

Kelly Keodara

**THE IMPLEMENTATION OF GAME-BASED  
LEARNING TO IMPROVE IN ENGLISH IN  
CAMBODIA**

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# ABSTRACT

Kelly Keodara: The Implementation of Game-based Learning to Improve in English in Cambodia

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The presence of game-based learning through various uses of media has become a prominent feature in many modern classrooms and educational institutions. In Cambodia, the utilization of traditional or contemporary media is not easily accessible in the classroom. It is a developing country that still presently lacks in modern technology, sufficient educational funding and adequate infrastructure. In defiance of these deficiencies, the academic professionals at an international school in Phnom Penh, Cambodia are determined to keep their students knowledgeable through the modern methods of education. Through participatory action research and education design research, the implementation of media and game-based learning in the classrooms of the international school in Phnom Penh, Cambodia was conducted in pre-intermediate and intermediate English courses.

The objective of the research was to discover any effects and improvements that game-based learning through various forms of media may have on the students' comprehension of the English language. The results of the research study indicate that the implementation of media and game-based learning does affect the improvement of the Cambodian students' level of English by boosting the motivation factor and confidence level in regard to overall competence.

Keywords: Cambodia, game-based learning, developing country, English as a second language

The originality of this thesis has been checked using the Turnitin Originality Check service.

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# 1 INTRODUCTION

Media has developed the traditional curriculum of a school into a transformative and interactive space for students to learn, most notably in Western culture (Clark & Mayer, 2016; Matijević, 2014). The standards of teaching have progressed with the advancement of information and communication technology (ICT) (Livingstone, 2012) into a learner-centered model which focuses on the integration of the surrounding environment and primary activity of the learner (Garris et. al., 2015). The recognition of the capacity for students to learn at a much more efficient rate compared to the utilization of traditional teaching methods through ICTs and a variety of media is in effect. The innovative methods may be through the use of various types of traditional media, e.g. film, music, board games, books and more modern technology such as digital gaming. Media could be defined as a tool of communication and interaction that can be customarily utilized to enhance the conventional learning experience.

With this perspective in mind, it must be noted that access to the aforementioned media is not readily accessible to each student of every country in the world. In developing countries, such as in Cambodia, the technological advances of developed countries such as a mobile phone and internet connection can be challenging to obtain. According to the researchers of BBC Media Action and Research Learning, although overall youth in Cambodia do indeed have access to traditional media, e.g. television and radio, only a third of the youth have internet connection. In this particular BBC study, the term 'traditional media' refers to television and radio (BBC Media Action and Research Learning, 2014). This specific study researched the civic attitude of youth in Cambodia towards the use of media. The project implemented in the study had the objective to encourage youth in Cambodia to become aware and active in civic participation, e.g. voting and empowerment of youth. The drawback of this study is that it focused more on the effects of middle to higher class youth in reference to economic status. It does not concentrate on the

lower-income level youth who is deeply affected by poverty, in which the simple access to the coined term, traditional media, is the most intractable. Few studies have shown the correlation to the effects of media on learning a specific subject in school, such as in English, nominally in Cambodia.

In this thesis, 'traditional media' refers to the use of film, music, board games and books. The term 'modern media' will refer to digital media, such as in the use of technological advances through the internet. The development of access to traditional and modern media in Cambodia has led to the hope that it would create a space for consumers and students alike to benefit from the matter. Despite the current challenges in a poor community, an example of a study conducted in a lower-income international school in Cambodia will be presented to discover the effects of the implementation of game-based learning through various forms of media into classrooms in which to improve in the English language.

### *1.1 Inspiration from internship in Cambodia*

The motivation for the topic of this research study derived from my participation in an internship at an international school, which will be referred to in this study as Orkun School, in Phnom Penh, Cambodia. As an intern, I was assigned the responsibility to assist in a new educational development program for the improvement of the curriculum at the school. My role was to create new guidelines for the school regarding the structure of the organization of the classroom, as well as to introduce modern methodologies to the lectures presented to the classes, nominally in English courses.

During this internship period of six weeks, the time was also utilized to complete the research study resulting in a gained insight on the current status of the school, which gave a glimpse into the reflection of the actual standing of the education system in Cambodia. The infrastructure of the buildings were not stable nor adequate for the procession of a proper lecture. There existed only a handful of teachers who were sufficiently trained and educated to teach in English. The environment in which both the students and staff endured was

noisy as the classrooms were open, sometimes without walls and certainly without proper noise cancellation from exterior distractions. The aforementioned characteristics affect the learning space of students, not excluding the individual improvement of levels in certain subjects, such as in English.

The concept of the internationalization of the school, which applies to all Cambodian international schools, is surrounding the fact that most of the classes are taught in English, with the exception of the mandatory native Khmer language classes that the national curriculum mandates. The purpose of the institution of courses in English is to provide a better and hopeful future for the students so that they are prepared for internationalization in prospective circumstances. The concern with this intention was how to proceed to provide such aspiration to the students, which deliberately led to the Education Improvement Project that was conducted at Orkun School. One of the priorities of the project is to administer modern methodologies such as the game-based learning concept in hopes of positive effects to aid in the improvement of the students' level in the English language.

## *1.2 History of Cambodia and education system*

To understand the mindset of the Cambodian culture and to comprehend the current stance of the education system, we must look to the history and analyze the challenges endured. Upon visiting the country, I have learned that Cambodia has experienced a tumultuous history of genocide, terror and debilitation. Cambodia has had a violent history within the last half a century. The United States bombed Cambodia from the years 1965 to 1973 during the Vietnam War, in what is claimed for Cambodia to be the 'most heavily bombed country in history', according to new discoveries by historians, Taylor Owen and Ben Kiernan (Caswell, 2014; Owen & Kiernan, 2007). From these bombings, more than half a million innocent Cambodians died. The citizens of Cambodia were filled with horror and anger that they turned against the United States' regime in a revolt. Most Cambodians joined the Khmer Rouge, which was a radical Maoist regime engaged in a civil war (Caswell, 2014). The Khmer Rouge

regime had one goal in mind -- to eliminate all traces of history and to create a new government with no external influence.

The Khmer Rouge's aim was to entirely restructure the government. The effects of this order indicated abolishing all private institutions such as religious, cultural and educational institutions (Caswell, 2014). The schools became abandoned, books were destroyed and academic instructors either died or fled the country (Dionys, 2012). The Cambodian government has struggled to regain their stance as a society since declaring their independence from the French government in 1953 (Ayres, 2000). The instability from the effects of the reign of the Khmer Rouge has created a crisis in the education system of Cambodia. Political, cultural and economic disparities are highly present in the system. The struggles still continued on into the 1990s. Many studies have shown that the teachers were poorly trained, the infrastructure of schools were dilapidated, students tended to drop out of school more often than not, and there was little to no budget allocated to the development of the educational institutions in Cambodia (Ayres, 2000).

The traditional setting of the education system of Cambodia is that the citizens were overall quite illiterate (Ayres, 2000). The obtainment of education could only be procured through attending courses at the local *wat* (Ayres, 2000), which is a place of worship usually by Buddhist monks. In these courses, there were teachings from folktales and traditional poems. These methods of teaching focused on survival and ideas deriving from any deviation of what is considered normal and just was extinguished or never procured (Ayres, 2000). This portrays the culture and civilization of the Cambodian people. In a general statement based on the education level, Cambodian people were satisfied with surviving on a daily basis and did not need nor want to seek further fulfillment aside from basic needs of life.

### *1.3 Current stance of Cambodia and education system*

In Cambodia, primary school students begin at the age of six which consist of grades 1-6. Lower secondary school consists of grades 7-9. Upper

secondary school consists of grades 10-12 (UNESCO, 2010). The curriculum goals of the Cambodian education system are for the students to be competent in Khmer and a foreign language, science, technology, engineering and mathematics (STEM), in addition to lifelong learning skills benefiting personal, professional and civic duties (Ministry of Education, Youth and Sports, 2015). The basic education level to be completed are grades 1-9, in which the public education is provided free of charge from the government. However, this can be daunting and challenging in reference to attendance due to the fact that Cambodians would prefer to have their children work in the fields to provide for the family (UNESCO, 2010; Ministry of Education, Youth and Sports, 2015). There are private schools available, in which there is a necessary fee payable from the parents. It follows the general curriculum as public schools, with more opportunities as far as extracurricular activities. (Ministry of Education, Youth and Sports, 2015) More details about international schools will be stated in Section 1.4.

The population of Cambodia is approximately 15 million with only 73% of the attendees of school having the capacity to complete primary school level (UNICEF, 2019). This level decreases when entering into higher grade levels. Attending school can be seen as not a priority to the Cambodian students, even after admission to the school, of course under various personal circumstances that causes these limitations. The attendance rate out of all children begins at 76% who attend primary school. This rate falls to 50% in lower secondary school and a belittling 26% entering upper secondary school level (UNICEF, 2019). Cambodia holds the lowest percentage of net enrollment ratio in the Association of Southeast Asian Nations (ASEAN) countries (Ministry of Education, Youth and Sport, 2004).

It has been a struggle for the Cambodian educational institutions to maintain their stance with modern teaching, let alone technological advances. In current times, teaching and academic staff have not had adequate training, learned from my experience visiting various schools in Cambodia. According to the Ministry of Education, Youth and Sport (MOEYS) in Cambodia, in the schools located in Phnom Penh, the majority of the teaching staff have a completed education level of upper secondary school. 31% of the teaching staff in Phnom Penh hold graduate degrees, e.g. Bachelor's degree, only 3% of the

teachers have post-graduate degrees, e.g. Master's degree, while only one teaching staff member holding a PhD (Ministry of Education, Youth and Sport, 2017). The history of the Cambodian culture of fear and aversion to revolution and change may also be a factor. It is due to these shortcomings that teachers may still possess a fear of ICTs and applying media into the academic curricula. The average amount of computers to the number of teachers were at a shocking ratio of 2:15 (Dionys, 2012). It is an obstacle to receive technological funding to advance not only the students, but also the teachers (Ayres, 2000).

Another current hurdle is the infrastructure of most educational institutions. Basic electricity is not easily obtainable in Cambodian communities. Only 13% of schools is connected to electricity (Ministry of Education, Youth and Sport, 2004). The electric power supply is often unstable and blackouts often occur, as I had experienced during my visit to Cambodia. This creates a challenging environment for staff and students to work and study in. According to Dionys, there exists also an unclear view of the institutional capacity of educational institutions in Cambodia (Dionys, 2012). This is to assert that there is poor management in the training of ICT comprehension and integration under the influence of the lack of proper infrastructure.

Despite these challenges, MOEYS in Cambodia have executed different measures in analyzing ICT use in the classrooms. The most recent publication from MOEYS regarding ICT is from 2004 in which it explains the encouragement and support of how the Ministry would in fact like to implement more ICT advances in the education realm. It states in the publication that access to internet and computers are limited; however, internet cafes have been expanding recently at the time of this publication (Ministry of Education, Youth and Sport, 2004). The overall goal is to build the hardware and the infrastructure so that ICT can be easily incorporated to the educational institutions. Cambodia has committed to improving the ICT in general for the increase in efficiency for public use (World Bank, 2010). Despite these claims and optimistic ambition, little evidence in the English language has been found that funds are directly allocated towards improving ICT in Cambodian classrooms specifically.

## *1.4 Challenges of learning English at Orkun School*

The term 'international' when it is applied to a school in Cambodia refers to the fact that there is a focus on the English language in the school's courses. However, this does not constitute that it is certified to teach English. For a school to be officially certified in the English language, it must have qualified International Baccalaureate (IB) teachers (Lebens, 2019). This indicates potential challenges in these international schools in so that there may be unqualified instructors. The students who attend international schools are considered to be in the wealthier class of society. International schools in Cambodia are mainly funded through tuition fees that can range from US\$300 to US\$20,000 per year (Lebens, 2019); however, a small portion of the fundings do come from the central government and local community revenue (UNESCO, 2010). Although the primary language tends to be English in an international school, to abide to the general education regulations of Cambodia, the Khmer language is mandatory (Ministry of Education, Youth and Sports, 2015).

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Khmer language became the only taught language in the classrooms regardless of the fact that there are approximately 19 spoken languages in the country alone (UNESCO, 2007). And even worse, the comprehension of basic Khmer was not an obtainable level to most students in Cambodia (Wright & Boun, 2016). Extracting from these claims, it may be that there is a slight resistance to learning a language which is not considered the native language of the learner. This can be taken into account with Khmer, as it is not the native tongue of some Cambodians, as well as learning the language of English. If some students in Cambodia are not even capable of learning the national language, it may be debated if these students would be competent in learning another language that is foreign to their country. When students are seemingly forced to learn a language outside of self-motivation, the outcome cannot be as progressive as originally anticipated.

The resources that are available in the classrooms at Orkun School presented in this thesis also plays a very critical role in the overall success of learning English. The tools that were currently used in the classrooms were not

up to date or up to par on what is considered technologically advanced through the use of internet and computers and also with content that makes it simple to comprehend the English language. For example, the textbooks that were in use at Orkun School had inadequate explanations and very minimal and confusing illustrations regarding the subject at hand. In addition to the books, the use of other traditional media, such as white/blackboard games, which are games drawn on the board at the front of the classroom, in addition to board games, was not recurrent as there was a lack of it. The materials needed to properly execute an English class did not exist at all or the materials that were present in the classrooms were usually in an extremely used condition. However, the implementation of modern media is overtaking the traditional modes of media.

The students in Orkun School may not acquire the highest standards of life, but they do possess smartphones. Therefore, the students who did possess smartphones were able to use their devices to further aid their English studies. For example, the teacher may request that a student play music or videos from YouTube so that the other students may hear a particular accent or pronunciation. The reactions from the students were intertwined with interest and excitement. The contrast between the existence of traditional and modern media in the English classrooms of Orkun School may be a gesture that the students are motivated by technology to learn. As Wong and Benson (2019) states:

While proficiency in a dominant language is an important product of education, using that language as a medium of instruction does not guarantee that it will be learned, especially in contexts where students are not offered appropriate resources or opportunities to learn this new language (pp.70).

As the excerpt claims, when the resources are not available as a means to properly carry out a lesson in a classroom, it is relatively ineffectual. If the resources are not accessible to the teachers, there is no structural system to move forward to educate the students. In order for a classroom, let alone an educational institution, to be successful in delivering concrete English courses, the resources must first be in place, stable and considered a standard stature before proceeding with any further pedagogical advances.

### *1.5 Evolution of game-based learning and media at Orkun School*

The concept of using media and game-based learning to improve in school subjects is a new phenomenon in Cambodia. Particularly at Orkun School, the idea is fairly advanced and almost unobtainable in some cases. This is due to the fact that the school does not have school-wide internet access nor does each classroom have a computer installed. There are five branches to this school with only one to two computers available at each branch. There are approximately three thousand students in attendance at the school with a staff of one hundred. Therefore, the ratio of computer access to members of the school is roughly 1 to 1550. This creates an increasingly challenging environment for the classes to participate in modern pedagogy without proper or sufficient resources.

Despite these challenges, there was an avid interest among the administrative faculty in providing innovative methodologies to the present system of this school. Introducing traditional media such as film, music, board games and books grant the opportunity for students to learn in a new and different space compared to that of a traditional setting of a typical classroom lecture. The typical classroom lecture in which the students are accustomed to at Orkun School consists of the teacher presenting information to a rather passive group of students, which in contrast, is atypical of a game-based learning environment. Game-based learning is essentially learning through the play and use of games, interactively with other participants (Plass et al., 2015). According to Pivec et al., when the use of games is put into practice in the classroom, learners are better suited and motivated to incorporate knowledge from all sectors into the composition of a solution, negotiation or action that is targeted towards the purpose of the initiated game (Pivec et al., 2013). This was the initial objective of the administration-approved research study to be incorporated into the Education Improvement Project at Orkun School.

## *1.6 Research topic and question*

As the school prepared to embark on a journey towards modern methodologies, there was still a resounding question surrounding the implementation of such new concepts. The aim of this research study was to test the effects of media and game-based learning on the students' level in the English language. The research question is: How does the implementation of media and game-based learning in Cambodian classrooms improve the students' level of English? In this thesis, students who participated in the research study were from the ages of 14-19 in either pre-intermediate or intermediate English courses at Orkun School.

In Chapter 2, the literature review will produce a foundation of similar case studies that have been conducted regarding game-based learning and English learning, in addition to how it relates to this thesis in regard to the implementation in Cambodian schools. Chapter 3 will discuss the theoretical framework that shaped the design of the research study. In Chapter 4, the research methodologies that were implemented to conduct the data collection will be presented, in addition to the empirical data. In conclusion, Chapters 5 and 6 will discuss the results, analysis and further research that could be conducted.

## 2 LITERATURE REVIEW

There have been various earlier case studies that either support or challenge the idea of whether game-based learning method is effective in the overall pedagogy of a subject. Indeed, the concept of game-based learning is still quite a recent phenomenon that is continuing to be tried and tested in multiple subjects of educational institutions. Researchers are aiming to understand the benefits and effects that game-based learning has on its learners. In the following sections, the discussion and review of similar or challenging findings will be presented.

### *2.1 Similar case studies*

There was unsubstantial research that had been previously conducted in Cambodia regarding game-based learning in general, in addition to the improvement of English learning. In search of similar case studies, I turned to research that have been conducted in various Asian countries. The following case studies based in Hong Kong, Malaysia, Indonesia and Taiwan are a review of similar research conduction surrounding game-based learning and English learning and its correlating effects and results.

#### 2.1.1 Board games as a nontraditional methodology to improve English speaking

The case study conducted by Fung and Yeo focuses on the distribution of a board game for participants to engage in an activity that could lessen the anxiety attached to learning English (Fung & Yeo, 2016). The study was based

in Malaysia where 60 polytechnic students were asked to play a game entitled “What Say You” in which the students were tested on their ability to speak proper English. The objective of the study was to examine the effects of board games on the learners’ improvement in English speaking capabilities. 30 International Business students were a part of the experimental group; the other 30 students in the controlled group were studying Accounting. Despite the differences in fields of study, all of the students had in common the low proficiency level in speaking English.

Both groups were taught by the same lecturer in order to decrease the chances of instability and uncertainty among varying styles of teaching by other lecturers. The research instruments implemented were questionnaire, pre- and post-speaking tests and a board game. The intent of the questionnaire was to analyze how anxious students feel when speaking English inside and outside of the classroom. The speaking tests were executed to express the differences in scores before and after the implementation of the board game. Lastly, the board game itself is the main activity in which to engage the students in an opportunity to improve the speaking in a nontraditional method of learning.

The idea of the board game “What Say You” was to provide a variety of topics for the students to speak about in English, e.g. social and situational issues, technology, science and health. After having chosen a topic, the student had one minute to prepare and two minutes to present about the topic in English. The findings from this research indicate that initially, some students were hesitant to speak, in addition to not having enough vocabulary to present in the full two minutes, despite help from other students. Due to this, changes had to be made by extending the time frame in preparation time so that the less-confident students could become more motivated to speak the full two minutes in order to gain “points”. The missing factor from this research is identifying if the points system served as a motivational tool to boost the confidence level of the student, in turn exploring any correlation of the decrease in the anxiety level while speaking English.

### 2.1.2 Semiotic mediation through board games to learn a second language

The following case study conducted by Luk was intended to analyze the role of play as a motivational tool in human nature (Luk, 2013). In this particular study, a group of Grade 4 students in Hong Kong participated in the implemented games. The roles were switched from player to facilitator and conversely to examine any behavioral changes during the process of playing the board game. The social aspects through semiotic resources were the key targets of analysis in the study. The objective of the study was to formulate meaning behind the participatory actions of the students and its effects on the outcome of the participation.

Using activity theory as the framework of this study, Luk claims that the theory explains how people engage with one another within a specific social context, in which this study pertained to students using board games to be motivated to learn. In the author's argument, the claims are that when participants are engaged in such an activity that stimulates emotions in various degrees, this also signals many indirect phenomena, e.g. identities, power relationships and different statuses. This creates an atmosphere of community through which semiotics are natural in actual practice.

The use of games in this study were mainly in the form of card games. There were two groups of three participants, in which were all females. The focus was on the use of language, in terms of phrases in utilization, e.g.:

“It's your turn to play.”

“I'm the first player.”

“The rules of the game are the following.”

These simple yet important phrases allow the participant to take on the role of player or facilitator in the process. The words portrayed by the students signify that there is a sense of hierarchy in which they can experience from both roles as the facilitator or the participant. The missing factor from this study is to incorporate a larger group of students, in so that there is equality in genders.

This could affect the overall analysis of the effects of semiotics in between the participants when there are more than just females in the controlled groups. The effects of semiotics are referring to the communicative behavior among the participants. The number of players, in relation to other aspects that could alter the effects of communication within the process of the ongoing activity, may be pertinent in the overall analysis and outcome of the study.

### 2.1.3 Game-based learning through multimedia to improve in English

The case study conducted by Setiawan and Asrowi based in Indonesia concentrated on the discovery of the effectiveness of using game-based learning through multimedia to measure the success of participants' level of improvement in English grammar (Setiawan & Asrowi, 2018). After developing the multimedia tool in the form of an interactive platform for learning English grammar comprised of visuals and audio, the game was then tested on 2 groups of upper secondary school students. The first group was in the controlled group which meant that they learned new English grammar material the conventional way, in a lecture with pen and paper. The second group was in the experimental group meaning that they learned new English grammar using the multimedia tool that was developed. Results exposed that the students in the controlled group scored lower than the group who used the multimedia to learn English grammar.

According to Setiawan and Asrowi, there is an "interaction between learning media and motivation" (Setiawan & Asrowi, 2018). The correlation between the two phenomena does indicate that there is a parallel in the effects of the usage of the medium in practice. The claim is that the motivation level of students increases when there is interaction between the students and form of media, in this case, an educational game. Furthermore, Setiawan and Asrowi also claim that due to the result of the game-based learning tool, it is effective to improve the learning outcomes of students.

Although there is a relationship between the motivation and improvement of the scores, there is no cause and effect validation that multimedia will indeed

positively affect the increase in grading. Digital games do provide a substantial source of stimulating learning experience, but it must be studied further to find the direct correlation of improvement.

#### 2.1.4 Flipped contextual game-based learning

The case study performed in Taiwan by Lin et al. targeted learning business English through reversing the traditional learning pedagogy through a flipped contextual game-based learning method (Lin et al., 2018). The traditional learning method refers to interaction with only the teacher and peers. This study aims to steer away from the traditional into the experimental with 68 participants from a university level undergraduate class, in which they were divided into 2 groups: controlled and experimental. The controlled group continued in the traditional manner of lecture. Here are the steps that were conducted in the case study for the experimental group (Lin et al., 2018):

- 1) Provide an instructional video for the students regarding the assignment to view before entering the classroom
  
- 2) Typically assigned homework will be completed during class hours, in which the students were able to actively engage with the teacher and other peers specifically on the assigned task through game-based learning, rather than focusing on a lecture

The game that was introduced to the students as part of the study was a role-play activity in which the participants play characters to gain money for another character. During the role-play game, students practice inquiring, negotiating and becoming more confident in closing a deal. These actions are similar to that in the real world, in which the students are preparing in the field of business. The concluding results from Lin et al.'s case study showed that the flipped game-based methodology allowed students to improve in English business writing. Students in the experimental group were able to write with

fewer errors compared to that of the controlled group using conventional methods. In this particular case, the learners are able to apply actual knowledge acquired from the game in real-life settings. Although there are results of improvement in all of these similar case studies, there are still questions that need to be answered, which will be stated in the next section.

## *2.2 Missing elements from similar case studies*

In all of the aforementioned case studies, there have been findings that the use of media and games do indeed have a positive effect on the improvement of the students' English levels. There have been data presented showcasing that there is a higher level of motivation among the students for the reason being the change of environment from traditional lecture to nontraditional play in the classroom. It has been claimed that the motivation to learn is not always in the content, but in the context in which it is being presented (Ricci et al., 1996). In the cases mentioned above, the lessons were implemented through different media, e.g. board games, card games and role-play. These various types of agents that could be considered modern methods of teaching act as an opportunity to learn through different means. This discussion is also fundamental in the dimensions of a game, which can be found in Section 3.2.2.

Learning through simulation provides a space for critical thinking and empathy as it enhances the capability to view a different perspective and fully comprehend it as if it were your own experience (Saini, 2016). When learners are immersed in a setting where it is atypical, senses that are usually deterred are optimized. However, with these optimistic viewpoints, there are some missing elements that are still necessary for further examination.

After reviewing the literature, here are some questions that are left remaining to be answered:

- 1) Within game-based learning techniques, does the incentivization factor affect the motif of the learners and in what manner?

2) How do certain roles within a game create an environment that is stable, one that is neither hostile nor relatively monotonous? Does this affect the learner's reaction or hesitation towards particular roles?

3) Would game-based learning ever replace traditional methods of learning? In what ways could it affect the overall pedagogy of modern teaching?

4) Is fun directly correlated with the improvement of scores?

With game-based learning, whether it be with digital games or a board game, it must be emphasized that it is vital for learners to distinguish between the content that is being consumed from the game and corresponding it to their current knowledge to relate it to real-world situations. The lessons learned from games can be powerful enough to push a player's creative thinking into extraordinary realms. The next section will discuss the theoretical framework used in this research study.

### 3 THEORETICAL FRAMEWORK

In an ever-changing, fast-paced digital setting in developed classrooms, such as in Western culture, students are creating and utilizing the new virtual space as an integral part of the daily routine in which affects all aspects of learning, including that which can be acquired through classroom lectures. Educators must realize that in order to maintain motivation, attention and progress, the students need to be exposed to methodologies that not only are of interest to them, but also familiar in the sense that the utilization of media is considered a parity of normalcy and ease.

In order to manage the motivation level of students during the activity of learning a new skill or subject, there must be a factor that is natural to the human, which is an act of competition. The reason behind the choice of game-based learning as a theory is due to the high capacity that games can deliver to a student's level. The late German philosopher, Friedrich Schiller, mentioned in Letter 3 of *Letters Upon the Aesthetic Education of Man*, that humans are only fully humans when they are at play (Schiller, 1794). The instincts and actions of childhood before experience and conformity of adulthood are proofs that when one is able to 'live and act freely', one has a better chance of learning more.

Why is it that children learn more effectively and faster than teenagers and adults when it comes to foreign languages? It is partly due to the 'affective filter' which, explained by George Yule, is the self-conscious factor that arises from the teenage years (Yule, 1999). When students are addressed with new vocabulary in a foreign language, this can create an unfavorable environment in which there could be a chance that the student be ridiculed. Therefore, the solution is to degenerate this form of environment and design one that encourages mistakes and a space where students can learn without judgement from peers. This environment can be constructed with game-based learning, which will be further explained in section 3.2.

To measure the success and effects of game-based learning, the use of the input-process-output game model (IPO) is presented in this particular study. The purpose of the usage of this model is to gauge both the intrinsic and extrinsic motivation within players. The objective is to allow the participants to not only be agents of the activity, but active voices in understanding the reason behind the implementation of games through interaction to learn. It is to say that the idea of IPO is to wholly engage the user from the pre-activity, during the activity and into the post-activity. This will be further discussed in subsection 3.2.1.

### 3.1 *Characteristics of a game*

The characteristics of a game can vary widely depending on the arena in which it is being defined. For the purpose of this thesis, the characteristics of a game will focus on the instructional aspect for the benefit of the learner in which the concentration is on the acquirement of new knowledge or improvement of the familiarity of a particular subject. In general, experts have composed systematic definitions of what a game is, such as the following three quotes (Freyermuth, 2015):

1. “A game is a form of art in which participants, termed players, make decisions in order to manage resources through game tokens in the pursuit of a goal.” - Greg Costikyan, game designer and writer
2. “A game is: a closed, formal system, that: Engages players in structured conflict and: Resolves its uncertainty in an unequal outcome.” - Tracy Fullerton, game designer, writer and educator
3. “A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.” - Katie Salen and Eric Zimmerman, authors of *Rules of Play* game design book

These above-mentioned statements regarding the definition of a game share the similarity of the concept that a game is intended for players to collaborate unitedly with the goal of the same objective to win the game. However, these statements do not explain the core values and components of a game. According to Schell (2008), a typical game consists of four elements:

1. **Mechanics:** The mechanics are the rules that are written to be abided by all of the players playing the game; essentially what to do, what not to do and how to win the objective.
2. **Story:** The story of a game is an extension of the mechanics. It gives the embodiment of the overall effect that the designer wants to portray. Similar to an author of a book, the story of a game will need to possess an eccentric value and hook to gain the attention and interest to play from the learner or the gamer.
3. **Aesthetics:** The aesthetics of the game consists of affecting all of the five senses: vision, smell, hearing, touch and taste. The way that a game looks or feels can influence the motivation of a player. It sets the tone as soon as the learner sees the initial outer package of the game.
4. **Technology:** The technology of a game does not necessarily mean using modern technology. This element refers to the materials needed to participate in the game. It can consist of paper, pencil, dice or clay.

These four elements that are composed in a game combine the core components and layers of the existence of any game. However, these elements do not explain the explicit characteristics of a learning game, which will be presented in the next subsection 3.1.1.

### 3.1.1 Characteristics of a learning game

According to Pivec et al., the principle characteristic of a learning game is the fact that traditional instructional direction is blurred by the characteristics of a game (Pivec et al., 2003). An underlying foundation of an educational game is it acting as a tool that while teaching a subject or lesson, it also allows the players to be able to develop new skills through a form of amusement and use it in other aspects of their lives. The objective is to incorporate aspects of a game into the instruction, triggering interest, judgement and reaction from the users, and achievement of the overall goal at the completion of the game (Garris et al., 2002). The notion behind a learning game is to provide an entertaining platform for players to learn in a method that is not considered traditional instruction. “The game is not the experience. The game enables the experience, but it is not the experience” (Schell, 2008, p. 10). It is to say that the game itself acts as a tool that could enhance the learning experience for the user; however, the game without a strategy or objective would be counterproductive.

Feedback, goals and interaction is a core drive in the motivation of a learner in an educational game (Alaswad & Nadolny, 2015). The learner will ultimately be able to process new information through different perspectives which will in turn provide opportunities to judge, react and reflect, similar to what is portrayed in the input-process-output game model designed by Garris et. al (2002). It focuses on the learner’s ability to manage a game starting from the instructions, during execution and through the entirety of the reflection phase. The input-process-output game model will be further discussed in subsection 3.2.1.

### *3.2 Game-based learning theory*

Games come in a variety of forms such as in the mode of board games, digital games or individually designed games that don’t require much or any material. The purpose of game-based learning is to counteract the traditional learning methods into a space that is fun, creative and practical for the participants involved (Plass et al., 2015). This is usually designed on the premises of teaching a subject through a game in order for the student to comprehend the matter without the familiar feeling of stress, discomfort or

boredom that may be associated with conventional methodologies. According to Jenkins, the use of media and game-based learning also creates a participatory culture (Jenkins, 2006). The definition of participatory culture is based on the fact that users don't just consume the information from media, but also transforms the thought process by taking action on understanding the issue at hand in an even more in-depth manner. It is an opportunity for users to engage with others through interaction.

Game-based learning is a method with an overall learning objective through every play (Felicia, 2014). It enhances subjects that may otherwise be considered boring (Plass et al., 2015) through the new perspective that learning no longer refers to just understanding information, but in essence, finding, using and creating information (Simon, 2000). Plass et al. (2015) states:

From a cognitive perspective, designers and researchers consider which game elements contribute to the cognitive processing of the learning content, that is, how the content should be represented and how learning mechanics should be designed to engage the learner in a way that facilitates reaching the intended cognitive outcomes (p. 265).

As stated in the excerpt above, it is referring to the intricate detail that goes into the development of the creation of content that will be put into practice through game-based learning. Through a psychological viewpoint, there is no logic in developing activities for educational purposes without having an intentional objective to be pursued. This is what makes game-based learning an integral and effective method when designed with a learning outcome. When a participant is engaged in a game-based learning environment, the mental awareness that may arguably be subconscious allows the participants to envelop themselves in the game. During this process, the subject that is intended to be taught is directly affecting and subconsciously transforming the student while he or she is playing. The students are able to enter creative spaces emotionally and cognitively through the means of interaction and feedback that is derived from the act of playing a game (Pivec et al., 2003). It devises an atmosphere that doesn't require much effort compared to the lecture style of traditional methods. Furthermore, it constructs the possibility for a

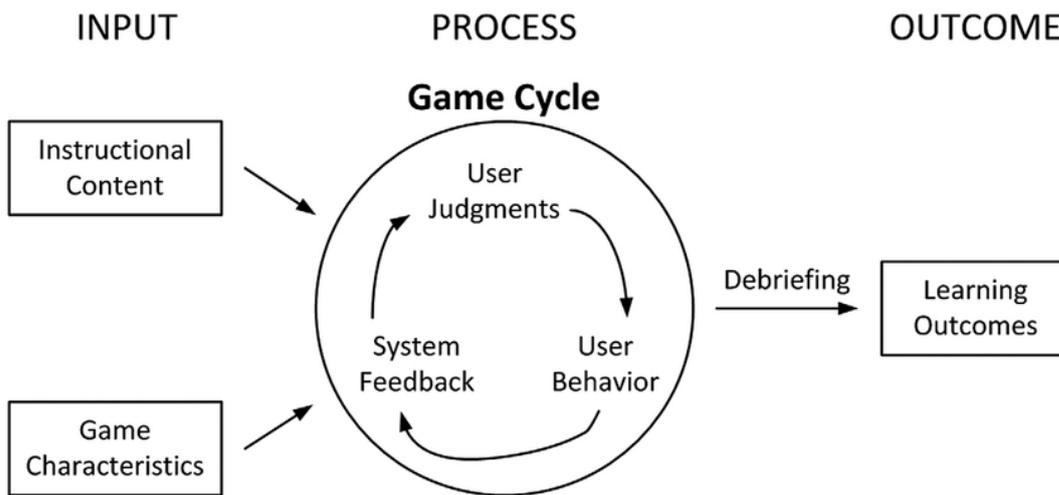
subject to be even more comprehensible if a learner takes pleasure in the learning process and synergy with others.

Game-based learning motivates the participants to essentially win and act as "...social spaces when their designs and expectations allow players to feel that they are a part of a community..." (Plass et al., 2015, p. 274). Pivec et al. agrees with this claim in so that when the learning process encourages students to combine knowledge from oneself and from others, it builds the social skills with the communication amongst peers that are enacted through play (Pivec et al., 2003). Throughout the course of playing the game, the objective of most learning games is to understand new concepts, and further adapt it to one's own knowledge to enhance the application of the new subject; whereas, a learning game could also be used for the pure joy of entertainment while developing new cognitive, motor or social skills. When a learner understands the concept, there is a higher chance of 'winning' the game and henceforth, declares that he or she comprehends the matter at hand. This is also an opportunity for participants to make mistakes during the learning process, which in return, offers a chance to learn from the mistake and retain the information, in addition to learning from other peers and their mistakes respectively.

### 3.2.1 Input-Process-Outcome Game Model

An important framework for this study is the input-process-outcome (IPO) game model that was devised by Garris et al. (2002). The idea behind the game model is to further enhance both the intrinsic and extrinsic motivation within players. Intrinsic motivation through game-based learning is intuitive and natural due to the fact that the game itself is considered enjoyable. When an activity is rather entertaining, students tend to participate willingly. Extrinsic motivation through games can be more challenging to achieve, but certainly not unobtainable. When students start to see the usefulness and rational aspect of the purpose of the game, it is much more likely that they will participate with the goal of reaching the initially devised learning outcome (Garris et al., 2002).

Intrinsic motivation is personal satisfaction, whereas extrinsic motivation is a desirable external goal such as a reward or obligation. The objective of game-based learning is to provide a foundation for students to learn to be self-motivated, both intrinsically and extrinsically.



**Figure 1.** Input-Process-Outcome Game Model (Garris et al., 2002)

Pivec et al. agree that the educational games being implemented should be motivating while being obscured by the facade of gaming characteristics (Pivec et al., 2003). Furthermore, an important aspect of the IPO game model is the debriefing portion as this allows players to find a connection between the simulation and reality (Pivec et al., 2003). This will solidify the understanding and feedback from one's own learning throughout the entire gaming process. Students will be aware of the means of their actions, in addition to consciously acknowledging the fact that the game presented is indeed relevant to their studies. Garris et. al. insists that the IPO game model does not imply that all students learn in the same manner, nor do they receive information from the new subject at hand in the exact way (Garris et al., 2002). Furthermore, what the game model does implicate is that every student or player will retrieve the attributes and materials of the game and further adapt it to their individual perception of the topic based on personal experiences (Pivec et al., 2002).

In Garris et al.'s IPO game model seen in Figure 1, the input sector includes instructional content and game characteristics (Garris et al., 2002). With each game that is designed for the learner, certain characteristics attribute to the overall objective (Garris et al., 2002). There have been arguments of what is considered to be the most essential aspect to a well-designed game. Clark and Mayer believe that all educational games may not be as efficient as another (Clark & Mayer, 2016). Some of these aspects include coaching which extends to the further elaboration on the motives of an action before and after it takes place. Modality for the presentation of oral format of the game, in addition to personalization, refers to the level of conversation within the verbal aspect. These various characteristics affect the overall presentation of a game (Clark & Mayer, 2016). In the following section, the game dimensions from Garris et al. will be presented to elaborate on the argument of Clark and Mayer.

### 3.2.2 Game Dimensions

The consensus according to Garris et al. is that the distinction between the designs of each game are not an extension of the elements, but rather categorized into game dimensions (Garris et al., 2002). These dimensions shown in Table 1 define the characteristics of a game based on the principal descriptions. The concept behind the game dimensions is that every game that is in implementation for learning purposes has its own value in the form of the method in how it is presented. Fantasy games focus on activities surrounding imaginary settings where the context of anything outside the game is insignificant (Garris et al., 2002). The idea concerning the circumstances revolving around fantasy games is that it creates an opportunity for learners to step outside the real world and be creative in designing new conceptual thinking. In games where there are rules and goals, the purpose is to teach learners how to stay within boundaries that have been agreed on at the beginning of each game (Garris et al., 2002).

The rules of the game are the concrete structure that reveals the goal of the game. Learners can then adhere to these rules in order to achieve the

overall goal of the game, which will then provide a reduction in discrepancy. This discrepancy leads to a higher motivation level and an increase in performance (Kernan & Lord, 1990). Sensory stimuli games indicate that there is a strong element within the game that concentrates on stimulating the senses, whether that be through vision, smell, taste, hearing or touch (Garris et al., 2002). Rieber claims that animated graphics create a motivating environment for the learners and it brings them back yearning for more (Reiber, 1991). The senses that are being triggered adds an ambience of excitement, immersion and influence that will further aid the learner in understanding the phenomenon at a more neurological manner that includes the feeling of animate being.

Challenge games are used to function as a means of competition with oneself or with others (Garris et al., 2002). According to Plass et. al, competitive games result in the best mastery intentions of the learners (Plass et al., 2015). This is to say that when utilizing challenge games, it provides an opportunistic environment to better grasp a concept or skill. Lazzaro entitles this phenomenon as *hard fun*; that is, the goal of playing a game is to assess current skills and to ultimately feel a sense of achievement after completion (Lazzaro, 2004). Mystery games add an element of mental acquisitiveness to meander through various phases in order to amass knowledge in areas in which one may deem enigmatic (Garris et al., 2002).

Malone and Lepper claims that being curious is one of the main components of the momentum to learn (Malone & Lepper, 1987). Various specialists in the field of psychology claim that it is a normal part of human nature to yearn to understand concepts that are unknown or phenomena that cannot be defined (Loewenstein, 1994). Control games concentrate more on the aspect of the learner having authoritative control over the details of the game (Garris et al., 2002). According to Garris et al., control games do prove to have a positive effect on the overall learning experience in relation to user reactions and motivation (Garris et al., 2002). In control games, learners are able to dictate and design how a game will be played.

Game Dimensions

	FANTASY	RULES/GOALS	SENSORY STIMULI	CHALLENGE	MYSTERY	CONTROL
Descriptors	Imaginary or fantasy context, themes, or characters	Clear rules, goals, and feedback on progress towards goals	Dramatic or novel visual and auditory stimuli	Optimal level of difficulty and uncertain goal attainment	Optimal level of informational complexity	Active learner control

**Table 1.** Game Dimensions (Garris et al., 2002)

In this particular research study for the thesis, the game dimensions that were conducted were based on *rules/goals* and *challenge*. The motive behind choosing these two dimensions as a framework is that the students projected a need to have a programmed direction to design a space that initiated progress, in which was the objective of the Education Improvement Project. Furthermore, an outlined initiative to create a challenging environment for which the students were not accustomed is another ambition for the classes. The teachers were eager to gain more knowledge as to which methods would work best for their students to learn English at a faster and more efficient manner.

According to Garris et al., motivation is the inclination and yearning to participate in a certain assignment (Garris et al., 2002). During the process of game-based learning, the user has the choice to enjoy the course of development or disregard the entire progress and consider it meaningless. Simon agrees with Garris et. al. in so that people in general possess a tolerance to particular activities, notably demanding tasks, to the extent that they avoid it altogether. The act of learning must be enjoyable and worth the time of the learner (Simon, 2000). The concept of fun is debatable pertaining to every learner’s perspective and style of learning. A common definition of fun is that the experience is to one’s liking in the form of amusement. According to Koster, he claims that “...with games, learning is the drug” (Koster, 2005, p. 40). When there is fun being intertwined with learning, motivation is intrinsically present and could further create a yearn to learn more.

With the IPO game model in mind throughout the process, this particular research study uses board games, role-play and charades as the instructional content in the input section. The flow of the IPO game model suggests that as users are participating in the game, they make personal decisions as to whether the process is interesting, fun and/or creates confidence in the user. This is considered the user’s judgment (Garris et al., 2002). These factors influence the

profundity of the continuation and comprehension of the information being obtained by the user. The level of motivation is set during this stage which affects the behavior that the user has towards the rest of the process. Accordingly, a motivated user will play more intensely rather than the opposite for an unmotivated user.

The system feedback stage of the IPO pertains to how the user has grasped the information. When a user is able to reflect on the process taking into consideration the clear objectives, this usually indicates that there was a high level of understanding and it continues to drive the motivation to further continue improving in the subject matter (Garris et al., 2002). The intention of the feedback phase is not just that the learners 'know' about the subject, but the fact that the learner is able to develop communicative competence while participating in an activity with others (Yule, 1999). Garris et al. states that the debriefing stage connects the process with the overall objective of the game to reinstate the comprehension of the topic, in addition to finding the link between the simulation and the real world (Garris et al., 2002).

In correlation with the output stage, there are three different types of learning outcomes: skill-based, cognitive and affective (Garris et al., 2002). Skill-based learning outcomes relate to the development of motor skills. Cognitive learning outcomes are associated with either knowledge of facts, how to perform a task or the ability to apply rules strategically. With affective learning outcomes, users feel emotional tenacity through confidence, attitudes and personal temperament (Garris et al., 2002; Pivec et al., 2003). Practices have shown that through the IPO game model, people learn from engagement with others when applied with proper guidance (Garris et al., 2002) which solidifies the aforementioned argument that Clark and Mayer claimed regarding supervision. The outcomes of the implementation of media and game-based learning in this research study were both cognitive and affective. An example of IPO game model through game-based learning from the research study will be presented in the Research Methodologies Chapter, Section 4.3.1.

### *3.3 Summary of framework for research study*

According to the aforementioned theories, the use of games and media could affect the learning environment of students, both directly and indirectly. It could provide a platform to challenge a learner through other means of media than what is considered to be traditional to comprehend a concept, such as through traditional lectures without modern technology as a medium or tool for learning. As stated in the game-based learning theory, it offers a cognitive benefit to obtain a learning objective through play.

Furthermore, the psychological aspects of the learner through the implementation of game-based learning could exert that the process includes not only understanding the content, but also possessing the capability to further analyze and reflect on the final outcomes of the win or loss. The cycle throughout the game-based learning process as described in the IPO game model is an image of the constant motion as the wheels of the learners' minds continue to turn. The concept correlates with the idea that motivation through games can be intrinsic and extrinsic, with the latter being the prized objective as it is an achievement that only the learner can conceive.

The framework suggests that in an educational setting, there is a high probability that the learners could benefit in the consumption of new information, both elementally and acutely. In Cambodia, the implementation of media and games are new, especially in a poor community as the location where this research was conducted. These theories will collectively attempt to answer the following research question: How does the implementation of media and game-based learning in Cambodian classrooms improve the students' level of English? In the following chapter, the various research methods in game-based learning conducted in the research study will be presented, in addition to the collected data.

## 4 RESEARCH METHODOLOGIES

The study conducted at Orkun School was situated in an economically constrained region, in which parents could barely afford the comparatively inexpensive tuition of US\$10 per month. This is compared to the other international schools of Phnom Penh with tuition fees that begin in the hundreds of US dollars and upwards (International Schools Database, 2019). The two classrooms of pre-intermediate and intermediate English students were chosen for this study due to the fact that these classes held the highest level of English at Orkun School. However, this does not mean the level itself is high in international standards. Their current knowledge and proficiency were necessary to fulfill the mission of the research study.

The process of the data collection consisted of the need to conduct the research study with the participation of the assigned students. In addition to the compilation of data through surveys and language placement tests, the students were interactive in the overall composition of the study. The research question pertains to the possibility of the effects and improvements of the students' level of the English language that have been determined through the steps of the data collection process. Accordingly, the research question remains: How does the implementation of media and game-based learning in Cambodian classrooms improve the students' level of English? According to the interaction between myself and the students, I quickly realized that they enjoyed learning from someone who is not their regular teacher and with a different teaching technique, which they referred to as "Western" style. Therefore, I took this opportunity to create an engaging learning space for them.

The methodologies that were implemented were participatory action research (PAR) and educational design research (EDR) through game-based learning theory. The PAR was conducive to the study as the students' involvement were pertinent to the overall outcome of the research. The participants interacted with the designated lesson plans, in addition to the

completion of the surveys and language placement tests. The students also designed media- and game-based-related projects, strategies and presentations to educate fellow classmates on a specific assignment. The EDR was vital in so that the students were applying the practice of the utilization of media to educate the class on particular topics, in addition to the actual design of the lesson plan from myself, which will further be elaborated under the Education Design Research section.

As Cambodia is a country of developing status, the utilization of media is not prominent and scarcely existent in the classroom. The engagement in new media was a discovery that most of the students profoundly experienced for the first time. For the study, game-based learning was executed through the means of various modes of media. The forms of media that had been presented were traditional board games, music and audio exercises, streamed video, books and interactive play. In the forthcoming sections, the elaborate elements of the aforementioned methodologies, in addition to the data collection process, will be presented.

#### *4.1 Participatory Action Research*

Participatory action research (PAR) is a methodology that is "...made to the improvement of the understanding, practice and social situation of participants and others in the context described" (McTaggart, 1997, p. 26). PAR is commonly associated with the purpose of positive and discoverable outcomes correlated to the extent of the study. This methodology is conducted in research in so that there is a solution to be uncovered, in addition to the revelations that the participants may develop during the span of the case study. In most cases, participatory action research progresses the comprehension of the participants on the subject matter at hand. The inventor of the concept of action research was social psychologist, Kurt Lewin. He:

...described action research as proceeding in a spiral of steps, each of which is composed of planning, acting, observing and evaluating the result of the action. In

practice, the process begins with a general idea that some kind of improvement or change is desirable. (McTaggart, 1997, p. 27)

In this particular study, the spiral of steps includes the participation of students from the beginning phases of planning, during the actions facilitated in the activities, to the end of reaching the overall objective. During the process of PAR, the first stage is planning. This contains the intended purpose of the research, the outline of the study in practical action and the steps required to obtain the objective. The second stage of acting is the implementation of the outline into actual practice with the participants. Observing is the third stage that both the researcher and participants can engage in. This stage allows the members of the research to comprehend the purpose of the process and to understand exactly how the objective is being achieved.

Lastly, the evaluation of the results is a moment of reflection for the participants. This supports the members in so that the duration of the research is acknowledged as a pledge for the maintenance of the education obtained from the study. It is the understanding of the events that occurred during the action phase and the result of the initial impetus. Through these four stages of research, it continuously involves the substantive action and the imminent logic process from the participants. PAR is a multilateral methodology executed by the participants themselves.

#### 4.1.1 Misconceptions of PAR

Within the parameters of PAR, there exists some misconceptions surrounding the concept in practice. There is a difference between the perception of 'participate' and 'involve' (McTaggart, 1997). Hence, the involvement consists of a member of the research study to incongruously cooperate in the action steps of the aforementioned outline. When a member participates, the participant is actively engaged physically and mentally throughout the entire process. Furthermore, the mental process includes the comprehension, the purpose and the intended outcome of the research. This process may develop individual perceptions and interpretations (McTaggart, 1997). To participate indicates

more interaction with deeper meaning to the participant compared to just being involved.

The theory behind PAR is that during the study, the participant encases a personal objective to complete. McTaggart (1997) states that:

Participatory action research is therefore contingent upon authentic participation: it is research through which people work toward the improvement of their own practices (and only secondarily the improvement of other people's practices) (p. 34).

The concept of PAR is that the study is not conducted on the people, rather on the contrary, by the people. The researcher is not the only observer in the study, as it additionally combines the viewpoint and assessment of the participants. Despite the intentional aim of the researcher to answer the research question, a separate phenomenon simultaneously takes place as the participant arbitrarily concedes an independent thought process. This is how PAR differentiates from other methodologies in so that the participant is capable of improving individually and the concept allows groups to work laterally in order to reach the proposed objective.

#### 4.1.2 PAR in practice at Orkun School

PAR was chosen as one of the methodologies used in this study on the grounds that the ideas and thought process of the participants were vital in not only completing the research, but to fully appropriate the impact that the contact of new media had on the students. The first step of PAR is planning. The outline of the research study was compiled by understanding the number and profile of participants, the ethical standards to abide by, the media that will be presented and in what manner and approach the media will be demonstrated to the students. In the beginning phases of the research during the outline and presentation process, the students, the parents of the students, in addition to the staff of the school were all knowledgeable of the research study being conducted. The purpose was clearly stated, the necessary materials were

obtained and the participants were informed prior to the distribution of the initial employment of the study.

The second stage is the implementation. This consisted of pre- and post-surveys, pre- and post- placement tests, in addition to the activities that were actuated during the gaming factor of the lessons. The participants completed surveys and English language placement tests preceding and subsequently following the implementation of game-based learning in the classroom. During the process of the action research in its entirety, the participants were able to engage in the activities which will be further discussed in section 4.2, reflect on their individual impressions of the experience, in addition to the improvement, impact and relevance that this may have had for the future of the students. As it will be discussed in the following section, the students were involved in the execution of the study by conceptualizing the manner in which the research was conducted. The students helped create the lesson plans in so that they possessed a tangible agency in the production of knowledge to fellow students in the classroom. The development of the research was also instated in the measures of the course of action from the perspective of the participants.

The third and fourth stage of PAR is observation and evaluation. This was implemented during the activities through the method of keeping field notes and paying attention to the actions and interactions of the students individually and in groups. Utilizing PAR as one of the methodologies for this research study has created a momentum for the students at this school. The progress and improvements that ensued and furthermore recognized by the participants was empowering for the students. It built a space for the students to be interactive and agents of design and essentially, permitting advancement of oneself and for the school's curriculum. The students designed individual content to educate their fellow classmates from an established task. In the next section, another methodology that was used for the research, educational design research, will contain further explanations of how the content of this research study could advance the knowledge of the institution.

## 4.2 *Game-based learning activities in research study at Orkun School*

During the execution of the research study at Orkun School, a variety of both traditional and modern media were presented to the students as a form of study and atypical lecture in the classroom. This particular research study uses board games, role-play and charades as the instructional content in the input section of the IPO game model. The following games and activities that were implemented focused on the engagement within the practice, interaction among peers and individual self-reflection. The idea was to motivate the students to possess the desire to learn English to their very own best ability. In the subsequent subsections, the media and games that were introduced to the students for the research study will be presented.

### 4.2.1 Board games

There were two different forms of board games that were conducted in the completion of the action research. Firstly, the board game entitled *Breaking News* was the predominant physical traditional game that was introduced to the class. This particular game was chosen due to the fact that it was an English game that focused on grammar, spelling and punctuation. These were some of the goals of the classroom to improve in the English grammar and it correlated well with the intention of the research study. The class was divided into groups of 6. There are 6 decks of colored cards with various English grammar questions. The steps of the game were to roll the dice, answer grammar questions correctly from at least one card from every deck and collect every color. Once every card has been collected with a total of 6 cards for each group, the group wins. From observations, the classes tremendously enjoyed the game and it was apparent that the students were learning English grammar while having fun.

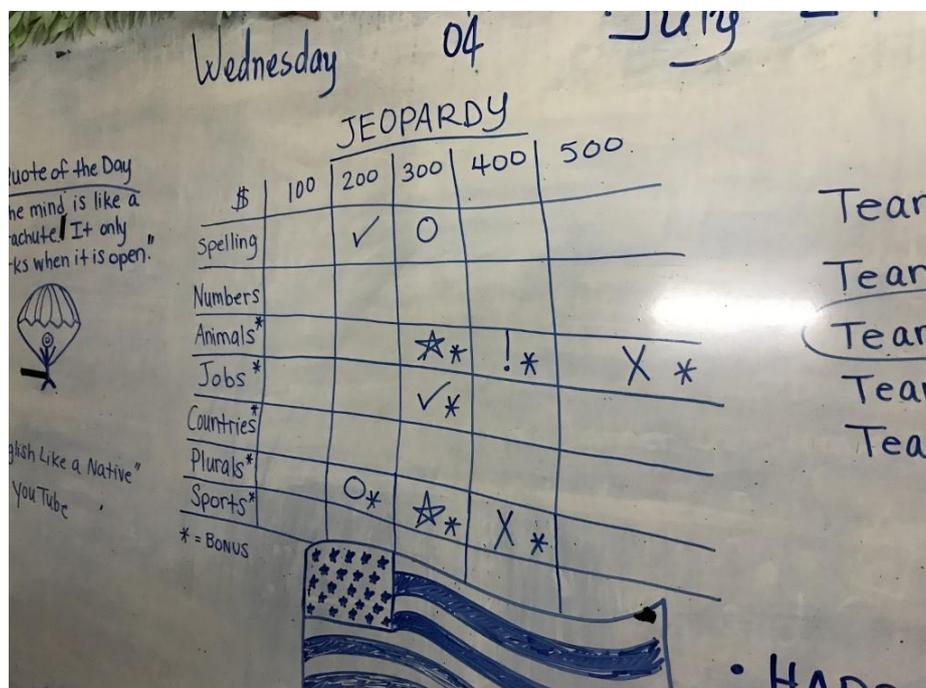


**Photo 1.** Pre-intermediate English level students playing *Breaking News* at Orkun School

Secondly, games were also performed at the white board in the front of the classroom. The games consisted of *Jeopardy*, *Hangman* and *Pictionary*, in which continued with the direction of improving in the English language. In *Pictionary*, students individually came to the board and a word was secretly given to them from the teacher via whisper. He or she then proceeded to draw a picture of the word as the rest of the class tried to guess the secret word. In *Hangman*, a word is chosen by a student and written on the board in the form of blank lines for each letter of the word. The other students of the class chose a letter from the alphabet that they believed were a part of the hidden word. If the letter was a part of the spelling of the word, it was written on the correct blank line. If the letter was not a part of the word, then the body of the hangman began to form. If the head, body, arms and legs were drawn, which coincided with the number of missed letters, then the team loses.

*Jeopardy* derived from an American television show which consisted of different categories. The categories ranged from simple to difficult, matching the number of imaginary dollars that could be obtained by answering the question correctly. The players or teams chose one category and collects “money” after having answered it correctly. The more difficult the category, the more money the team will receive if answered correctly. The winner is the team with the most

amount of imaginary dollars. These board games all had one common aim, which is to learn new vocabulary, enjoy the learning process and improve in English simultaneously.



**Photo 2.** Jeopardy game from Intermediate English level class at Orkun School

#### 4.2.2 Profession role-play activity

In the role-playing activity, the students had the opportunity to be a different person in the sense that a new persona and understanding of the role is being comprehended. For instance, an assignment was given to choose a dream profession, which was the only rule. The students, in a sense, took control of the plan from that one delegation. The participants in this activity either chose to collaborate with other classmates or complete the assignment individually. After partners or teams were created and the plan was in place, they came to the front of the class to present the chosen profession in any form that they wish. When students chose to work individually, the student usually decided to 'act out' the profession without speaking for the rest of the class to guess. During these models of role-play, some of the students chose to use media to teach

the class. They chose music to play, songs to sing, books to observe and developed new acronyms to differentiate from traditional learning of vocabulary, as presented in Photo 3. The educational design research used in this activity will be presented in terms of the IPO game model in Section 4.3.2.

These activities generate the impression and feeling of confidence. This is an essential skill for learning as when one feels comfortable with a subject, it is a common measure of how much one understands the matter at hand. Considering the development seen from this research study regarding the teaching of English using media and game-based learning, this is the ideal moment to review similar case studies pertaining to game-based learning and English learning.



**Photo 3.** Intermediate English level student presenting profession at Orkun School

### 4.3 *Educational Design Research*

The preconception of educational design research (EDR) is related on the ideology that a particular problem exists and the designed intervention is usually composed to search for a solution to the declared issue (Plomp, 2013, p. 9). EDR may also be referred to as educational design-based research (Bakker & Eerde, 2014). Upon completion of theory analyses, literature review and presented proposal of an educational issue in a specific environment, the researcher then designs an intervention process that will adhere to the intentional outcome of the study. Plomp (2013) states:

Educational design research is perceived as the systematic study of designing, developing and evaluating educational interventions..., which also aims at advancing our knowledge about the characteristics of these interventions and the processes to design and develop them (p. 9).

After concluding that there is a problem that is necessary to be addressed, for example in an educational setting, then the researcher creates a method or specific approach that will steer the participants to achieve the intended aim. The technique may or may not be successful. If the intention is obtained, the intervention will be considered successful. If the objective is not achieved, the intervention must then be reevaluated and reimplemented until the purpose has been reached. It must be mentioned that EDR “does not strive towards context-free generalisations” (Plomp, 2013, p. 16). The objective of EDR is to find a solution for a specific context and group.

In general, the researcher is responsible for not only designing and developing the intervention, the evaluation process is also contingent to the duties of the completion of an EDR (Plomp, 2013, p. 11). As aforementioned, design research is for the development of an intervention in which the purpose is to solve a complex educational issue within a certain environment. The evaluation of the intervention is for the researcher to understand the events that unraveled during the research study. As EDRs are typically conducted in real-life situations, naturally there can exist real-life challenges. Some examples will be presented in the following subsections.

#### 4.3.1 EDR in research study using IPO game model

The design process in which the students participated in was the recognition of the problem that there were not many opportunities to not only speak in front of the class, but to also teach their classmates. This design process enlists the existence of a problem, and the students innovate methods that could aid each other. During this process, I noticed the indirect semiotics associated with the progression. Indirect semiotics are referring to how the participant behaves without deliberately showcasing it through action or words, e.g. some students are not the first to raise their hand due to the fact that they are shy or they do not know how to proceed. The intervention convenes as I direct questions or suggestions to students to nudge them to put in more effort than they would without guidance.

As aforementioned in the EDR definition, there must be a level of intervention and change that is necessary to be conducted. In this particular study, the purpose of the internship that I actively participated in is to increase the overall level of English of the students and to improve the confidence level in learning. Therefore, the students and staff of Orkun School notably recognized that there was a problem of courage, competence and opportunity so the solution was to design a program, such as this research study, to better initiate a plan that will help the students ameliorate in both the English language and learning habits.

One of the activities that the students designed and participated in was the selection of a future profession of their choice with the intention of presenting it at the front of the class. In order to clarify the definition of participation, it is to say that the student took part or had a share in the overall activity chosen producing knowledge concurrently (McTaggart, 1997, p. 28). Some of the students worked individually, whereas some chose to collaborate with other classmates. The idea behind this task was to provide an opportunity for the students to practice public speaking, presentation design and collaboration, in addition to experiencing the psychological boost of confidence. Every student

was given the assignment to create a presentation in the form of their choice, whether it be a lecture, performance, game or quiz. During this process, I raised suggestions to push the students outside of their limits, e.g. asking how they see it benefiting themselves or their peers, advising on presentation skills and inquiring about extrinsic motivations. These queries not only engaged the students more by thinking outside of the box, but it provided an external goal that exceeds what happens in the classroom.

According to the IPO game model, the input of this activity were the directions of the assignment, stating the defining instructions necessary to complete the task. During this phase, the students chose their topic of profession, in addition to the manner in which it will be presented to the class. Following the IPO game model, the instructional content and game characteristics were selected and designed by the students themselves under my supervision. Throughout the process stage, the students were able to cooperate with others and receive feedback from classmates, the teacher, as well as myself. As displayed in the IPO game model, the user judgements, user behavior and system feedback were concurrent in so that there was an ongoing conversation throughout the activity. Students were able to give each other feedback and ask questions, in turn becoming more aware of their own behavior as well as that of their classmates.

In this stage, the overall motivation level of the students was high due to the fact that this was the first time that this activity had been introduced to them. The process was exciting because it was new and for the first time, the students had the opportunity to be the teacher. The last stage of the IPO game model is the learning outcome. During the presentations, the level of confidence was evidently boosted. This outcome was visible through the information that was delivered and the participation of the classmates. After the assignment had been completed, the students discussed how and why the activity had meaning to the improvement of their level in English. This debriefing and reflection session reinforced the idea that it is important to discover new, innovative methods to practice the English language.

## 4.4 Research Instruments

The intention of this research study was to understand the effects on the English level of the students following the implementation of media and game-based learning. This was conducted through language placement tests, in addition to surveys. The following data will be analyzed using descriptive and thematic analyses, which will be further discussed in Chapter 5. In the following sections, the empirical data that was derived from the research study will be presented.

### 4.4.1 Language placement test statistics

The English language placement tests were used as a vessel to determine the students' current level in English. This was vital to understand at which position the students were situated regarding the initial stage of comprehension of the language in order to further design an action plan that would aid in the improvement of their objective in the amelioration of the language. The intention of the research study was to discover if the implementation of game-based learning does in fact affect the progress of learning English in general.

The placement test was derived from a public use domain from Macmillan Publishers entitled *Straightforward Quick Placement & Diagnostic test* (Macmillan Publishers, 2018). This particular test was chosen due to the simplicity of the structure in addition to its length. Enclosed in the test were 50 questions pertaining to English grammar, spelling and punctuation. As the research study period was very limited, specific details in the decision of appropriate materials had to be established. The students completed the placement test prior to the implementation of media activities, in conjunction with the succession of the application with the same test. This was to locate any improvements or changes in the level of English after the completion of the action research.

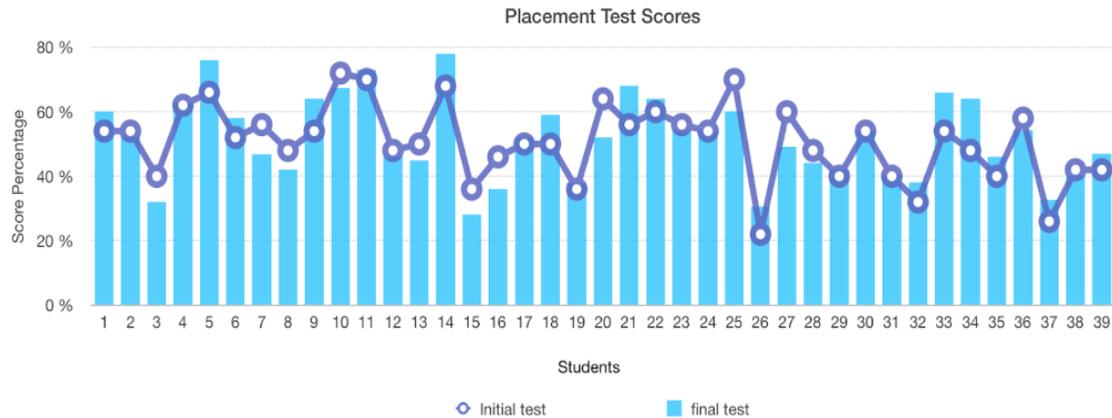
The data is drawn from the initial and final results of the language placement test. The data was collected during the span of the 6-week

internship. Primary data collection took place in Cambodia during the summer of 2018. The 39 students that were partaking in the research study were aged 14-19 and all enrolled in English courses of pre-intermediate and intermediate level. As illustrated in Table 2, after the collection of the initial test scores, the percentage was calculated out of 100%. For example, Student 1 answered 27 questions correct out of 50 total questions. This would give the fraction  $27/50$  which converts to 54% out of 100%. This equation was followed for the structure of the evaluation of all the data from the initial test scores. In this same format, after the implementation of the media and game-based learning activities in the classroom, a final test was given in which the questions and answer sheet were the same from the initial test. This is to prove if there were any changes during the learning process of the student. The overall mean of the pre-language tests was 50.7%. The overall mean of the post-language tests was 51.7%. The data from the two test scores is coordinated in Graph 1 to compare the level of incline or decline between the two tests.

Placement Test Scores

	INITIAL TEST	FINAL TEST
1	54 %	60 %
2	54 %	52,1 %
3	40 %	32 %
4	62 %	62,5 %
5	66 %	75,8 %
6	52 %	58 %
7	56 %	46,7 %
8	48 %	42 %
9	54 %	64 %
10	72 %	67,3 %
11	70 %	72,9 %
12	48 %	46 %
13	50 %	44,9 %
14	68 %	78 %
15	36 %	28 %
16	46 %	36 %
17	50 %	52 %
18	50 %	59,2 %
19	36 %	37,8 %
20	64 %	52 %
21	56 %	68 %
22	60 %	64 %
23	56 %	54 %
24	54 %	54 %
25	70 %	60 %
26	22 %	30,6 %
27	60 %	49 %
28	48 %	44 %
29	40 %	42 %
30	54 %	54 %
31	40 %	40,4 %
32	32 %	38 %
33	54 %	66 %
34	48 %	64 %
35	40 %	46 %
36	58 %	54,2 %
37	26 %	32,7 %
38	42 %	40 %
39	42 %	46,9 %

**Table 2.** Placement Test Scores from Intermediate and Pre-intermediate English level students at Orkun School



**Graph 1.** Placement Test Scores from Intermediate and Pre-intermediate English students at Orkun School

#### 4.4.2 Results and responses from surveys

The utilization of surveys was chosen as a method of data collection in so that the intention was to understand the current situation pertaining to media usage, in addition to any changes of perspectives following the application of media in the classroom. The surveys were distributed prior to the implementation of media activities in conjunction with a distribution succeeding the completion of the application. “Survey research is a useful tool when researchers wish to solicit the beliefs and opinions of large groups of people” (Tuckman and Harper, 2012, p. 180). Being that the group of participants was a large number of 39 students, the survey could be utilized as a vessel to determine the general stance of the present situation.

Among the questions delivered in the survey, the responses were designed in the form of frequency ranking. The numbers were from 1 to 5 ranging from never to always, respectively. Ranking responses “...are analysed by summing the ranks that subjects assign to each response, giving an overall or group rank order of alternatives” (Tuckman and Harper, 2012, p. 188). The comprehension of the analysis of the combined results was indeed the aim of the survey distribution. It provided a conclusion that determined the prevailing circumstances, in addition to the issues that may need to be addressed during the actual implementation of the study using media and game-based learning.

In the first survey, there were 20 questions that asked the students' perspective on the current usage of media and games as a learning tool. All of the questions began with one of the following two phrases: "How often do you..." or "How useful ...". For instance, 'how often do you use the computer' and 'how useful do you think it is to play games to learn English?' Every survey question refers to either media, game-based learning and/or English. These questions were rated on frequency with the scale of 1 to 5. The related frequency terms were as follows: 1 = never, 2 = rarely, 3 = often, 4 = frequently, 5 = always and N/A = not applicable. Each frequency was then tallied from each student's survey to give an overall view of the perspective that was most frequented. The details of the questions can be found in Appendix III. To test the internal consistency of the items in the questionnaire, the Cronbach alpha was used as the indicator (Cronbach, 1951). The overall Cronbach alpha of the questionnaire was calculated to be 0.75 (Wessa, 2017). Due to the fact that it was over 0.70, the accepted rate in social research, the items in the questionnaire were reliable (Cronbach, 1951).

At the end of Survey 1, the students were asked the open-ended question "How do you think that media and games can help you improve in English?" As will be discussed in the next chapter, thematic analysis will be utilized in order to understand the various themes within the participation of the students that were found throughout the research. The remaining question is if there is a correlation between the scores of the placement tests to the perspectives of the students. Is there a cause and effect relationship? In addition, there is also the issue regarding the challenges that were faced during the completion of this research study. Did those obstacles affect the overall outcome of the study? These questions and answers will be further discussed in the Findings and Discussion and Conclusion Chapters.

#### 4.4.3 Field Notes and Observations

During the process of the research study, a selection of field notes was recorded in a notebook. Every day, I manually recorded the observations in a

paper notebook then later the same day, transferred them electronically to my computer. The purpose of this transfer was so that the information would be readily accessible in a retrievable database without risk of loss. These notes included various observations from the participation of the class, the activities that were practiced, in addition to the feedback that was received from some of the students. The field notes act as a substitute and supplemental material for the research. The notes were not essential to the completion of the overall analysis of the research study; however, it did serve the purpose of being an accessory of providing minor details of the actual implementation process of the study.

As an observer of the process of game-based learning as it unveiled, I noticed that in the first couple sessions of class, the students were reserved and polite to answer questions and participate in activities. As the research continued, the students opened up, perhaps due to the fact that they felt more comfortable with the new idea of actively being involved in the execution of designing, presenting and performing. The development of the confidence level was highly present from the comparison of the initial day to the final day of the research study.

The methodologies that were utilized in the process of this research study were participatory action research, educational design research, in congruity with the game-based learning theory. The summary of the methodologies used in congruence to the activity and data collected is presented in Table 3. These principles were the foundation to the completion of this study in so that it built the grounds to serve the purpose which is to reach a statement or solution to the initial research question. For the intention of this study, these methods were chosen as they guide the research study, as well as the participants into the direction that had been originally proposed which was to discover if media acted as an aid to the improvement in the English language.

During the phases of these methodologies as it was applied to the classroom agenda, the observations that were made concluded that indeed, the implementation of game-based learning did have a positive effect on the students' learning of the English language. In the forthcoming chapter, the data

will be analyzed using descriptive analysis for the quantitative data and the thematic analysis for the qualitative data.

Activity/Game	Methodology	Dimensions	Data Collected
Surveys	PAR	Rules/goals	Individual pre- and post-perspectives on games and media in learning
Placement tests	PAR	Rules/goals	Individual pre- and post- level of knowledge in English
Breaking News	PAR	Rules/goals	Interaction and motivation individually and in groups
Pictionary	PAR	Rules/goals	Interaction and motivation individually and in groups
Hangman	PAR	Rules/goals	Interaction and motivation individually and in groups
Jeopardy	PAR	Rules/goals	Interaction and motivation individually and in groups
Profession role-play	EDR	Challenge	Production, application and reflection of students

**Table 3.** Summary of methodologies used at Orkun School in congruence to activity, dimensions and data

#### 4.4.4 Practical challenges

During the implementation of the research methodologies in a developing country, not having challenges was certainly inadmissible. Plomp (2013) states:

Ambitious reforms cannot be developed at the drawing tables in government offices, but call for systematic research supporting the development and implementation processes in a variety of contexts (p. 9).

In the case of Cambodia, reforms are more difficult to achieve due to the constraints imposed by the government. As a developing country, the funding and overall infrastructure of the educational system is not stable nor advanced in the terms of a developed country. If a proposed issue has been established by a school, it is dependent on the severity of the problem for the government to even consider taking action towards a solution. Customarily, the educational institution resolves the issue by proceeding with necessary operations to ensure the quality of education in the establishment. Therefore, with these conditions in mind, the lesson plans that were designed catered to the current state of the students as well as the school.

During the research study in Cambodia, the difficult challenges that incurred were due to the lack of resources, unstable infrastructure of the classrooms and school, in addition to the unpredictable weather patterns of the monsoon season. The resources that were available for the study were limited to the media were from the disposal of myself, the researcher. The classrooms and school were in poor condition; therefore, there was a lack of space, in addition to the exposure to torrential weather, such as monsoons. Whenever a monsoon poured, the rain seeped into the classrooms to the extent of flooding at times. This made it very difficult to properly facilitate the research under these conditions as it created a distraction; however, this research study was successfully completed nevertheless.

# 5 FINDINGS AND DISCUSSION

The objective of the research is to understand how the implementation of game-based learning can affect the improvement of learning English in a Cambodian classroom. The data that was collected as aforementioned contains much information regarding not only the quantitative aspect, but also the quality of the discourse intertwined within the interactions and conversations from the engagement of the participants. It is an aim to understand how the discourse affected the outcome of the quantitative data, in addition to connecting the social and psychological aspects of the participants' environment. In this section, the data will be analyzed through descriptive analysis and thematic analysis.

## 5.1 *Quantitative Data*

Quantitative analysis is dependent on the interpretation and description of numbers. For the analysis of the quantitative data, the methods of analysis should ideally reveal the statistics in a manner that explains the reasoning of the purpose of the study. The motivation behind choosing the method of descriptive analysis is to further understand the relationship between the statistics provided from the graphs and tables and the meaning that may indirectly be latent in the overall context.

### 5.1.1 Descriptive Analysis

Descriptive analysis is commonly used for analyzing quantitative data by showing frequency, quantity or certain classifications, which can also highlight

relationships between variables (Torchim, 2006). This method of analysis coincides appropriately with the conducted study. The numbers accrued from this study derived from the placement tests that were a source of gauge to examine the changes, if any, in the scores from the beginning of the initial placement test to the end of the final placement test. In this analysis, the statistics of the placement test scores, in addition to the answers to the frequency survey, will be further observed.

A total of 39 students took the English placement test. The tests were given initially as a measure to observe any radical changes at the end of the study. The same test was given to the same students at the end of the study to compare the transformation of the knowledge in the English language. There was a total of 39 scores for the initial test and the final test. Out of these 39 students, 21 students saw an improvement in the scores. The average incline was of 6.5 points. 16 out of 39 produced a decline in the scores. The average decline was of 6.3 points. 2 students had no change in the comparison of the scores.

The initial analysis of Graph 1 and these statistics can indicate that most students did see a rise in the scores during the second implementation of the placement test. However, paired-samples t-test was used to evaluate the effectiveness of the game-based learning intervention. The results of the t-test indicated that students' post-test scores ( $M = 51.7$ ,  $SD = 12.9$ ) were not significantly higher than scores in the pre-test ( $M = 50.7$ ,  $SD = 11.8$ ),  $t(38) = 0.812$ ,  $p = 0.422$ ,  $d = 0.130$ . This means that game-based learning activities did not improve students' scores substantially. This indicates that in the short time span of the research study, the test scores were not improved substantially, but were other elements boosted regardless? Why did the 16 students see a decline in the comparison of the scores? These questions will be further be explored in Section 5.3.

The analysis of the frequency survey indicates that the majority of the students do not frequently use media or games to learn. Does this also indicate that there is no frequency due to access to materials? In addition, pertaining to the classrooms, there is not a lot of opportunity for students to design educational activities to enhance the learning experience through media and games. When comparing the frequency answers to the surveys that were

distributed in the initiation of the study regarding their perspectives, there is a correlation between the viewpoint and the overall interest. For example, Student 26 did not have a positive attitude in the beginning towards using media and games to learn English. This is reflected in the frequency survey as the student averages between a 1-2 on the frequency spectrum, using media from rarely to never. Could the initial attitude affect the outcome of a student's performance? Questions raised in this section will be further addressed in Sections 5.3 and 6.2.

## 5.2 *Qualitative Data*

Qualitative analysis is the attempt to understand the overall meaning from the characteristics of the data. This may entail deciphering language used from verbal and non-verbal communication. To further analyze the qualitative data in this research, the thematic analysis was chosen to be the primary method. The motivation behind choosing this method of analysis is due to the fact that during the process, the students interacted with each other through language and movement, which cannot be pinpointed through only statistical data. It is necessary to search for a common theme that was repeatedly represented in the research procedure.

### 5.2.1 Thematic Analysis

A thematic analysis aims to provide insight on the overall recurring theme within qualitative data (Clarke & Braun, 2017). It could be from analyzing the points of view of the expressions, surroundings and symbolic meanings. The motivation behind choosing this method of analysis is due to the fact that during my observations, I noticed that the social and mental environment in which the participants were facing heavily impacted the performance in the classes. The use of language from the students, including the words chosen and how the words were spoken, were influenced not only from the teachers, but also from

their peers. It is my aim to understand what the correlation is between the discourse of the students in their surroundings to the outcome of their performance in English.

Yule introduces a factor called 'coherence' in which it refers to "arrive at an interpretation which is in line with their experience of the way the world is" (Yule, 1996, p. 141). He claims that it is part of human nature to decode the messages received from the world, whether it be in the form of tangible media or speech. In addition, we as humans continue to search for a deeper meaning than what is scratched at the surface. For the purpose of this thesis, the analysis will not only be descriptive, but critical due to the aim of understanding why the participants resulted in their respective outcomes.

Majority of the students believed that media and games can certainly help with the improvement of English. According to the initial survey question (refer to Appendix I), only two students out of the study perceived that game-based learning would not be beneficial to the learning of English. Student 25 stated that "I think that computers and playing games is not good." I looked for a common theme by deciphering the words that kept being repeated throughout not only the surveys, but also during the classroom observations. In order to proceed with this discovery, the use of "wordclouds" was initiated to further implore the common themes. Wordclouds are essentially the visual portrayal of the most frequented words in the form of a text (Bashri & Kusumaningrum, 2017). This is wordcloud thematic analysis, in which the major themes of the research study will be discussed in the following paragraph. The font size represents the frequency of occurrence, in which the larger the font appears, the more frequent the word has appeared. The text that was used came from the responses of the students from the surveys. The principal words and phrases that were overwhelmingly repeated, with the bigger, bold words as the most frequented, were as follows as presented in Image 1.



entertaining experience and provided a chance to enjoy a lecture with their classmates. The students enjoyed laughing together, learning from each other and watching everyone improve. Student 14 declared that the most memorable activity was “designing a game by myself.” This portrays the desire in the students to create and that game-based learning is a method that could give that opportunity to learners.

Throughout the entire process, I observed and interacted with the students. At the initial introduction of the study, most students were excited about the idea of learning in a new, different manner, especially from a “foreigner”. This enthusiasm persisted throughout the entirety of the study, with minor complications, which will be addressed in Section 6.1. To answer the research question, the implementation of media and game-based learning in Cambodian classrooms do indeed improve the students’ level of English, but only to a certain extent. The effects of media and game-based learning are that the motivation factor certainly increases, in addition to the confidence and courage that emerged from the students after the weeks of new activity with the media and games progressed. The participants were able to not only design and apply their abilities, they were also able to reflect and ponder about how this could affect their future learning. Overall, the students seemed to have an enriching experience with the implementation of media and game-based learning in the classroom. The data indicates that the majority did show an improvement from the initial placement test to the final placement test, if only by a small percentage.

### *5.3 Connection of Data to Outcome*

As aforementioned, the quantitative and qualitative data indicates that there was an improvement or consistency from the majority of the students that participated in the study, but only by a small fraction of 22/39. The t-test mentioned in subsection 5.1.1 indicates that there were students who also experienced a decline in the scores from the placement tests. There is certainly a relationship between testing and results, but this does not mean that there is a

correlation nor a cause-effect relationship with the two variables. In this section, we will address the connection of the data to the outcome that was presented from the research study.

As much as there is optimism and excitement surrounding the method of game-based learning, it may not be the superior learning method per se. Researchers state that games enhance motivation and increase student's interest in subject matter, "yet the extent to which this translates into more effective learning is less clear." (Druckman, 1995; Pivec et al., 2003) This is to say that although games do provide a nontraditional method of learning giving learners a chance to have fun while creating, this does not necessarily mean that there is a correlation to the effectiveness of it when there is an improvement, or is there? Newer research states that the reason there are flaws in understanding the effectiveness of educational games is that there should be more focus on the game elements, rather than the games themselves (Vandercruysse et al., 2013). Another solution to further understand the correlation between the improvement of a subject for the learner and games is taking into consideration the perspectives of the learners for their initial mindsets will affect how the experience has been ensued.

Taking this research study into account, the reason why there is even a notion of doubt in the idea of game-based learning implementation being the key to success in learning English is due to the fact that not every student scored higher on the second placement test. If every student scored higher the second time, then perhaps the analysis would render differently. Indeed, there is a relationship between the testing and results in so that there was a phenomenon that was instated during the process of the research study. However, how did media and game-based learning activities affect the improvement of English learning? From the observations, the students' confidence and motivation levels were boosted dramatically.

Students were able to grasp a new methodology and in turn, that ultimately resulted in how the students individually reacted to the new manner of learning. The attitude of the student may have affected his or her performance in the case that the student was never motivated initially about the participation. This may or may not have affected the outcome of the results and there needs

to be further research conducted under the realms of psychological influences in this circumstance to fully understand the underlying rationale.

# 6 CONCLUSION AND FURTHER RESEARCH

This research study encountered much success as it did challenges. The students may have been willing and capable of participating in the study, however, this does not imply ideal external circumstances that may have impeded the results. As with any research, there are bound to be limitations and challenges that may arise during the process. This research study was not exceptional to that rule. In this concluding section, the limitations of the study and recommendations of further research will be addressed, in addition to the concluding findings of this study.

## *6.1 Limitations of Study*

As aforementioned, the difficult challenges that incurred were due to the lack of resources, unstable infrastructure of the classrooms and school, in addition to the unpredictable weather patterns of the monsoon season. The classrooms were in a fragile condition with a lack of space. Whenever a monsoon poured, it made it very difficult to properly facilitate the research under these conditions as it created a distraction. Perhaps a better infrastructure of the school would have decreased the amount of distraction to the students during their studies; however, this does purvey it as a limitation for this research study.

In Orkun School, the school hours may have had an impact on the students as the classes were held during the evening hours from 5:30pm to 7:00pm. Students may have been tired from a long day and perhaps this may have had an influence on the performance of the students. It is not to say that if the class was held earlier in the day, the students will perform higher; however,

the students were at their limit to continue studying in the evening. The duration of the Education Improvement Project was also limited in time. The internship endured for 6 weeks; however, only 2 of those weeks were allocated for the research study in agreement with the institution. Two weeks is not ample enough to conduct a thorough research study and to effectively see a large improvement.

Lastly, the resources were mainly provided by myself. The school did not have many materials nor human resources at disposal for the research study. Therefore, I provided the necessary materials and conducted the study with the items that I brought with me. Another limitation was the access to internet and technological devices. The infrastructure for proper internet connection for use of digital media was unattainable. Not every student possessed a mobile phone and not every student who had one was connected to the internet. There were times when my personal computer did not have a stable internet connection. This made it more difficult to proceed smoothly with the conduction of the study. Despite these limitations, the study was completed successfully nevertheless.

## *6.2 Recommendations of further research*

There are a few questions that were left unanswered in a complete manner due to the fact that further research is necessary in order to understand the psychological aspect of the study, in addition to comprehending the relationship between the testing and the results. Perhaps connecting the effectiveness of educational games to the emotional intelligence correlation could be an interesting concept to explore the depths of game-based learning theory in actuality. According to the World Health Organization, emotional intelligence is the ability to positively overcome any challenge that life may bring (Saini, 2016). In the context of the implementation of game-based learning to improve in a language, emotional intelligence applies in so that the students gain more than just knowledge on a subject, they gain a life skill that can provide them with confidence in the future. Pivec et al. (2003) states:

There are specific educational domains where game-based learning concepts and approaches have a high learning value. These domains are interdisciplinary topics where skills such as critical thinking, group communication, debate and decision making are of high importance. Such subjects, if learned in isolation, often cannot be applied in real world contexts. (p. 219)

The importance of game-based learning scratches so much more than the surface of basic education. It is a method that provides a space for learners to become individuals as they are able to create and recreate during the process of game-based learning. Learning is development. School children need immediate gratification and this also applies when playing games for the purpose of learning (Vygotsky, 1978). This immediate gratification that Vygotsky refers to is the confidence, motivation and interest in learning. The emotional intelligence of the student is increased, which in turn provides a fruitful learning space. Vygotsky (1978) states:

As play develops, we see a movement toward the conscious realization of its purpose.....Purpose, as the ultimate goal, determines the child's affective attitude to play. For the school child, play becomes a more limited form of activity.....at school age play does not die away but permeates the attitude toward reality. (p. 103-104)

Emotional intelligence is an aftermath product of play. It can permeate essential life skills such as being self-aware, critical and creative thinking skills, problem solving and communication with others as a few from the list (Saini, 2016). As displayed in the research study, the motivation of students was apparent and an impactful force that drove most of the students to perform well as a result.

A few questions left are: Could the initial attitude affect the outcome of a student's performance? Did those obstacles affect the overall outcome of the study? Is emotional intelligence a factor in the performance of a student? How does the discourse affect the results of the study? In order to find the answers to these questions, there must be further research with a psychological perspective as well as conducting a discourse analysis.

The findings from this study suggests that the students seem to have an enriching experience with the implementation of media and game-based learning in the classroom. The scores from the initial and final placement tests indicate that the implementation had an effect on the results, which may or may not be correlated. Although the majority of the students received an increase in

the scores, many students did also see a decrease or no change in the scores from the placement tests. The results indicate that there is an effect that has impacted the students from between the testing, the process and the results. This may additionally have a connection with the level of emotional intelligence on an individual basis which will need further research.

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## Appendices

**Appendix I.** Response to Survey 1 before Placement Test 1 (all responses have not been edited; therefore, grammatical errors are left intentionally)

Student	How do you think that media and games can help you improve in English?
1	I think media and games can help me to improve in English because if you watch alot you can know alot about English can listen and make you know about history or technology and about game you can play it for fun and you also know and learn about English too because some games is using English too.
2	I think that media and games can help me improve in English because if my English low i can't do it well so i need to become strong and when our English become stronge we can do it well done. and successfully.
3	For me I think that media and games can help me much to improve in English and it doesn't make much stresse and it happy and fun too. it easy to learn.
4	Yea! I think it's important to improve our English because its can make us reflect to talk out with using English. Its really mean to practice our speaking English! :)
5	I think media and games can help improve our English because mostly we can only understand it by using English language so it can improve it well.
6	No response.
7	I think
8	I think that media and game can help me improve in English to make me clever, fast to think, so I well to speak english and well make my ability.
9	I think media and games can help my improve in English because I learn many new words, used pronunciation, Grammar and it can make me feel fun with my friends. Moreover, I easy to remember about language english through speaking, reading, listening, writing. When I free time, I like to listening to music, radio. Sometimes, I reading the newspaper on internet. Finally, I think learn english on media and game are very important to know something new. Especially, it can make communication with my friends too. I hope my language english is developing in the future.
10	No response.
11	I think that media and games can help us to improve in English because we're have to put in us our speaking English thank you.
12	Yes, I think it improve in English Beause In media and games always have some vocabulary and have to apply our speaking English. Thank you.
13	I think that media can help me improve in english because it also explain how to do and also fix sth that I don't know it well for me.
14	The point I think that media and games can help me to improve in English cuz it have alot of new word that I never seen before and the subject are write in English so it can improve in English.
15	I think that media and game can help to improve my English. Because media and game speak English and I have try to listen a bout The talking in English and some game use language in English.
16	I think that media and games can help you improve in English beacuse it have alot new word you don't know and someword you never study so it a new word or new experince for your study English.
17	I think that media and games can help me improve in English by do some reserch from the internet it can make me know more about new vocabulary or the way that I can write or speak more English. For the game If we always play game that involed the Leason alots It can make we easy to know about English and speak more English.
18	For me I think that games is can improve my English because when we play it all together we're try to think about it and we can have a good time to discuss with

	friends more. And about media we can know everything about technology. So it's so good because when people can know about it, we easy to use it all together.
<b>19</b>	I think media and game can halp I'm read newspaper are want to know alot of news.
<b>20</b>	I think it can knowed about news and social and help me read English well.
<b>21</b>	I think media and game can help me to improve my study because some media's can make all student and game's can make all student clever and can speak English.
<b>22</b>	I think play games or computer not good.
<b>23</b>	I think play Computer game Can I help I know people in the world because game anyone can I known people. Thank you! I love you.
<b>24</b>	I think media and games can help I'm read English a Litter newspapers or magazines and easy fink schoolwork in English from internet
<b>25</b>	I think play to computer so happy but good to me but I think one more is have future too.
<b>26</b>	I think the game is not good the game can not improve in my study.
<b>27</b>	I think media and games can help me to improve my study because some media's important for student and some media want to share experience for me and game can make me know a lot of word or can speak can write in English.
<b>28</b>	I think, I can know about social and I can know a difficult words in English. And games you can do or play it or not The both it can improve my English better than before.
<b>29</b>	I think so, because all the media and game are use the English Language for all foregner can use this language.
<b>30</b>	Yes, I think so. Because All the media and games are use the English and I always see the new words that I'm not yet study, It can use to communicate with someone that come from another countries or the people live in my own country.
<b>31</b>	I think it good Because I can know about scoial and can more English and I don't know the word difficult.
<b>32</b>	I think it great Because I can know about social and I could know a difficult words that I never study before.
<b>33</b>	I think that media and games can help me to know more improve in English Becaus, I can pratice speak English.
<b>34</b>	I think the media and games can help me to improve my English. Because I can speak and practice English with another people and can improve my speaking.
<b>35</b>	Yes, I think so. It really good of me and it make me will have alot knowledge.
<b>36</b>	It is very good for me and can make me more clever.
<b>37</b>	It's good for me in the future and can make more clever.
<b>38</b>	It's very great because It can help me to know more English, more knowledge, and It can help me to know alot of difficult words.
<b>39</b>	For my idea I think that media and games can improve in English. Because I can pratice my speaking English to communicate with forenger well.

**Appendix II. Responses to Survey 2 after Placement Test 2 (all responses have not been edited; therefore, grammatical errors are left intentionally)**

Student	How have media and games improved your English?
1	Games and media can improve my English by playing listening watching answer into English song fit speaking. and play with each other.
2	The game that talk about conversation can make me can speak to another people cam improve my speaking skill, can make me know how the way that they speak or they talk.
3	Yes, I have games and media helped me learn english better that game like give advice or show alot of knowledge for me. a game like give knowledge.
4	During the past 2 weeks, games and media had helped me alot. It had increase my English skill. I know a lot, think a lot and more clever. I think, it's very good.
5	Games and media can help everyone to improve English. Why I can said that because all the game it doesn't mean not good at all, as, pictionary that you shown before, that can make me guess what that animal or job was. About media also can improve ourself too. As me that media can teach me about some new words or can listen easily. Media such as in Facebook, song, catoon and else. As me, Actually I know alot new from watch Anime (JP catoon) and listen to the music as well as. that'all , I hope everyone can know about avantage of game.
6	Yes the games and media is can make my English is better because it can improve about my speaking and my listening.
7	No response
8	During the past 2 week, the games and media helped me to learn English better because i have more experienment that i never meet befor and can make me to try more and more. And can shown me the way to learn English better.
9	During the past 2 weeks, the games and media have helped me learn English better because I knew how to speak English like a tourist and I have learned many vocabulary that I have never heard before, also some grammar.
10	I have games and media helped me Learn English better, I can speak English, know anything about game in the class, new vocabulary and know about the country.
11	During the past 2 weeks, The games and media help me to learn English better.
12	Yes, it is. The games and media can help me to learn English better because It can improve my speaking, reading and new vocabulary.
13	Game and media have improve english. The language english is very important, because it is international language in the world. Many students want to language english through such as internet, google, social media, youtube, etc. Anyway, the game can make student feel fun and know new words. For me, When I have free time I like to read book, radio, watching movies have lyrics and try to listen pronunciation of foreigner. All in all, I hope my language english is better in the future. In my opinion, I think the students should to study more about language english.
14	After play the game in the class I know a lot of experience such as speaking English, make a great game by own self.
15	During the past 2 weeks, I've learned many experience from the teacher. And I've found the new chance to sharing out and practiced my English to the foreingner, I've try the best game it's makes me fresh! :) That's make me very very better. That's really good! :) Thank you!
16	During the past 2 weeks, the game and media heled me to learn English better.
17	Yes. Because it helped expand my vocabulary and know about structure reading and speaking and it help me to know how important of learning English.

<b>18</b>	For me I think it can improve my English well because the games and media is can make me thinking about using English and speaking and can make me Learn to know about my mistake.
<b>19</b>	Because it give me more clever and give me more clever than before.
<b>20</b>	Games and media can helped me Learn English better. Because games and media can give me alot of experience for me or for everyone who can speak English little bit or medium. All of games ther never forget English language. Because in the world want to play their game. Media can improve my English very well Because I want to know new words and the news that happen in the world. Game study can make me happy and get new advices and make know about good story or bad story perfectly. Media can make me know how they can speak English very well and I can use this for my speaking or test.
<b>21</b>	During the past 2 weeks, The games and media helped I can learn English better. I can speak English Very well, can know alot of new words that I haven't study before and I can presentation my job Very well in the future.
<b>22</b>	During the past 2 weeks, The games and media can helped me learn English better like I can know the new difficult words, I can speak English well and I can know the US and UK words, I can presentation about my job in the future very well. I never stop learning English, if I wrong it just the mistakes that I can correct it and it's the one of experience that good for me.
<b>23</b>	I think it can make me know alot of knowledge and have a good experience, I know alot of sentences, Questions and some word. I know some mean of word and get a lot of advice. I can speak English very well and I can think to be clever. Think to do exercise. I know alot of pronunciation of UK and US is very good for me when I learn it.
<b>24</b>	For during the past 2 weeks I got a new experience for practice my English better than before. And it made me to get a lot of a good idea for my future. And for my knowledge was improve more and more. At the last I will reserach about new lesson or new media to practice about my English to be a clever student.
<b>25</b>	During the past 2 week, the game and media can help me to learn English well have alot of experince make me remember the Lesson that I have Learn and give me important Lesson.
<b>26</b>	When I study game and media, I can study with you.
<b>27</b>	For my idea the game and media can improve to learn English well. Because when we play we need to think first and when we say speak only English and we can speak English with the classmate well. That all for me. Thank you so much for looking my paper. I wish you good luck all the time.
<b>28</b>	During the past 2 weeks, For my idea the games and media helped me to learn English better beacuse when I played game I think first and I pay attention for profession with my classmate and in the future. When I grow up I speak english very well I have a good job and find alot of the money to support my family. Thank you for looking! :)
<b>29</b>	During the past 2 week, have games and media helped me English better because, It can teach me know how to speak English more, thing and Understand sound the country and can listen when look videos and song.
<b>30</b>	During the past 2 weeks, have games and media helped me Learn English better because when I paly it I can know a lot of word and when I play I think the game what I can play when I understand I can pay attention with another student.
<b>31</b>	During the past 2 week, I think game and media is very good for me and help me learn english better than before. Now my fell is so very happy when I study with u.
<b>32</b>	During the past 2 weeks, I think games and media is very good for me and have helped me learn English better than before. Now my fell is so glad when I have learning English with Teacher (Kelly) So I will try to study more and more and I never give up However it hard for me sometimes Because my pronounsiation it very poor but When Teacher explains or speaking I always listen carefully and follow Teacher all times. I knows I can't to speak English good at all, it really

	hard for me when I can't speak somethings when I want to ask someone. That is all my felling I love you Teacher for you teaching me 2 weeks ago. Thank you!
<b>33</b>	During the past 2 weeks, the games and media helped me learn English better like I know a new word, difficult word. I know a word of USA and UK. I can speak English very well. I can presentation about my Job. It can improve me a word. And I can play a Japan game too.
<b>34</b>	I can speak English very well Because I can know alot of new word and I can know word of US and UK and also I can presentation in my job in the future.
<b>35</b>	I think it can make me know alot of word Happy make me know sound is word UK and US.
<b>36</b>	I think it can make me know alot of knowledge and help me to known a lot of word and can hepl me speak English a little bit.
<b>37</b>	When I study with you I can learn something I don't know.
<b>38</b>	I thinks it important beacuse, it have Learn English aLot of words know sound US and UK.
<b>39</b>	When I study game and media. I can study about your Lesson. I study about profession.

### **Appendix III. Questions to Frequency Survey before Placement Test 1**

Please answer the following questions from a scale of 1 to 5:

1 = never   2 = rarely   3 = often   4 = frequently   5 = always   N/A = not applicable

1. How often do you use the computer?
2. How often do you browse the internet?
3. How often do you do research on the internet for schoolwork?
4. How often do you play games on the computer, tablet or phone?
5. How often do you use social media?
6. How often do you play board games?
7. How often do you play card games?
8. How often do you plan to use technology to learn in the future?
9. How often do you play games to learn in the classroom?
10. How often is it useful to play games to learn in the classroom?
11. How often do you want to play games in the class to learn?
12. How often is it useful to play games to learn English?
13. How often do you watch shows of films to learn English?
14. How often do you listen to music in English?
15. How often do you read books in English?
16. How often do you read newspapers or magazines in English?
17. How often do you read online in English?
18. How often do you have schoolwork in English from books?
19. How often do you have schoolwork in English from the internet?
20. How often does your teacher give you the opportunity to create media/games?