# Development of English-language Use and Learning through Integrated Interactive Media for Young Learners with Special Needs

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## Abstract

This study investigated the development of English-language use and learning among 15 young learners with special needs, by integrating some interactive media into instruction of reading and speaking. This study aimed to 1) find out the methods to help these young learners build up their understanding of English-language use and learning, with the help of some media such as pictures, actions, sounds, moving pictures and interactive media as part of the teaching materials, 2) compare and contrast the development of the learners' understanding of the language use and learning, and 3) apply the research findings with instruction of English in other situations or of other languages. The research instruments comprised the ones used for teaching English and the ones used for collecting data. The teaching instruments were formed with integration of various kinds of media, like pictures, actions, sounds, moving pictures and interactive media. The instruments for data-collection were observations, pre-tests and post-tests, and follow-up interviews with open-ended questions. The quantitative data collected from the pre-tests and the post-tests were analysed with *Wilcoxson Signed Ranks Test Statistics*; whereas the qualitative data collected from the classroom observations and follow-up interviews were analysed and cross-checked with the quantitative data. This study revealed the following interesting findings. First, the integration of pictures, actions, sounds, moving pictures and interactive media into classroom instruction, as a whole, could develop these learners' use and learning English, in terms of grammar/language structure, meaning and comprehension. Second, the development of language use and learning in the area of language structures resulted from the integration of pictures and actions and of moving pictures and interactive media. Third, the learners' development of language use and learning in terms of meaning was derived from the integration of pictures, pictures and actions, actions and sounds, and moving pictures and interactive media. Fourth, the learners' development of language use and learning in terms

of overall comprehension resulted from the integration of pictures and moving pictures and interactive media.

**Keywords:** English language teaching / integrated instructional materials / special education

## Introduction

The nature of language learning is quite complicated and demanding, although it seems to be quite similar to the way how an individual's first language is generally acquired (Cameron, 2003). Moreover, it turns to be tougher for language learners when the language they are learning is quite different from their mother tongue, with no or few similar or comparable features. This is similar to the situation in which Thai learners of foreign languages, like English, have encountered so far. With absolutely different origins, developments, systems and features between Thai, as their first language, and English as their target language, these learners' use and learning of English have not really been successful in Thailand, as evidenced by the claim of Thai people' low level of English proficiency (Thai PBS, 2015; and Kaur, Young and Kirkpatrick, 2016) and some comments by educational policy makers, like the former Foreign Minister and Ex-Asean Secretary General Surin Pitsuwan and the former Minister of Education Chaturon Chaisang (MGR Online, 2013). Such evidence pointed out that the direction of English language use and learning in Thailand really needs improvement. Attajak Sattayanurak (2010) also commented on language teachers' instruction which did not really stimulate learners to build up their own understanding of relevant concepts, ideas and culture.

Anyway, there have been a lot of attempts made to improve English language teaching and learning to Thai learners. Mr. Surin Pitsuwan once suggested providing the learners with a lot of learning resources in their environment such as on the Internet and on the smartphone environment (MGR Online, 2013). Mr. Chaturon Chaisang (*Ibid.*) also recommended the shift of language learning from memorising vocabulary and grammar to using the language for real communication in writing and speaking, instead.

Moreover, there have been a lot of attempts, from time to time, to improve language learning, in both terms of theories (Bruner, 1966 cited in Brewster, 1991; Cameron, 2001; Piaget, 1967 cited in Brewster, 1991; and Vygotsky, 1962 cited in Brewster) and practice (Ellis, 1986, pp. 107; Lenneberg, 1967 cited in Singleton, 1989; Penfield and Roberts, 1959 cited Ellis, 1986; and Scovel, 1988 cited in Nikolov), especially with language development from early ages. Likewise, the development of using and learning other languages, like English, has also been advised with the help of some principles and theories in the area of second language acquisition or foreign language acquisition, especially by adjusting other relevant factors.

Such ideas above about stimulating English language learners to build up their own understanding of the language is aligned with the writer's opinion gained from her personal experiences in teaching some young learners in Prathoms 4-6 at a demonstration school. At that time, the writer started to integrate some pictures and other components of non-verbal language into the lesson, to teach these pupils to read for comprehension and express their ideas in speaking in the target language.

However, the implementation of learning in this context depended much on various factors, like the learners' learning ability, background knowledge, the teachers' teaching materials, teaching methods and concepts underlying classroom instruction, and the learning contexts.  Among these factors, some can be adjusted for developing language learning; whereas some cannot, like the ones related to some learners' learning ability such as their physical, mental and emotional disabilities, as what is found in some learners with special needs (UNESCO, 2000 cited in Nareerat Jaroendech, n.d.; Sansanee Chatkupt, B.E. 2551; Kullaya Korsuwan, B.E. 2553; and Citizen Information Board, 2015).  Such physical, mental and emotional defects are quite impossible to be amended.

As a result, while teaching some weak learners and learners with special needs in Prathoms 6 in 2014, an idea of how to develop these particular young learners' use and learning of English as a foreign language emerged.  This was derived from the test results of some learners in Prathom 6 classes, who were really weak in learning in general and learning English in particular.  These learners could give some correct answers about people's feelings in a test, after their lessons with texts and some pictures of cartoons and emoticons.  Among these weak learners, an autistic learner, who always needed repeated lessons before she could learn something about the reading texts, could also give one correct answer together with the drawing of an emoticon picture which matched with the correct answer.  Besides, this learner also confirmed her understanding of the lesson with the writer, as her teacher, when she was asked about her answer with the emoticon.  This really inspired the writer to develop her learners' learning with the help of teaching material with something else, like pictures.  It implied that the language learning does not only depend on the use of verbal language or the explanation with the learners' mother tongue, but also the use of the target language, together with some other language components, like non-verbal ones, as suggested by Brill (2011) and Lamduan Sriprommas (B.E. 2553).

Later, when there was a large number of weak learners and learners with special needs, namely 19, in three classrooms of Prathom 5 in 2014 in the following year, facing the same difficulties in learning English with the verbal language, this particular research study was then designed and formed.  It was set up to investigate the development of English-language use and learning among these young learners with special needs, by integrating some media and

interactive media into the instruction of reading and speaking.  This study aimed to 1) find out the methods to help these young learners build up their understanding of English-language use and learning, with the help of some media such as pictures, actions, sounds, moving pictures and interactive media as part of the teaching materials, 2) compare and contrast the development of the learners' understanding of the language use and learning, and 3) apply the research findings with instruction of English in other situations or of other languages.  The study focused on the overall implementation, the particular uses and application of the integrated media.  To investigate these details, the concepts related to special education, language learning and media and interactive media for instruction were brought in, to explain how these learners with special needs would be able to develop their understanding of the language in the areas of language structure, meanings and overall comprehension.

## Setting the Problem

In language learning, there have been a lot of attempts to improve language learning, in both terms of theory (Bruner, 1966 cited in Brewster, 1991; Cameron, 2001; Piaget, 1967 cited in Brewster, 1991; Gardner, 1993; and Vygotsky, 1962 cited in Brewster) and practice (Ellis, 1986, pp. 107; Hughes, 2006; Lenneberg, 1967 cited in Singleton, 1989; Penfield and Roberts, 1959 cited Ellis, 1986; and Scovel, 1988 cited in Nikolov), especially with language development from early ages.

However, there are various factors affecting most learners' learning of languages, like their own learning ability, background knowledge, their teachers' teaching materials, teaching methods and concepts underlying classroom instruction and the learning contexts.  Among these factors, some can be adjusted for developing language learning; whereas some cannot, like the ones related to some learners' learning ability, like their physical, mental and emotional disabilities, as what is found in some learners with special needs (UNESCO, 2000 cited in Nareerat Jaroendech, n.d.; Sansanee Chatkupt, B.E. 2551; Kullaya Korsuwan, B.E. 2553; and Citizen Information Board, 2015).  So, provision of language instruction to learners with special needs is more complicated and needs much more support from relevant people and factors.

However, in the area of special education, there have been many concepts and principles proposed about how to teach learners with special needs such as through adjustment of teacher performance (Padung Arayawinyoo, B.E. 2551), instruction with 3 R's (Repetition, Routine and Relaxation) (Waree Tirajitr B.E. 2545), lessons (Corley, 2007), teaching materials (Brill, 2011; Jareelak Jirawiboon & Supannee Aunjak, 2551; and Lamduan Sriprommas, B.E. 2553).

Among interventions in teaching materials for learners with special needs in different studies, integration of media and interactive media was also proposed, for example, with Brill's suggestion of Boardmaker (2011), Dunst, Meter and Hamby's use of body language (2011), and Panwadee Panjapornpon's use of pictures (B.E. 2551).

As a result, it was really challenging to find out some more in-depth information about how those interventions in teaching materials would work with more particular detail. Then, this research study was planned to investigate how integration of media and interactive media into English language lessons could develop the understanding of language learners with special needs, in the area of language structure, meaning and comprehension, with the focus on the overall results before and after the intervention, the appropriate methods and the application of the intervention further.

## Research Questions

**Research Question 1:** Does the integration of pictures, actions, sounds, moving pictures and interactive media into the lesson help develop the understanding of the language learners with special needs or not?

**Research Question 2:** Which component has an effect on these particular learners' understanding in their language use and learning?

**Research Question 3:** How does the integration of pictures and actions affect the learners' use and learning of English?

**Research Question 4:** How does the integration of sounds affect the learners' use and learning of English?

**Research Question 5:** How does the integration of moving pictures affect the learners' use and learning of English?

**Research Question 6:** How does the integration of interactive media affect the learners' use and learning of English?

With these six research questions, this research study should provide the information related to the overall implementation of integration of media and interactive media, the particular detail of integration and also the application of integration further, as previously defined by the study objectives above.

## Research Methodology

To investigate the overall implementation of integration of media and interactive media, the particular detail of integration and also the application of integration further, this research study was designed with the *mixed-methods*, in both *naturalistic and positivist*

*paradigms* to collect both *qualitative and quantitative data* from the intervention of language use and learning provided for young learners with special needs in a primary school. The intervention integrated a variety of media and interactive media into the teaching materials for some comparable reading and speaking lessons, so as to develop the learners' understanding of English language use and learning.

### 1. Population and Samples

These 15 participants were selected, on a particular purpose regarding the researcher's judgement (Kumar, 2005, pp. 178-179), from the whole population of weak learners and learners with intellectual disabilities. The selection can be considered as judgemental/purposive sampling'.  The reason behind this selection was a small number of participants available, so it was necessary to invite the whole population to join this study.

### 2. Research Instruments

The instruments used in this research study comprised the instructional ones, the teaching materials with integrated interactive media, and the data-collection ones, the unstructured observations, the pre-tests and the post-tests, and the follow-up interviews with open-ended questions.  With the use of some instruments for data collection, like pre-tests and post tests and observations, the reality in this study was accepted as it was. Meanwhile, the use of follow-up interviews, if necessary, implied some additional 'soft' (Bassey, 2005, p. 38) and 'in-depth information' (Mertens, 1998, pp. 162-163; and Bogdan & Biklen, 2003, p. 2), which was hoped to make the findings clearer and more comprehensible.

Both groups of research instruments were developed and examined, as in the following details.  First, the instructional instruments were developed by adapting some information available in both formats of hard and soft copies and integrating some kinds of media, like pictures, actions, sounds, moving pictures and interactive media, into the teaching materials. There were six groups of instructional instruments, regarding the types of media integrated: pictures; pictures and sounds; pictures and actions; actions and sounds; pictures and moving pictures; and moving pictures and interactive media. The teaching materials were examined and evaluated, with the 1-5 rating scale[1] of appropriateness, by an expert, in terms of 1) its correspondence with the lesson contents appropriate for school pupils in Prothom 5 level; 2) comprehensibility; 3) attractiveness; 4) difficulty; and 5) kinds of media integrated.  The average value of evaluation for the instructional instruments of pictures, pictures and sounds, pictures

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[1]    The 1-5 rating scale here means the scale ranging from the lowest score to the highest ones.  1 means 'inappropriate.  2 means partly appropriate.  3 means appropriate.  4 means very appropriate.  5 means absolutely appropriate

and actions, actions and sounds, pictures and moving pictures, and moving pictures and interactive media, were 96%, 97%, 98%, 100%, 97% and 100%.

Second, some instruments for data collection, namely pre-tests and post-tests, and follow-up interviews were also examined by other experts.  The test items in each part of the pre-tests and post-tests were examined and evaluated with the 1-5 rating scale for correspondence with different areas of language, language structure, meaning/vocabulary and comprehension.  The values of correspondence ranges between 4.2 and 5.  The open-ended questions were also examined in terms of correspondence to the contents the researcher intended to ask these young participants, or content validity.

### 3. Data Collection

The process of data collection was conducted in the following order.

<u>Step 1</u>     Data collection from pre-tests before the instruction

At the beginning of the research project, some data about the learners' English proficiency were collected from all the participants/learners, from pre-tests.  Due to the participants and their parents' convenience, the participants were divided into two groups, however, with no discrimination or particular classification.  The data about the learners' English proficiency underlying what was required in the particular reading and speaking class were analysed into different areas of knowledge: language structure; meaning/vocabulary and comprehension.

<u>Step 2</u>     Data collection from observations during the instruction

During the instruction, the instructional instruments, the teaching materials with different kinds of media integrated, were applied with the instruction.  At the same time, the data about the learners' learning performance and particular reactions were recorded by one of the researchers, so as to cross-check with the results from the post-tests later.

<u>Step 3</u>     Data collection from post-tests after the instruction

After the three-day instruction, the participants were required to take the post-tests in the last session, with the test items containing the contents compatible with the contents in the pre-tests, as evaluated by the experts.  The data about the learners' development or decline in language use and learning were recorded in the form of test scores before being tallied and analysed later by the Wilcoxson Signed Ranks Tests, according to the types of media used for instruction and areas of language learning.

<u>Step 4</u>     Data collection from follow-up interviews after the post-test

In case of any doubt found in the learners' test scores compared and contrasted in the pre-tests and post-tests, the open-ended questions would be used to ask each particular learner.  The data gained from such questions would be triangulated with the data gained

from other kinds of data-collection instruments. In this way, the reality related to the learners' development of language use and learning should be clearly shown.

### 4. Data Analysis

The data collected from all data-collection instruments were analysed in both quantitative and qualitative ways. In terms of quantitative analysis, all the data collected, in the forms of test scores, to identify the differences between the test results of the pre-tests and the post-tests, were analysed by the Wilcoxson Signed Ranks Tests Statistics, as shown as in the example in Tables 1-3. The analyses were conducted according to Research Questions 2-6, to identify the specific types of integrated media useful for the learners' development and the particular language areas of development in the learners' language use and learning.

**Table 1:** Sample of Wilcoxon Signed Ranks Test for Comparison of Pre-test and Post-test results for Group 1 after Using Pictures and Actions for Development of Language Use and Learning in Language Structure (1)

**Descriptive Statistics**

|  | N | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| comApre | 7 | 4.000 | 2.7689 | .0 | 8.0 |
| comApost | 7 | 1.429 | 2.5237 | .0 | 7.0 |

**Table 2:** Sample of Wilcoxon Signed Ranks Test for Comparison of Pre-test and Post-test results for Group 1 after Using Pictures and Actions for Development of Language Use and Learning in Language Structure (2)

**Ranks**

|  |  | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| comApost - comApre | Negative Ranks | 6[a] | 4.50 | 27.00 |
|  | Positive Ranks | 1[b] | 1.00 | 1.00 |
|  | Ties | 0[c] |  |  |
|  | Total | 7 |  |  |

a. comApost < comApre

b. comApost > comApre

c. comApost = comApre

**Table 3:** Sample of Wilcoxon Signed Ranks Test for Comparison of Pre-test and Post-test results for Group 1 after Using Pictures and Actions for Development of Language Use and Learning in Language Structure (3)

| Test Statistics[a] | |
|---|---|
| | comApost - comApre |
| Z | -2.201[b] |
| Asymp. Sig. (2-tailed) | .028 |

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

In terms of qualitative analysis, the data collected from observations and follow-up interviews were used to support and triangulated with the data gained from the pre-tests and the post-tests. Moreover, all of these data were used to respond to Research Question 1, which identifies the overall achievement in using the integrated interactive media, as in the research hypothesis: the use of the integrated interactive media, the independent variable, leads to the learners' development in language use and learning, the dependent variable.
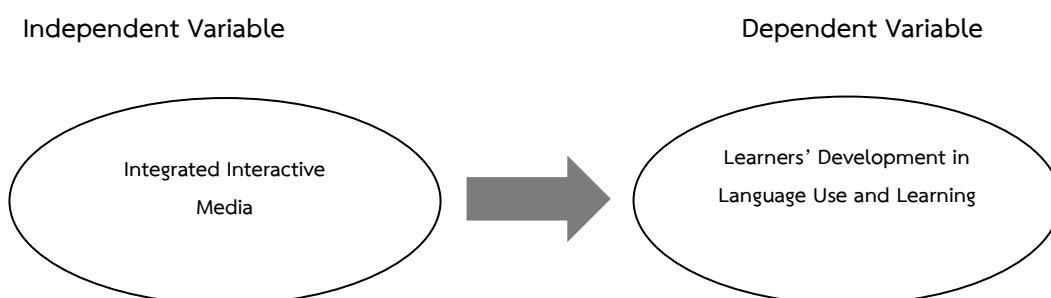
**Independent Variable**                                              **Dependent Variable**



**Figure 1:** Research Hypothesis

## Research findings

This study revealed the following interesting findings according to the research questions 1-6, first with the findings gained from quantitative data and later the ones from qualitative data.  According to the findings from quantitative data, regarding Research Question 1, the integration of pictures, actions, sounds, moving pictures and interactive media into classroom instruction, as a whole, could develop these learners' use and learning English, in terms of grammar/language structure, meaning and comprehension, according to the information from both quantitative data and qualitative data. the integration of most kinds of media, except sounds, into the lesson of units of things did not show the learners' development with the statistical significance, at the average value of 0.126.  However, the qualitative data from observations and follow-up interviews showed the learners' development of language use and learning in the area of grammar/language structure, meaning and comprehension, after the all lessons with the integrated interactive media, except sounds.

According to Research Questions 2-6, the development of language use and learning in terms of language structures resulted from the integration of pictures and actions and of moving pictures and interactive media, with the statistical significance, at the average values of 0.05 and 0.062, respectively.  The learners' development of language use and learning in terms of meaning was derived from the integration of pictures, pictures and actions, actions and sounds, and moving pictures and interactive media, with the statistical significance, at the average value of 0.13, 0.166, 0.26 and 0.062, respectively.  Besides, the learners' development of language use and learning in terms of overall comprehension resulted from the integration of pictures and moving pictures and interactive media, with the statistical significance, at the average value of 0.133, 0.166, 0.26 and 0.062, respectively.  The findings above were mainly derived from the quantitative data.

Besides, some qualitative data from observations and follow-up interviews also revealed something different, which could not be proved by any statistics, as follows.  First, in terms of language structure, the integration of moving pictures and sounds in the lesson of *shapes* could also develop the learners' use and learning.  It was remarkable that the learners noticed the different parts of language structures in words taught and could understand this lesson, like the differences between the words, 'pentagon' and 'hexagon'.  Likewise, when pictures alone were integrated into the lesson of *units of things*, the grammatical rules of singularity and plurality were also clear to these learners and their understanding in language use and learning were also developed, as revealed by the qualitative data from observations and interviews.

Second, in terms of meaning, the integration of pictures in the lesson of *units of things*, pictures and actions in the lesson of *the monkeys and the hats,* and actions and sounds in the lessons of *our new puppy, stretching out* and *senses* could really develop the learners' understanding a lot.  However, it was also remarkable that some words with small differences were not really learned by these learners, like the words, 'look to the left' and 'look at', or the words, 'look' and 'look at'.  Moreover, the integration of moving pictures and interactive media in the lesson of *where's the monkey?* also helped develop the learners' understanding of the meanings of the different prepositions.  Besides, such interactive media which needed the learners' reaction such as a mouse click, could really draw their attention well in the classroom.  Anyway, in the classroom, the researcher just offered to click the computer mouse on the picture for the learners.  Otherwise, there might have been a lot of chaos during the experiment.

In contrast, the integration of moving pictures in the lesson of *shapes* also confused some of the learners, according to some follow-up interviews.  In this lesson, one picture, for example, a circle, would be transformed into a square, as shown in Figure 2.
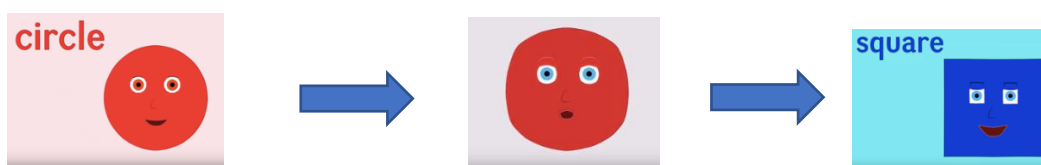


**Figure 2:** A circle was transformed into a square
(https://www.youtube.com/watch?v=WTeqUejf3D0)

Third, in terms of overall comprehension, the integration of pictures in the lesson of *units of things*, pictures and actions in the lesson of *the monkey and the hats*, the actions and sounds in the lessons of *stretching out* and *puppy*, and moving pictures and interactive media in the lesson of *where's the monkey?* was really helpful to the learners' understanding. When their understanding was rechecked with some follow-up interviews, their answers confirmed that they understood the lessons well.

## Discussion

The research findings above about the development of English-language use and learning through integrated interactive media for the learners with special needs in this context revealed some contributions and constraints as follows.

### Contributions of Study

In terms of contributions to theoretical knowledge, this study pointed some useful concepts as the basic knowledge for further uses. First, the findings offered an alternative use of integrated interactive media for teaching and learning English. However, the use should be done with awareness of different limitations of each kind of media. Second, the research findings also confirmed that the understanding of language use and learning, like English, among learners with special needs could really be developed, but with a lot of attempts, as Brill (2011), Kanokkorn Bussayakanit (B.E. 2550) and others have recommended. Third, uses of some particular media, like moving pictures and interactive media, are possibly not useful due to the complex features of the media which do not really help learners with special needs and probably confuse them, instead. Fourth, in the post-test about the lesson of *puppy* revealed that learners with special needs may not be able to identify some words translated into the target language but can probably do if the words translated in their first language, due to their limited ability in learning. Fifth, similar to the fourth point, the detail of lesson, like some similar expressions, like the expressions, 'look to the right' and 'look at', may be too difficult for such learners to learn at the beginning.

In terms of contributions to professional knowledge, the research findings were very helpful to the field of education, as follows. First, such findings revealed by this research study can be an option for teachers to learners with special needs in learning another language or even other things. Second, the research findings also pointed out an important issue in education, namely the detail of lesson contents should be adjusted according to particular learners' characteristics and learning ability.

In terms of contributions to research methodology, this study revealed some useful information, as follows. First, the use of Wilcoxson Signed Ranks Test for a small amount of data from a small number of participants was really helpful to confirm some accurate information. Second, the validity of some instruments, like the instructional instruments for teaching the lessons of *the monkeys and the hats*, was really complicated and needed some repeated checks, for the accurate results from uses. Third, some interesting findings which were not expected may emerge by accident, as what was found about the development of understanding in language structure from the lessons of *shapes* and *units of things*.

### Constraints of Study

In addition to contributions, this research study was also conducted with the following constraints.  First, some information was missing and could not be replaced due to the limitations of the participants' communicative skills.  There were times when some questions in the follow-up interviews asked to the participants were not responded.  It was possible that these learners could not answer the questions due to their lack of understanding.  Second, the research conducted with participants with special needs like these learners might not be absolutely successful, due to many limitations, like the participants' lack of concentration on the lessons and the tests.  However, this could be stimulated as suggested by Piaget (Cameron, 2001; Siegler, 1986) by people around them, like their teachers, their parents and their peers (Cameron, 2001; Lantolf & Thorne, 2007.  Third, some particular detail of some instruments such as the instructional instruments for the lesson of *the monkeys and the hats*, should be realised.

## Recommendations

As a result of the findings from this research, there are some issues worth considering.  First, the integration of media and interactive media can be useful to instruction, but with careful consideration of its strengths and weaknesses.  Second, as reflected in this study, each particular kind of media should be used with awareness of its particular detail, especially in the classroom or for any situation.  Third, according to the limited learning ability of learners with special needs, educational policies related to equality of all learners should be revised, due to the fact that the learning pace of learners with special needs is hardly similar to normal learners.

With such ideas above, some recommendations for other research studies further are about the use of statistics which can show the conflicts between quantitative and qualitative data, as revealed in some findings in this research study.  Besides, some more profound studies on learning development of learners with special needs are also interesting and worth working on further.  Last but not the least, it is hoped that the information found in this research study will be useful and hopeful to relevant people in the relevant fields of study, like English language, English language teaching or special education.

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