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An instructional design for vocabulary acquisition with a hidden disability of dyslexia

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Abstract

The focus of this study is on an undiagnosed language learner with Dyslexia, facing problems in vocabulary acquisition. The purpose of this study is to enable the learner to acquire a pre-defined number of vocabularies within a given time limit. The method of this study is a case study in a real-life context with quantitative evidence that relies on multiple data collection tools, such as checklist, interviews, questionnaire and report cards of the learner. The results of this study demonstrate that the capability of the dyslexic learner can be increased to acquire 55 vocabularies in a week, which is the same number expected from their peers. The performance increase of the learner can be attributed to a new method of learning English vocabulary through game-based learning supported with spaced repetition. The individualised instruction designed for self-learning can be transformed into a group-based instruction in a classroom setting for anyone experiencing difficulties in vocabulary acquisition.

Keywords: Instructional design, performance increase, dyslexic learners, game-based learning, retention.

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1. Introduction

Teaching vocabulary may be problematic, since many teachers are not confident about best practices in vocabulary teaching and at times they do not know where to begin to form an instructional emphasis on word learning (Berne & Blachowicz, 2008). Nevertheless, as Laflamme (1997) indicates, vocabulary knowledge is the single most important factor contributing to reading comprehension.

There is a need for a design for individualised instruction to be implemented for self-learning, which could also be generalised into group-based instruction and a game-based educational tool for both English language learners with dyslexia as well as anyone experiencing difficulties in vocabulary acquisition. To serve this need, a new method of learning English vocabulary through game-based learning has been designed based on pedagogic teachings and Dick and Carey's System Approach, implemented to a mild dyslexic learner who is the sample of this study (Ennis, 2020).

2. Method

In the research methodology of this quantitative case study, we focused on the following question: "Does an instructional design based on Dick and Carey's model increase English vocabulary acquisition of learners with dyslexia?" This case study illustrates how a learner's weak vocabulary acquisition skills are related to her academic achievement. The basic parameters of this study are achievement of test grades and demonstration of remembering target knowledge of 50 vocabulary words. This study was conducted at a preparatory school of a foundation university in the fall of 2019. The data were collected by one of the eight university panel experts. The data was collected through face-to-face interviews, achievement of test grades and subject matter experts' (SMEs) opinions. In the analysis of the information obtained from the achievement of test grades, a qualitative comparison analysis was used in order to measure the relationships between variables during the two reporting periods, whereas in the analysis of unstructured interview data, a descriptive analysis method was used to provide opinions of the learner.

2.1. Assessing the need to identify instructional goal(s)

Having difficulty with short and long-term memory, learners with dyslexia experience problems in vocabulary acquisition when learning English as a foreign language. They are not able to retain, recall and state vocabulary based on specific themes of reading texts within a given time limit. On the other hand, according to the IDA Board of Directors (2002): 'Dyslexia is a learning disability that is in relation to cognitive abilities and its secondary consequences may include reduced reading experience that can impede growth of vocabulary and background knowledge.'

The sample of this study is a 35-year-old mild dyslexic adult learner, who is unable to proceed with her second Bachelors of Art in Public Relations because her vocabulary acquisition and memorisation skills hinder her ability to acquire vocabulary. This is the second time she is doing her BA; in her previous university, the medium of education was in Turkish. At the beginning of the 2018–2019 academic year, the learner started the English preparatory programme at A1 Level, which corresponds with the CEFR levels and objectives. At the end of the first module, she was unable to get a minimum passing grade of 65 and in the second module she attended the A1 Repeat Level. She was successful this time, and in the third module she moved on to A2 Level. However, again she was unable to fulfil the requirements of the level and studied the A2 Repeat Level in the fourth module. She was able to pass the A2 Repeat Level and studied the B1 Level in the fifth module. She was able to pass the B1 Level with an average of 65. This means that the student is able to fulfil the requirements of the level but did not master it as yet. In the 2019–2020 academic year, the student started studying the B2 Level.



Figure 1. English language learner with dyslexia

The learner expressed that she thought she was a dyslexic student, although she was not yet diagnosed and possessed a report, as is many dyslexic learners (Erkan, Kızılarşlan & Dogru, 2012). It is possible for learners with mild dyslexia to not even know that they are dyslexic. Some learners with mild dyslexia may not experience problems due to dyslexia until middle school or later. This may be because of the emphasis on reading in early grades (Wadlington & Wadlington, 2011).

A checklist provided by the Adult Dyslexia Association was carried out with the learner in order to determine the level of her dyslexia. The student who showed signs consistent with dyslexia scored 53, which corresponded to mild dyslexia. According to research results, most people who were in this category showed signs of being at least moderately dyslexic. However, a number of people not previously diagnosed as dyslexic (although they could just be unrecognised and undiagnosed) fell into this category. Learners with mild dyslexia can often 'get by' at school and may go on to have ordinary careers. As for Turkey, while most remain undiagnosed, individuals with special needs comprise almost 12.29% of the total population and (ERG & TOHUM, 2011) the number of people officially diagnosed with dyslexia in Turkey stands at 41,600, according to Turkey's Dyslexia Association.

The data derived from the interview and evaluation checklist coupled with the background information in her English learning records revealed that she is a qualified candidate as a female dyslexic learner, who is experiencing a problem in vocabulary acquisition, memorisation and retention.

2.2. Conducting instructional analysis

Before identifying an instructional goal for designing an instructional programme, the first step would be a needs assessment of the learner. Needs assessment can be simplified as identifying the gap between the desired status and actual status, which points out the needs and are explained in the following sections.

2.2.1. Desired status

One of the three domains of Bloom's taxonomy of learning includes the cognitive (knowledge) domain. The cognitive domain involves knowledge and development of intellectual skills (Bloom, 1956). This includes the recalling or recognition of specific facts, procedural patterns and concepts

that serve in the development of intellectual abilities and skills. There are six major categories of the cognitive process, starting from the simplest to the most complex. Cognitive processes and levels of knowledge are remembering knowledge, comprehension, application, analysis, synthesis, evaluation and creation. Following the steps of the cognitive domain, the learner is required to acquire 50 new words in a week for 26–28 weeks, which is about 1,040–1,120 words per an academic year through direct instruction.

2.2.2. Current Instruction to the learner

At the dyslexic learner's current level, the vocabulary learning objective is to use words related to the themes and words from the academic wordlists. The student is expected to learn (acquire and memorise information) about 50 words per week, recalling and stating these words correctly in weekly achievement tests. The programme provides 24 lessons for speaking, reading, writing, listening, grammar and vocabulary skills for each week. The learners are provided with a wordlist at the beginning of the term. The words along with their definitions, synonyms, antonyms, word forms, collocations and examples are all provided in the same table. Moreover, at the end of each week, learners are given a weekly achievement test. The minimum grade which is considered to be satisfactory is 65 and the maximum grade that a learner can score is 100. Teaching of the vocabulary acquisition is not systematic and there is no designated time for each skill. However, in each week, a minimum of 2 hours is spent on vocabulary. The programme does not support special needs education for learners with dyslexia (ELDaou & Abdallah, 2019).

2.2.3. The gap

The minimum grade that is considered to be satisfactory in the achievement test is 65. Meanwhile, the minimum grade of the dyslexic learner's achievement test grade is 18, which is 82% lesser than the best performance. The gap between the desired level (minimum 65% and maximum 100%) and the actual status is a minimum 14%. The gap is also self-expressed by the dyslexic learner during the face-to-face interview as having difficulties in remembering, describing and matching words, which corresponds to remembering knowledge. Remembering knowledge is the first process and level of the cognitive domain. Since the instruction designed does not match with specific instruction that the dyslexic learner requires, they face various difficulties in learning a foreign language and their motivation to learn a new language drops significantly in traditional classrooms. According to the Decoding Dyslexia Oregon Association (2018), dyslexic students can benefit from inclusive education. There is no need to change the content of a language curriculum for a dyslexic learner. One type of inclusive education strategy is called the multi-sensory structured language (MSL) approach. As the name suggests, in the multi-sensory approach, learning is facilitated by including all the senses in the learning process. In 1992, Sparks, Ganschow, Pohlman, Artzer and Skinner conducted a study to demonstrate the effects of MSL on dyslexic learners who were learning a foreign language. The results showed significant gains in the aptitude test of foreign language, especially in phonology, vocabulary and verbal memory.

2.3. Analysing learners and context

In order to design an instruction according to the needs of the learner, learner analysis is a key element for any instructional design process, according to Dick and Carey (2005). Dick and Carey identified eight elements that instructional designers need to consider when conducting learner analysis.

In order to gather data about the learner and the context, semi-structured interviews must be conducted and questionnaires with the learner and the subject matter expert must be presented. A site visit was made and the last step (group characteristics) was eliminated after consideration. The following sections provide the acquired information about the learner.

2.3.1. Entry behaviours

The learner has been studying at the prep school for two years. She is aware of the objectives and expectations of the programme. Prior to her current level, which is B2 (intermediate), she completed three levels of the English preparatory programme which consists of a modular system of four levels (A1, A2, B1 and B2). Entry behaviours, such as matching letters to sounds and word recognition, are the skills which are expected from the learner.

2.3.2. Prior knowledge of the topic area

Her previous tests demonstrate that she can fulfil the requirements of the levels, but has not mastered it as yet. Mastering a subject is the second step of Bloom's taxonomy of learning, which includes the cognitive domain. The cognitive domain involves knowledge and development of intellectual skills (Bloom, 1956). It includes recognition and the ability to use specific facts by distinguishing, defining, explaining the meaning and giving an example of the target vocabulary.

2.3.3. Attitudes towards the content

The learner is positive about learning new skills and ensures that she does not confuse words anymore and understands what is read fast. She is aware that she needs a different system to acquire new vocabulary knowledge better and that the current teaching–learning methods are not suited for her condition.

2.3.4. Attitudes towards the potential delivery system

The learner is notified that effective vocabulary learning can take a significant amount of time and that she would need to allocate time for valuable routines, such as learning the meanings of words that are critical for deep processing, involving, comparing and contrasting word meanings, teasing out nuances of meanings, using words in writing or applying target words while analysing texts. In this regard, the learner is eager to try out a new method for acquiring new vocabulary.

2.3.5. Motivation for instruction

The learner is highly motivated towards MS and game-based learning. She wants to acquire skills to complete the English preparatory programme and move on to her department by the end of the 2019–2020 fall semester.

2.3.6. Educational and ability level of the learners

The learner is a university graduate. She completed her previous BA in her native language. She has little to no knowledge or did not receive adequate English instructions in her previous learning experiences.

2.3.7. General learning preferences

She is a visual and kinaesthetic type of learner. She prefers images, examples and illustrations, writing the material to be learned, practices and learns through doing, practicing and acting.

2.3.8. Attitude towards the training organisation

The learner has experience with the training organisation since she started the programme at the beginning of the 2018–2019 academic year. Her expectations are positive.

Based on the needs analysis, the following is identified as the instructional goal: the dyslexic learner of a foreign language studying an English preparatory programme at a foundational university, who is having difficulty in vocabulary acquisition will be able to demonstrate the acquisition of 50 words a week by closing the gap between her actual status and the minimum desired level in weekly achievement tests.

2.4. – 2.5 Writing performance objectives and developing assessment instruments

In order to develop performance objectives for the instructional goal, the levels of the cognitive domain were examined during instructional analysis. In order to improve the dyslexic language learner’s vocabulary, 50 words per week, performance skills and their sub-skills were identified. For each skill and sub-skill, performance objectives were written. The following is a chart which lists the performance objectives that are expected from the learner throughout the instructional study as well as the assessment instruments.

Skills	Performance objectives	Assessment items
1. Define vocabulary words	1. Given the terms the learner will be able to define and use the terms correctly in a sentence.	1. Students will be given five incomplete sentences and five vocabulary terms to complete these sentences. They will select the correct word to complete each sentence.
1.1 Match the words with the picture	1.1 Given the pictures and the words, the learner will be able to match the picture with the word.	1.1 Students will be given two sets of flashcards. The first set will have pictures and the second set will have the target vocabulary words. The student will match the word with the pictures.
1.2 Match the words with the definition	1.2 Given the definitions, the learner will be able to identify the term.	1.2 The students will be given two sets of five written definitions and five words that match the definition.
1.3 Choose the correct word to complete a sentence	1.3 Given five incomplete sentences and five vocabulary terms to complete those sentences, the learner will be able to select the correct vocabulary term.	1.3 The student will be given incomplete sentences and will choose the correct word to complete the sentence.
2. Match the word with the synonym/antonym	2. Given a list of vocabulary terms and their synonyms/antonyms, the learner will be able to match the term with its synonym/antonym.	2. Students will be given two sets of vocabulary words. The first set will have the target words. The second set will have the synonyms/antonym. The students will match the target words with their synonym/antonym.
2.1 State the word	2.1 Given a list of vocabulary words, the learner will be able to state the words that have synonyms and antonyms.	3. Students will be given incomplete sentences. They will also be given the correct word to complete these sentences. The students will select the correct form of the word and write it without making spelling mistakes in the space provided.

2.2 & 2.3 State the synonym / antonym	2.2 & 2.3 Given a list of vocabulary words that have synonyms and antonyms, the learner will be able to state the synonyms and antonym.	3.1.1–3.1 In the given sentences, the students will underline the subject–verb–object of the sentence to identify the missing part of speech in the sentence.
3. Identify the correct word formation	3 Given an incomplete sentence and the vocabulary term to complete that sentence, the learner will be able to select the correct form of the word and write it accurately to complete the sentence.	3.2 The student will write the forms of the word accurately on the worksheet provided.
3.1.1 State the subject–verb–object of the sentence	3.1.1 Given an incomplete sentence, the learner will be able to identify the parts of speech (subject–verb–object) of the sentence.	3.3 The student will write the forms of the word accurately.
3.1 Identify the missing parts of speech in the sentence	3.1 The learner will be able to identify the missing parts of speech to complete the sentence (noun–verb–adjective–adverb).	
3.2.1 Identify the noun–verb–adjective–adverb form of the word	3.2.1 Given the term, the learner will be able to state the different forms of the word (noun–verb–adjective–adverb).	
3.2 Write the different forms of the word	3.2 Given the term, the learner will be able to write the different forms of the term without any spelling mistakes.	
3.3 Choose the correct form of the word	3.3 Given the term and an incomplete sentence, the learner will be able to select the correct word formation and write it.	

2.6. Developing instructional strategy

The new instruction had started and continued for three consecutive days, as soon as the target vocabulary words of the week were handed out by the teacher. During the instruction, target vocabulary increased gradually. The learner was encouraged to keep a record of new words in one place, like a small notebook or an online list dedicated specifically to this vocabulary which she can refer back to and revise after the instruction. After each instruction, a daily routine was provided to the learner for periodic reviews and repetitions.

2.7. Developing and selecting instructional materials

In order to facilitate the learning process, one-to-one training was conducted with the learner. The learner had the attention of the trainer all the time, so that her strengths, as well as weaknesses, were pointed out more consistently and completely without the contest of other learners.

2.7.1. First day of instruction

Defining vocabulary words

Working on word-level reading as a part of vocabulary acquisition makes the reading easier for dyslexic learners; therefore, practice is done on decoding (recognising sound–letter relationships and words) troubled letters of the target vocabulary. Big word cards written in ‘OpenDyslexic’ fonts and colour overlays were given to the learner to familiarise the word. During the word recognition practice, the meaning of the word was given directly and explicitly, followed by the phonological form (pronunciation) and then spelling. ‘Look, cover, write and check’ activities were performed by the learner to reinforce her spelling accuracy on the vocabulary words.

Matching the words with the definition

The learner was asked to find the visual definition either with the support of instructional designers or within a self-study for each word from a suggested assistive technology tool, and thus design flashcards based on individual choice of explanation and description of a word. Practising the flashcards, with the spaced repetition method, which involved practising for three days (first day: thrice; second day: twice; third day: once) and remembering with mnemonics based on storytelling, which is considered as a memory enhancer, the learner was able to match the picture with the word it referred to when given the definition to match the words or vice versa without assistance.

Filing in the blanks with the correct word

Given incomplete sentences and words to complete those sentences, the learner was able to choose the correct vocabulary term to complete the sentences accurately.

2.7.2. Second day of instruction

Matching words with their synonym–antonyms

The learner was asked to find the visuals of a designed game either with the support of instructional designers or within a self-study for each word from the list of synonym and antonyms by a suggested assistive technology tool, and thus design flashcards based on individual choice of describing the polarity and similarity of a word in terms of synonym and antonym.

Stating the target word

Going over the list of vocabulary words, the learner is asked to categorise the vocabulary words into two lists of synonyms and antonym accurately.

Naming the synonym

Going over the list of vocabulary words, the learner accurately stated the words that had synonyms without assistance.

Name the antonym

Going over the list of vocabulary words, the learner accurately stated the words that had synonyms without assistance. In the second level, the designed verbal game for repetition with printed flashcards was played for picturing polarity (antonym) of a word on one side and a word and its antonym on the reverse side. The game was played against one or more competitors by laying the picture side on top and the word and its synonym on the bottom. In turns, anyone who said the word or its antonym by looking at the picture collected the card.

Prototype of the word game used as an instructional material as part of the game-based learning

2.7.3. Third day of instruction

Identifying the correct word formation

Emphasising that the correct form of a verb depends on the word before the verb, the tense of the sentence and the subject, an incomplete sentence was given to the learner and she was able to select the right vocabulary from the list to complete that sentence, the tense and the correct form of the word, to write it accurately and to complete the sentence without assistance.

Identifying parts of speech in a given sentence

At this stage of the instruction, the learner was able to identify the missing parts of speech to complete the sentence (noun–verb–adjective–adverb). The learner’s knowledge on noun–verb–adjective–adverb was reinforced by giving definitions of the adjective, noun, verb and adverb, as well as their roles of were highlighted. An exercise on the formation of words in English was given to the learner.

Stating noun–verb–object of the sentence

Given an incomplete sentence, the learner was able to state the parts of speech (subject–verb–object) of the sentence accurately.

Identifying the missing parts of the speech in the sentence

Given the term, the learner was able to write the different forms of the term without any spelling mistakes.

Filling in the blanks with the correct form of the word

State the noun–verb–object of the sentence

Identifying different forms of the word

The learner was able to fill in a given chart by practising the information in the given word forms of nine vocabularies.

Word formation game chart

The game consisted of forming words with the words and given suffixes. The words were in black and the suffixes were in red. The players got one point for each correctly formed word but lost all their points if they made any incorrect guessing in a limited time.

2.8. Designing and conducting formative evaluation of instruction

The focus of formative evaluation, in this case, was on the goals, objectives, instructional materials, assessment items and instructional procedures of the instructional design. In order to evaluate the instructional design of this study, subject matter experts were interviewed and a one-to-one evaluation was conducted. The instructional designers worked with the student to obtain data to validate and revise instructional materials, procedures and assessment items. One-to-one evaluation also provided information on whether the goals and entry behaviours were identified accurately. While the student was performing the tasks, she was observed and notes were taken. Before the instruction began, the student was informed about the procedure. She was asked to consider the following questions while going through the materials:

1. Are the materials relevant to your needs and interests?
2. Do you feel confident as you work through the materials?
3. Are you satisfied with the instruction?

4. Is the instruction clear?
5. Are you satisfied with what you have learned in this instruction?
6. Are the materials accomplishable with reasonable effort?

These questions were directed to the learner in order to gather data on the clarity and impact of the instruction. In addition to these interview questions, an observation checklist was created and notes were taken during the sessions by the designers. During the one-to-one formative evaluation, it was observed that there were some typographical errors within the instructional materials. There were two pieces of content information missing from the practice test of the third cluster. During the third session, it was observed that the learner had difficulty in identifying the correct forms of the target word. She needed more guidance than anticipated. When asked why she struggled, she stated a difficulty with her word formation skills. More specifically, when asked to transform the word “function” into its adjective form she stated that she was unsure of how to transform and which suffix to add. This led the designers to observe a need to include extra instructional materials for this section. Another issue that was observed was related to time. Initially, each cluster was appointed 55 minutes of instruction time. Only a rough estimate was obtained from the one-to-one evaluation, as the instruction was interrupted by taking notes and asking questions to the learner. However, the instruction time for the first session lasted for 1.5 hours, the second session lasted for 2.5 hours and the last session lasted for 1 hour. This showed a need to be more generous with regards to the timing of the instruction. The timing issue was also expressed by the subject matter experts. When the instructional materials were presented to the teacher, he indicated that the timing would not be enough to cover all the objectives. Assessment items were shown to both the classroom teacher and a testing and assessment expert to find out the reliability and validity of the items. They were also validated by the learner’s answers, meaning they showed that the skills were recollected after the instruction. She accurately answered the post-test items after the instruction.

The subject matter experts were interviewed on the accuracy of the instruction and assessment items. They were presented with the performance objectives, instructional materials and assessment instruments. Instructional analysis was not shared with the subject matter expert, as it was previously discussed with them at the first stage of the design. There were two issues that were raised by the SMEs. The first one was related to the timing of the instruction. This was also observed during the one-to-one evaluation and was later readjusted. The second issue that the SME raised was related to the scavenger hunt game, which was to be presented for the vocabulary words the learner was having difficulty with. The SMEs thought that as the learner had some problems with concentration, a scavenger hunt might be too distracting and might not provide effective results. Nevertheless, since the instruction was based on a multi-sensory game-based approach, the designers waited for the one-to-one evaluation to decide on this issue. After the implementation of the scavenger hunt game for difficult words, the learner was asked whether she found the activity to be too distracting or whether she had any concentration problems. The learner stated her enthusiasm with the instructional activity, and since the literature also supports a multi-sensory approach for dyslexic learners, the SME’s opinions were disregarded.

2.9. Revising instruction

The instruction time that was previously determined as 55 minutes for three sessions was changed to 1.5 hours for the first session, 2.5 hours for the second session and 1 hour for the last session because of the need to be more generous with regard to the timing of the instruction.

3. Results

An instructional design based on Dick and Carey’s model was applied to increase English vocabulary acquisition of the learner with dyslexia. The research question was answered positively and was

supported by the data gathered from pre- and post-instruction tests. The following sections provide the findings of the study.

3.1. The data obtained from interview with the dyslexic learner

The face-to-face interview, which was conducted with 12 open-ended questions, exposed the difficulties of the learner. The learner stated that:

- She had difficulty in remembering the target vocabulary. She specified that she always confuses words.
- She had difficulty in remembering the spelling of the words.
- She defined “finding the correct form and fill in the blank” tasks as unmanageable for her because of making spelling errors.
- She missed important information while taking notes in the listening tasks because of listening and writing at the same time.

3.2. The data obtained from the dyslexia checklist

After the interview, a checklist with 15 open-ended questions provided by the Dyslexia Association was presented to the dyslexic learner. The learner who was showing signs consistent with dyslexia scored 53, which corresponded to mild dyslexia. According to the research results, most of those who were in this category showed signs of being at least moderately dyslexic (although they could be unrecognised and undiagnosed) and fell into this category. Data gathered from the dyslexia checklist reveals that most of the time the learner loses track or misses out lines when reading, re-reads paragraphs to understand them, finds it difficult to find the right word to say, thinks creative solutions to problems and has a tough time learning multiplication tables. Moreover, the learner often confuses words, such as different and difficult; gets confused when given several instructions at a time; and makes mistakes when taking down telephone messages.

3.3. Data obtained from the subject matter expert

During the unstructured interview, the SMEs stated that the learner is a very hard-working student and attends the courses regularly, does her homework and extra learning materials that the teacher provides. Yet, she is a slow learner and gets distracted easily. She has problems especially with memorisation and time management, and is, therefore, not probably successful in exams.

3.4. Data obtained from observations of the instructional designers

In order to identify the vocabulary acquisition problem of the dyslexic learner, observation by including all the senses was used by the instructional designers as a data collection method in order to discover anything that the questionnaires, records and SME opinions did not explain.

3.5. Data obtained from the learning style test

In order to identify the learning style of the learner, a questionnaire, according to the popular VARK model theory which identified four primary types of learners: visual, auditory, reading/writing and kinaesthetic, was presented to the learner. The dyslexic learner is the kinaesthetic and visual type, who prefers to see information, visualise the relationships between ideas and visuals, who is a hands-on, experiential learner, who learns by doing and who processes information when she can see better than hear.

3.6. Data obtained from the achievement test

The median of the learner's pre-instruction design achievement test grade was 18, 82% lesser than the best performance and 25 points lesser than the minimum expected performance. Her post-instruction design achievement test grade was 88, which had increased by 22 points more than the minimum expected performance. There was a significant difference between the pre-instruction achievement test and the post-instruction and post-practice tests, which indicated a considerable gain. A low score on the pre-instruction test (18) and relatively high score on the post-instruction test (88) indicated the improvement of the vocabulary acquisition level of the learner with dyslexia. The learner performed significantly better after completion of the instruction.

4. Discussion

Dick and Carey's instructional design model is effective for both dyslexic learners, who are experiencing difficult conditions for learning, and other learners. The reasons of the effectiveness of the model are discussed as follows:

1. Dick and Carey's ID model is based on instructional system development, which has a system approach comprising analysis, design, development, implementation and evaluation. In a procedural system, a series of steps receives input from the proceeding steps and provides output for the next steps. All of the components work together in order for the user to produce effective instruction. The system also includes an evaluation component that helps determine whether anything went wrong and how it can be improved.
2. The Dick and Carey model is based upon elements of three major theoretical positions, namely behaviourist, cognitivist and constructivist views of the past 50 years. And, to formulate a plan for instruction on what is to be taught, the model is heavily influenced by Gagne's conditions of learning, which points out that when students have learned, it is more likely that they will exhibit a desired behaviour in a given situation.
3. The Dick and Carey model has the ability to remain current by accommodating emerging technologies, theories, discoveries or procedures. The performance analysis and needs assessment components of the model reveal new instructional needs and performance requirements that must be accommodated in the instruction. Analysis of the performance context uncovers new constraints and technologies used. The learner analysis discloses characteristics that were not previously observed. Instructional delivery options enabled more efficient and cost-effective combinations of media and teaching/learning methods.

5. Conclusion

Effective instruction requires systematic analysis and description of intertwined elements that affect learning and evaluation and refinement throughout a creative process. In this connection: 1) increased efficiency of the dyslexic learner on vocabulary acquisition from 18 points to 88 can be attributed to instructional design based on Dick and Carey's Instructional Design Model with individualised instruction and game-based learning; 2) the instructional model can be generalised and transformed into group-based instruction for anyone experiencing difficulties in vocabulary acquisition in a classroom setting; 3) to further benefit dyslexic learners, the designed instruction developed on the context of this case study can be adapted to other dyslexic learners of higher education of foreign language; 4) since the designed instruction creates motivation for vocabulary acquisition and is seen as a source of success and fun, it can be adapted to non-dyslexic learners as a whole-class strategy for facilitation of vocabulary learning; and 5- since vocabulary knowledge is the single most important factor contributing to reading, the designed instruction will aid learners to enhance their reading comprehension and skills that will lead to academic success.

6. Recommendations

Given the unconfident practices of teachers, like not knowing where to begin to form an instructional emphasis on word learning, vocabulary acquisition needs to be revised and supported with learning tools and methods of the new era. Over the last decades, education has changed with increased multimedia and active learning practices, one being game-based learning. Designed based on the material to be learned, game-based learning can be used in pursuance of improving vocabulary acquisition performance for all learners.

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