



Chapter in Book


# Innovation of Let's JizZle! and Its Effectiveness towards English Vocabulary Learning

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**Abstract:** *The use of games in teaching especially in English Language Teaching (ELT) has become a norm among educators globally. The difficulties students' face in acquiring spellings and definition of the words, extensive use of mother tongue, lack of dictionary skills and the pedagogical negligence in acknowledging students' learning abilities in acquiring vocabulary have led to the innovation of Let's JizZle! Hence, this paper described the process of designing and developing Let's JizZle! as well as its effectiveness in teaching and learning vocabulary for both primary and secondary school learners of lower to intermediate proficiency. Game Based Learning (GBL) and differentiated instructions theory are the two main underpinning approaches in this innovation. Design and Development Research (DDR) was employed as the research design and ADDIE model was the research framework in developing Let's JizZle!. The significant impacts towards vocabulary learning were proven through pre and post tests. Let's JizZle! benefited the students to comprehend the vocabulary learnt as well as applying it in context besides acting as a teaching aid among teachers. It is the first jigsaw puzzle designed based on 21st century learning and CEFR textbooks for vocabulary learning especially for A2-B2 achievers. Let's JizZle! has high commercialisation potentials.*

*Keywords:* jigsaw puzzle, vocabulary, GBL, differentiated instructions, DDR, ADDIE, ELT



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## 1. INTRODUCTION

Vocabulary is seen as an integral part of language learning since it is a crucial element in acquiring all four language skills. To master English skills, students must know the vocabulary of the language i.e. a list of words with their meaning because it supports their skills' improvement (Linse, 2005). In order to speak and write English, students need to learn one to two thousand words (Cameron, 2001). Mastering vocabulary implies that students have a thorough understanding of vocabularies, including their meanings, spoken and written forms, grammatical behaviour, word derivation,

collocations of words, register of the word - spoken and written, connotation or associations of the word, and word frequency (Thornbury, 2002). Schmitt and Schmitt (2020) suggest that receptive and productive knowledge may be the only practical technique to quantify depth of vocabulary knowledge when assessing students' vocabulary mastery. Receptive knowledge refers to words that students recognise and understand when they occur in context, whereas productive knowledge refers to words that students understand, can correctly pronounce, and use constructively in speaking and writing. It is believed that measuring students' receptive vocabulary is beneficial. Krashen's language acquisition theory asserted that continuous exposure to comprehensible language encourages most students to acquire the words unintentionally (Krashen, 1982). Ratika, Isma and Nawir (2021) supports Krashen's theory and the importance of vocabulary learning and acquisitions among second language (L2) learners for producing comprehensible output through written and spoken language. They also stressed that explicit vocabulary instruction should not be deemed as less important especially among L2 learners.

Based on the descriptors in the latest CEFR, students are ought to acquire the targeted vocabulary in order to read and comprehend a reading passage in their textbook. However, it was apparent that the students were disengaged and unable to recall the spelling and meaning of the words they had learnt. Previous researches have explained the underlying issues that refrained the students from acquiring the vocabulary effectively. Chai, Jong, Dison, Thomas, Yunus and Suliman. (2020) stated that conventional vocabulary teaching strategies such as chalk-and-talk, memorising words and the definitions as well as drilling students to identify the meaning of a list of targeted words using a dictionary are extremely taxing for both teachers and students. Yieng and Abdul Aziz. (2022) agreed and they further elaborated that these conventional strategies are irrelevant to the GenZ learners as they easily get demotivated and find it difficult to remember and retain the new words they have learned. According to Lim, Yunus and Embi (2017), academic achievement and the interference of mother-tongue language especially among Malaysian students had undoubtedly hampered the students' experience in learning English. Generally, Malaysian students have difficulty in acquiring new vocabulary due to extensive use of their mother tongue. This has affected their vocabulary exposure thus leading to poor acquisition of the four language skills.

Since the learning of English vocabulary is limited in the classrooms, students have less opportunity to utilise and acquire the language spontaneously. As a result, this had an indirect influence on English vocabulary learning, particularly on retaining the meaning of the words as well as applying them in the context. In the both primary and secondary English Language textbooks and *Dokumen Standard Kurikulum dan Pentaksiran (DSKP)*, students are targeted to master dictionary skills which are crucial for their vocabulary development throughout their years of schooling. These stipulated words are vital in assisting students to acquire the necessary vocabulary insights that are related to the various themes and contents introduced in the syllabus. However, the teaching vocabulary strategies ought to be relevant and interesting to students in order to assist them acquire and learn the words in a more meaningful and fun way. Undoubtedly, there is no one size fits all approach for vocabulary teaching; hence, teachers play a vital role in understanding and catering to their students' needs and language learning abilities.

Game-based learning (GBL) has been practised in the classroom by many educators for ages. Game-based learning is derived from Piaget's cognitive development theory where the students

process new information through assimilation and adaptation. The process of assimilation and adaptation can be forged through play as Piaget (1962) described play as an integral element for students' stages of cognitive development. It is a contributing factor to activate students' schemas for long term memory retention. Hazar (2020) viewed GBL as significant to the students since they are more engaged in the learning process. Previous studies proved the effectiveness of GBL towards students' vocabulary learning (Ozturk, 2018; Talib & Rabu, 2017, Tan & Tan, 2020).

Puzzle falls under GBL and it is an effective educational play tool (Ratika et. al., 2021). It is aligned with the twenty-first century learning approach where it stimulates students' creativity, critical thinking, problem solving and collaborative skills. It all depends on how teachers make use of the puzzle in their lesson for language learning. Most students have a short attention span and easily get distracted in the traditional way of a vocabulary teaching session. Therefore, incorporating puzzles in vocabulary teaching encourages physical movements among students and it would be even more significant when the learners are working cooperatively in groups. This would relieve the tension in following the lesson seated attentively, lower the affective filter, boosting energy and concentration subsequently heightened the retention of the new words learned. Bakla & Sarıçoban (2015) have explicitly listed several benefits of puzzles such as enable students to apply words in a context, learn new words while recalling their prior knowledge, focuses on spellings as well as promoting independent learning. Thus, puzzle based teaching and learning is definitely not an outdated teaching approach but a useful and student-centred tool of teaching vocabulary strategy.

Let's JizZle! is a toolkit of vocabulary game that has been adapted from jigsaw puzzles to accommodate and facilitate students in learning vocabulary. John Spilsbury in 1762 was the person to produce the first jigsaw puzzle (Lau et.al., 2014). Today, jigsaw puzzles are known as a fun game and a game that taps multiple cognitive abilities. A successful communication in both written and spoken depends on a strong foundation of vocabulary, thus, Let's JizZle! emphasises students' vocabulary learning and acquisition as a foundation of their language proficiency. Let's JizZle! is inspired by the wonders of jigsaw puzzles that can be induced into teaching practices and producing effective vocabulary learning. In 1978, Elliot Aronson and his colleagues developed a jigsaw learning environment that encouraged students to work cooperatively in learning sessions (Halimah & Sukmayadi, 2019). According to Slavin (1995), the jigsaw approach emphasises a way to help build a classroom as a community of students where all students are valued (Mokhlis, 2019). Hence, this innovation is able to boost students working cooperatively and simultaneously it assists students to acquire vocabulary. The integration of jigsaw technique in Let's JizZle! is also aligned with Vygotsky's (1968) social constructivism theory. Erbil (2020) supported Vygotsky's principles of Zone of Proximal Development (ZPD) in promoting cooperative learning method where it enables students to work together as a team and benefit optimally from each other in terms of acquiring knowledge effectively. Hence, Let's JizZle! emphasises on playing it in groups as it is believed that through social interaction, the less competent students will be able to develop better comprehension of the vocabulary with help from more skillful peers- within the zone of proximal development.

Let's JizZle! focuses on the words from Year 6 to Form 1 the latest CEFR textbook. Since the context of the book is foreign to our local Malaysian students, the words in the textbooks are deemed difficult for the students to comprehend and apply pragmatically and syntactically. This innovation promotes the students to understand the words better as it is designed thematically and systematically

organised to students' level of proficiencies through differentiated learning strategy. According to Magableh & Abdullah (2020), differentiation learning strategies facilitate an effective learning process that suit the students' learning difference. Students' pace of learning and different proficiency levels were no longer deemed as a threat since this theory of differentiated instruction converts the threat into a pedagogical strength in maximising learning potentials and eventually has a positive impact towards the learning outcomes (Suwastini, Rinawati, Jayantini, & Dantes, 2021). In this context of differentiated instruction, the strategies can facilitate effective classroom management besides prioritising student-centred learning process (Tomlinson, 2014). Therefore, differentiated instruction theory has been a significant underpinning approach in Let's JizZle! since it contains three levels of puzzles and worksheets based on the level of difficulty words. The level of the words chosen were also examined with the Oxford Dictionary where they ranged from A1-C1 based on CEFR scale. Let's JizZle! is a tool for facilitating students of the targeted CEFR proficiency level, A2-B2, in mastering the words based on their textbooks. Therefore, this paper aims to design, develop and evaluate the effectiveness of Let's JizZle! in teaching and learning English vocabulary especially for Year 6 and Form 1 students.

## 2. METHOD & MATERIAL

The research design used in this study is Design and Development Research (DDR) which was proposed by Richey & Klein (2014). There are three main phases in DDR: analysis, design and development, evaluation. At the same time, ADDIE model has proven useful in developing gaming materials in education (Herout, 2016; Al Ghawail, Ben Yahia, & Alrzini, 2021). Thus, ADDIE model was applied in developing the jigsaw-puzzle based vocabulary learning kit named Let's JizZle!. Figure 1 shows a framework of how the researchers applied DDR design and ADDIE model in innovating Let's JizZle!.

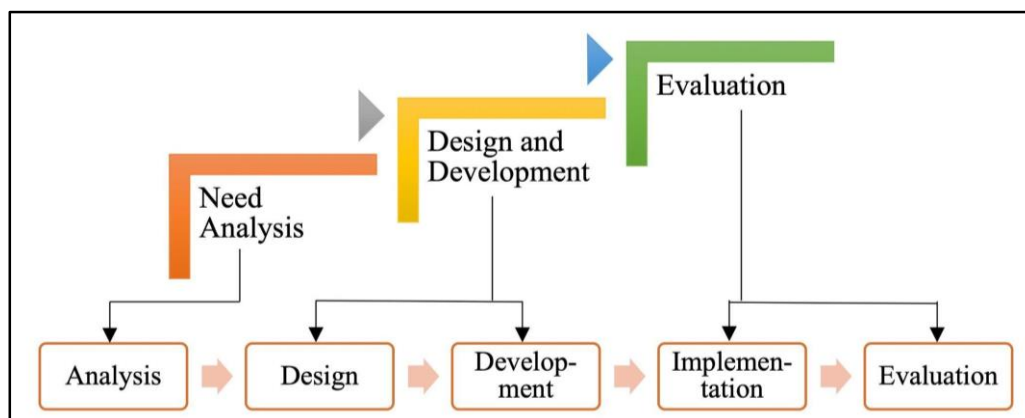
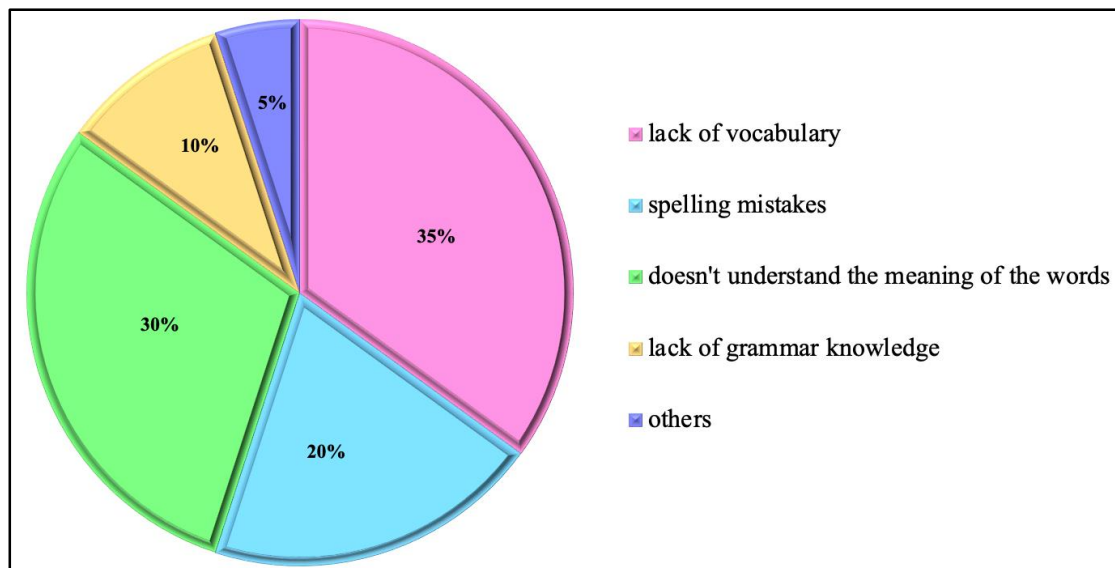


Figure 1: DDR and ADDIE framework

### 2.1 Analysis

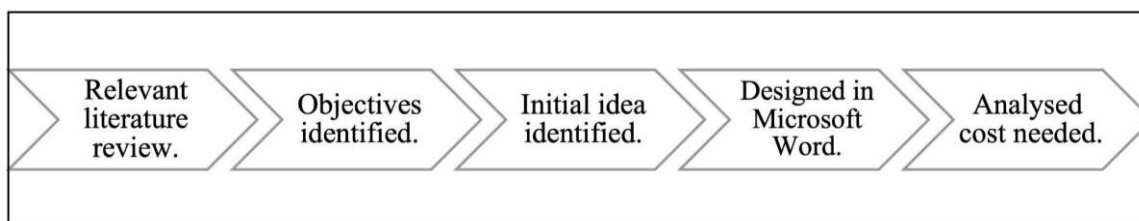
Based on the classroom-based assessment (PBD), the researchers found that most of the students in transition from Year 6 to Form 1 were struggling in reading comprehension and communicative competence for both writing and speaking. Therefore, a need analysis was conducted to identify the areas of students' learning difficulties through a questionnaire (Hutchinson & Waters, 1987). The result of the questionnaire (Figure 2) showed that the main reason was due to students' lack

of vocabulary, misspelling of the words and comprehending the meaning of the words in their new textbooks, Academy Stars as well as Pulse 2.



**Figure 2:** The result of need-analysis on the areas of students' learning difficulties

## 2.2 Design



**Figure 3:** The process in the Design phase

In this phase, the researchers established an overall outline of how the teaching and learning of vocabulary will be delivered effectively. This includes determining the best teaching strategy and creating useful and action-oriented learning objectives for vocabulary teaching and learning. Let's JizZle! is created based on the data collected from the need analysis as well as through thorough literature review of the relevant pedagogical theories and approaches. In order to facilitate effective vocabulary learning among the students of Year 6 and Form 1, the researcher curated the main objectives of Let's JizZle! as:

1. To comprehend the targeted words of different levels based on the three main themes in their latest CEFR textbooks.
2. To use the words in context (sentences) correctly.
3. To spell the words correctly.

Besides, the researcher also determined the size, materials needed and cost of developing Let's JizZle!

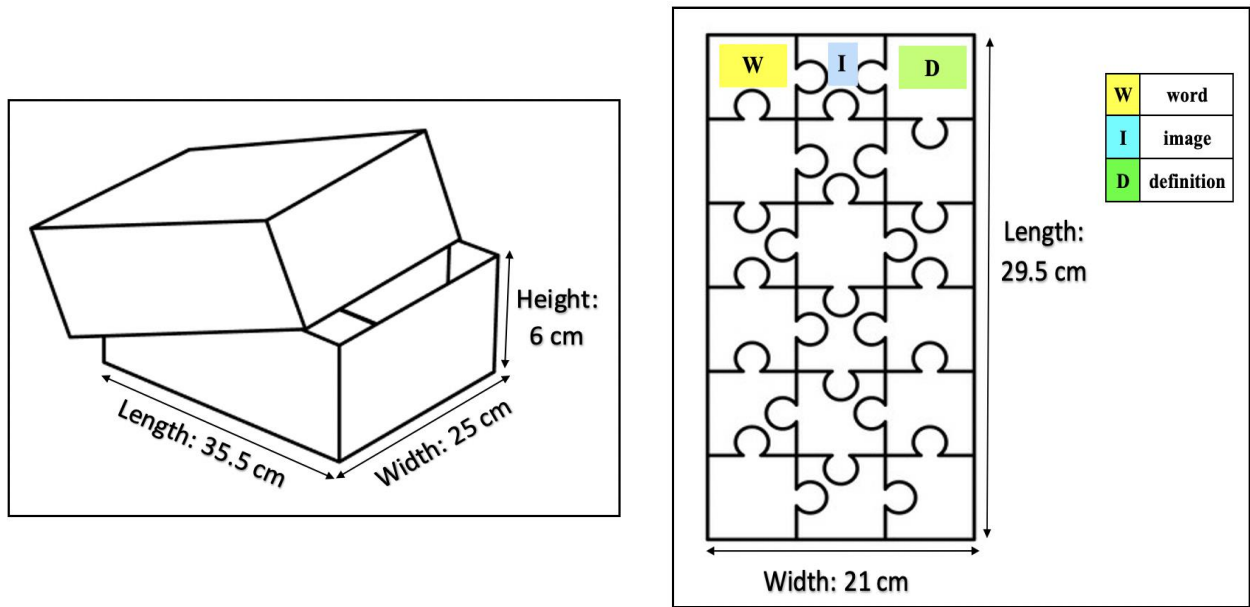


Figure 4: The size of the box and puzzles

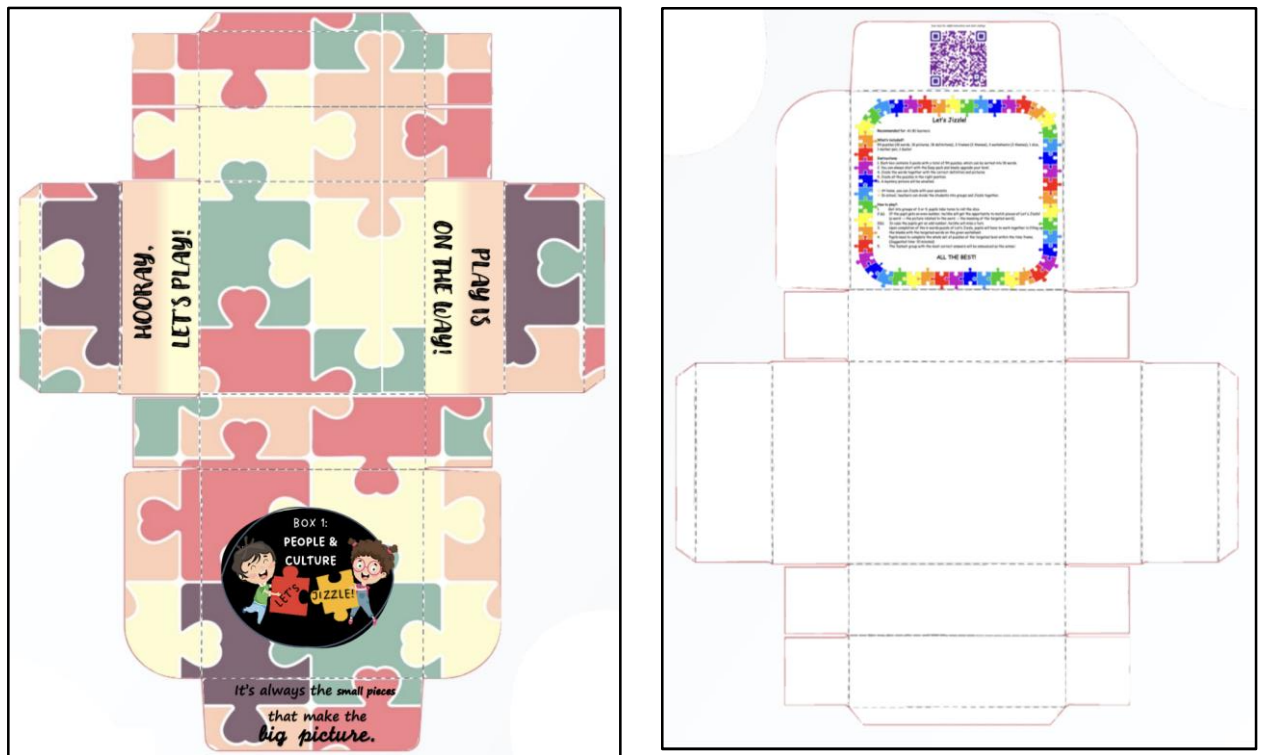
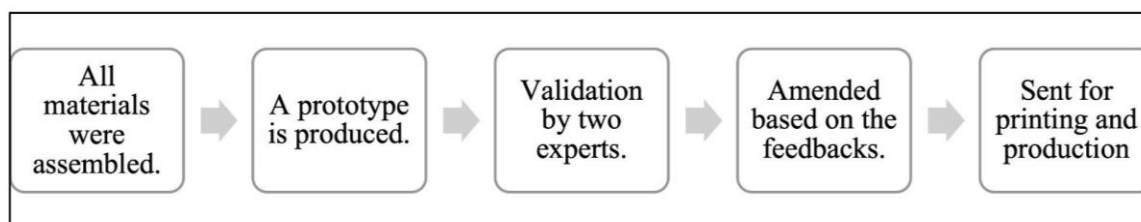


Figure 5: The design and layout of the box

**Table 2:** Cost of developing Let’s Jizzle!

	Materials	Quantity	Unit Price (RM)	Cost (RM)
1.	A4 magnetic frame	9	5.00	45.00
2.	Pocket files	9	2.50	22.50
3.	Erasable marker pens	9	0.35	3.15
4.	Ziplock bags	9	2.30	20.70
5.	Dice	3	0.40	1.20
6.	Printing cost	-	-	135.00
Total:				RM 227.55

2.3 Development



**Figure 6:** The process in the Development phase

In this phase, the materials were developed from scratch using Microsoft Word especially in designing the layout of the box, puzzles and worksheets before the printing process. Other materials were purchased except for the puzzle-frame which was handcrafted to make it transparent on both sides. All the materials were assembled and kept in three different boxes for three different themes. Each box contains a dice, erasable marker pens, transparent puzzle-frames, pocket files with worksheets and three ziplock bags with puzzle pieces labelled as beginner, intermediate and advance.

Let’s JizZle! was introduced to two individuals who had expertise to acquire their validation and feedback on suitability of the innovation product. The two experts were a SISC+ officer and a head of the English Panel respectively. Google Form was created and distributed to the experts. The following is an example of the assessment instruments of Let’s JizZle! via Google Form.

**Table 3:** Module assessment instruments

Feature	Aspect	Indicator
Content	Curriculum	Let's JizZle!'s suitability with students' basic vocabulary competence
		Let's JizZle!'s suitability with learning objectives
		Let's JizZle!'s appropriateness for the level of students
		Let's JizZle! is easy to understand
		Let's JizZle! is a useful resource for teaching
Learning design and media	Strategy	Fun and attracts students' interest
		Cater to the need of students with different learning abilities
		Able to motivate students to learn vocabulary
	Technical	Instructions are simple and straightforward
	Display	Pictures of the puzzles are attractive
		Suitable size of the puzzle pieces

Adapted from: Suartama (2016) in Aggraini & Putra (2020)

The experts' remarks were analysed and the constructive comments were taken into consideration to upgrade the kit, Let's JizZle! before applying it to the students. The data can be presented as follows:

**Table 4:** Result of assessment instrument

Validator	Mark
Validator 1	82%
Validator 2	89%

The module assessment tool that the experts were provided had a total of 11 items (Table 3). Each item was worth five points, and the experts graded the items based on the material they had seen and tested the prototype of Let's JizZle!. The results show that both validators gave more than 80%. Table 5 exhibits some remarks and recommendations of the experts.

**Table 5:** Comments from the experts

Validator	Comment	Amendment
Validator 1	The number of vocabulary seemed apt for the students to learn and aligned with the curriculum.	-
	More simple instructions.	Instructions were edited to make it simpler for the students to understand.
	Let's JizZle! is fun and motivating for students to learn vocabulary.	-
Validator 2	Size of the puzzle pieces are just nice.	-
	Grouping of the vocabulary chosen should be revised.	The grouping was done based on the complexity of the vocabulary.
	Very convenient to use because of its portable size.	-

After collecting the comments and feedback from the experts, amendments were made accordingly. The finalised draft was sent for printing.

#### 2.4 Implementation

During this phase, Let's JizZle!, was implemented to a total of 57 students from both Year 6 and Form 1 through purposive sampling. 23 Year 6 students from SJK(C) Chung Huah, Kampar in Perak and 34 Form 1 students from SMK Tengku Idris Shah, Kapar in Selangor were selected for the testing of this product.

Initially, the students were given a pre-test to identify their level of vocabulary acquisition (Alakrash, Razak, & Bustan, 2020; Nguyen, 2021). It was conducted prior to the implementation of Let's JizZle! in order to determine the level of students' understanding towards the words from their textbook. The result of the pre-test will be discussed in the evaluation phase where it will be used to make comparison with the post-test after implementing the product to the students. Then, the teacher introduced Let's JizZle! to the students by describing the instructions. The description would clearly state that each box contains 3 packs with a total of 54 puzzles, which can be sorted into 18 words. The teachers demonstrated and explained the steps to play Let's JizZle! The students are encouraged to start with the Beginner pack and slowly upgrade to Advance level.

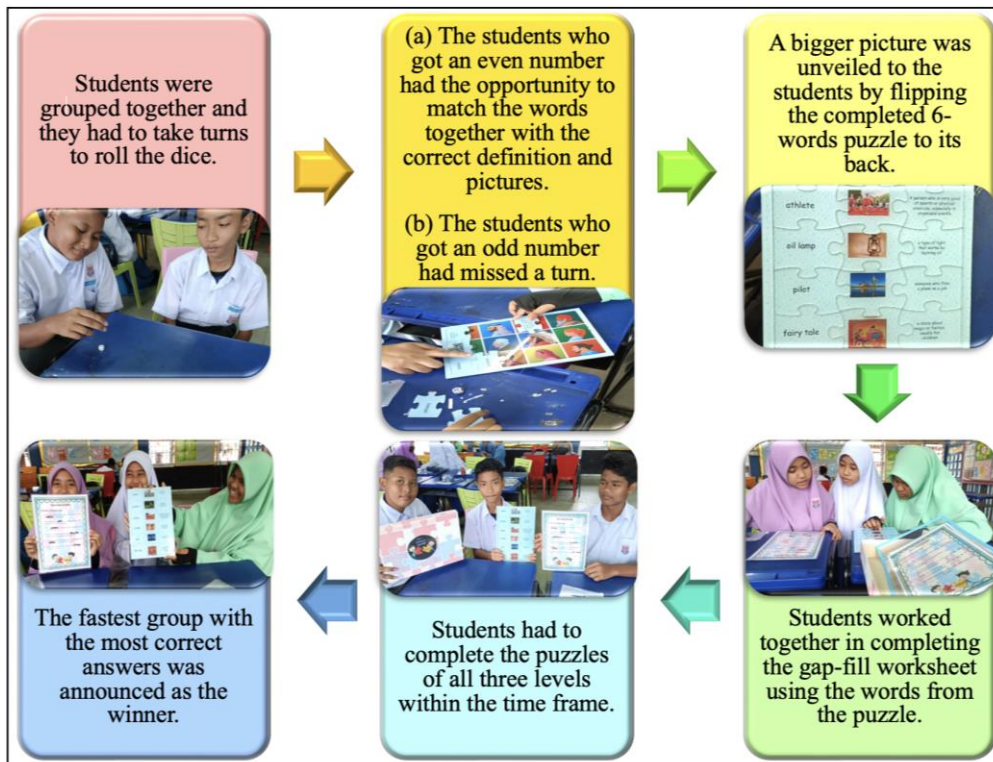


Figure 7: Flowchart of how Let's JizZle! was utilised in classroom

### 2.5 Evaluation

As for this phase, the students were given another round of a vocabulary test as a post test. The tests were conducted to determine the effectiveness of Let's JizZle! towards teaching and learning English vocabulary for Year 6 and Form 1 students. The results were analysed and evaluated deliberately in findings and discussion.

### 3. FINDINGS

Table 6: Results of the vocabulary tests before and after implementing Let's JizZle!

Range Scores	Number of students	
	Pre-Test	Post-Test
1-6	5	0
7-12	9	3
13-18	17	6
19-24	10	5

25-30	4	8
31-36	5	10
37-42	2	9
43-48	3	7
49-54	2	9

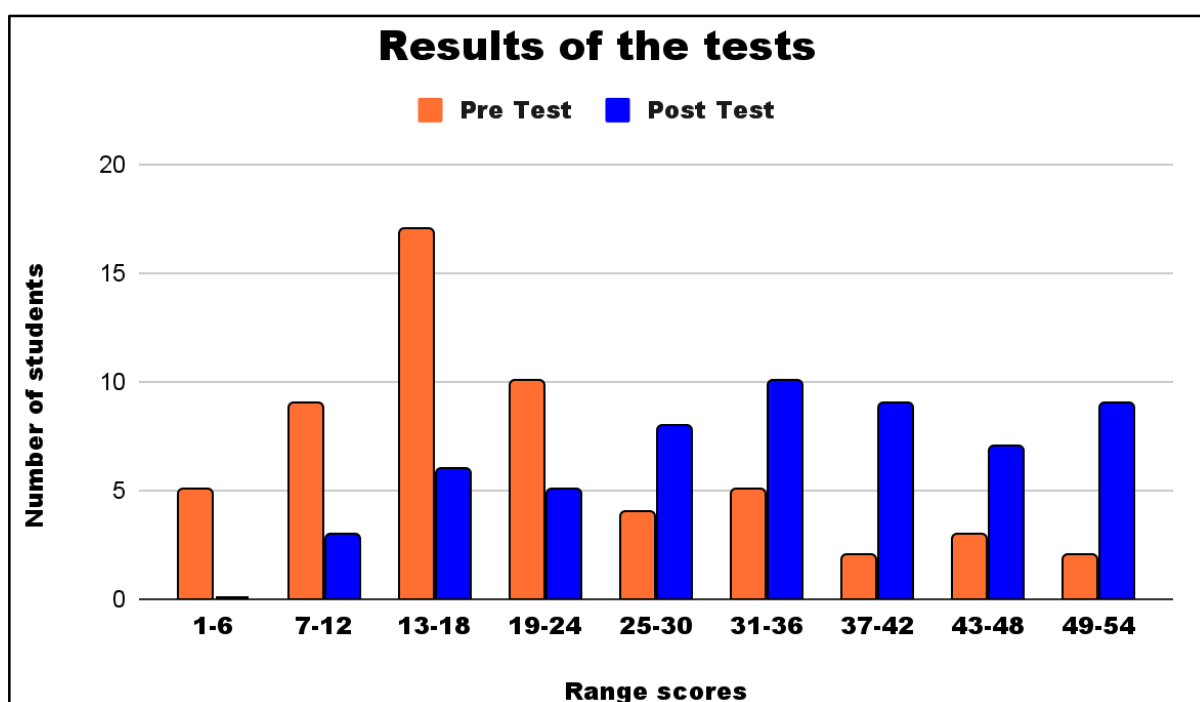


Figure 8: Students' scores in pre and post tests

Both pre-test and post-test were used to gather the data. The results are shown in the bar chart based on the tests that were completed. The bar graph compares the number of pupils in the classroom prior to and following the implementation of Let's JizZle!. Results from the post-test for the students showed improvement in Table 6 and Figure 8. There were only 2 students who scored in the range of 49 to 54, however 9 students were able to achieve that range in the post-test. This showed an increase of 9 students, who had scored 49 to 54. Only 3 students were in the range of 43 to 48 in the pre-test, while in the post-test, there were 7 students who managed to be in the score range. 2 students were in the score range of 37 to 42 during the pre-test, but in the post-test, the number has increased to 9 students. This shows that Let's JizZle! managed to enhance the learning of vocabulary among the students. 5 students scored within 31 to 36 in the pre-test, and during the post-test, there was an increase of 5 students which brings to a total of 10 students in the score range. As for the score range of 25 to 30, there were 4 students in the range during the pre-test, however the number doubled to 8 students in the post-test. There was a significant difference in the number of students who scored 19 to 24 in both

the tests. 10 students were in the score range during the pre-test, and only 5 students scored 19 to 24 during the post-test. During the pre-test, 17 students got marks ranging from 13 to 18, but during the post-test, only 6 students were in the score range. 9 students scored 7 to 12 in the pre-test, but only 3 students achieved that range in the post-test. As for score 1 to 6, pre-test scores showed a number of 5 students, but there none of them obtained the score in the post-test.

#### 4. DISCUSSION

The results indicated that it is an undeniable fact that Let's JizZle has brought in a huge change in the learning of vocabulary among the Year 6 and Form 1 students. All the students managed to get a good score and they displayed great improvements in their vocabulary learning. Learning vocabulary is a difficult task for some students as they are unable to memorise unfamiliar words and spelling thus having games is an effective way to have a more interactive and meaningful learning (Hazar, 2020). Through Let's Jizzle, students' interest to take part in an active learning was clearly seen and it encouraged them to interact with each other, thus, resulting in better acquisition and understanding of vocabulary. This is supported by Wardana (2016) and Melasari et.al (2019) who stated that using games creates an effective impact on learners' vocabulary development.

Vygotsky (1978) also mentioned that students' problem solving skills as well as their creativity and communication skills are enhanced through games. By playing Let's JizZle!, students were able to communicate effectively to complete the jigsaw puzzle together with the meaning. It eventually promotes an engaging learning atmosphere that gives learners the opportunity to grasp the information easily (Alda & Wati, 2021). It was also proven through the findings that students are more confident to use the words learnt in context as it is learned through cooperative learning and in a fun environment. This is in line with the previous study conducted by Halim, Hashim, & Yunus (2020) who found that students gain confidence in using English when they learn the language in a fun way. Let's JizZle! does not only enhance students' vocabulary but it also promotes meaningful learning among students.

In this study, the implication relates to the effectiveness of the toolkit in teaching and learning vocabulary for both the teachers and learners. The findings provide both theoretical and practical implications in the field of language education. This study and the toolkit promote and support the theory mentioned by Vygotsky (1978) and Piaget (1962) in language learning through games besides the integration of multiple learning approaches such as ADDIE in Let's JizZle!. They prove that learning vocabulary through games is possible in stimulating learners' thinking skills besides learning new vocabulary. The findings in this study showed that it is feasible for all learners with different proficiency levels. The toolkit caters the needs of all the learners through the application of differentiation in the jigsaw puzzle levels according to the themes.

This study has contributed to the effectiveness of the toolkit in teaching and learning vocabulary for both the teachers and learners. As the study progressed, a few suggestions surfaced and were taken into account for further improvement. The design & development of Let's JizZle! can be further upgraded by introducing more vocabulary from the remaining themes according to the primary and secondary English Language textbooks and *Dokumen Standard Kurikulum dan Pentaksiran (DSKP)*

## 5. CONCLUSION

The design & development of Let's JizZle! with DDR as the research design and ADDIE model as the foundation of the study produced a positive effect towards the teaching and learning of vocabulary for both primary and secondary school learners of lower to intermediate proficiency. Results of both the pre and post tests showed significant outcome as the learners experienced gradual progress in the vocabulary learning. Learners' physical involvement in learning the vocabulary according to their syllabus and applying the knowledge in the process of playing Let's JizZle! boost their confidence in acquiring English vocabulary. This game also enhanced collaborative and cooperative learning among the learners, which also supports autonomous and meaningful learning. Despite certain recommendations which can be further adapted, this toolkit is a great teaching aid to foster vocabulary acquisition towards building a stronger foundation in English vocabulary among the learners.

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