THE IMPACT OF ADDING ONLINE GAMIFICATION IN TEACHING ENGLISH WORDS RECOGNITION AMONG PRESCHOOLERS

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A project report submitted in partial fulfilment of the
requirements for the award of the degree of
Master of Education (Educational Psychology)

SCHOOL OF EDUCATION

FACULTY OF SOCIAL SCIENCES AND HUMANITIES

UNIVERSITI TEKNOLOGI MALAYSIA

AUGUST 2021

DEDICATION

This project report is dedicated to my father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time.

ACKNOWLEDGEMENT

ABSTRACT

The purpose of this research is to study the impact of adding online gamification in teaching English Words Recognition among preschoolers. There is knowledge gap between mentioned field, which implicates the teaching pedagogy between traditional method and new challenging method. The study involved 30 participants at two preschools which located at Kluang. The participants were 12 participants from SJKC Chin Chiang and others from SJKC Paloh. The participants were carrying out the pre-test before distributed into controlled group and experimental group. The controlled group was taught by object-play method but experimental group were taught by Online Gamification method on top of object-play. The application of Wordwall.net was used in Online Gamification method. The experiment was carried out during session of *Aktiviti Pembelajaran (AP)*. The post-test scores were collected after two weeks. The collected data was then analyzed thoroughly by inferential statistics (Independent Sample t-test and Paired Sample T-test). Overall, the findings show there was improvement of English Words Recognition after using online gamification. However, there was no significant difference between pre-test and post-test in controlled group while there was significant difference between pre-test and post-test in experimental group. The reason had discussed in Chapter 5.

ABSTRAK

Matlamat kajian ini adalah untuk mengkaji kesan menggunakan pedagogi *Online Gamification* dalam mengajar pengecaman perkaatan Inggeris dalam kalangan murid prasekolah. Terdapat jurang pengetahuan antara pedagogi pengajaran yang tradisional dan moden. Kajian ini melibatkan 30 peserta yang berasal dari dua prasekolah di daerah Kluang. 12 orang murid prasekolah adalah dari SJKC Chin Chiang maka 18 orang murid prasekolah adalah dari SJKC Paloh. Peserta-peserta telah menjalankan Ujian Pra sebelum diagihkan ke kumpulan kawalan atau kumpulan eksperimen. Kumpulan kawalan menjalankan eksperimen ini dengan cara belajar melalui objek manakala kumpulan eksperimen menjalankan kajian ini dengan cara belajar melalui *Online Gamification* di atas permainan objek. Laman web yang digunakan untuk kumpulan eksperimen ialah Wordwall.net yang mengandungi pelbagai permainan dalam talian yang dapat merangsang minda murid. Kajian ini dijalankan pada sesi Aktiviti Pembelajaran (AP). Markah Ujian Pos dikutip selepas dua minggu. Data-data telah dianalisis melalui statistik inferensi (Independent Sample t-test dan Paired Sample T-test). Secara keseluruhannya didapati bahawa kajian menunjukkan kemajuan dan peningkatan murid dalam pengecaman perkataan Inggeris. Tiada perbezaan yang ketara antara ujian pra dan ujian pos dalam kalangan kumpulan kawalan tetapi mendapat perbezaan yang ketara dalam kalangan kumpulan eksperimen. Perbincangan telah dilaksanakan dalam Bab 5.

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INTRODUCTION

1.1 Introduction

Preschools for children aged 4 to 6 are included in program Early childhood care and education (ECCE) in Malaysia which are under three ministries, such as the Ministry of Education; the Ministry of Rural and Regional Development; and the Department of National Unity. Referring to sources Study Malaysia (2010), the Ministry of Education (MOE) started setting up preschools as an annex to existing primary schools through a pilot project in year 1992. There are about 5905 of such preschools in Malaysia now.

Preschool age is critical for kid's development especially for cognitive and thinking which lead to high thinking skills in future. According to McClure (2020), all children between ages 4 until ages 6 are suggested to enter preschool to improve their social skills, cognitive skills, self-confidence, academics, emotional skill, school readiness and so on. Children's skills are nurtured in a "resources-rich" environment which can cooperate and interact with teachers, peers, and variety of learning materials.

According to organization of UNESCO (United Nations Educational, Scientific and Cultural Organization), which stated the importance of early childhood education: "Early childhood care and education (ECCE) is more than preparation for primary school. It aims at the holistic development of a child's social, emotional, cognitive and physical needs in order to build a solid and broad foundation for lifelong learning and wellbeing. ECCE has the possibility to nurture caring, capable and responsible future citizens." (UNESCO, 2019)

In document *Kurikulum Standard Prasekolah Kebangsaan (KSPK)* 2017, children have to acquire the knowledge of reading. The content standard for reading is BI 2.3

Demonstrate understanding of a variety texts in the form of print and non-print materials, and the learning standard which is BI 2.3.3 Recognize and read high frequency words. Hence, children have to master the technique of words recognition at preschool level as a preparation of entering Standard 1.

Reading skills in early childhood stage is crucial as it supporting communication skills and create a language-rich environment. (Quantrell, 2020) Children in preschool level start learning word pronunciation, recognition, and its structure. In addition, words recognition is an important part of language learning as it related to other skills' development such as phrase, sentences, grammar, vocabulary, speaking and writing in personal's life.

In the early days, teaching and learning were more formal and traditional such as chalk and talk or reading textbook. The teaching technique has no longer fulfill kids in century 21. Due to the rapid growth in technology today, kid's way of learning has changed, more to technology. As common, kids master in using technology such as TV, handphone, online application and so on. Learning and teaching materials has shifted from the blackboard to more sophisticated gadgets that supports teaching and learning at any level of learning, starting from preschool to the higher learning. (Ismail, 2015)

The reformation in the educational field moves towards the Industrial Revolution 4.0, whereby 21st-century learning is proposed to achieve the aim of the National Philosophy of Malaysian Education (NPME), which is to produce a holistic individual through education (Ministry of Education Malaysia, 2013) A play-based approach, which cultivates the social, physical, psychological, mental and spiritual development of a child, is an ideal example of a holistic education system. (Ling, 2018) Children are taught and trained in decision-making in certain time which will refuse their decidophobia in future. Children who exposed to play will have a better development in language, memory skills, decision making and more.

In an addition, play-based learning is important to children in variety aspect such as physical, social, emotional and intellectual areas of development. (Arin, 2020) Play will be a voluntary type of lesson by kids, and it is intrinsically motivating by not depend

on any external rewards. (Akhtar, 2018) A play-based curriculum has a positive influence on the acquisition of grammar which able to activates the brain in meaningful ways that rote memorization, testing and so on. (McGinn A, 2017) "When you are engaging in play, which in and of itself is a symbolic metaphor in its truest form, whole parts of your brain are engaged, developing crucial connections that lead to positive development of the child," says Clair Mellenthin (2013).

In technology generation, a new learning technique was exposed which is online-gamification learning. The online-gamification is the application of game mechanics in a non-game context to promoted desired behavior and drive learning outcomes with points, badges, leaderboards and incentives (Findlay, 2016). For example, online-gamification application such as Kahoot, *Wordwall*, Quizzes and so on are designed for teaching and learning. The online-gamification brings effect on kid's language learning, especially in words memory. The memory capacity of them will become larger as their brain have to keep adsorb the new words, new strategy play, new pattern, new sources in gamification.

Due to the new existing pedagogy in education which oppose to traditional pedagogy such as "chalk and talk" and "object play", the research is needed to do to identify the efficiency of new pedagogy. Hence, this research investigates the impact of embedding online gamification into the pedagogy of teaching word recognition among preschoolers (Priyankara, 2013) .

1.2 Background of the study

In Malaysia, the government's realization of the importance of early literacy instruction and intervention is clearly demonstrated in National Key Performance Indicator (NKPI) whereby children acquire basic literacy skills after 3 years of mainstream primary education. It also means that word recognition skill is important and crucial in preschool level because it is a fundamental skill to begin their reading and understanding. Without it, children struggle learning letter sounds and phonics. According to National Preschool Curriculum Standard (NPCS) 2017, there are six early literacy skills to be acquired to become successful readers. For example, vocabulary,

motivation, awareness, narrative skills, letter knowledge and phonological awareness. Word recognition is under the category of vocabulary skill.

Word recognition according to LINCS is "the ability of a reader to recognize written words properly and virtually effortlessly" (Mcpherson, 2015) . Besides, word recognition refers to the presumed mental storage, retrieval, and use of a person's sight words (Osborn, 2019). Without word recognition, every word would have to be decoded through phonics every time it was read. For example, if student sees a b-i-r-d word, he can definitely know it means a bird without any phonics clues. It involves a reader's ability to recognize words without help. Thus, word recognition is a self-promoting cycle which are the bigger the sight word vocabulary, the more words to be read; the bigger the vocabulary storage, the more fluent in reading. Word recognition is also imperative in order to develop children's vocabulary store and thus enabling them to use words confidently.

Early education for preschoolers is important as it has been entrenching in the second target of Sustainable Development Goal 4 in global, which seeks to ensure that all girls and boys have access to quality early childhood development, care and pre-primary education in year 2030, as a step of preparation for primary education (UNICEF, 2018) . One of the great challenges in early education planning is the teaching method that actually will engage all type of students in learning. If the programming and the technique used are inappropriate to meet children's needs and interests, therefore, it will hinder the development of children.

There are a lot of technique to improve word recognition, such as context clues, semantic clues, picture clues and meaning clues. With play-based learning, it can be practice in two ways. The first is by materials which are flashcards, word grids, puzzle or picture. The second is by technology such as game, video, slides, online gamification and so on. A key element to consider is "learning through play" which is central to quality early childhood pedagogy and education and able to meet student's needs (UNICEF, 2018) .

The nature of children is play. In play, children expand their understanding of themselves and others, their cognitive and physical development and also social and emotional skills. In theory Piaget (1962), he described variety of play in different phase of children's life which helps a lot in child's development. Spontaneous, open-ended, natural setting offer unrivaled opportunities for preschoolers to classify, observe, explore and interpret the surrounding (Wallin, 2017). Play is actively engaging and motivation intrinsic. It gives children a chance to control over the play experience such as decision-making and self-choice in play. According to McGinn (2017), the play-based learning able to produce happy and intelligent children who grew in their literacy and social skills too.

In line with the transformation of preschool education curriculum, which now focuses on student-centered curriculum, Malaysia Ministry of Education (MOE) has established a curriculum, known as National Preschool Standard Curriculum (KSPK) which emphasizes in Developmentally Appropriate practice. This focus is learning through variety of plays which match with students' needs. There are few existing play methods until year 2020 such as puppet play, clay play, sand play, water play, object play, simulation and role play, big book storytelling and so on. All these play methods have been used until now in every lesson. Preschool teachers have to embed and engage play method associate to the lesson. For example, in teaching subject mathematic, teacher may use role play and puppet play in learning money concept or addition concept. In subject literature and language, teacher may engage with storytelling and simulation methods.

Play has become a new core curriculum that teachers use to prepare their students for the changing 21st century. Within the learning through play, students able to work with new technologies, explore new learning materials and so on. Children today will spend over half day on screen time. Not only are youth using the internet, but only the preschoolers become familiar with digital devices before they are exposed to books. According to Malaysia Communication and Multimedia Commission (2018), the survey found that nine of ten children aged 5-17 years old were using internet, 91.8% of them using internet through smartphone. Somehow, some of them are mastered than adult in using technology such as tablet or laptop. Children's access time spent on mobile is

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higher and continues to grow than in previous years (Ariel, 2017) . Traditional screen time such as television has decreased drastically but mobile screen time such as handphone or tablet has grown rapidly.

Kids nowadays are more preferring mobile phone and tablet than traditional object play. The technology actually helps in development if use wisely. For example, technology improve cognitive skills which are problem-solving, quick mind, higher order thinking and much more. (Ryan, 2018) Children's brain is still developing so they will absorb new skill quickly. Their brain may adopt an internet approach to thinking which is quickly scanning and processing multiple sources of information in same time. (Florina, 2020) Besides, technology wider the creativity and imagination which could help in visual-spatial skills. For instance, technology manages to help children turn their thoughts into reality or 3D animation instead on only using crayons or colored markers on their drawing board. Technology could be an amazing channel for children which help them to improve their cognitive development.

In urban area, teaching and learning with technology is a normal phenomenon with controlled time and schedule. Years ago, teacher use computer and projector to teach as a first footage of e-learning. Student's job was just sitting and listening while watch on the video tape shown on television or LCD. But now, with tablet or mobile phone, every student gains a chance to learn with technology help. For example, instead of reading and watching how the pyramids were built, kids now can step into a virtual reality and experience what it like to be present when the structures were erected. (Ryan, 2018)

Now, the learning through technology has improved such as videogame, videocall, screen sharing and online gamification. Online gamification improves higher order thinking among preschoolers. (Florina, 2020) Besides, it helps to develop intrinsic motivation as online gamification consists of variety learning and playing ways which are much more different with traditional play-based learning in classroom setting. The term of gamification is the act of using game elements to make non-games more enjoyable, such as teaching and learning. (Deese, 2020)

The gamification which are easy to access by children is *WordWall.net*. It is one of the most popular online gamifications in learning process. Besides, *WordWall.net* is an instrument in assessing student's learning outcomes. (Warsihna, 2019) As a teacher, it helps us to assess the student's achievement such as their strength and weakness. As a student, it motivates them to study and pay attention on lesson. Besides, it improves school engagement, intrinsic motivation, student achievement, and so on. For example, it improves students' attention in understanding material actively and openly. In addition, *WordWall.net* helps in developing critical thinking skills and decision-making as they have to choose the correct answer within specific time and limited choices. (Prakoso,2019)

The online gamification- *WordWall.net* ,is taking gamification to the next level by offering a variety of mini-games. It can be used to create both interactive and printable activities (Drom, 2019). For example, it can be played on any web-enabled device such as computer, tablet, phone or interactive whiteboard. The outstanding characteristic of *WordWall.net* is it does not require any password or fees. The *WordWall.net* online-gamification application is useful and full of advantages. For example, it contains background music and different colour background when students are doing the online quiz. It creates a competition and nervous atmosphere which could encourage and motivate students to carry on.

Besides, the *WordWall.net* is user friendly, teachers can create own question without any monthly fees or extra changes. For parents and preschoolers, they do not need keywords or downloading any app to enter the room and play the quiz game. All they need is just to click in the link which given by teacher, and then they will straight enter the room to play. Student's score will show up on the scoreboard in order to evaluate student's achievement and also their improvement. They are total 16 mini-games in *WordWall.net* which manage to bring excitement and desire to students on every time they play the word's game (Drom, 2019). For example, *WordWall.net* has a mini-game called balloon pop, students have to pop the balloon which consist the picture that match with the English word. This kind of game able to stimulate student's brain such as critical thinking or improving their memory capacity. Furthermore, the backgrounds, sounds,

various type of games and colors are especially designed to maintain the attention of kids. Besides, the online gamification such as *WordWall.net* consists a lot of different type of games which improve the engagement of kids. Students benefit greatly from their play experiences through various type of learning method.

The online gamification is much more useable as it can use in anywhere or anytime of compare with object play. Besides, it contains of basic points and badges method which encourage students to play and make the game more challenging. (Ferriman, 2020) On contrasty, object play need to take some time to create or to find a suitable material for kids. It takes time and money. There are variety of play such as construction play, pretend play, sand play, water play and play with toys. This kind of play do help in preschool's learning but it consists of limited word and play pattern. Children easy to get boring if they play the same things repeatedly.

Object play is a common pedagogy which had been used for years. It includes all skills needed such as kinesthetic, communication, cognitive, social and emotional skills. For example, puzzle is the popular game for learning. Kids learn the words and picture by collaging the pieces into picture. It requires their problem-solving skill, kinesthetic skill and spatial skill. According to Akhtar (2018), object play improves intrinsically motivation because it brings pleasure joy and happiness to preschoolers. Students benefit greatly from their play experience through the innate learning method, teachers have to monitor and manipulate different materials and scenarios to teach children certain curriculum goals.

Object play include a lot of forms such as actual objects, models, picture, sand, water, clay, robot, 2D or 3D objects and so on. These materials are integral component in any classroom especially for preschools. With actual objects, preschoolers manage to catch the idea and reinforcing a skill or concept. The teaching and learning environment will be in new and exciting way (Akhtar, 2018). It engages students' other senses such as touch, smell, sight, hear, and sense.

So, embedding online gamification and object play will promote the effectiveness of learning. Both have similar features and functions in strengthening motivation, adding

sense of excitement, triggering senses of fine motor, and strengthening the memory. The different between object play and online gamification are the stockpile of words and learning ways. For preschoolers, they need to consolidate and improve their words recognition as a preparation of entering primary school. Object play with limited words have hindering students to explore more words, so with the help of online gamification which consists thousands of words and picture for easy understanding and challenging. It will improve the words recognition of preschoolers.

Previous studies have shown the effectiveness of gamification in improving grammar and motivation. Still, when teachers incorporate technology in the classroom, such as power-point, videos, online games, students seem to show improvement. However, not every teacher use technology in teaching as some of them are placed in rural areas. Besides, most of the researchers had investigated the effectiveness of Kahoot game which is the one of the online gamifications. However, they have not explored the new online gamification- *Wordwall.net*. This new application consists much more mini-games and quiz which is more challenging than Kahoot.

In conclusion, preschool is important for each of the children around 4-6 years old as it is the first footstep in learning the world. They are many methods and pedagogy to teach and meet children's nature and needs. Children in preschool age tend to play and thus they will earn some knowledge from play. Play-based learning is one of the methods in early childhood educational to improve their cognitive skills such as word recognition. Play-based method had been used for years in teaching word recognition but the weaknesses are the limited of words storage. As children now are exposed in century 21st which is surrounded by mobile technology. So, the pedagogy method should have a change to keep up with technology world.

1.3 Problem Statement

In preschool context, sight word recognition continues to be a top priority when instructing emerging and beginning readers (Courtenay, 2014) . They are called "sight" words because the goal is for preschoolers to recognize these words instantly at first sight. Word recognition is important in early childhood education as it promote children's confidence. Children who mastered at least 100 sight words in preschool are managed to understand the text and its meaning. With this skill, children are easily to promote themselves to a higher level such as reading a sentence or even a paragraph. If children able to read a book and can already recognize the words, they are more confidence and motivation in learning.

The issue is not every word can be learned naturally by children. It is due to the different in phonetic conventions which hard to sound out by looking at phonic combination. Besides, some words are hard to illustrate by preschoolers with limited cognitive skills (Mcdonald, 2019). One of the problems in word recognition is not every word can be decoded using conventional strategies. For example, word v-u-l-t-u-r-e which shown in textbook preschool is hard to decode by looking on words, and hard to memorize its meaning. Some of the tougher words need to pair with picture or animation to strengthen the memory store.

Furthermore, the word recognition problem gets worse when English is a combination multiple languages from historic versions of French, Latin, Norse and German. The history of world led to the introduction of even more words from even more languages and country. Because of the "mixture" of languages in English, that why not every single English word can decode by phonic and make the learning more complicated.

Researcher found out that children are weak in word recognition even though they are immersed in play environment. Children is forgetful at this age as their memory span and capacity is lower than primary school students. Hence, there are a lot of strategies had been published to solve this problem such as Sight-Word Bingo, Sight Word Hide & Seek, Sight Word Memory and Meal Time Word Wall (Mcdonald, 2019). For example,

Sight-Word Hide&Seek is students have to find out the hidden sight words and read out. Mark will be given if students able to speak the word correctly and match with correct picture. This kind of activity is one of the play-based learning techniques.

Teachers play an important role in confronting with the word recognition issue by using play-based learning with variety of teaching and learning aids. Teaching aids are helping students to narrow the gap in word recognition skills. Teaching aids engage students' different aspect of skills and senses since there are no limits in what aids can be utilized when supplementing a lesson (Sudhakar, 2017). However, object play has its weakness too although it helps learners to improve word recognition. For example, teaching aids such as flashcards and puzzle consist a lot of pieces which have to keep in box and re-organize after used. It takes time and it needs manpower to tidy up. Some of the teaching aids is made from hard materials and in a big size which are hard to carry to anywhere. For instance, words' chart with sound is interesting but it is hard to carry around. When students want to revise on specific words, they have to go to the certain areas to read the words' chart. So, it is not user friendly at some points.

In addition, children's attention is another crucial key in word recognition issue. Children easy to get bored because of their short attention and concentration span. One of the most important keys to success in learning is having a well-developed concentration span. The noises outside, the boring teaching method, the unchanged learning method, the bleak of teaching aids are the reasons of short concentration span among preschoolers. During a school day, children need to concentrate repeatedly on different tasks. If the teaching and learning time do not bring any joyful or excitement, students easily to lose their interest and attention. The average concentration span for a preschooler is usually less than 15 minutes on one task (Mcilroy, 2020). If digital video tape too long, children will stare glancing around and play around without focus on study. So, it is hard to control children's concentration in every single day. They need various pattern of learning way to continue their excitement.

There are some games to fostering students' concentration such as board games which include Candy Land, Chutes &Ladders, UNO games and so on. Kids with poor attention spans may struggle to complete an entire board game as it needs longer time to

finish the game (Emily, 2017). When children face difficulties on games, they are easily to give up and lose their interest on it. Some of games need play in pairs and need cooperation between teamwork. It is exciting but problem happened too when children have dispute in team.

Children in young age has small capacity for memory. Memory researchers use three-store model to conceptualize human memory. This model suggests that memory consists of three basic stores which are sensory, short-term, long-term and that each of them can be distinguished based on storage capacity and duration (McLeod, 2017). The strategy to make memory long is chunking, which is assign information into small groups and makes it easier to remember more items (Charry, 2020). But for children, they are hard to handle these strategies to memorize hundreds of words, so they are easily to forget what they learn before.

According to Modal Model of Memory was proposed by Atkinson and Shiffrin (1968), most of the information kept in short-term memory will be stored for approximately 20 to 30 seconds (McLeod, 2017). Some of the information can last in short-term memory for up to a minute and some of the memory will store in long-term memory after rehearsal and repeated. But, the lesson in classroom was not strengthen after learned, so children easy to forget and hard to transfer to long-term memory. Less of strengthened activity after class such as games, worksheet, reading or other cognitive activities lead to this problem.

Rehearsal can help information make it into long-term memory. Long-term memory is unlimited capacity that last years (Charry, 2020). The strategies for retaining memory in preschool ages are important because children yet to master the skill memorize, chunking or highlighting, so teacher is crucial in this case to help children in expanding memory duration and capacity. The traditional strategies such as reading over times are not suitable for kids nowadays. They need a new and challenging strategies in critical thinking for them to retrieve and retain the lesson learnt.

Using video in lesson time will arouse excitement among students as they can watch the animation with background sounds. The advance of digital video makes the

lesson easier to understand for preschoolers. A carefully structured video can be a good starting point for initiating student critical thinking. For example, students like to watch video about riddles, which require them to focus on video and find out the crucial point to solve the riddles. So, it means that the development of digital world is more attracting than normal interact with materials.

Children in century 21ˢᵗ had exposed to digital society as they are being tend to technology and digital devices at a younger age. Video games, mobile phone and online gamification are now what's exciting to children. This is the reason why they are impatient and boring to lesson in school (Sudhakar, 2017) . Even when they are interacting with hands-on materials, they are easily to get bored and lose their patience. Students are seeking constant excitement and simply have no tolerance for boredom (Mcilroy, 2020) . So, teaching aids have to continue improving to ensure the quality of education in today's classroom while also providing students with the sense of excitement they desire. Century today is the age of science and technology such as online gamification is able to replace the old teaching aids.

In conclusion, the problem in this research is the weakness of word recognition in preschool ages and the suitable strategies in solving this critical case. Children's attention span and memory span are also an issue in this case which manipulate the success of learning. If children have low attention on lesson, they refuse to pay attention and absorb any lesson taught by teacher. In addition, the strategies in teaching and learning should be variety to adopt with student's needs. The traditional teaching pedagogy, object play, fail to meet student's excitement and motivation anymore. The new existing pedagogy, online gamification, is a new hope for solving children academic problem. So, this research is to investigate the suitable pedagogy in improving student's word recognition achievement.

1.4 Objective:

This study aims to identify the impact of adding online gamification in teaching words recognition among preschoolers. The specific objectives as below:

i.   To investigate the difference in performance of word recognition between experimental and control group in pre-test.

ii. To investigate the difference in performance of word recognition between experimental and control group in post-test.

iii. To investigate the difference in performance of word recognition in experimental group in pre-test and post-test.

iv. To investigate the difference in performance of word recognition in control group in pre-test and post-test.

1.5 Research Question:

i.   Is there significant difference in performance of word recognition between experimental and control group in pre-test.

ii. Is there significant difference in performance of word recognition between experimental and control group in post-test.

iii. Is there significant difference in performance of word recognition in experimental group in pre-test and post-test.

iv. Is there significant difference in performance of word recognition in control group in pre-test and post-test.

1.6 Hypothesis

H_{o1}: There is no significant difference in performance of word recognition between experimental and control group in pre-test.

H_{o2}: There is no significant difference in performance of word recognition between experimental and control group in post-test.

H_{o3}: There is no significant difference in performance of word recognition in experimental group in pre-test and post-test.

H_{o4}: There is no significant difference in performance of word recognition in control group in pre-test and post-test.

1.7 Significant of study

The findings of this study will bring benefit of society considering that the technology plays an important role in educational especially for early childhood education. The greater demand of teaching pedagogy in preschool setting justifies the need for more effective, life-changing teaching approaches which are able to meet students' needs. Thus, the society and the related department of education would apply the recommended approach derived from the results of this study which will be able to train students better. Administrators will be guided on what should be emphasized by teachers in preschool curriculum to improve students' performance in English's word recognition. For the researcher, this study will help them to uncover critical areas in early childhood educational process that haven't to be explore.

This study is to study the effectiveness of teaching and learning through online-gamification among preschoolers. It is important to study this online-gamification's issue as technology had occupied our life such as household, educational, economics, social and others. Besides, human in this world rely on the function of technology. So, the study is to figure out the use of online-learning in educational field especially in early childhood education. The results of the finding enable the related department to study and investigate the useful teaching method to improve our country's education. The main purpose of online-gamification is to combine learning with fun in order to increase the level of engagement in classroom (Lewis, 2017). The researcher found that the game-like atmosphere was favorable in the classroom and able to improve student's achievement and involvement.

Besides, this study is to analyze the impact of the gamified learning environment according to its design, application and other variables with the consequences of student's motivation, achievement, improvement and success of the participant on this online gamified environment. The greater beneficiary in online-gamification learning is students. A significant problem that many schools and educators are facing today, as Zikermann and Cunningham (2011) stated, is that many students are lacking the motivation and attention to learn in classroom setting. Many of students are sleepy and

yawning in class and rush to home after school for playing their mobile devices. They are rather to stay with mobile devices no matter playing games or watching video. So, if the gamified teaching pedagogy are successful implemented in classroom, students are more excited to learn in class and thus will improving their academic achievement. In preschool curriculum setting, children have to perform well in word recognition skill before entering primary school context. So, they will be the greater beneficiary in this new classroom setting.

Furthermore, the purpose of this research is giving a new concept to all educators, teachers, and school department about the rapidly growing in education. For example, by exploring the features in *WordWall.net,* teachers are able to create simple game by using the existing templates or even use other users' template. It is easier and time saver for all the educators as they do not need to arrange the template and think abstractly about whole process. These templates include familiar classics game like Crossword, Quiz, Right or Wrong and also the arcade style games like Maze Chase, Airplane, Balloon Pop, Whack-A-Mole and other unique game's template (Drom, 2019) . Besides, with new gamified teaching pedagogy, teachers are able to control class easily. For instance, in *WordWall.net* application, there is a classroom management tools such as Seating Plan, to allow teacher to randomly select a student, form teams or re-assign seats.

WordWall.net offers teachers a quick and easy way to extend and consolidate vocabulary with fun practice to improve their word recognition faster and easier. Teacher will get benefit too through reading out this research article. They will find out the unique of online gamification especially the *WordWall.net* which consists of thousand free samples to use. What teachers have to do is just search the keyword on "Community" timeline, to find the game which match to the lesson and change the game's template to own favorable type. It is useful to all educators and save their working time instead of creating their own template or make a hands-on paper game.

Little research has been done on the effect of gamification on motivation, engagement and achievement of the learners. There are various types of online-gamifications such as Quizzlet, Kahoot, *WordWall,* and so on. This research can be a literature review for future researchers to explore different type of online-gamification

and their consequences on educational which will give a big help in education development in our country.

1.8 Theoretical framework

Based on Atkinson and Shiffrin (1968), The Modal Model of Memory is a structural model which consists of three stores, such as sensory memory, short-term memory (STM) and long-term memory (LTM). All the received information passes from store to store in a linear way in human's brain had described as an information processing model with input, process and output (McLeod, 2017).

Figure 1.1 : The Modal Model of Memory
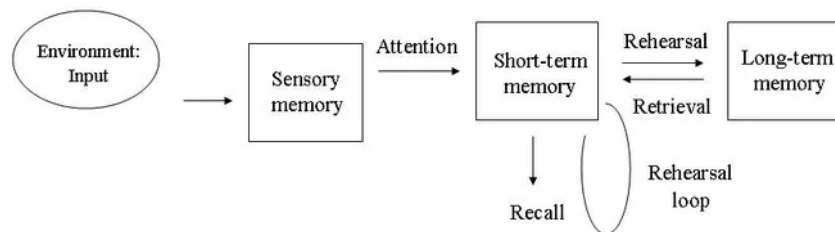
As general, all information is detected by sense organs and entering the sensory memory then passing through short term memory (McLeod, 2017). If the information is rehearsal and repeated, it will be transferred to the long-term memory. However, if the repetition does not occur, the information will be forgotten and lost from short-term memory. For example, if students didn't pay attention in class, the lesson will not transfer into short-term memory. Second, if students do not repeat and rehearsal the lesson learnt, they will forget the lesson and it will not transfer into long-term memory to store the lesson.

Each store in Modal Model of Memory has a unitary structure and its own characteristics in terms of encoding, capacity and duration. Encoding has three main ways which are visual for picture, acoustic for sound, and semantic for meaning (McLeod, 2017). These three methods help information can be stored in the memory. For capacity, it is about how much information can be store and duration is referring to the period of time information can last in memory stores.

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In addition, this research is related to The Level of Processing Model which was proposed by Craik & Lockhart (1972). It focuses on the depth of processing involved in memory which involves structural processing, phonemic processing, and semantic processing. All these processing are components of Shallow Processing in this theory. Structural processing occurred when we encode the physical qualities of words or objects. Furthermore, there are another memory processing called Deep Processing which involves elaboration rehearsal, consisting of image analysis, critical thinking and association of information (McLeod,2007). For example, when children see "boy" aligned with its pronunciation, children will be able to match with correct picture. With online gamification such as *Wordwall.net*, children able to use their thinking skills to rehearsal the lesson and transform into deep memory.

Children nature's is play. Through playing in reality or virtually, children will get some knowledge and technique, and construct their understanding of the world through direct experience with it (Bruce, 2010) . According to Friedrich Froebel, a German educator who invented kindergarten, had believed that "play is the highest expression of human development in childhood for it alone is the free expression of what is in the child's soul." Friedrich Froebel stated the important of play which gives a child joy, freedom, contentment, inner and outer rest with the world.

According to Froebelian principles as articulated by Professor Tina Bruce (2010), children's physical and mental health is emphasized throughout whole childhood period. For instance, self-discipline and intrinsic motivation will affect children's achievement in life. So, teachers have to offer some opportunity which meet children's needs such as giving them a chance to control the play situation, selecting their favorable games which help in learning. Children are self-motivated when they are encouraged to have self-decision making, and leadership (Bruce, 2010). Hence, children learn how to concentrate and able to learn the lesson effectively.

The pedagogy proposed by theory of Friedrich Froebel include the holistic activity which includes sense, purpose, meaning, joy, concentration and satisfaction for children (Weston, 2000). The teaching and learning method have to insert the element of play such as sensory play or manipulated play. For example, gamification play is a new

trend in educational field now which include sensory play, critical thinking, decision-making and multiple play.

Based on Froebelian principle, it refers to a recognition of the integrity of childhood in its own right and a focus on the child as part of the community (Weston, 2000). They have to learn how to make decision on their own. As an educator, we have to encourages children to become problem solvers, decision-makers and to be independent. Hence, children are needed to be given choices, making decision and offer help when it is needed. This will help children to learn in right ways about personalities. For example, with online gamification, students are able to use the different template of mini-games which lead to same objective goals. This will arise the excitement among children and improving their focusing and also maintaining their attraction on lesson.

Furthermore, this research study is related to the Theory of Gamified Learning which refer to the use of game attributes with the purpose of affecting learning-related behaviors or attitudes (Landers, 2015) . Gamification has been defined as the use of characteristics commonly associated with video games in non-game contexts. According to Richard Landers' and Amy K. Landers' (2015), theory of gamified learning able to explain the causal paths by which gamification interventions can affect outcomes for learners across a wide variety of contexts. For example, online gamification enables children to learn words, meaning, grammar, mathematics and so on with challenging elements.

Figure 1.2 : Theory of Gamified Learning
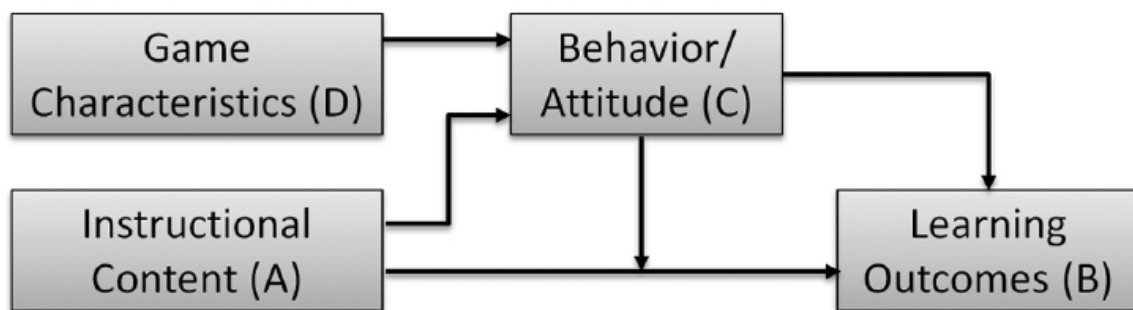
Learning is influenced by two processes which are moderating process and mediating process (Arjoranta, 2014). As an example of moderating process, gamification characteristic alters student's behavior that strengthens the relationship between quality of instructional content and learning outcomes. (D → C which moderates A →B) But, even in the absence of a moderating effect, the presence of a mediating effect would suggest gamification could causally improve learning. For example, the leaderboard in game is changed by the total of time used and the marks in game, which able to motivate and shape the behavior of children and affect their final achievement. As a conclude, the learning is strengthened by instructional design play in the moderating process. For mediating process, learning process is influenced directly by behaviors.

The gamification and memory processing are closely related. For example, children learn English word from environment input and go through the sensory memory. Gamification consists a lot of attractive visual image, background music and different template of mini-games to keep children's attention in short-term memory. The different mini-games are played by children with a lesson will help students to repeat and rehearsal the lesson learnt so transferred to long-term memory. If the maintenance rehearsal and repetition does not occur, then information is forgotten, and lost from short-term memory through the process of displacement or decay.

1.9 Conceptual framework

The title of this research is "The impact of adding online gamification in teaching English words recognition among preschoolers." In conceptual framework, researcher has to study the relationship between variable. The independent variable is teaching pedagogy used in English lesson. The dependent variable is the English word recognition achievement among preschoolers.

The design of this research is experimental approach which consists of two group. The experimental group is adding online gamification on top of object-play method as a mixed pedagogy in teaching English words. The control group is teaching by current play-routine by using object play such as puppet, big book, mystery box, sand, water,

clay and puzzle. This study is to investigate the impact of adding online gamification on top of object play in English words recognition achievement among preschoolers.

Figure 1.3 : The Flow of Teaching English Words Recognition
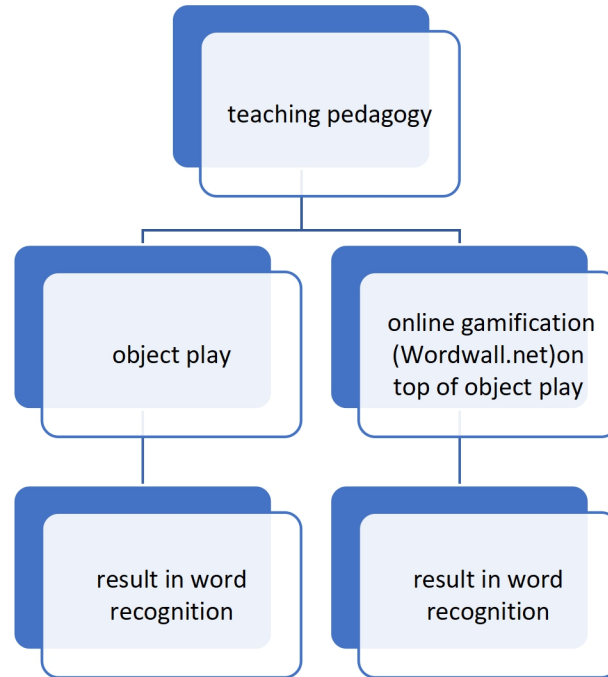
Regarding to the relationship between first variable, which is adding online gamification and its impact to word recognition achievement. Online gamification enhances more traditional learning formats with game mechanics and aesthetics to engage and motivate children (Zamora, 2017) . For example, *WordWall.net* consists of several mini games to improve word recognition, such as word matching, balloon pop, maze and so on. In the game balloon pop, students have to pop the pictured balloon match to the word given. In the maze game, students have to reach the correct words based on the sound or picture given. By these types of games, English word recognition is able to be improved. It allows students to learn through doing, winning, losing and competing rather than just reading and basic e-learning.

In addition, online gamification provides a larger bank of vocabulary than object play. Students manage to gain a lot of new words via online gamification activity with new template every time so that students will not get boring in the meantime. Research

shows that exposing students to vocabulary at "spaced" intervals is helpful to their learning, such as grouping and matching (Lewis, 2017). It is hard to make a material yourself, but it is easier to be done by templates in *Wordwall.net*. Students will get boring too if every time play the same materials and lose their attention and interest on it afterwards.

Gamification in learning can improve knowledge absorption and boost knowledge retention which are different with object play (Pappas, 2014). Play-based learning enables individual child to develop their self-worth while obtaining knowledge. It strengthens powers of concentration, essential for a successful future in classroom, underpins everything from learning social interactions and norms and to the beginnings of critical thinking. When children engage in real-life, play can be challenging in children's thinking.

Regarding to the second variable which is continue to use object play only as a play-based learning method and its impact to word recognition achievement. Creative curriculum is an early childhood teaching approach that focuses on children development and how children apply skills and addresses the four areas on development such as emotional, physical, cognitive and language (Lazarescu, 2019). For example, toys and games are one of the play materials, which promoting students in learning outcome. Students learn word recognition by puppets, puzzle, or jigsaw. It helps students in memory retaining and rehearsal but the words in games is too less for a preschooler. Teacher and school have to find a lot of different materials to carry out the word recognition activity. It is exhausted and spent a lot of money although it does really help out in student's word recognition.

According to the finding of Lazarescu (2019), play-based learning able to develop the capacity of knowledge and understanding of words. Children who active in classroom play were superior results to lifelong learning as the interaction of children with the game is an essential factor in their development. For instance, object play with materials such as sand, water, chart, cards had driven touch language helping children to acquire more words and language structure which include memory, thinking, perception, representations and imagination.

The achievement of English word recognition will be evaluated through the English Words Recognition's instrument during the experiment was carried on. After that, the students' achievement on English Words Recognition will be evaluated again on the final exam on each semester to make sure the new teaching pedagogy does work on the preschoolers.

In summary, play is child's work. Playing comes naturally to children, and this maybe a best medium for children to learn. To meet children's needs, teachers have to conduct suitable and more challengeable play for them to arise their motivation and attention. The experimental group and control group will tell the best pedagogy which is more likeable by preschoolers.

1.10 Scope and Delimitation of study

The main focus of this research article is to identify the impact of using online gamification on top of object play as oppose to object play method only in student's achievement on words recognition among preschoolers.

The research will use experimental design which consists two groups. The first is experimental group, and the second is control group. For experimental group, students will learn the words by online gamification- *Wordwall.net* on top of object play. In contrasty, control group will use object play only in learning words.

A total of 30 preschoolers from Kluang were the targeted participants in this research. The level of proficiency of the participants was between low to high. All participants got the informed consents as a form of their willingness to follow the research.

The research is limited to object play and does not cover the pretend play, simulation, role play or sensory play. The object play is the use of object such as blocks, jigsaw, puzzle and so on which are more tend to cognitive skills. In contrary, pretend play and role play require students play in a group and take different characteristic which are more tend to social and emotional skills.

Researcher begin by examining the relevant literature and article on the characteristics of engaging online gamification in learning process followed by creating a

teaching and learning plan through *Wordwall.net* to investigate the result of using online gamification. The experiment will be done in pre-test and post-test to investigate the progress of children.

1.11 Definition of term

1.11.1 Play-based learning

Learning through play is a term used in education and psychology to describe how a child can learn to make sense of the world around them. Through play, children can develop social and cognitive skills, mature emotionally, self-confidence and bolder in new environment (Lazarescu,2019). Play-based learning also be defined as:

"…Children being active and involved in their learning. Children learn best through first-hand experience. The purpose of play-active learning is that it motivates, stimulates and supports children in their development of skills, concepts, language acquisitions skills and concentration. It also provides opportunities for children to develop positive attitudes and to demonstrate use of recent learning, and to consolidate learning"

Recent research confirms what Piaget always stated that "Play is the world of childhood". That is because both free play and guided play are essential for the development of academic skills (Smith, 2013). The term "Play" consists of few elements which are fun, enjoyable, spontaneous, active engagement and voluntary. Adults provides the space, resources, and time for children to play (Lewis, 2017). The right of play is deemed so fundamental to children's wellbeing and it also is one of the most important ways in which children learn. There are variety types of plays, such as sand play, water play, dough play, role play, character play, drawing and painting, blocks and jigsaws, music and dancing, imaginative play, nature play, sensory play, boardgames, and so on.

1.11.2 Online Gamification – *Wordwall.net*

The term "Gamification" was coined back in 2002 by Nick Pelling, a British-born computer programmer and inventor, and it officially became a buzzword in year 2011 and hotter than ever in year 2020   (Landers, 2015) . People are looking to implement Gamification in almost every aspect of their life despite of ages or community levels. Gamification is in everywhere such as business, education, medical, psychological and so on. There are some definitions of Gamification which are "The application of typical elements of game playing such as point scoring and competition" and "Applying game-

like accelerated user interface design to make electronic transactions both enjoyable and fast"

Gamification is the application of game mechanisms in non-gaming environments with the objective of enhancing experience (Nand,2019). Online gamification employs game design elements to achieve different goals including improving engagement, behavior, productivity and learning. Online gamification facilities smart learning environment. For example, teachers save their time to prepare materials. For children, they are like to explore new play with new structure and new appearance. Online gamification able to satisfy them with different template and type of game, different background and music and it is user friendly in any places or time.

Wordwall.net can be used to create interactive lesson by web-enabled device such as computer, tablet, phone or interactive whiteboard. They can be played individually by students or be teacher-led or play in group. There are a lot of templates include familiar classics like Quiz and Crossword and also the new arcade style games like Maze Chase or Airplane. Teachers are able to switch it to a different template with a single click. This is good for reinforcement and bring excitement to students. For example, the title remains same as "shapes", but conducting in different templates with the exact same shape names.

Besides, multiplayer is a format where all students join the same game simultaneously with the condition that each student has a web-enabled device on hand. The teacher's role is only controlling the flow of game. Some games are competitive and brainstorm to create a collaborative discussion among students. *Wordwall.net* consists of variety types of attractive games such as Whack-a-mole, Anagram, Labelled Diagram, Random Wheel, Unboxing, Matching, Hangman, Wordsearch, Word-maze, Balloon Popping and so on.

1.11.3 Object Play

Object play, is the way in which children explore objects, learn about their properties, and morph them to new function (Hirsh-pasek, 2008). Besides, object play is pleasurable and enjoyable with no extrinsic goals. For example, when students play with object, their sensory motor had developed and start to interact with the environment and understanding the world. Besides, object play refers to playful use of objects and

materials such as building blocks, jigsaw, puzzlers, cards, cars, dolls and others (Smith,2013). It allows children to try out new combination of actions, free of external constraint and help to develop problem solving skills.

According to psychology in education, children learn in different style as each of the children is different. The main learning styles are visual, visual, physical, verbal, logical, social and solitary. Object play which refers to building blocks, jigsaw puzzles, cars, dolls and sensory word cards are comply with the standard of play-based learning. Play with objects allows children to try out new combination of actions, free of external constraint and develop problem solving skills.

1.11.4 Word Recognition

Word recognition is the act of seeing a word and recognizing its pronunciation and meaning immediately without any conscious effort. Besides, word recognition refers to the presumed mental storage, retrieval, and use of sight words (Lazarescu, 2019). The bigger the storage of sigh word vocabulary, the more words are likely to be read. It is highly correlated to reading comprehension. Reading comprehension is the ultimate goal in preschool context, so a critical early objective is to ensure that they are able to read words with instant, automatic recognition (Blachman, 2008). To acquire word recognition skills, students have to expose to sight recognition of high frequency words such as boy, I, girl, eat, drink, rabbit and so on. Through play, the retention of words getting longer and meaningful.

The word recognition skill is important. With little effort of word recognition, it fosters the development of reading and writing. It can be improved by practicing and rehearsal with flash cards, lists, word grids, play or game to retain the words in memory storage. The sooner they learn reading principles in preschool ages, the more likely they will be ready for primary school.

1.11.5 Experimental Group and Control Group

In a scientific study, a control group is used to establish a cause-and-effect relationship by isolating the effect of an independent variable. It receives no treatment. Using a control group means that any change in the dependent variable can be attributed to the independent variable (Helmenstine, 2019). Control groups help ensure the interval validity of research by see difference over time in dependent variable in treatment group. However, without a control group, it is difficult to know whether the change has arisen from the treatment.

The researcher changes the independent variable in the treatment group then compare the results of these groups. In another word, the experimental group receives the treatment of the independent variable (Helmenstine, 2019).

The purpose of having experimental and control groups is to have sufficient data to be reasonably sure the relationship between the independent and dependent variable. By comparing the average change in students' English word recognition achievement, researcher can find out whether adding online gamification improve word recognition achievement.

1.12 Summary

The above information is clear, play offers strong support for academic and social learning. In fact, the children who engage with play-based learning are better in cognitive, language and social skills   (Hirsh-pasek, 2008) . More engaging and interesting environments for children foster better learning well into elementary school.

 Gamification is fun as it different with normal play-based learning with specific rules and materials. Gamification takes the best parts of games that enable to motivate children and apply all the elements of game to non-game entities to encourage students to improve or reach the certain achievement. Nowadays, children live in technology's world. Thus, online gamification was created to fulfill the requirement of children which align with educational needs. Online gamification is light-hearted. Certain behaviors which

initially seem difficult, boring can be made fun in online gamification. Therefore, online gamification is a source of happiness in which able to fulfilling children's motivation.

Gamification is a new pedagogy to promote word recognition among preschoolers. Word recognition need the rehearsal and repetition activity to last long in student's memory. The purpose of word recognition is to enhance reading comprehension. It allows for plenty of independent reading. There are many skills to promote word recognition by educators but not simply read over and over on the textbook. Children will lose interest and motivation in such a boring teaching method and thus they will refuse to learn anymore. Hence, the teaching method is quite crucial to improve student's achievement.

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