

Computer Human Interaction in Kid Can Write: An Application for Students with Learning Disabilities

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Abstract—Special needs is defined as an individual with a mental, emotional, or physical disability. An individual with special needs may need help with communication, movement, self-care and decision-making. In this research, we design and develop a useful and usable technology called Kid Can Write. Kid can write aims to help students with learning disabilities in their writing. At first, the authors applied Nanci Bell's concept into the design. Nanci Bell's concept states that concept imagery is the smallest part in processing a language and there is a way to stimulate the building of concept imagery using picture and question to lead the students to think along similarly and endeavor to describe the picture using more words, longer sentences and describe the picture in greater details. Furthermore, the authors combine the previous concept with the design and development of the word search function and word prediction function in order to enhance the students in their essay writing. Finally, the result reveals that majority of the participants who evaluate the Kid Can Write specifies the highest level of satisfaction, which is accounted for 60 percent. This is followed by the high level of satisfaction, which is accounted for 40 percent.

Index Terms—Assistive technology, computer human interaction, imagery, learning disabilities, usability engineering.

I. INTRODUCTION

Children with Learning Disabilities, which is commonly referred to as 'LD', are considered as a type of children with special needs, who have problems with reading, writing, and/or calculating. Each child has different problems, one child may find it is difficult to read and write but quite easy to learn mathematics, while the other child may only have a problem with mathematics or calculating, and the other child may have difficulty with all these three aspects of learning, reading, writing, and calculating. These three functions are highly important skills for learning in general. Any child that has learning disabilities in any degree will be affected greatly in his learning and learning achievement. There are many types of learning disabilities.

Children with reading disability (Dyslexia) [1] will have a problem with reading, whether struggling to read, slow reading, they may have to spell a word to read it, or they may be able to read fluently but not able to understand the story or

answer related questions to the story they just read. Children with writing disability (Dysgraphia) will have a problem with writing, whether writing the wrong characters, spelling a word incorrectly, poor handwriting, unable to write sentences in the same line, writing both small and big letters in the same word, etc. Children with math disability (Dyscalculia) will have a problem with calculating, they will be confused about numbers of similar characteristics, the value of numbers, mathematical symbols, and they may not understand the core concept of mathematics and unable to do the math, whether adding, reducing, subtracting or multiplying, etc. Moreover, some children with learning difficulties may also have other types of learning difficulties besides language learning disability. Research literature reveals that most of the children with learning disabilities are those with reading disability and writing disability, which are followed by children with math disability. Therefore, the solutions for these groups of children mainly focus on improving their reading and writing proficiency. This is because reading and writing are important skills. Children who cannot read or write will face tremendous difficulty in learning. More importantly, at present, self-learning is a thing that everyone can do by themselves, as a result of the advance technology that allows them to access any knowledge bases, using whether the computer, mobile phone or any devices. Therefore, children with reading and writing disability will not be able to access information, news, and knowledge, as good as other people can. However, if these children with learning disabilities are to be supported with the appropriate methods that correspond to their individual learning needs, these children will be able to learn better.

Assistive Technology and Medical Devices Research Center is a Thai organization that recognizes and emphasizes the importance of learning related problems of every child, as children are the most valuable resource for country development. Learning is an important skill for self-development. Any child that has difficulty with his learning, especially in term of his reading, writing, and math skill, will face great obstacles in his studying and learning. The problem of learning disabilities affects country development directly. According to a research study on children with learning disabilities performed, which is a part of the research report presented by the Special Education Bureau (2017), 'The research report on the development of the screening process for the education related disabilities – the learning disabilities', reveals that the most commonly found type education-related disabilities is the learning disabilities, at 29.25 percent. Moreover, this report also found that students with learning disabilities performed far

Manuscript received June 22, 2019; revised September 1, 2019. This work was supported in part by the Cluster and Program Management Office (CPMO), National Science and Technology Development Agency (NSTDA).

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inferior to their peers. Therefore, it is utmost necessary that every related agency that works on the subject of children with learning disabilities to find the solution to support and improve these children's abilities to read, to write, and to do the math.

II. BACKGROUND

During the previous couple of years, A-MED starts developing the technology specifically aims to aid students with learning disabilities and creates a software suite that supports Thai writing for children with learning disabilities, with the main objectives to help children with learning disabilities to write. The software suite is comprised of three programs, Thai Word Prediction, Thai Word Search, and Thai Word Processor.

Thai Word Prediction Program has two main writing aid functions, namely, word completion function and next word predicting function. The prominent characteristics of Thai Word Prediction program are the ability to save the keystroke and the time, to help the children to choose the correct words, and allow the children to write an article correctly using computer assisted program. In order to use Thai Word Prediction program, the children must possess the basic knowledge of Thai words so the program may fully improve their writing proficiency [2].

Thai Word Search Program's main characteristic is the ability to suggest the correct words that children with learning disabilities write incorrectly. This is because some children with learning disabilities have difficulty with reading, writing, and spelling. Majority of this group of children will not be able to spell words correctly. The children will write or type by guessing the spelling or by relying on the pronunciation of the words, for an example, the word "ประสิทธิภาพ [pra-sit-thi-phāp]" will be written by most children with learning disabilities as "ประสิดทิพพ [pra-sit-thi-phāp]"; or the word "ตลาด [ta-lāt]" will be written as "ทะหลาด [ta-lāt]", etc. Thai Word Search program will help correct these mistakes and allow them to write the correct words [3], [4].

Thai Word Processor Program has the ability to detect and correct the incorrect words for the users. Thai Word Processor program is suitable for children with learning disabilities who have the ability to type on the computer. Important functions of the program are word predicting function while typing and incorrect word detecting function after the users finish typing [5], [6].

The aforementioned software suite for Thai writing support for children with learning disabilities operates on the Microsoft Windows operating system. Thai Word Prediction program and Thai Word Search program work collaboratively with text editors, such as, Microsoft Office, Open Office, Libre Office, and various search engines. Meanwhile, users may use Thai Word Processor program as a standalone documentation program. Submit your manuscript electronically for review.

III. PREVIOUS EXPERIMENTS

The test result of Thai Word Prediction program implementation with three students with learning disabilities, whereas the test compared two aspects, the keystrokes and the message typing, reveals that.

- 1) Thai Word Prediction program is able to help Student 1 to reduce the keystrokes used for typing Message 1, for an average value of 49.31 percent; and reduce the keystrokes used for typing Message 2, for an average value of 11.83 percent. From the observation, Student 1 is able to mostly use the correct words suggested by the program. Student mostly chooses the suggested words by listening to the program read-out-loud function, and sometime chooses the suggested words from seeing the words on the screen as he remembers how such words should be spelled. Student 1 is a keen observer, a good student with a good memory.
- 2) Thai Word Prediction program is able to help Student 2 to reduce the keystrokes used for typing Message 1, for an average value of 12.87 percent; and reduce the keystrokes used for typing Message 2, for an average value of 25.51 percent. The result is quite excellent. However, Student 2 sometimes does not rely on the word suggestion system while he is typing and, therefore, he produces some errors in the process. The authors have to inform him regularly to look at the suggested words. In general, if the student chooses to rely on the program's support, he will be able to choose the correct words after listening to the read-out-loud function.

Student 2 has higher than average IQ (High Average Intelligence) but suffers from the Attention Deficit Hyperactivity Disorder (ADHD). (He is a little bit impulsive.)

- 3) Thai Word Prediction program is able to help Student 3 to reduce the keystrokes used for typing Message 1, for an average value of 22.95 percent; and reduce the keystrokes used for typing Message 2, for an average value of 18.23 percent. Student 3 has a moderate level of typing proficiency and will try to rely more on the program's suggestion if he is encouraged to do so. Student 3 typing still produce many mistakes if he does not use the program. Anyway, Student 3 is practicing his use of the program and the teacher remarks that Student 3 shows better development [7].

The second aspect of the test of Thai Word Prediction program with students with learning disabilities is the comparison of the number of incorrect words used during the pretest and posttest of students' essay writing examination.

- 1) Student 1's essay writing (Pretest) without using the program produces six errors. However, when he uses the program (Posttest), Student 1 is able to write the essay with 100 percent correction. Therefore, Student 1 shows signs of development while he is typing and the ability to use the correct words at 100 percent. This is an excellent level of development.
- 2) Student 2's essay writing (Pretest) without using the program produces 11 errors. However, when he uses the program (Posttest), Student 2 is able to almost write the essay with no error but just one incorrect word. Therefore,

Student 2 shows the signs of development in his typing and the ability to use the correct words at 81.89 percent. This is a good level of development.

- 3) Student 3's essay writing (Pretest) without using the program produces four errors. However, when he uses the program (Posttest), Student 3 is able to write the essay with just two errors. Therefore, Student 3 shows signs of development while he is typing and the ability to use the correct words at 50 percent. Student 3 is unable to write an essay as good as he should. Therefore, the result acquired at the present time is merely a reference to Student 3's typing proficiency at the moment.

The test result of using Thai Word Search program with five students with writing disability, a different group of students used in the test of Thai Word Prediction, reveals that.

- 1) Student 1 depicts quite a good development. This is because Student 1 earns the lowest Pretest score but after he attends the training course on typing and using the computer assisted program, where he learns how to use the program, Student 1 is really determined and able to complete the tasks given to him. The Posttest score reveals that Student 1 makes good progress and now ranks second on the test score.
- 2) Student 2 and Student 3 show a similar level of development as both students have the same Pretest and Posttest scores. From the authors' observation, Student 2 tries his best to train himself in typing and following the work instructions. Student 3 may not like to write, is a bit impulsive to complete his work, and thus makes some errors.
- 3) Student 4 and Student 5 earn the same development score, but their Pretest and Posttest scores are different. Student 4 has a good concentration on typing but requires more time to complete the task than the time given to him. Student 4 has a small level of ADHD but a good memory and commitment to complete the work given to him. Student 5 is a good student who can learn the instruction quickly but occasionally follow the instruction. Student 5 has the highest Pretest and Posttest score.
- 4) Thai Word Search program allows these students to use correct words in their writing. Student 1 shows development in spelling ability of 88 percent. Student 2 and Student 3 show development in spelling ability of 60 percent, and Student 4 and Student 5 show development in spelling ability of 48 percent, respectively.
- 5) Majority of students believes that Thai Word Search program is capable of helping them to write better and wants to continue to use this program [8].

For the test result of Thai Word Processor program, which aims to help the children with learning disabilities to correctly write (type) the words and sentences, the samples are of a different group of students that serve as the test subjects for Thai Word Prediction and Thai Word Search program. The test is performed on 3 activities and with 13 students. The Thai typing test summary for each activity is, as follow.

- 1) An essay writing activity on the subject of 'Loikrathong

Day', Thai Word Processor allows students to write the essay with better accuracy, the ability to choose words that are better appropriate to the sentences. The program allows users to write correctly, which can be translated into an average improvement of 97 percent for all users.

- 2) For the training activity on how to use the Thai word prediction function, the test result of this activity reveals that Thai Word Processor allows students improve their writing proficiency, which can be translated into an average improvement of 40 percent.
- 3) For the training activity on essay writing, the program allows students to reduce the keystrokes to more than 80 percent.
- 4) For the training activity on how to use the spell check and correction function, Thai Word Processor is able to correct students' mistakes, which can be translated into an average improvement of 89 percent.

In summary, the above program suite (or assistive technology tool) allows students with learning disabilities to improve their writing and learning proficiency to the same level as other students in the same class. The authors hence further improve this program suite, with the aim to improve the program's function to write longer sentences and to assist the student to use better correct words [9]. The authors named the new tool as Kid Can Write.

IV. DESIGN AND DEVELOPMENT OF KID CAN WRITE

Hence, A book title 'An Introduction to Children with Learning Disorders' [10] remarks about the writing issue of children with learning disabilities, that is, the learning disabilities affect the quality and the quantity of writing. In term of the writing quality, the children will lack the ability to relate the subject, idea, and structure of the article. In term of the writing quantity, the children will only write a shorter article with fewer words or lack of detail when they try to tell a story. The writing of both the adults and children with learning disabilities, or reading disability, reveals that these people face so much difficulty in descriptive writing. Nanci Bell, a linguist, who writes an article of 'Imagery and the Language Processing Spectrum' on the ICDL Clinical Practice Guidelines (620-621) remarks the underlying concept about language processing, that is, the human's reading and spelling of written words require the ability to process the sounds and the characters of said words, namely, the phoneme awareness and the symbol imagery. She also studies the learning stimulation using a method known as 'phonological awareness' (the ability to recognize and identify the phoneme) and the symbol imager. Nanci Bells recommends a theory on the 12-steps questioning process that stimulates the situation awareness by the imagination based on the image shown to an individual. These 12 steps are asking the questions of what is it, the color, the size, the number, the shape, the movement, the place (where is it), the emotion, the background, when is it, the perspective, and the sound. This theory stimulates the imagination using the image and the questions to lead the children to think and to try to describe the image by using more words and longer

sentences, and to be able to provide better detail for the image. Nanci Bell [11] develops this theory into a method called ‘The Visualizing and Verbalizing Programme’, which is comprised of

- 1) Picture to Picture: the main goal is vocabulary development, where children are asked to describe an image’s characteristics.
- 2) Word Imaging: the main goal is to develop the image processing and the ability to describe such an image with one single word.
- 3) Phrase and Sentence Imaging: this process expands the previous process and asks children to look at an image and describe it with phrases and sentences, starting from simple sentences.
- 4) Sentence-by-Sentence Imaging: the goal of this process is to look at the overview of an image and describe with several sentences.

The authors believe that Bell’s method can be beneficial to students with learning disabilities in Thailand. In order to further expand the aforementioned idea, the authors research engage in a research project which leads to the creation of the Kid Can Write program, a program with the aim to help students with learning disabilities to write longer sentences or phrases. The main component of this system is the implementation of the previously developed images, conceptual framework, and functions together [12].

The images are used for vocabulary development, where students are asked to take a look at the images and describe them in writing. The images are simple images.

The conceptual framework is used for helping students to form the words.

The word search function is used for helping students to write (type) the correct words.

The word prediction function is used for helping students to write (type) the complete sentence.

Fig. 1 – Fig. 3 show screen shots from the tool Kid Can Write.



Fig. 1. The Main menu page.



Fig. 2. The list of pictures page.

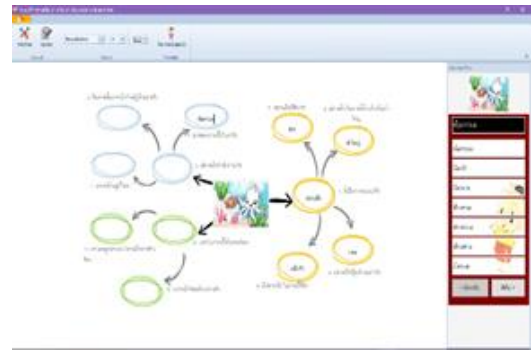


Fig. 3. The conceptual framework page.

V. USABILITY ENGINEERING RESULTS

After designing and developing the Kid Can Write program, the authors test and verify the application’s performance, in order to verify that the system is truly suitable for students with learning disabilities. The authors choose and implement the Heuristic Evaluation method [13]-[15] where there are five participants of the age of 31 – 50 years old in the evaluation. These participants have extensive experience in teaching students with learning disabilities for not less than 3 years. They have moderate computer usage ability. The evaluation can be categorized, as follow.

A. Evaluation of the Word Finding Function

TABLE I: SUMMARY OF THE SATISFACTION TOWARD THE INTERFACE’S EASY-TO-USE DESIGN

The interface’s easy-to-use design	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	2	40
High level of appropriateness/satisfaction	3	60
Moderate level of appropriateness/satisfaction	-	-
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table I reveals that majority of the participants specifies the high level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the highest level of appropriateness/satisfaction, which is accounted for 40 percent.

TABLE II: SUMMARY OF THE SATISFACTION TOWARD THE INTERFACE’S FONT FACE

The interface’s font face	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	2	40
High level of appropriateness/satisfaction	2	40
Moderate level of appropriateness/satisfaction	1	20
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table II reveals that majority of the participants specifies the high and highest level of appropriateness/satisfaction, which is accounted for 40 percent. This is followed by the moderate level of appropriateness/satisfaction, which is accounted for 20 percent.

TABLE III: SUMMARY OF THE SATISFACTION TOWARD THE INTERFACE'S FONT SIZE

The interface's font size	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	1	20
High level of appropriateness/satisfaction	1	20
Moderate level of appropriateness/satisfaction	3	60
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table III reveals that majority of the participants specifies the moderate level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the high and highest level of appropriateness/satisfaction, which is accounted for 20 percent.

TABLE IV: SUMMARY OF THE SATISFACTION TOWARD THE INTERFACE'S FONT COLOR

The interface's font color	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	3	60
High level of appropriateness/satisfaction	2	40
Moderate level of appropriateness/satisfaction	-	-
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table IV reveals that majority of participants specifies the highest level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the high level of appropriateness/satisfaction, which is accounted for 40 percent.

TABLE V: SUMMARY OF THE SATISFACTION TOWARD THE USE OF SOUNDS

The use of sounds	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	-	-
High level of appropriateness/satisfaction	3	60
Moderate level of appropriateness/satisfaction	2	40
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table V reveals that majority of the participants specifies the high level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the moderate level of appropriateness/satisfaction, which is accounted for 40 percent.

B. Evaluation of the Precision and the Efficiency of the Word Finding Function

TABLE VI: SUMMARY OF THE PRECISION OF THE DATA FINDING

The precision of the data finding	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	-	-
High level of appropriateness/satisfaction	-	-
Moderate level of appropriateness/satisfaction	5	100
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table VI reveals that majority of the participants specifies the moderate level of appropriateness/satisfaction, which is accounted for 100 percent.

TABLE VII: SUMMARY OF THE SPEED OF THE DATA PROCESSING

The speed of the data processing	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	3	60
High level of appropriateness/satisfaction	1	20
Moderate level of appropriateness/satisfaction	1	20
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table VII reveals that majority of the participants specifies the highest level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the high and moderate level of appropriateness/satisfaction, which is accounted for 20 percent.

C. Evaluation of the Word Selecting Function

Table VIII reveals that majority of the participants specifies the highest level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the high level of appropriateness/satisfaction, which is accounted for 40 percent.

Table IX reveals that majority of the participants specifies the high and highest level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the moderate level of appropriateness/satisfaction, which is

accounted for 20 percent.

TABLE VIII: SUMMARY OF THE SATISFACTION TOWARD THE INTERFACE'S EASY-TO-USE DESIGN

The interface's easy-to-use design	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	3	60
High level of appropriateness/satisfaction	2	40
Moderate level of appropriateness/satisfaction	-	-
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

TABLE IX: SUMMARY OF THE SATISFACTION TOWARD THE INTERFACE'S FONT FACE

The interface's font face	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	2	40
High level of appropriateness/satisfaction	2	40
Moderate level of appropriateness/satisfaction	1	20
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

TABLE X: SUMMARY OF THE SATISFACTION TOWARD THE INTERFACE'S FONT SIZE

The interface's font size	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	1	20
High level of appropriateness/satisfaction	2	40
Moderate level of appropriateness/satisfaction	2	40
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table X reveals that majority of the participants specifies the high and moderate level of appropriateness/satisfaction, which is accounted for 40 percent. This is followed by the high and highest level of appropriateness/satisfaction, which is accounted for 20 percent.

Table XI reveals that majority of participants specifies the highest level of appropriateness/satisfaction, which is accounted for 80 percent. This is followed by the high level of appropriateness/satisfaction, which is accounted for 20

percent.

TABLE XI: SUMMARY OF THE SATISFACTION TOWARD THE INTERFACE'S FONT COLOR

The interface's font color	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	4	80
High level of appropriateness/satisfaction	1	20
Moderate level of appropriateness/satisfaction	-	-
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

TABLE XII: SUMMARY OF THE SATISFACTION TOWARD THE USE OF SOUNDS

The use of sounds	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	-	-
High level of appropriateness/satisfaction	4	80
Moderate level of appropriateness/satisfaction	1	20
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table XII reveals that majority of the participants specifies the high level of appropriateness/satisfaction, which is accounted for 80 percent. This is followed by the moderate level of appropriateness/satisfaction, which is accounted for 20 percent.

D. Evaluation of the Images

TABLE XIII: SUMMARY OF THE SATISFACTION TOWARD CLEAR IMAGES

The satisfaction toward clear images	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	4	80
High level of appropriateness/satisfaction	1	20
Moderate level of appropriateness/satisfaction	-	-
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table XIII reveals that majority of the participants

specifies the highest level of appropriateness/satisfaction, which is accounted for 80 percent. This is followed by the high level of appropriateness/satisfaction, which is accounted for 20 percent.

TABLE XIV: SUMMARY OF THE SATISFACTION TOWARD APPROPRIATE IMAGES

The satisfaction toward appropriate images	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	5	100
High level of appropriateness/satisfaction	-	-
Moderate level of appropriateness/satisfaction	-	-
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table XIV reveals that majority of the participants specifies the highest level of appropriateness/satisfaction, which is accounted for 100 percent.

E. Evaluation of the 12-Steps Questioning Process Used in the Training

TABLE XV: SUMMARY OF THE SATISFACTION TOWARD CLEAR STEPS

The satisfaction toward clear steps	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	3	60
High level of appropriateness/satisfaction	2	40
Moderate level of appropriateness/satisfaction	-	-
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

TABLE XVI: SUMMARY OF THE SATISFACTION TOWARD THE CONSISTENCY OF THE STEPS AND THE IMAGES

The satisfaction toward the consistency of the steps and the images	Number of participant (person)	Percentage
Highest level of appropriateness/satisfaction	3	60
High level of appropriateness/satisfaction	2	40
Moderate level of appropriateness/satisfaction	-	-
Low level of appropriateness/satisfaction	-	-
Lowest level of appropriateness/satisfaction	-	-
No comment	-	-
Total	5	100

Table XV reveals that majority of the participants specifies the highest level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the high level of appropriateness/satisfaction, which is accounted for 40 percent.

Table XVI reveals that majority of the participants specifies the highest level of appropriateness/satisfaction, which is accounted for 60 percent. This is followed by the high level of appropriateness/satisfaction, which is accounted for 40 percent.

VI. CONCLUDING REMARKS

To sum up the overall satisfaction towards the Kid Can Write reveals that majority of the participants specifies the high level of satisfaction, which is accounted for 60 percent. This is followed by the highest level of appropriateness/satisfaction, which is accounted for 40 percent. Hence, the majority of the participants prefer the Kid Can Write as per the interface design and the images used in the program. The program provides an alternative for students to express their thought in writing, by using the program to help them find the words they want. The program uses both images and sounds that attract students' attention, and creates a more enjoyable lesson. The program uses technology to improve students' development in writing. The program is practical and can be applied to use in the classroom. Apart from that, some participants add that Kid Can Write is interesting and appropriate for the learning of students with learning disabilities. It can be applied to help improve the development of both reading and writing.

The authors therefore will use the usability evaluation results and the recommendations herein to further improve the system so the Kid Can Write becomes more appropriate for students with learning disabilities.

CONFLICT OF INTEREST

"The authors declare no conflict of interest".

AUTHOR CONTRIBUTIONS

Onintra Poobrasert conducted the research; Onintra Poobrasert analyzed the data; Onintra Poobrasert wrote the paper; Onintra Poobrasert, Natcha Satsutthi approved the final version.

ACKNOWLEDGMENT

The authors would like to convey our thanks and acknowledge the assistance of the Artificial Intelligence Research Unit (AINRU), National Electronics and Computer Technology Center. Additionally, the authors would like to give our special thanks to Ms. Wantanee Phantachat, Dr. Putthachart Pothibal, Dr. Daranee Saksisiphol, Dr. Bunthita Likkasit, and the Directors, the teachers, and the students at the school in Bangkok who participate in this research.

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