

Effectiveness of Learning English Words of Sanskrit Origin as Loanwords in Thai through WordWall Gamification

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Received 27/03/2023	ABSTRACT The objectives of this research article were to study the relations of Sanskrit to English, to investigate English words identified as of Sanskrit origin which are loanwords in the Thai language and to explore the effects of using WordWall gamification for English words of Sanskrit origin in Thai learning. The samples consisted of seven master's degree students who were studying the Thai language in course number 01361513 Foreign Languages in Relation to the Thai language at Kasetsart University in academic year 2022. Quantitative data analysis was used in this research. The findings revealed that Sanskrit and English have a very close relation to each other because they come from the same Indo-European language family. The root-words were considered to simplify the relations of Sanskrit and English. Using WordWall gamification for English words of Sanskrit origin in Thai learning is a good adjunct tool for the implementation of improvement of word identification skills. Pre-test, post-test and intervention data indicated development of the students' ability to deal with English words of Sanskrit origin in Thai learning and an increase in the students' identification skills. This WordWall gamification should be introduced to Thai classrooms because it helped to effect good learning of English words of Sanskrit origin that are loanwords in the Thai language and the excellent effects of using the WordWall gamification were undoubtedly found in the post-test.
	Keywords: learning, Sanskrit origin, English word, Thai, WordWall

Introduction

Teaching methods play a large role in educational management for educators who emphasize the strengths of each learner. Creative approaches in teaching and learning should be sought in order to help learners acquire skills and achieve the objectives of learning. To develop the skills of language learners, the three domains of learning identified by an educational psychologist named Benjamin Bloom in 1956 are reviewed and integrated in order to improve language learning in this digital age.

The three domains of learning mentioned are: 1) the cognitive domain 2) the affective domain and 3) the psychomotor domain. These three domains were clearly explained in Benjamin Bloom's book entitled *Taxonomy of Educational Objectives: The Classification of Educational Goals*. The cognitive domain focused on six intellectual skills of the learners namely, 1) knowledge 2) comprehension 3) application 4) analysis 5) synthesis and 6) evaluation (Bloom, 1956).

Later, in 2001, Bloom's taxonomy was revised by Laurin Anderson and David Krathwohl to adapt it to modern school settings. They were in a perfect position to orchestrate looking at the classic taxonomy critically. They called together a group of educational psychologists and educators to help them with the revisions. Actually, Anderson was once a student of the famed Benjamin Bloom and David Krathwohl was one of Bloom's partners in devising his classic cognitive taxonomy (Wilson, 2016).

In the revision of the Bloom's taxonomy by Anderson and Krathwohl, the cognitive domain comprises 1) remembering 2) understanding 3) applying 4) analyzing 5) evaluating and creating. The last item is regarded as especially important, and it plays a very large role in driving learning through a new and creative approach in order to help learners achieve the targets of learning through the use of adjunct tools including gamification.

Bloom's taxonomy was developed to use in the digital age, and it offers lists of related words that instructional designers can use or apply to develop learning objectives. In the matter of creating content, the digital taxonomy integrates words and tasks used for digital learning and creating, and includes words and suggested activities that pertain to the modern learning and other approaches. The WordWall gamification is one of the creative techniques derived from Bloom's taxonomy reflected the present learning in the digital age.

Present-day learners live in the digital age. As a pedagogical strategy, gamification is new, but it has been used successfully in the business world. Gamification not only uses game elements and game design techniques in non-game contexts (Werbach & Hunter, 2012), but also empowers learners, provides them with motivation in their approach to learning and fosters a relaxed atmosphere. These factors addressed by Brown (1994) are fundamental in teaching and learning (Jorge, 2015, p.32).

Formerly, learning English words of Sanskrit origin that are loanwords in the Thai language in the Thai program at Kasetsart University in the past, it was mostly conducted by encouraging learners to memorize the words as in the first item in the cognitive domain of Bloom. In doing so, learners had to try to remember a lot of vocabulary, and sometimes they did not understand and were not able to explain the relations between Sanskrit-derived English words which became loanwords in the Thai language. This remembering of vocabulary was difficult and very boring for learners and as might be expected, the results were mostly unsatisfactory.

The problems of learning described above were encountered in course number 01361513 Foreign Languages in Relation to the Thai language, and caused the lecturers to consider the newest version of the cognitive domain as revised by Anderson and Krathwohl in 2001. It seemed that especially, the last item, evaluation and creative learning, should be part of the learning process as well. Furthermore, for learning relations among languages such as English words of Sanskrit origin in the Thai language, lecturers should consider the inno-creative learning approaches or adjunct tools such as WordWall to help in teaching and learning.

Jasmine and Schiesl (2009, p.302) described WordWall as a bulletin board that displays a collection of high-frequency or theme-related words supports activities that include games that focus on using the WordWall to learn sight words. The use of a WordWall in a classroom can be a highly effective teaching strategy to improve literacy skills. The WordWall activities encourage active student participation (Cronsberry, 2004). If a new WordWall platform were applied and taken into account, it would help learners understand and be very effective in learning English words of Sanskrit origin which are loanwords in the Thai language in the digital era.

Therefore, it can be stated that the WordWall gamification to help in learning English words of Sanskrit origin which are loanwords in the Thai language is a new and creative approach, and it will be an adjunct tool to help learners become successful students who are happy with their learning and achievement. In this regard, researchers strongly believed after this research study that the component of the course concerning English words of Sanskrit origin which are loanwords in the Thai language would surely yield great fruitful results in learning for the concerned students, and the WordWall gamification approach to gaining mastery of English words of Sanskrit origin which are loanwords in the Thai language would be beneficial for learning in other areas as well.

Literature Review

Learning from the Past up to the Present Day

In the past, most learners tried to learn the things in their lessons using memorization. Presently, one important thing is modern tools, media and devices to help learners learn. The need for this was voiced by Witayasakpan (2005, p.217) who clearly stated that new approaches or tools for teaching Thai to foreigners requires not only good lessons, but also media, tools and devices to help students learn.

Not only this, Fox Wilker and Funk (2008) stated that a learning theory that is relevant to the study of using the modern WordWall gamification in classrooms is Vygotsky's theory of the zone of proximal development (ZPD).

Vygotsky (1978), who was a Russian psychologist and social constructivist, defined the zone of proximal development as the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers (p.86). Vygotsky's theory can be used in conjunction with a gamification approach with the WordWall activity. In particular, teachers assess what level the students are at and guide them to become independent in word recognition skills. Thus, in the digital age, an adjunct tool such as WordWall gamification can help the learners learn and will be beneficial to the effectiveness of learning at the present time.

The advantage of this WordWall application is that it offers many templates that teachers can create to develop in the form of games. It is rarely used in learning media because there has not been much socialization and application of it in the teaching and learning process for teachers. On the contrary, it also has cons or limitations because it has no "import" feature, and it is not possible to import hundreds of questions from a sheet file as in Kahoot. Teachers who want to use this application must copy their contents, and paste it into the question or answer boxes or type it directly into the site. Moreover, format limits for multiple-choice quizzes have been found. Not only this, the font features like underline, bold or italics are not allowed in the WordWall Gamification.

WordWall Gamification as an Adjunct Tool in Learning

With respect to the WordWall gamification approach as an adjunct to help learning, Jantke and Hume (2015) stated that WordWall is the most suitable game platform for vocabulary practice.

Vocabulary is necessary to give students something to hang on to the learning process (Harmer, 2007, p.223). This WordWall provides a wide selection of game formats that are beneficial and appealing to the target audience. It is crucial though to select a game that is exciting while effectively meeting the learning goals as there are games with learning advantages, but with little fun factor (Hashim, 2019).

WordWall gamification is a systematically organized collection of words displayed on a large wall within the classroom. The WordWall activity is a segment of the literacy framework developed by Cunningham and Allington (1999). The WordWall is a tool to promote group learning and helps develop a core group of words that is created and directly linked to reading and writing activities in the classroom. These are references of what the learners learned and practiced (Wagstaff 1999, p.1). The WordWall introduces words that are simple to learn, and the students are able to see important words that they may need to use when either writing or spelling (2018, p.4).

Furthermore, Hasram et al., (2021) clearly stated that the WordWall platform can assist and enrich students' experience in acquiring English language vocabulary. Such games are accompanied by colorful pictures to help retain the players' attention, associate words with images, strengthen the memory of spelling as well as support the understanding of word meaning directly and indirectly (Cuesta, 2020). The design encourages the use of mobile and gamified learning in class as a teaching aid and serves as supplementary material that is fun and encourages independent out-of-class learning.

Among the many ways to increase students' word identification skills, it can be said that the WordWall gamification is a creative technique for use in the classroom and students will benefit from using the WordWall gamification activities. WordWall gamification is especially useful for encouraging students to learn vocabulary and its meaning.

The Difference between Gamification and Game-based Learning

With respect to learning through gamification and the game-based learning approach as mentioned above, the differences have been summarized by Boonlue (2018, p.3) as follows.

Table 1

Comparing Games with Gamification

Game	Gamification
1.Before playing Learners have challenge and goal to be achieved before playing a game.	1.Before playing Learners have the goal to be achieved, and it is a significant challenge to them.
2.While playing Learners get rid of stress and realize the goal to be achieved in the time to come. They can escape from where they live, who they are and try to what they have never done. Besides, they can win a reward while playing a game.	2.While playing Learners have no stress while playing. In particular, playing can be done by individual or group through a new approach and knowledge. Motivation, reward and score are the important things while playing.
3.After playing Learners know that whatever they play is unreal not related to their life. It aims at the goal of fun. Thus, they want to play again after they have finished a game.	3.After playing Learners know that whatever they played is real; it is related to their life. Not only this, it also is fun for the learners. Thus, they want to play again and again.

With respect to learning based on gamification and game-based learning as specified, it can be said that the following three important points, namely, 1. Before playing 2. While playing and 3. After playing, should be taken into account in order to help understand the difference between

the gamification and game-based learning approach. The gamification for language learning is very motivating and inspiring for the learner as it offers many challenges, goals to be achieved, and finally rewards to be won (Prathyusha, 2020, p.577).

Thus, it can be said that WordWall is related to Gamification because there is a challenge before playing game and players also have goal-oriented tasks. It seems different between WordWall Gamification and general game. In general games, players must have a challenge first in playing the game, then they will have a goal to be achieved before playing. For gamification, players must have a goal to be achieved, and it is a significant challenge to them to reach the goal. While playing, game players must be able to have fun by more challenges whereas players of WordWall gamification will always be motivated by teachers. Finally, rewards will be won.

Introduction of Sanskrit to Englishmen and its Influence

Srimannarayana (2016, p.313) stated that the Sanskrit language, its literature, and Indian culture have been subjects of great interest and attraction to the Europeans ever since European travelers and missionaries began to visit India. It was found that Charles Wilkins was the first Englishman who studied Sanskrit. Actually, he was urged by Warren Hastings, who was the actual founder of the British rule in India. When Warren Hastings was nominated as the Governor-General of Bengal in 1773, he had a law book in Sanskrit compiled by the eminent traditional scholars in Sanskrit and well-versed in law. It was translated first into Persian from which it was translated into English.

The National Council of Educational Research and Training in India (2018, p.95) indicated that William Jones was a linguist, had studied Greek and Latin at Oxford, knew French and English, had picked up Arabic from a friend, and had also learnt Persian. He came to India in 1783 and was posted at Calcutta as the Chief Justice of the Supreme Court at Fort William in Bengal. He began spending many hours a day with pundits who taught him the subtleties of Sanskrit language, grammar and poetry.

Srimannarayana (2016) further stated that Sanskrit literature was made known by the famous English orientalist William Jones, especially in 1789, when he published his English translation of the famous Sanskrit literary work, *Śakuntalā* of *Kālidāsa*, followed by *Ritusamhāra* in 1792. The latter was the first Sanskrit text in print. Continuing the work of William Jones, Henry Thomas Colebrooke became the founder of Indian philology and archaeology later. His important essay entitled 'On the Vedas' was the first to give definite and reliable information regarding Vedic literature.

The National Council of Educational Research and Training in India (2018, p.96) also explained that Jones discovered that his interests were shared by many British officials living in Calcutta at the time. Englishmen like Henry Thomas Colebrooke & Nathaniel Haldhed were also busy discovering the ancient Indian heritage, mastering Indian languages and translating Sanskrit and Persian works into English.

Furthermore, there was also an Englishman who learned Sanskrit at about the close of the eighteenth century. His name was Alexander Hamilton, and he also was the teacher of German poet, Friedrich Schlegel, who was the first German to study Sanskrit. Thus, at the beginning of the nineteenth century the enthusiasm evinced by the Europeans and Englishmen was constantly growing and by the end of the nineteenth century large sections of the Vedic as well as Classical literature had become the object of study by Europeans (Srimannarayana, 2016).

The English Words of Sanskrit Origin

Sanskrit words were introduced to Englishmen through their visiting India, by Christian missionaries, and because England ruled India. With particular regard to the latter point focusing on the England's rule of India, a Thai Sanskrit scholar Raksamani (2006, p.103) stated that according to history, England ruled India for many years, and it desired to continue the wheel of

Empire in India. Thus, England adopted Indian vocabulary to use together in English words. As a result, many terms of Anglo-Indian language came to be used in English. Most of Anglo-Indian terms are derived from Sanskrit, and some terms are derived from Hindi words, which in turn were also derived from Sanskrit. Learning about these terms through considering the etymology can help students understand the meaning of the words. Generally, English words of Sanskrit origin in Thai are derived from *Pakaranam*, series of books which present ancient tales of India origin. However, when there is no word to be used instead of Sanskrit. English terminology by using original Sanskrit has been found in English word. Thus, there are many English words of Sanskrit origin such as *Karma*, *Avatar*, *Guru*, *Bhakti* and *Nirvana* etc., (Harper Collins, 2019).

Sanskrit as a Source of Loanwords in the Thai Language

Historically, Sanskrit entered and influenced the Thai language extensively through several important factors namely, religions (Buddhism and Brahmanism), traditions, academic knowledge and literature (Pongpaiboon, 1974, p.5). Presently, Sanskrit plays an important role as a source of loanwords in the Thai language in terms of both words for use in daily life and for coining new terminology to be considered by the Royal Institute of Thailand (Pimpuang, 2019, p.248). With regard to the latter, the Royal Institute (2003, Preface) set out the methods for coining new words as follows: 1) constructing new words and 2) transliteration. In this matter, it can be noted that the preferred method is constructing the new word by compounding existing Thai words. If this method does not produce a suitable Thai word, then Pali and Sanskrit loanwords should be considered to mint a new word. If searching for suitable Pali and Sanskrit loanwords fails, then the new word should be formed by transliteration from a Western language.

Many Pali and Sanskrit words have been used to form new terms introduced into the Thai language by the Royal Institute of Thailand. Thus, the system of borrowing Pali and Sanskrit words and of using Pali and Sanskrit words in minting new Thai words is important in gaining a full command of the Thai language.

In summary, Sanskrit entered Thailand has played very important role in the Thai language as loanwords. The impact of Sanskrit on the Thai language can undoubtedly be found in the dictionaries of the Royal Institute. If one opens one of the dictionaries prepared by the Royal Institute, one will find that Sanskrit loanwords make up more than half of the words in the volume (Thongprasert, 1977, p.37).

Using Wordwall Gamification to Learn English Words of Sanskrit Origin

The WordWall platform is a gamification designed in order to help teachers create interactive class activities such as English words of Sanskrit origin as loanwords in the Thai language. At the same time, it also helps learners understand English words of Sanskrit origin as loanwords in the Thai language, and enjoy the learning experience. Lewis (2017) explained that a teacher could create one set of items, for example, colors, and another set, such as shapes. These items can be made into an interactive grouping activity, where students drag the items into the right place, or they could be turned into multiple-choice questions. They can also be made into games suited to younger, primary-school-aged learners.

Harwika (2018) stressed that vocabulary plays important role in learning a language. It is one element that links the four skills of listening, speaking, reading and writing together. The WordWall media are word groups shown on the wall in the class. They are sets of words that are put on the wall to create interesting and interactive learning processes and creative approach (Pimpuang et al., 2023). This enables learners to improve their mastery of English vocabulary.

Hence, the WordWall can be used as supplementary or revision materials for the learners. It will be especially useful in helping students learn vocabulary and understand the words very well. In the past, learners had to try to remember a lot of vocabulary and they were not able to explain

the relations between Sanskrit-derived English words as loanwords in the Thai language. Learning by using Word Wall in the class can be one of the best techniques in order to improve the students' vocabulary achievement.

After review of the relevant literature, the researchers were able to devise a conceptual framework and proceed to conduct this study to explore the relations between English and Sanskrit and English words of Sanskrit origin which are loanwords in the Thai language. Also, this research work aimed to investigate the effectiveness of learning English words of Sanskrit origin that are loanwords in the Thai language through the WordWall gamification approach.

Research Methodology

Samples in the Research

The sample group in the study consisted of seven Kasetsart University graduate students who were studying the Thai language in course number 01361513 'Foreign Languages in Relation to the Thai Language' of the Master's degree program. This study focused on English words of Sanskrit origin which are loanwords in the Thai language. There are many English words of Sanskrit origin which have become loanwords in the Thai language from the past up to the present day. However, 50 English words of Sanskrit origin were selected by purposive sampling technique.

Methodology in the Research

As to the methodology as employed in the study, research was conducted by a quantitative method within an overall inductive framework. The procedure of research work was as follows:

1. Data surveying and data collection of 50 English words of Sanskrit origin that are loanwords in the Thai language were performed using standard dictionaries, namely, The Collins English Dictionary published by Harper Collins in 2019 through www.collinsdictionary.com/english, A Dictionary of English and Sanskrit compiled by Monier Williams and published in 1999 and The Pali-Thai-English-Sanskrit Dictionary compiled by HRH Krommaphra Chandaburinarnath and published in 1969.

2. From these sources, 50 English words of Sanskrit origin which are loanwords in the Thai language were drawn for the WordWall platform. A pre-test and a post-test were constructed. These 50 words were suitable to the learners who will take the pre-test and the post-test before and after learning.

3. The collected documents were classified into groups of Sanskrit and English, categorized as Sanskrit and English words and analyzed as loanwords in the Thai language.

4. Descriptions and analyses of the English words of Sanskrit origin that are loanwords in the Thai language through a thorough WordWall gamification approach were written.

5. To analyze the data, the scores in the pre-test and the post-test and the total scores were considered. In this study, the scores were analyzed in five categories: "very good" (90-100), "good" (70-80), "acceptable" (50-60), "low" (30-40) and "very low" (0-20). Those students who achieved the learning standard received scores of 90-100 (very good) in the post-test.

6. The test scores ranged from 0-100. The scores were calculated using this formula:

$$S = (R / N) \times 100\%$$

where S = the score of the test, R = the number of correct answers, and N = the number of questions.

7. The pre-test was done before starting the classroom instruction in order to survey the fundamental knowledge of the learners, and the post-test was presented after learning in order to evaluate the skills of the learners in identification of English words of Sanskrit origin that are loanwords in the Thai language after they had used the WordWall gamification materials.

8. All scores in the pre-test and post-test of each student were compared to the fixed learning standards. Then, the results of the research, conclusion and discussion were presented through descriptive writing, figures and tables in order to show the results of research.

Research Results

The objectives of this research work as mentioned in the above mainly dealt with study of the relations of Sanskrit in relation to English, to investigate identification of English words of Sanskrit origin which are loanwords in the Thai language and to explore the effects of using WordWall gamification on learning English words of Sanskrit origin in Thai through the WordWall gamification approach. The findings were as follows:

Relations of Sanskrit and English

Pimpuang (2016, p.1) stated that Sanskrit and English are both in the Indo-European language family. This Indo-European language family is the most widely spoken language family in the world. The two languages are in different sub-branches of the Indo-European language family; English is in the Germanic branch, but Sanskrit is in the Indo-Iranian branch. The following language figure can help in understanding the relation of Sanskrit and English.

Figure 1

The Indo-European Language Family

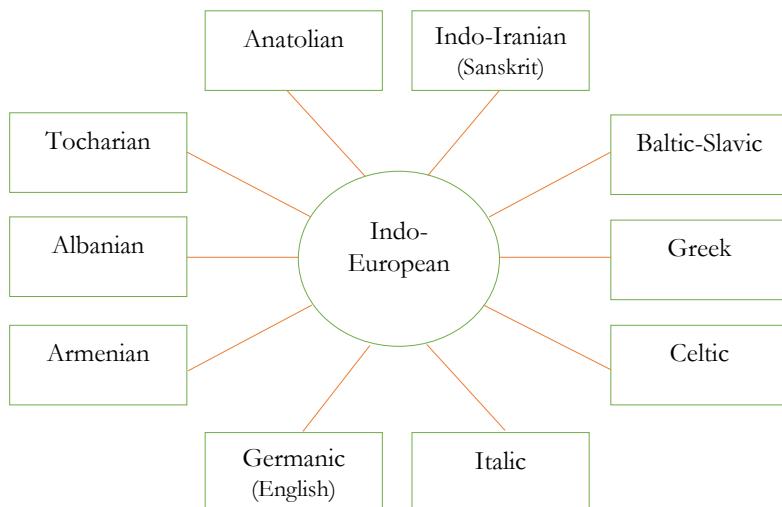


Figure 1 shows that both of Sanskrit and English are related to each other as members of the same language family: Indo-European. In seeking cognate words of the two languages, linguists have used the comparative method to investigate the relations of the two languages. The method can be done by taking cognate words of the two languages, making a comparison and analyzing it. More importantly, the cognate words to be compared must be chosen from among basic words used in daily life; they should not be taken from among cultural or modern technical terms.

The above seems to be reflected in the thought of a famous Thai linguist Phanuphong (1971, p.112). She stated that many languages in European and Asian countries are related to each other as members of the Indo-European language family. There is a great deal of evidence for the relationships of the languages concerned. The most obvious aspects are the basic vocabularies of those different languages such as the terms for the low numbers, kinship terms, pet terms and

basic terms used in everyday life. The similarity of Indo-European languages is illustrated by the initial consonant /d/ in the words for 'two' and 'ten' in the Indo-European languages Latin, Greek, Slavic, Sanskrit and English.

Table 2

Comparison of Initial Consonants in Words of Sanskrit, English, and other Indo-European Languages

Vocabulary	Latin	Greek	Slavic	Sanskrit	English
two	duo	dúō	dúva	dvā	two
ten	decem	déka	destv	daša	ten

From the examples above, it can be concluded that Sanskrit and English are both from the Indo-European language family. The two languages are also inflected languages, and an outstanding aspect of the two languages is their inflections. Not only this, they also share specific aspects such as word formation, which in both Sanskrit and English is based on roots.

To simplify matters about the relationship between Sanskrit and English, scholar can consider the root-words and words in their forms. For example; words placed in this example are those English words derived from Sanskrit e.g. the English word 'acharya' meaning teacher, master or professor, is derived from a Sanskrit word 'ācārya.' It comes from the Sanskrit root 'car' meaning to perform, to treat and to practice (Chandaburinarnath, 1969, p.111). In Sanskrit, new words are formed by several methods, namely primary derivative, secondary derivative, compound word and prefixation; these are the specific methods of new word formation found in Sanskrit.

There are many English words of Sanskrit origin that are loanwords in the Thai language. These words can be found through the different ways in which they are used in the Thai language such as in spoken language, written language, or literary language. This phenomenon is found due to the way in which these words entered Thai and the influence of Sanskrit and English. Such phenomena have helped enrich the Thai language to form a lot of words that can be used in the Thai language system. Hence, it can be said that the English words of Sanskrit origin that are loanwords in the Thai language have been very beneficial to the Thai language.

Using WordWall Gamification to Learn English Words of Sanskrit Origin in the Thai Language

Pertaining to the WordWall gamification approach to learning English words of Sanskrit origin which are loanwords in the Thai language, the following creative gamification approach through the WordWall platform was applied. The Wordwall platform is an online gamification designed to help lecturers create interactive class activities for students. At the same time, it also helps students understand the contents and enjoy themselves while learning as well. This WordWall platform offers lecturers a quick and easy way to extend and consolidate vocabulary with fun practice.

Strategies in Playing the Wordwall Gamification for Learning

Among the strategies provided in playing the WordWall gamification for learning the English words of Sanskrit origin as loanwords in Thai language, there are five features, namely, points, badges, levels, leaderboard and challenges.

Points: In playing this WordWall gamification, points are awarded and are collected all the time for students who are playing gamification on English words of Sanskrit origin which are loanwords in the Thai language.

Badges: To motivate students in the playing of WordWall gamification, badges in the form of certificates or commendations are presented to the students of English words of Sanskrit origin

that are loanwords in the Thai language who get high points in the ranking of all students after each round of play ends.

Levels: In order to make this WordWall gamification more challenging to the students, three levels of WordWall gamification: basic, intermediate and high level, were prepared. After learners who are engaging the class on the English words of Sanskrit origin that are loanwords in the Thai language pass each level, they will be motivated to play in the next higher level.

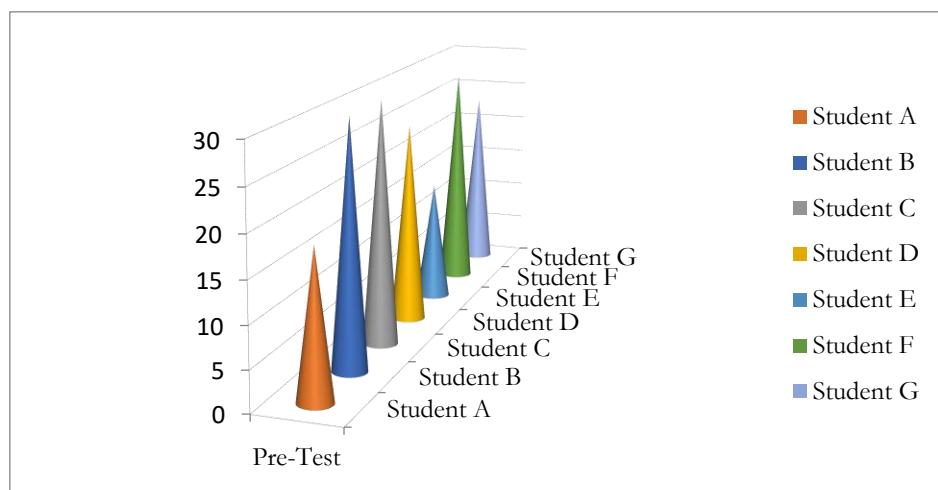
Leaderboard: The leaderboard displays the total collected points of each player playing the WordWall gamification on English words of Sanskrit origin that are loanwords in the Thai language for each round till the end of play. This helps motivate students in playing the WordWall more.

Challenges: This WordWall gamification on English words of Sanskrit origin that are loanwords in the Thai language may be difficult to play alone, but it becomes easier after the students give each other a helping hand, join in WordWall play, and play together. Students specially enjoy competing with each other in the more difficult levels as much as possible.

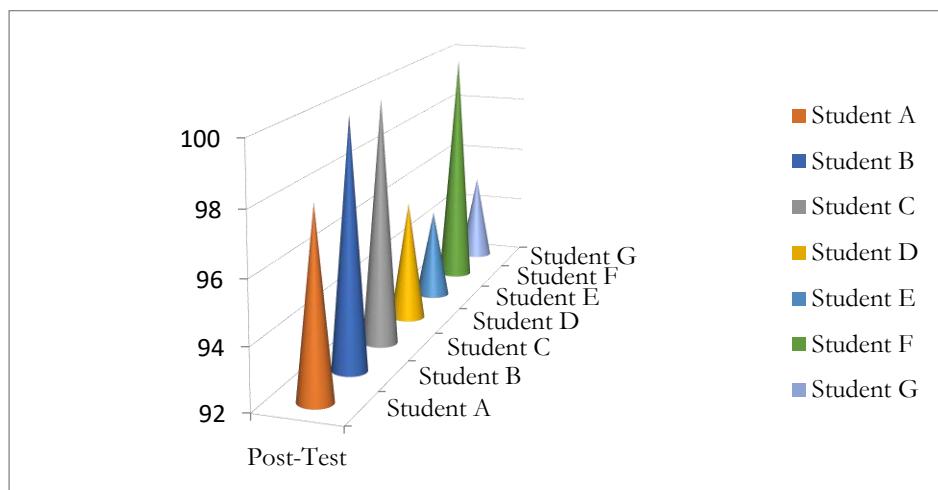
Procedures of Playing and Testing Before Playing and Pre-test

Figure 2

Pre-test Results



In the pre-test, there were 50 vocabulary items in the WordWall gamification and students had 20 minutes to complete it. In the pre-test, the results of which are shown in Figure 2, student A obtained a score of 18%; student B, 30%; student C, 30%; student D, 25%; student E, 15%; students F, 28%; and student G, 23%. These results of the pre-test indicated that the knowledge of students of English words of Sanskrit origin that are loanwords in the Thai language was at an unsatisfactory level.

After Playing and Post-test**Figure 3***Post-test Results*

However, in the post-test of the students by using the same 50 vocabulary items in the WordWall gamification, the results of which are presented in Figure 3, student A achieved a score of 98%; student B and student C, 100% each; student D, 96%; student E, 95%; student F, 100%; and student G, 95%. These results of the post-test indicated that the knowledge of learners of English words of Sanskrit origin that are loanwords in the Thai language after learning were at the learning standard level.

Therefore, the WordWall gamification approach as used in this experiment seems to have played a large role as an important adjunct tool to improve the learning of the students and the better learning results in learning English words of Sanskrit origin that are loanwords in the Thai language were definitely found after the WordWall had been applied in learning.

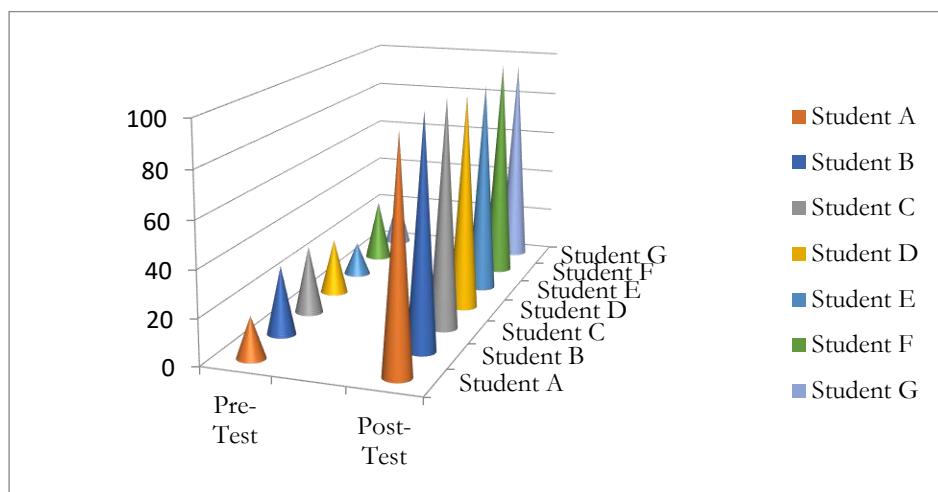
Effectiveness of Learning through WordWall Gamification

The effectiveness of learning English words of Sanskrit origin that are loanwords in the Thai language through use of the WordWall gamification may be seen in Figure 4.

Figure 4 presented above displays the effectiveness of the learning of English words of Sanskrit origin that are loanwords in the Thai language through WordWall gamification. Pre-test and post-test are provided for making the comparison between each other. After comparison, statistic data analysis and evaluation were done through the different five levels namely; “very good”, “good”, “acceptable”, “low” and “very low.” Then, explanation about those students who was able to achieve the learning standard was done and taken into account. It can be explained to measure the magnitude of differences found between the pre-tests and the post-tests as follows:

Student A

Before playing the WordWall gamification on learning English words of Sanskrit origin that are loanwords in the Thai language, student A hardly knew and understood words, and was able to identify only 18% of the words correctly in the pre-test. However, in the post-test, student A had a good knowledge and identified 98% of the words correctly. Thus, after the two tests, student A was able to achieve the learning standard.

Figure 4*Effectiveness of Learning through WordWall Gamification***Student B**

Before playing the WordWall gamification on learning English words of Sanskrit origin which are loanwords in the Thai language, student B was able to obtain a score of only 30% in the pre-test. However, in the post-test, student B had perfect knowledge and finally identified all (100%) of the words correctly. Therefore, after the two tests, student B was able to achieve the learning standard.

Student C

Before playing the WordWall gamification on learning English words of Sanskrit origin that are loanwords in the Thai language, student C was able to correctly identify only 30% of the words in the pre-test whereas in the post-test, student C undoubtedly knew the words and finally obtained a perfect score (100%). Hence, after the two tests, student C was able to achieve the learning standard.

Student D

Before playing the WordWall gamification on learning English words of Sanskrit origin that are loanwords in the Thai language, student D could hardly understand the words and succeeded in identifying only 25% of the words correctly in the pre-test, but in the post-test, student D knew words well and identified 96% of the words correctly. Thus, after the two tests, student D achieved the learning standard.

Student E

Before playing the WordWall gamification on learning English words of Sanskrit origin that are loanwords in the Thai language, student E hardly knew the words and was able to obtain a score of only 15% of the words in the pre-test. However, in the post-test, student E could understand words well and scored 95%. Thus, after the two tests, student E was able to achieve the learning standard.

Student F

Before playing the WordWall gamification on learning English words of Sanskrit origin that are loanwords in the Thai language, student F was not able to understand the words and identified only 28% of the words correctly in the pre-test. However, student F had obvious ability and identified 100% of the words correctly in the post-test. Hence, after the two tests, student F was able to achieve the learning standard.

Student G

Before playing the WordWall gamification on learning English words of Sanskrit origin which are loanwords in the Thai language, student G could hardly understand the words and was able to obtain a score of only 23% in the pre-test, but in the post-test, this student knew

English words of Sanskrit origin as loanwords in the Thai language well and scored 95%. Therefore, after the two tests, student G was able to achieve the learning standard.

Discussion and Conclusion

Based on the analysis of the results of this research, it can be summarized that Sanskrit and English are from the same language family: Indo-European. However, some English words are derived from Sanskrit words because they have been borrowed into English in recent times such as *Karma*, *Avatar*, *Guru*, etc. These words are English words of Sanskrit origin and are loanwords used in the Thai language at the present time. To help students learn about these English words of Sanskrit origin which are loanwords in the Thai language and to motivate them and to help them enjoy the learning process are important things of interest.

In the digital era, learning is different from the past for there are many alternatives in learning such as media and tools. Learning by using the inno-creative gamification approach as an adjunct tool for success of students in learning of students is needed indeed because students not only gain understanding of the contents but also enjoy learning.

The above seems to be reflected in the thought of Pimpuang (2018, p.1) who stated that at the present time, learning and teaching Thai conversation can be improved not only by providing classes, but also by enabling students to develop their learning by employing innovative and technological methods and devices including sources available via the Internet. These innovative and technological methods, devices and sources can help students learn Thai. At the same time, instructors are striving to produce and develop different tools to help students learn Thai and make learning convenient for the students.

In fact, the WordWall online game can significantly influence students' grammar quality. This is also recognized by Hashim (2019) who mentions that using gamified-learning is effectively used in learning grammar. Furthermore, a study conducted by Cuesta (2020) revealed that the use of digital games helped the participants improve their grammar and vocabulary knowledge and to perform better. In addition, learning grammar through the use of online language games helps students get better results.

The above is similar to the view of Pimpuang et al. (2023) who stated that for the learning and teaching of Thai for students in the digital era, new inno-creative approaches must be embraced. Greater and more serious emphasis should be given to new approaches that can yield results in learning and teaching with high effectiveness for students in the digital era.

The message above seems to be in line with the results of our findings on the effectiveness of learning English words of Sanskrit origin as loanwords in the Thai language through use of the WordWall gamification because it revealed that before using the WordWall gamification in learning, the results of the students' learning were at an unsatisfactory level in the pre-test whereas after the students used the WordWall gamification, the post-test showed that they were able to understand and learn well and finally achieve the learning standard. Moreover, they had increased interest in learning and enjoyed it as well. WordWall strategy has a definite effect on students' vocabulary mastery. This is similar to the experience of Farisa et al. (2018) who also stated that the WordWall can improve students' vocabulary. Therefore, a WordWall is recommended as a good medium in teaching vocabulary.

WordWall as mentioned earlier has not only pros in learning and teaching, but also cons. In learning English words of Sanskrit origin as loanwords in the Thai language through WordWall, it has the following limitations and cons. This platform lacks an "import" feature, and it is not possible to import hundreds of questions from a sheet file. Instead, teachers have to copy their contents and paste them into the question or answer boxes or type them directly into the site. Another point is 'format limit for the multiple-choice quiz.' Such font features like underline, bold or italics are not allowed on the WordWall. Thus, it has both pros and cons while using in the classroom.

The implications can be found through the thorough impact this research result make. In the past, learning English words of Sanskrit origin as loanwords in the Thai language was

conducted by encouraging learners to memorize the words. Learners had to try to remember a lot of vocabulary, and effectiveness of learning was not at a high level. However, the WordWall gamification can help in learning English words of Sanskrit origin as loanwords in the Thai language very well and it encouraged high achievement with its creative approach. It can thus be regarded as an adjunct tool to help learners become successful in learning. The research results tell what can be changed in the learning.

Even if these findings of the research are not going to lead to language learning changes or an overhaul of language learning in the world, they might have important implications for future research studies. Maybe a new technique in order to teach or learn Sanskrit is more efficient than the existing old methods in the present time. It could enable more techniques in the world to study Sanskrit in the English and Thai languages. Not only this, it may provide implications to other subjects or areas such as English words of Hindi origin as loanwords in the Thai language, etc. Thus, learning through WordWall gamification can help learners understand well. This platform is a very important tool that teachers and learners should be aware of and use.

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Appendix

The List of Selected English Words of Sanskrit Origin that are Loanwords in the Thai Language

No.	(1) Original Sanskrit	(2) Derived English	(3) Thai Loanword	(4) Meaning
1.	ācārya	acharya	อาจารย์ (ʔa:-ca:n)	Teacher or master, professor
2.	ahimsā	ahimsa	อหิมสา (ʔa-him-sa:)	Nonviolence, loving kindness to all beings
3.	amṛta	amrita	อมฤต (ʔa-má-rit)	Immortality
4.	apsaras	apsaras	อัปสรา (ʔap-s̥ɔ:n)	Celestial nymph
5.	ārya	aryan	อะรยัน (ʔa:-rá-yan)	Noble or honorable people
6.	āsana	asana	อาสา (ʔa:t-sá-ná)	Seat
7.	āśram	ashram	อาศรัม (ʔa:-s̥ɔ:m)	Residence of ascetics
8.	avatāra	avatar	อาوات拉 (ʔa-wá-ta:n)	Incarnation of God
9.	āyurveda	ayurveda	อา尤เรวะ (ʔa:-yu-rá-wé:t)	Ancient Hindu medical tradition of healing and prolonging life
10.	bhakti	bhakti	ภักดี (phák-di:)	Devotion to god
11.	brāhmaṇa	brahman	พระภรมาṇ (phra:m)	Brahmin, member of the highest class in the Hindu religion
12.	buddha	buddha	พุทธ (phút)	Buddha, Supreme Buddha, Gotama Buddha or Sakyamuni
13.	cakra	chakra	จักร (cák)	Wheel, Circle
14.	deva	deva	เทว (thé:p)	God, Celestial being
15.	devi	devi	เทวี (the:-wi:)	Wife of the king, Queen, Female god, nymph
16.	dharma	dharma	ธรรม (tham-má)	Teaching of Buddha,

17.	garuḍa	garuda	କୁରୁ (khrút)	Natural law, duty Garuda bird, Deity that serves as Vishnu's steed
18.	guru	guru	କ୍ରୁ (khru:)	Weighty, Venerable person, Teacher
19.	hanumant	hanuman	ହନୁମ (ha-nú-ma:n)	The king of monkeys in the Ramayana
20.	hīnayāna	hinayana	ହିନ୍ୟାନ (hǐn-ná-ya:n)	The oldest major sect in Buddhism
21.	jagannāth	jagernaut	ଜାଗନ୍ନାଥ (cha-khan-ná:t)	God incarnated from Lord Vishnu
22.	kalpa	kalpa	କଳ୍ପ (kan)	Thousand cycles of Maha Yugas
23.	karman	karma	କର୍ମ (kam)	Doing, action, work, deed
24.	madhyamika	madhyamika	ମାଧ୍ୟମିକ (ma:-thá-yá-mi:ka)	School of philosophy in Buddhism that attempted a reconciliation with Hinayana from the Mahayana position
25.	mahāṛṣi	maharishi	ମହାର୍ଷି (ma-ha:ṛ-si:)	Great sage or great holy man
25.	mahātman	mahatma	ମହାତ୍ମା (ma-ha:ta-má)	Great soul
27.	mahāyāna	mahayana	ମହାୟାନ (ma-ha:ya:n)	The major sect in Buddhism
28.	maṇḍala	mandala	ମୟତ୍ତ (mon-thon)	Circle, circuit
29.	mantra	mantra	ମନ୍ତ୍ର (mon)	Sacred word used as an object of praying and meditation
30.	māyā	maya	ମାୟା (ma:-ya:)	Illusion, jugglery
31.	mokṣa	moksha	ମୋକ୍ଷ (mo:k)	Liberation
32.	nāga	naga	ନାଗ (ná:k)	The most excellent man, elephant or hooded snake
33.	nirvāṇa	nirvana	ନିର୍ବାନ (ni:rā-phá:n)	Extinction
34.	rājan	rajab	ରାଜା (ra:cha:)	King

35.	rākṣasa	rakshasa	ರಾಕ್ಷಸ (rā:k-sòt)	Evil demon, ogre (usually making the water its haunt and devouring men)
36.	saṃādhi	samadhi	ಸಮಾಧಿ (sa-ma:-thí)	Concentration
37.	samsāra	samsara	ಸಂಸಾರ (sāñ-sā:-ra)	Cycle of birth, death, and rebirth
38.	saṃskṛta	sanskrit	ಸಂಸ್ಕೃತ (sāñ-sa-krít)	Adorned or perfected thing
39.	sandhi	sandhi	ಸಂಧಿ (sōñ-thí)	Junction, union
40.	saṃgha	sangha	ಸಂಗ್ಹ (sōñ)	Assembly of Buddhist monks
41.	satyāgraha	satyagraha	ಸತ್ಯಾಗ್ರಹ (sat-ta-ya:-khró)	Insistence on truth
42.	śimhapura	singapore	ಸಿಂಹಪೂರ್ (siñh-khá-po:)	The capital of the republic of Singapore
43.	soma	soma	ಈಮಾ (so:.-ma)	Intoxicating plant juice drink used in Vedic rituals, or the Moon
44.	stūpa	stupa	ಸ್ತುಪ (sa-thù:p)	Conical shrine, tope, pagoda
45.	swastika	swastika	ಸ್ವಾಸ್ತಿಕ (sa-wat-ti-ka)	Prosperity, Swastika sign
46.	tantra	tantra	ತಂತ್ರ (tan-trá)	Tantrism
47.	vajra	vajra	ವಾರ್ಧ (wát-chá-rä)	Thunderbolt of Indra
48.	vimāna	vimana	ವಿಮಾನ (wi-ma:n)	Sanctuary of gods
49.	yogin	yogi	ಯೋಗಿ (yo:-khi:)	Ascetic, one who practices spiritual exercises
50.	yuga	yuga	ಯುಗ (yuk)	Age of the world