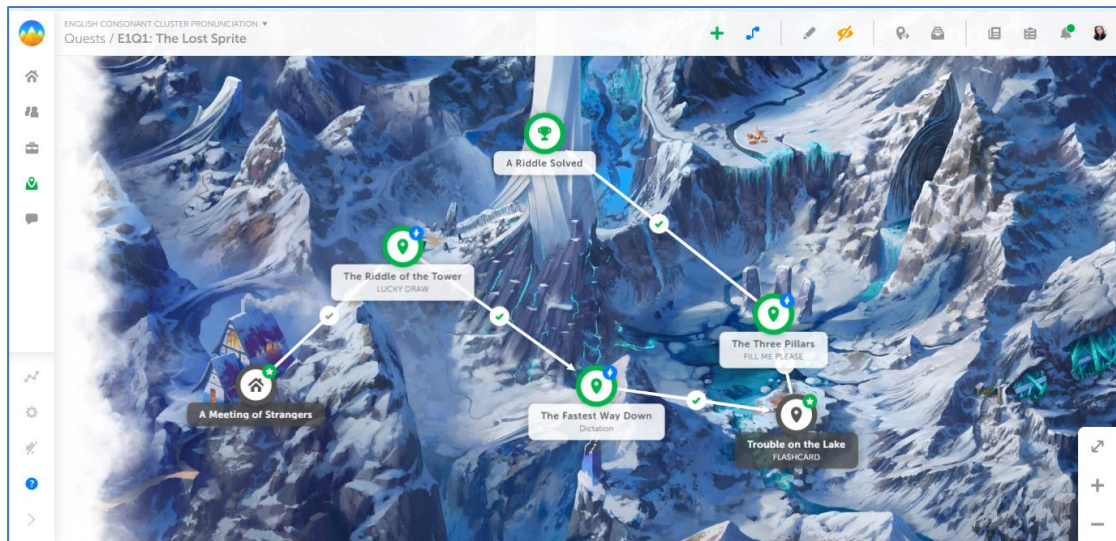
Reward Academics with the Grade Converter



Empower students' performance by awarding XP and GP for scores on assessments and homework!

UPGRADE TO PREMIUM

[? Learn more about the Grade Converter](#)



ENGLISH CONSONANT CLUSTER PRONUNCIATION ▾
Quests / E1Q1: The Lost Sprite ▾

The Riddle of the Tower

OVERVIEW STORY TASK DISCUSSION SETTINGS

✓ Proceed to:
 The Fastest Way Down
 +500 XP

✗ Proceed to:
 No new objectives will be unlocked.

Assignments:
 On Time: +100 XP
 Early: +150 XP

Self-Paced Progress

GIVE FEEDBACK APPLY TO ALL STUDENTS

NAME ▲	EARLY	ON TIME	LATE	FEEDBACK	OUTCOME
กมลสิทธิ์กร สิริภาพร					✓ ✗
กิตติภพ แซ่เจียง					✓ ✗
จิรายุ ขมภูป้า					✓ ✗
โชติศา กฤษณัมร์					✓ ✗

ENGLISH CONSONANT CLUSTER PRONUNCIATION ▾
Quests / E1Q1: The Lost Sprite ▾ The Riddle of the Tower ▾

The Riddle of the Tower

OVERVIEW STORY TASK DISCUSSION SETTINGS

Together you follow Richalt across the mountain. The air is clear now that the blizzard has settled, and the snow-laced peaks glisten in the sunlight.

When you arrive at the tower, a sprite is floating near the doors. It's completely obsessed with trying to get in, but there isn't any mechanism that you can see.

"This is Ivy," Richalt says, worry on his face. "I don't know what's gotten into her. She's never acted like this before."

ENGLISH CONSONANT CLUSTER PRONUNCIATION ▾
Quests / E1Q1: The Lost Sprite / The Riddle of the Tower ▾

The Riddle of the Tower

OVERVIEW STORY TASK DISCUSSION SETTINGS

LUCKY DRAW

In order to pass this level, all of you need to let the door open, and perform your pronunciation ability by doing a task that teacher have provided.

The 1st task named "LUCKY DRAW". You need to complete it by dipping one hand into the container and randomly draw out a number.

The number represents to English consonant cluster words started with /str-, stj-, spl-, spr-, spj-/.

You guys need to pronounce those words correctly then you will get +10 XP/each.

It is a good time for you to collect an XP !!

Do you know that?...

You will gain **+100 XP for submit assignment in the time**, or receive **+150 for early submission**.

ENGLISH CONSONANT CLUSTER PRONUNCIATION ▾
Messaging

Class Parents

Class Announcement

กมลลักษณ์ สิริภาพร

กิตติภพ แซ่เจียง

จิรายุ ขมภูปา

โชษิตา กฤษอัมร์

ณัฐรชนน ใจพัฒน

ณัฐรชนน คอทโทร์

Replies Are Disabled

Welcome everyone to my class!

We're waiting your friends until tomorrow, then we're going to start the first class on Wednesday. Yeah !!

04/13/2020 @ 6:36 PM ✓ (21)

ใครที่ได้ XP 5000 อยู่แล้ว ไม่ต้องตกใจว่าทำไมถึงยัง XP ไม่ขึ้นแล้ว ให้สตาฟคอยแนโนไว้แค่นั้นก่อนนะคะ อี้ อี้ เราจะมารีดกันที่คอยแนงานขึ้นสุดท้ายคะ

04/22/2020 @ 1:24 AM ✓ (8)

ส่วน Random Event เมื่อสักครู่ เป็นการสุ่ม Energy Drain ผู้เล่นทุกคนจะโดนหัก 10 AP และ Battle of Champions ผู้เล่นที่มีคะแนน XP สูงสุด จะถูกหัก 20 HP คะ

04/22/2020 @ 1:30 AM ✓ (8)

Message SEND

ENGLISH CONSONANT CLUSTER PRONUNCIATION ▾
Analytics

Game Feed Student Overview

Today

ณัฐรชนน คอทโทร์ gained 10 levels	10 minutes ago	...
ณัฐรชนน คอทโทร์ gained 675 GP	10 minutes ago	...
ณัฐรชนน คอทโทร์ gained 500 XP	10 minutes ago	...
โชษิตา กฤษอัมร์ gained 10 levels	10 minutes ago	...
โชษิตา กฤษอัมร์ gained 525 GP	10 minutes ago	...
โชษิตา กฤษอัมร์ gained 500 XP	10 minutes ago	...
จิรายุ ขมภูปา gained 10 levels	10 minutes ago	...
จิรายุ ขมภูปา gained 525 GP	10 minutes ago	...

Appendix G

Classcraft Application Guidebook



Classcraft

GAMIFICATION



เกมมิฟิเคชัน คือ การใช้เทคนิคและกลไกของเกมในการสร้างแรงจูงใจในการเรียน และกระตุ้นให้เกิดปฏิสัมพันธ์ระหว่างผู้สอนและผู้เรียน เกมมิฟิเคชันเป็นหนึ่งในทางออกที่สามารถสร้างการมีส่วนร่วมในกิจกรรมการสอนในชั้นเรียนให้มีประสิทธิภาพมากขึ้น ด้วยการสะสมคะแนนหรือรางวัล ไม่มีผู้ชนะหรือผู้แพ้ มุ่งหวังให้ผู้เรียนได้มีส่วนร่วมในกิจกรรมการเรียนการสอน มากกว่าการเล่น และให้ความสำคัญกับคะแนนหรือรางวัลเป็นหลัก ข้อดีของเกมมิฟิเคชันสามารถสร้างได้ง่าย เนื่องจากไม่มีตัวเกม เป็นเพียงการใช้กลไกของเกมผ่านองค์ประกอบของเกมมิฟิเคชัน และมีราคาถูก เนื่องจากใช้บุคลากรจำนวนน้อย แต่จะไปเน้นค่าใช้จ่ายในส่วนของรางวัลแทน

เกมมิฟิเคชัน ผู้เรียนเป็นส่วนสำคัญของเกมที่จะต้องมีความสนใจและมีแรงจูงใจ ในการร่วมกิจกรรมในชั้นเรียนและการเล่นเกม ผู้สอนเป็นผู้สร้างความสนุกสนานระหว่าง การดำเนินกิจกรรมเสมือนกับการเล่นเกมให้แก่ผู้เรียน มีการให้คะแนน การให้รางวัล การลงโทษ ในเกม และมีการกิจประจำวันให้ผู้เรียนได้เกิดความตื่นเต้น ทำให้ผู้เรียนมีแรงจูงใจในการเรียน ให้ ความสนใจกับการเรียนมากขึ้น รวมถึงได้ช่วยเหลือซึ่งกันและกัน สามารถทำงานร่วมกับผู้อื่นได้ อย่างมีความสุข ยอมรับฟังความคิดเห็นของผู้อื่น และทำงานอย่างเป็นระบบ

CLASSCRAFT

Classcraft เป็นโปรแกรมประเภทระบบจัดการเรียนรู้ (Learning Management System: LMS) ที่พัฒนาขึ้นมาเพื่อรองรับระบบการเรียนรู้ที่ใช้แนวคิดเกมมิฟิเคชัน (Gamification in Education) สนับสนุนการทำงานเป็นทีม และรองรับการทำงานบนเทคโนโลยีคลาวด์ ผู้สอนและผู้เรียนสามารถใช้งานโปรแกรมได้ทันทีโดยไม่ต้องติดตั้งโปรแกรมใด ๆ และสามารถใช้งานผ่านโปรแกรมท่องอินเทอร์เน็ต (Web Browser) บนอุปกรณ์ต่าง ๆ ได้ เช่น คอมพิวเตอร์ แท็บเล็ต และสมาร์ทโฟน เป็นต้น

Classcraft ยังสามารถใช้ในการเรียนการสอนในห้องเรียนสำหรับผู้สอนและผู้เรียนในการเล่นร่วมกัน ผู้สอนจะสวมบทบาทเป็นผู้สร้างเกม (Game Master : GM) และจัดประสบการณ์การเล่นเกมนในห้องเรียน ส่วนผู้เรียนจะเป็นผู้เล่น (Player) โดยสวมบทบาทผ่านตัวละคร ผู้เรียนแต่ละคนจะมีคุณลักษณะและพลังพิเศษแตกต่างกันไปตามความสามารถของตัวละคร จุดมุ่งหมายของเกม เพื่อกระตุ้นให้ผู้เรียนมีแรงจูงใจในการเรียนและมีส่วนร่วมในชั้นเรียนผ่านการเรียนรู้ที่สนุกสนาน โดยผู้เล่นจะต้องวางแผนการเรียนรู้ของตนเอง และเพื่อนสมาชิกในทีม เพื่อนำพาให้ตัวเองและทีมประสบความสำเร็จในการเล่นเกมนควบคู่ไปกับการเรียนรู้รายวิชาต่าง ๆ ในชั้นเรียน



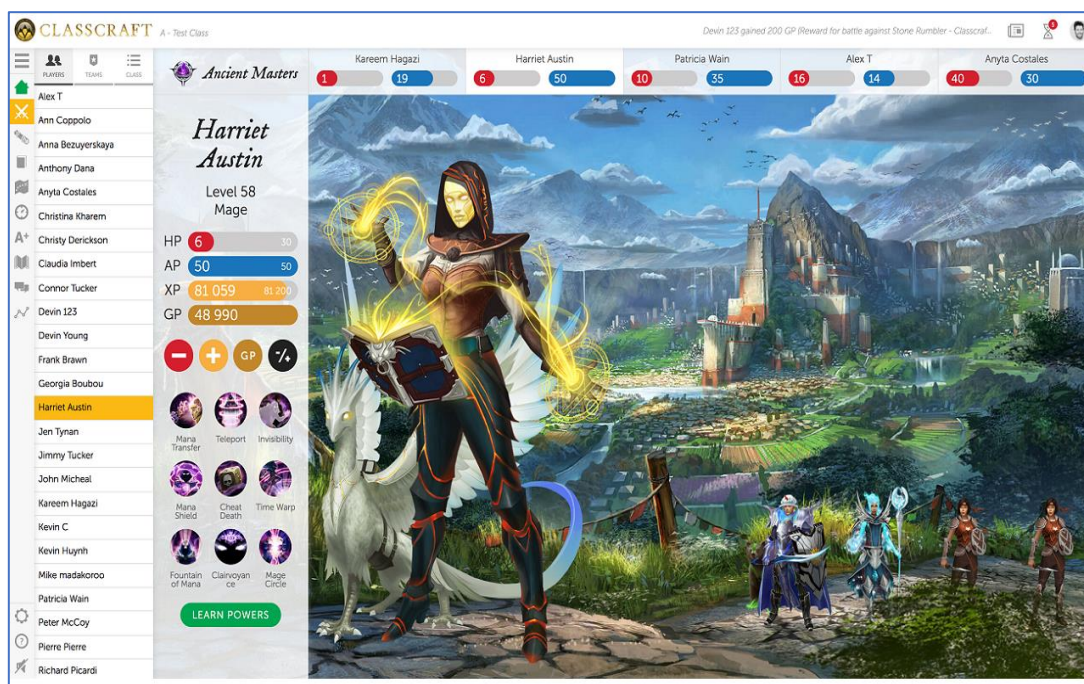
BASIC GAME RULES

(กฎพื้นฐานของเกม)

POINTS

ตารางที่ 1 ความหมายของคะแนนแต่ละประเภท

คำย่อ	ประเภทคะแนน	คำอธิบาย
XP	คะแนนประสบการณ์ (Experience Points)	คะแนนประสบการณ์ คือ คะแนนที่แสดงปริมาณประสบการณ์ของผู้เรียนในการทำภารกิจหรือกิจกรรมต่าง ๆ ของวิชา เมื่อผู้เรียนมีคะแนนประสบการณ์มากถึงระดับที่กำหนดไว้ ผู้เรียนจะได้รับการเลื่อนชั้น (Level up) ซึ่งคะแนนประสบการณ์สามารถชี้ให้เห็นความก้าวหน้าของผู้เรียนในรายวิชาได้
HP	คะแนนสุขภาพ (Health Points)	คะแนนสุขภาพ คือ คะแนนที่แสดงปริมาณคุณภาพพฤติกรรมของผู้เรียน ผู้เรียนจะต้องประพฤติตนตามกฎกติกา มารยาท หรือข้อตกลงต่าง ๆ ของรายวิชา เมื่อผู้เรียนมีพฤติกรรมที่ไม่ดี ผู้สอนจะพิจารณาลดคะแนน สุขภาพของผู้เรียนลง ผู้เรียนจะต้องประพฤติตนให้ดีเพื่อรักษาคะแนน สุขภาพให้อยู่ในระดับที่มากกว่าศูนย์ตลอดรายวิชา
GP	คะแนนทองคำ (Gold Pieces)	คะแนนทองคำ คือ คะแนนพิเศษที่ผู้สอนพิจารณามอบให้เมื่อผู้เรียนทำภารกิจ กิจกรรม หรือประพฤติตนดีเป็นพิเศษ ผู้เรียนสามารถใช้คะแนน ทองคำในการจัดหาเครื่องแต่งกาย หรือเครื่องมือเครื่องใช้เพื่อเปลี่ยน รูปลักษณ์ตัวละครของตนได้ และผู้เรียนจะได้คะแนนนี้โดยอัตโนมัติทุกครั้งที่ได้รับ การเลื่อนชั้น (Level up)
AP	คะแนนปฏิบัติการ (Action Point)	คะแนนปฏิบัติการ คือ คะแนนที่แสดงผลงานในการใช้พลังพิเศษของผู้เรียน คะแนนปฏิบัติการจะเพิ่มขึ้นโดยอัตโนมัติทุกวันหลังเที่ยงคืน
PP	คะแนนพลังพิเศษ (Power Point)	คะแนนพลังพิเศษ คือ คะแนนที่ได้จากการเลื่อนชั้น (Level up) ผู้เรียน ทุกคนจะเริ่มต้นที่ระดับ 1 ทุกครั้งที่ได้เลื่อนชั้นผู้เรียนจะได้คะแนนพลัง พิเศษ 1 คะแนน ผู้เรียนสามารถใช้คะแนนพลังพิเศษในการเรียนรู้พลังพิเศษใหม่ๆ ได้



ตารางที่ 2 เกณฑ์การวัดผลผู้เรียน ด้านคุณภาพผลงานของผู้เรียน
คะแนนประสบการณ์ (Experience Points : XP)

คะแนนที่ได้	คำอธิบาย
+100	คุณภาพงานที่ได้รับมอบหมาย อยู่ในระดับ “ดีมาก”
+70	คุณภาพงานที่ได้รับมอบหมาย อยู่ในระดับ “ดี”
+50	คุณภาพงานที่ได้รับมอบหมาย อยู่ในระดับ พอใช้”
+30	คุณภาพงานที่ได้รับมอบหมาย อยู่ในระดับ ต้องปรับปรุง”

ตารางที่ 3 เกณฑ์การวัดผลผู้เรียน ด้านพฤติกรรมของผู้เรียน
คะแนนประสบการณ์ (Experience Points : XP)

คะแนนที่ได้	คำอธิบาย
+15	Complete tasks before a class finish.
+15	Complete assignments before a class start.
+15	Concentrate to study in class.
+15	Have a good relationship and work well with other people.
+15	Have discipline and punctuality.
+20	Have a self – confidence when pronounce a word in front of class.
+20	Could pronounce a word correctly.

คะแนนสุขภาพ (Health Points : XP)

คะแนนที่ได้	คำอธิบาย
-10	Incomplete an assignment.
-10	Incomplete a task.
-15	Being negative in class.
-15	Could not pronounce a word correctly.
-15	Not following instructions.
-20	Arriving late to class.
-20	Using mobile phone when not allowed.
-20	Leave the classroom without permission.
+30	Participate in any activities.
+30	Help a team to earn more learning progression.

คะแนนปฏิบัติการ (Action Point : AP)

คะแนนที่ได้	คำอธิบาย
+10	ผู้เรียนทุกคนจะได้คะแนนนี้โดยอัตโนมัติทุกวันหลังเที่ยงคืน

คะแนนพลังพิเศษ (Power Point : PP)

คะแนนที่ได้	คำอธิบาย
+1 (Level up)	ผู้เรียนทุกคนจะได้คะแนนนี้เมื่อมีคะแนนประสบการณ์ (XP) ครบตามที่กำหนด

CHARACTERS

ผู้เล่นสามารถเลือก **ตัวละคร** ของตนเองเพื่อเล่นในชั้นเรียนได้ แต่ละตัวละครจะมีพลังและความสามารถที่ต่างกันอย่างออกไป ตัวละครในเกม Classcraft ประกอบด้วย นักเวทย์ (Mage) นักรบ (Warrior) และแพทย์ (Healer) ก่อนที่ผู้เล่นจะเริ่มเล่น Classcraft จะต้องตัดสินใจว่าต้องการเป็นนักเวทย์ นักรบ หรือแพทย์ โดยต้องทำความรู้จักกับแต่ละตัวละครก่อน ผู้เรียนอาจมีความชอบตัวละครใดตัวละครหนึ่งเป็นพิเศษ แต่ท้ายที่สุด ผู้เรียนจะต้องตัดสินใจให้ดีที่สุดสำหรับทีมของตนเอง ให้ผู้เล่นพูดคุยกับเพื่อนร่วมทีมของตนเองก่อนที่จะเลือกตัวละคร เพื่อให้แน่ใจว่ามีทีมที่มีความสมดุลระหว่าง นักเวทย์ นักรบ หรือแพทย์ กลยุทธ์ของตัวละครในทีมมีความสำคัญมาก เมื่อเลือกตัวละครแล้วจะไม่สามารถย้อนกลับไปแก้ไขได้

Mages



Warriors



Healers



MAGE (นักเวทย์)

Max HP: 30 Max AP: 50

Mages



นักเวทย์ ปฏิบัติหน้าที่เป็นผู้สนับสนุนคะแนนปฏิบัติการ

Action Points (AP) ในเกม นักเวทย์เป็นชนชั้นที่แข็งแกร่งที่สุดในแง่ของอำนาจ เพราะพวกเขาสามารถได้รับ AP สูงสุด 50 AP พวกเขาสามารถใช้พลังเช่น “Fountain of Mana” ซึ่งทำให้พวกเขาสามารถให้ AP แก่สมาชิกในทีมคนอื่น ๆ ได้ ส่งผลให้พวกเขาสามารถใช้พลังได้บ่อยขึ้น อย่างไรก็ตาม นักเวทย์ก็มีความเสี่ยงต่อการสูญเสียพลังในการต่อสู้มากขึ้น เพราะสามารถรับได้สูงสุดเพียง 30 HP เท่านั้น นักเวทย์เหมาะสมสำหรับผู้เล่นที่มีความมั่นใจว่าพวกเขาจะสามารถ

อยู่รอดได้ในเกมด้วย 30 HP และจะต้องอาศัยความช่วยเหลือจากเพื่อนร่วมทีม จึงจะสามารถอยู่รอดได้

ตารางที่ 4 พลังของนักเวทย์

Power	Tier	AP	Description	Requires
Mana Transfer	1	35	All team members, except mages, gain 7 AP.	Mana Transfer
Teleport	1	5	The mage can trade places with any other classmate.	
Invisibility	1	10	The mage can leave the classroom for up to 2 min.	
Mana Shield	2	0	The mage prevents the loss of HP to themselves (cost 3 AP per 1 HP).	
Cheat Death	2	15	A fallen teammate (other than the mage) can reroll the cursed die but must accept the new outcome.	Teleport
Time Warp	2	35	The mage gains an extra 8 minutes to beat an exam.	Teleport/ Invisibility
Foundation of Mana	3	40	A teammate, who isn't a mage, replenishes all of their AP.	Mana Shield
Clairvoyance	3	40	All of the team members get a hint on an exam question.	Cheat Death/ Mana Shield
Mage Circle	3	40	All team members gain an extra day to turn in a formative assignment.	Time Warp

WARRIOR (นักรบ)

Max HP: 80 Max AP: 30

Warriors



นักรบ ปฏิบัติหน้าที่เป็นผู้ปกป้องชีวิตในเกม เมื่อสมาชิก

ในทีมกำลังจะเสียคะแนนสุขภาพ (Health Points: HP) นักรบจะสามารถใช้พลังของพวกเขาได้ โดยการดูดซับความเสียหายให้กับผู้เล่นอื่นๆ พร้อมกันนั้นตัวนักรบเองก็จะสูญเสีย HP น้อยลง พลังเหล่านี้สามารถช่วยสมาชิกในทีมจากการสูญเสียพลังในการต่อสู้และสำรองพลังส่วนที่เหลือของทีมจากความเสียหายที่เกิดขึ้น หากผู้เล่นส่วนใหญ่มีความเสี่ยงต่อการสูญเสีย HP มาก นักรบถือว่าเป็นตัวเลือกที่เหมาะสมสำหรับพวกเขา เพราะนักรบสามารถรับสูงสุด 80 HP และสามารถรักษาตนเองด้วยพลัง “First Aid” อย่างไรก็ตาม เนื่องจากพวกเขาสามารถรับได้สูงสุด

30 AP เท่านั้น Warriors จึงไม่มีพลังที่แข็งแกร่งและไม่สามารถใช้บ่อยได้

ตารางที่ 5 พลังของนักรบ

Power	Tier	AP	Description	Requires
Protect 1	1	10	The warrior can take up to 10 damage instead of their teammate, receiving only 80% of the initial damage.	
First Aid	1	10	The warrior gains 1 HP for each level they have, but always gains at least 5 HP.	
Hunting	1	5	The warrior can eat in class.	
Protect 2	2	15	The warrior can take up to 20 damage instead of their teammate, receiving only 65% of the initial damage.	Protect 1
Ambush	2	20	The warrior can hand in an assignment one day later.	Protect 1/ First Aid
Counter Attack	2	20	The warrior gets a hint on an exam question.	Hunting
Protect 3	3	20	The warrior can take up to 30 damage instead of their teammate, receiving only 50% of the initial damage.	Protect 2
Frontal Assault	3	30	All team members can hand in an assignment one day later.	Ambush
Secret Weapon	3	25	During an exam, the warrior can use a cheat sheet provided by the Game Master.	Ambush/ Counter Attack

Healer (แพทย์)

Max HP: 50 Max AP: 35

Healers



แพทย์ ปฏิบัติหน้าที่เป็นผู้รักษาชีวิตในเกม เมื่อสมาชิกในทีมได้รับความเสียหาย แพทย์สามารถใช้พลังเพื่อคืนค่า HP (Health Point) ให้กับผู้เล่นคนนั้นได้ นอกจากนี้ แพทย์ยังสามารถใช้พลังเหล่านี้กับตนเองได้อีกด้วย แพทย์มีค่าสูงสุด 50 HP (Health Point) และ 35 AP (Action Point) ทำให้ได้เปรียบด้านความแข็งแกร่งและความอยู่รอด ตัวละครนี้ชอบช่วยเหลือผู้อื่น สมาชิกในทีมมักจะขอความช่วยเหลือให้แพทย์ใช้พลังในการ ‘รักษา’ และ ‘ฟื้นคืนชีพ’ ในระหว่างเล่นเกม ‘พลังฟื้นคืนชีพ’ เป็นพลังที่สำคัญที่สุดของแพทย์ เพราะสามารถช่วยผู้เล่นคนอื่นที่สูญสิ้นพลังในการต่อสู้ และป้องกัน

ความเสียหายให้กับสมาชิกในทีมที่เหลืออยู่ ทั้งยังมีพลังในการถามเฉลยจากอาจารย์อีกด้วย

ตารางที่ 6 พลังของแพทย์

Power	Tier	AP	Description	Requires
Heal 1	1	15	A teammate gains 10 HP.	
Sainthood	1	5	The healer can take a nap during the class for 5 mins.	
Ardent Faith	1	10	During an exam, the healer can ask the Gamemaster if their answer to a question is correct.	
Heal 2	2	20	A teammate gains 20 HP.	Heal 1
Favor of the Gods	2	20	The healer can listen a song during classwork.	Sainthood
Revive	2	25	When a teammate (not including the healer) falls to 0 HP, they avoid all penalties and comes back to life with 1 HP.	Ardent Faith
Heal 3	3	20	A teammate gains 30 HP.	Heal 2
Healing Circle	3	30	All team members, other than the healer gain 15 HP.	Heal 2
Prayer	3	30	During an exam, the healer has access to their notes.	Revive Favor of Gods

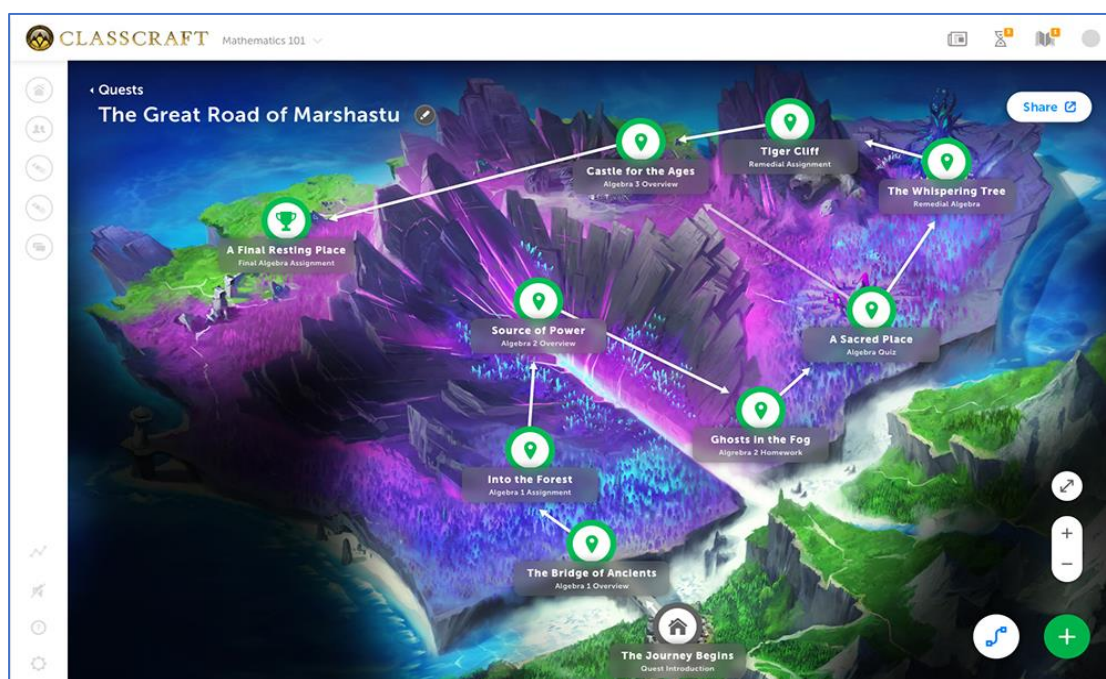
PLAYING IN A TEAM

Setting up your team

เมื่อผู้เล่นเลือกตัวละคร ออกแบบตัวละคร และอยู่ในทีมเรียบร้อยแล้ว ขั้นตอนต่อไป คือ การลงมือเล่น ผู้เล่นจะได้เรียนในห้องเรียน และเล่นเกม Classcraft ไปพร้อม ๆ กัน โดยจะได้ทำ กิจกรรมและงานต่าง ๆ ตามที่ผู้สอน หรือ Game Master (GM) มอบหมายให้ปฏิบัติผ่านการทำ ภารกิจ (Missions) หรืองาน (Tasks / Assignments) ในการสำรวจ (Quests)

Quests

ผู้เล่นจะได้สำรวจด่านต่าง ๆ ของเกม Classcraft และปฏิบัติภารกิจในแต่ละด่านให้ สำเร็จลุล่วง เพื่อแลกกับการได้รับคะแนนประสบการณ์ (XP) คะแนนสุขภาพ (HP) และคะแนน ปฏิบัติการ (AP) จาก Game Master (GM) เมื่อคะแนนของผู้เล่นและทีมมากพอตามที่ Game Master (GM) กำหนดในแต่ละด่าน ผู้เล่นและสมาชิกในทีมก็จะสามารถผ่านด่านนั้นได้ และสามารถเล่นเกมในด่านต่อ ๆ ไปได้ และท้ายที่สุด เมื่อผู้เล่นได้เล่นเกมผ่านจนครบทุกด่านแล้ว ก็จะเป็นผู้ที่ทำภารกิจทั้งหมดสำเร็จ และจะได้รับรางวัลจาก Game Master (GM)



Random Events

เหตุการณ์สุ่มเป็นวิธีที่ดีในการเริ่มต้นชั้นเรียน ผู้สอนจะชักชวนให้ผู้เรียนสุ่มเหตุการณ์เพื่อเล่นหรือปฏิบัติตามคำสั่งนั้น ๆ เป็นกิจกรรมที่ทำให้เกมมีความสนุกสนานมากขึ้น มีเหตุการณ์ที่ดีและไม่ดีจำนวนเท่ากัน และทุกคนมีสิทธิ์เท่าเทียมกันที่จะเข้าถึงทุกเหตุการณ์ แม้แต่ Game Master (GM) ก็เช่นเดียวกัน บางเหตุการณ์ก็ดี เช่น “การรักษา” โดยให้ผู้เล่นแต่ละคน 5 HP แต่บางเหตุการณ์ก็ไม่ดี เช่น “อ่อนแอ” ที่ทุกคนถูกหัก HP เป็นสองเท่า มีบางเหตุการณ์ที่สามารถเกิดขึ้นได้นอกห้องเรียน เช่น “ความกระหายในการรักษา” ทำให้แพทย์สามารถออกจากห้องเรียนเพื่อไปเติมน้ำและทานขนมได้ เหตุการณ์บางอย่างเป็นเรื่องตลก เช่น “Chant of the Master” ซึ่งเป็นการบังคับให้ Game Master (GM) ร้องเพลงที่เลือกโดยผู้เล่นที่มี XP น้อยที่สุด

Establishing Strategic Roles

การเป็นส่วนหนึ่งของทีมเป็นสิ่งที่หนึ่งของการอยู่ดำรงชีวิตอยู่ในเกมหรือการอยู่รอดนั่นเอง เพื่อให้ได้รับประโยชน์สูงสุดจากเกม ทีมจำเป็นต้องสร้างกลยุทธ์ตั้งแต่เริ่มต้น เมื่อผู้เล่นเลือกตัวละครแล้ว จะต้องกำหนดบทบาทที่จะเล่นในทีมของตนด้วย บทบาทถูกกำหนดโดยอำนาจที่ผู้เล่นสามารถใช้ได้ รวมถึงการมีส่วนร่วมของทีมของผู้เล่นด้วย ตัวละครแต่ละตัวมีสองบทบาทให้เลือก หากผู้เล่นทำได้ดีในเกม จะได้รับอำนาจเพียงพอในการเล่นทั้งสองบทบาท แต่ในตอนต้นของเกม ผู้เล่นสามารถเลือกได้เพียงหนึ่งอย่างเท่านั้น สองบทบาทที่แนะนำแต่ละตัวละครที่สามารถเลือกได้ ได้แก่

Mage

Mana Provider	Uses Mana powers to help the team's AP
Power Mage	Uses powers that help the team gain special bonuses

Warrior

Protector	Uses powers that offer protection from damage
Tactician	Uses offensive powers that help the Warrior and their team

Healer

Healer	Uses healing powers
Reviver	Uses the 'Revive' power

Choose your first collaborative power

ตอนนี้ผู้เล่นได้เลือกตัวละครและบทบาทของคุณแล้ว ได้เวลาเลือกพลังแรกของคุณแล้ว !! การเลือกพลังในการทำงานร่วมกันเป็นสิ่งที่ดีในการเริ่มต้นเล่นเกม พลังที่ช่วยผู้อื่นในทีม จะช่วยให้สามารถเอาชนะชีวิตรอดได้ง่ายขึ้น คุณจะได้รับ XP เมื่อคุณใช้พลังการทำงานร่วมกัน ซึ่งการรับ XP มากขึ้น จะช่วยให้คุณปลดล็อกพลัง (Powers) ได้เร็วขึ้น ดังนั้น ควรพิจารณาจากสิ่งเหล่านี้ ในขณะที่เลือกพลังงานแรกของคุณ และควรศึกษาเส้นทางของแผนภูมิพลังงานอย่างรอบคอบ

Select a team captain (optional)

เมื่อสมาชิกในทีมตกอยู่ในภาวะที่ต้องต่อสู้ หรือสูญเสีย HP ไป โดยปกติแล้วทีมจะต้องรวมตัวกันเพื่อพูดคุยถึงพลังที่จะใช้ในการแก้ไขปัญหา บางครั้งความสามารถปะทะกัน และอาจเป็นเรื่องยากที่จะคิดหาวิธีดำเนินการที่เหมาะสมได้ **กัปตันทีม** มีประโยชน์อย่างมากในสถานการณ์เหล่านี้ เนื่องจากเขาจะเป็นผู้ชี้ขาดว่า ทีมควรดำเนินการอย่างไรต่อไป เป็นตัวพยุ่งให้ทีมก้าวไปข้างหน้าอย่างรวดเร็ว กัปตันทีมควรเป็นคนที่เข้าใจกฎและกลไกของเกมดีที่สุด ซึ่งจะทำให้การตัดสินใจของพวกเขาเป็นประโยชน์มากที่สุด มีประสิทธิภาพสูงสุดในช่วงวิกฤต **ทั้งนี้** ในการเล่นเกม อาจไม่ต้องมีกัปตันทีมเสมอไป ขึ้นอยู่กับความเหมาะสมและความต้องการของทีม

ขอแนะนำให้สร้างสมดุลให้กับทีมของคุณด้วยการทำให้บทบาททั้งหมดเป็นไปได้นั้น หากคุณมีแพทย์สองคนในทีมของคุณ ให้หนึ่งในนั้นเป็นผู้รักษาและให้เขา/เธอได้รับพลัง “รักษา” จากนั้นให้ผู้รักษา รักษาคนอื่น ๆ เพื่อที่เขา / เธอจะได้รับ “Revive” กลับคืนโดยเร็วที่สุด

DEALING WITH DAMAGE AND FALLING IN BATTLE

Dealing with damage

การสูญเสียพลังหรือความเสียหายต่าง ๆ ของตัวละครและทีมเป็นส่วนหนึ่งของเกม ในบางครั้งผู้เล่นอาจเข้าขั้นเรียนสาย หรือไม่สามารถจัดการงานที่ได้รับมอบหมายให้เสร็จภายในเวลาที่กำหนด สิ่งสำคัญ คือ การเรียนรู้วิธีการทำงานร่วมกันเป็นทีม เพื่อจัดการความเสียหายนั้น ๆ วิธีที่ผู้เล่นสามารถจัดการกับความเสียหายในฐานะทีมได้ มีดังนี้

- 1) แพทย์สามารถใช้ “Healer 1, 2, 3” ได้ หากเพื่อนร่วมทีมสูญเสีย HP พวกเขาสามารถใช้ “Revive” เพื่อให้แน่ใจว่าผู้เล่นจะไม่ตกลูกเต๋าในการต่อสู้
- 2) นักรบสามารถใช้ “Protect 1, 2, 3” ได้ เพื่อช่วยเหลือผู้อื่น
- 3) นักบุญสามารถใช้ “Mana Shield” ด้วยตัวเอง เพื่อหลีกเลี่ยงความเสียหาย

Falling in battle

เมื่อผู้เล่นสูญเสีย HP จนหมด พวกเขาจะตกอยู่ในสถานะที่ต้องต่อสู้ โดยจะต้องหมุนลูกเต๋าสลบ เพื่อที่จะสามารถกลับเข้ามาในเกม ลูกเต๋าสลบมี 6 ประโยค ได้แก่

- + Banquet of Solitude
- + Chair of Despair for a week
- + Chair of Despair for a day
- + Don't fear the Reaper (Your choice of Behavior pass or -10AP)
- + Nothing! You got lucky...this time.
- + Complete a REP Reflection

หากเพื่อนร่วมทีมมีพลังที่เหมาะสมและเพียงพอและเลือกที่จะใช้ เขา/เธอสามารถช่วยเหลือผู้เล่นคนอื่นที่สูญเสีย HP ทั้งหมดได้ ถ้าไม่มีใครช่วยเหลือผู้เล่นที่หมดพลัง ผู้เล่นจะต้องทอยลูกเต๋าสลบ แล้วจัดการกับสิ่งที่เขียนไว้ เมื่อจัดการเสร็จแล้ว ผู้เล่นก็จะสามารถกลับเข้ามาในเกมได้ แต่จะได้รับคะแนนสุขภาพเริ่มต้นเพียง 10 HP เท่านั้น

นอกจากนี้ เพื่อนร่วมทีมของเขา/เธอทุกคนสามารถเสีย 10 HP ได้ เพื่อช่วยเหลือเขา/เธอที่ตกอยู่ในสนามรบได้ หากหนึ่งในนั้นตกลูกเต๋าสลบ เนื่องจากกลไกการลงโทษนี้ส่วนที่เหลือสมาชิกในทีมจะต้องเสีย 10 HP เพิ่มขึ้นอีก! แต่จงระวังว่า ผู้เล่นคนเดียวกันไม่สามารถล้มลงสองครั้งในเหตุการณ์เดิม

CUSTOMIZING YOUR CHARACTER: BUYING EQUIPMENT, AND TRAINING PETS

Customizing your character

ผู้เล่นสามารถปรับแต่งตัวละครใน Classcraft ได้ด้วยการซื้ออุปกรณ์ เมื่อคุณผ่านระดับ (Level up) ผู้เล่นจะสามารถเข้าถึงชุดใหม่ได้ และสามารถเลือกรูปลักษณะใหม่ได้ ดังนี้

	Superior	Heroic	Ultimate	Legendary
Accessible at levels	1 +	5 +	10 +	15 +
Number of sets	3	5	3	2
Items per set	6	6	6	6
Cost in coins for each item	50	100	150	200

ผู้เล่นสามารถผสมและจับคู่ชิ้นส่วนจากชุดที่แตกต่างกันเพื่อสร้างรูปลักษณะที่เป็นเอกลักษณ์ โดยให้ไปที่อุปกรณ์เพื่อปรับแต่งรูปลักษณะของตนเอง

Unlocking, training, and equipping pets

หากผู้เล่นได้รับอุปกรณ์ครบชุด จะสามารถปลดล๊อคสัตว์เลี้ยงได้ อุปกรณ์แต่ละชุดมีสัตว์เลี้ยงที่เข้ากันได้ เมื่อปลดล๊อคแล้ว ผู้เล่นสามารถไปที่หมวดสัตว์เลี้ยง และเริ่มการฝึกได้ ทุกครั้งที่ส่งสัตว์เลี้ยงไปทำภารกิจการฝึกอบรม ผู้เล่นจะได้รับเหรียญ (Coins) เมื่อสัตว์เลี้ยงได้รับการฝึกฝนอย่างเต็มที่แล้ว ผู้เล่นจะได้รับโบนัสเหรียญขนาดใหญ่ มีมูลค่าเพียงพอที่จะซื้อสิ่งที่ต้องการได้

เหรียญ มีอยู่ในเวอร์ชันฟรีเมียมและฟรีเมียมเท่านั้น นำมาใช้เพื่อซื้ออุปกรณ์ที่ผู้เล่นสามารถสวมใส่เพื่อปรับแต่งตัวละครให้ดูดียิ่งขึ้น ผู้เล่นสามารถรับเหรียญได้ 3 วิธี ในเวอร์ชันฟรีเมียม ดังนี้

- 1) ผ่านระดับ (Level up)
- 2) ฝึกสัตว์เลี้ยงได้
- 3) ซื้อผ่าน iTunes

TIPS AND TRICKS

เลือก “พลังความร่วมมือ” เป็นพลังอันดับแรก

หากเพื่อนร่วมทีมส่วนใหญ่หรือทั้งหมดเริ่มเกมด้วยพลังความร่วมมือ พวกเขาจะได้เปรียบ เพราะพวกเขาจะมีความพร้อมที่ดีกว่า เพื่อหลีกเลี่ยงการสูญเสียพลังในการต่อสู้ นอกจากนี้ การใช้พลังความร่วมมือยังช่วยให้ตนเองสามารถรับ XP ได้ ซึ่งทำให้รับพลังใหม่ได้เร็วขึ้น ทีมที่เริ่มเกมด้วยพลังความร่วมมือจะอยู่รอดได้นานกว่าทีมที่ไม่ได้ทำ

อย่าประมาท Mage เมื่อเลือกตัวละคร

นักเวทย์อาจดูเหมือนตัวละครที่มีความเสี่ยงที่จะเล่นเพราะมี HP ต่ำสุด อย่างไรก็ตาม Mage มีการเข้าถึงพลังที่แข็งแกร่งที่สุดในเกม ดังนั้น Mage จะเป็นสินทรัพย์สำหรับทีมใด ๆ ที่ทำงานร่วมกัน เพื่อปกป้องสมาชิก และได้รับประโยชน์จากพลังของพวกเขา

ตรวจสอบ HP ของคุณ

หากผู้เล่นมี HP เพียงเล็กน้อย ให้หลีกเลี่ยงการทำอะไรที่อาจทำให้คุณสูญเสียไป ผู้เล่นยังสามารถขอรับการรักษา เพื่อช่วยให้สามารถหลีกเลี่ยงภาวะการต่อสู้ได้

ตรวจสอบ AP ของคุณ

ถ้าผู้เล่นมี AP มากพอสมควร ควรใช้พลังอย่างน้อย 1 อย่าง มิฉะนั้น จะไม่สามารถรับได้ ข้อได้เปรียบของการเพิ่ม AP คือ Game Master สามารถเพิ่มให้คุณทุกวันหลังเที่ยงคืน

ใช้พลัง “ป้องกัน” ของนักรบ

ผู้เล่นหลายคนคิดว่าพลังป้องกันนั้นไม่ได้มีประโยชน์เท่าพลังการรักษา ซึ่งไม่เป็นความจริงเสมอไป เพราะพลังนี้จะช่วยให้คุณสามารถป้องกันผู้เล่นไม่ให้ตกอยู่ในภาวะการต่อสู้ หรืออาจไม่มีพลังพอที่จะรักษาได้ นอกจากนี้ การใช้ “พลังปกป้อง/พลังป้องกัน” หมายถึง ทำให้เกิดความเสียหายน้อยลง ซึ่งเป็นสิ่งที่ยากต่อการทำให้สมาชิกในทีมยังมีชีวิตอยู่

แพทย์ควรรักษาผู้อื่นบ่อยที่สุด เท่าที่จะทำได้

แม้ว่าพลังการรักษาจะสามารถใช้กับตัวรักษาด้วยตนเองได้ แต่ผู้เล่นเหล่านี้จะได้รับ XP เมื่อใช้ พลังในการรักษาเพื่อนร่วมทีมคนหนึ่งของพวกเขาเท่านั้น หากมีแพทย์สองคนในทีมกลยุทธ์ที่ดีที่สุด คือการรักษาซึ่งกันและกัน เพื่อให้แพทย์ได้รับ XP และคืนค่า HP ของกันและกันได้

ใช้ “Mana Shield” ของ Mage ในสถานการณ์ที่สำคัญ

“Mana Shield” จะช่วยให้ผู้รักษาและนักรบ สามารถทำงานได้อย่างมีประสิทธิภาพ แต่อย่าใช้พลังมากเกินไป นอกจากนี้ ทีมอาจขอให้สมาชิกใช้พลังความร่วมมือ เช่น “Mana Transfer” ได้

ก่อนที่จะใช้ “Mana Transfer” ให้ประเมินสถานการณ์

ผู้เล่นต้องตรวจสอบให้แน่ใจว่ามีผู้เล่นที่มี AP อยู่ในระดับสูงสุดหรือไม่ หากทีมนั้นมี ก็จะสามารถใช้พลังความร่วมมือ เพื่อให้สมาชิกในทีมได้รับประโยชน์สูงสุดจาก “Mana Transfer” ได้

หากสามารถช่วยทีมเพื่อหลีกเลี่ยงความเสียหายให้ตรวจสอบ AP ของตนเองก่อน

พลังดูดซับความเสียหายต้องใช้ AP จำนวนมาก หากผู้เล่นจะต้องสอบ ผู้เล่นจะต้องสำรองพลังป้องกันไว้ให้ได้มากที่สุด เพราะจะส่งผลต่อการสำรอง AP เอาไว้

FREEMIUM VERSION

รุ่น Freemium ผู้เล่นจะสามารถใช้เงินจริง เพื่อซื้อเหรียญได้ ดังนั้น การซื้อเหรียญจะไม่ทำให้ผู้เล่นเข้าถึงอุปกรณ์ระดับสูงขึ้น หากผู้เล่นไม่ได้ไปถึงระดับที่เหมาะสม มันจะช่วยให้ผู้เล่นสามารถซื้อชุดอุปกรณ์เพิ่มเติมภายในระดับที่ผู้เล่นอยู่ ซึ่งหมายความว่า จะสามารถปรับตัวละครให้สวยงามมากขึ้นและปลดล๊อคสัตว์เลี้ยงได้มากขึ้น

... The End ...



Classcraft



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