

Effectiveness of a Reading-and Writing-enhancement Multimedia Instructional Package on Grade 3 Students

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Abstract—This is experimental research aims to examine the effects of a reading- and writing-enhancement multimedia instructional package (MIP) on grade 3 students. The purposes of the study include: (1) to construct a MIP on “Diphthong” in Thai Subject for grade 3; (2) to examine the implementation effects of MIP; and (3) to investigate MIP’s performance on learning retention; and (4) to assess the satisfaction level of the students on MIP. The sample comprises 60 grade 3 students. Research instruments were employed: (1) a MIP on “Diphthong” in Thai Subject for grade 3; (2) test of MIP on students’ academic achievement; (3) a student satisfaction survey on MIP; and (4) lesson plan. In this study, percentage, mean, standard deviation, and t-test were used for statistical analyses and the following findings were discovered: (1) the quality of MIP on “Diphthong” in Thai Subject for grade 3 was averagely high at 4.33 score whereas the effectiveness scores exceeded the criteria yielding 95.33/81.00; (2) when compared to the pretest, the students who were exposed to the reading- and writing-enhancement MIP performed higher than the posttest at .001 significance level; (3) when compared to the experimental group, the students who were exposed the posttest to the reading- and writing- enhancement MIP performed higher than the posttest of the control group at .05 significance level; and (4) learning retention, the score results of the first and second posttest, taken with a 6-week interval by the students who were exposed to MIP, appeared without any significant difference; and (5) the students were extremely satisfied with the MIP with an average satisfaction rating of 4.99.

Index Terms—Multimedia instructional package, learning retention, reading skills, writing skills

I. INTRODUCTION

Language learning deals with a training of basic skills pertaining to listening, visualizing, speaking, reading, and

writing. However, today’s primary means of information consumption are through listening, visualizing, reading, and conceptualizing. In fact, reading is considered one of the most important skills in the quest for knowledge as it can help students broaden the knowledge and experience regardless of being inside or outside the classroom and learn from others without engaging in a direct listening. Reader enthusiasts with sufficient reading skills can well extract the read knowledge for further speaking and writing applications. When comparing against the Basic Education Core Curriculum B.E. 2551 (2008), it was found that five following subject matters were used: (1) reading; (2) writing; (3) listening, visualizing, and speaking; (4) grammar and usage; and (5) literature [1].

Reading is a powerful skill in the pursuit of knowledge. A proficient reader can read much, fast, and accurate. A multilingual reader would definitely have more life opportunities than others. Reading is very important for lower-elementary education and for that, it should be correctly developed, trained, and mastered through sufficient practice allocation [2]-[4].

In fact, reading skill is an essential foundation skill for learners of all levels as it is a vital learning tool to acquire a wide-range of knowledge. Constant training would enhance the reading basic, expertise, and knowledge range. In addition, reading is one of the very important basic factors required in every field of study. Students who are proficient in reading tend to perform well in all academic aspects [5].

Spelling is another foundation skill in writing. In order to write a word, sentence, and story, all learners are preliminarily required to know the spelling. Without the spelling knowledge, it would be almost impossible for someone to comprehend the stories the others wrote or convey his/her own an idea in writing. Therefore, correct spelling is extremely vital [6]. Today’s data transmission

is mostly done in writing and for that, the skill has become increasingly important for someone to express ideas and present a newly discovered knowledge and innovation. The purpose of publicizing the knowledge is to allow the interested parties to learn from it and dynamically expand it further. If a writer is capable of employing multiple languages, there is a good chance that the discovered innovation reaches a broader audience in more diverse social contexts where it can be kept as an evidence for future learning. This justifies why writing is also extremely crucial to start as early as the lower-elementary education and for that, it should be correctly developed, trained, and mastered through sufficient practice allocation [7].

Reading and writing are among the major national issues. In fact, they are also necessary for grade 3 students which an important age to establish foundation skills like Thai reading and writing. Reading and spelling are especially crucial as all subjects and fields utilize the Thai language as a communication medium. If the grade 3 students were not fluent in spelling, it would delay the academic development.

In addition, the researcher examined the academic results of the Thai Subject and after some interviews with the teachers; it was possible to identify the problems that the grade 3 students have. The identified problems are divided into the reading and writing learning incompetence and the following the students' behaviors were observed: (1) the reading behaviors include delayed reading pace, incorrect pronunciation, failed diphthongization, inaccurate memory of word composition, skipping the unreadable, skipping unintentionally, irrational word addition, confusing intonation pronunciation, intonation failure, mumbling, substitution of the unreadable with other word choices, reluctant reading, spelling out while reading, reading backward, confusion on the end consonant, failed usage of consonant clusters, confusion on the vowel sounds especially diphthongs and inherent vowels, and lack of learning concentration; and (2) the writing behaviors include delayed writing pace, writing the alphabet backward, repetitive effort to draw the alphabetical heads, frequent misspelling on simple words, frequent erasing, incomprehensible writing, irrational writing addition or omission, misplaced vowel and intonation, and misplaced alphabets. These are the reasons behind the students' academic failure despite having indistinct intelligence levels when compared to other regular students. With proper facilitation, it is possible that this student group would become as successful as other regular students.

The instructional package that is multimedia was systematically created and rationally designed to be compatible with the subject content aiming to help the students to successfully achieve the academic goals. The instructional package comprises a teacher's guide, student handbook, content, activities, and multimedia and academic achievement test [8]. The instructional package for learner was designed to be more responsive to the learning concepts and theories which offer an opportunity for learners to self-directed learning according to their

capability, needs, and convenience. Instructors can use the designed instructional package with multimedia to introduce new content, practice the students, present simulation scenarios, and teach the problem solving which are the beneficial additions to the learning, learning approaches, and means to seek answers with direct impact on the academic achievement. In addition, the effective of multimedia can enhance the higher learning achievement [9]. Nowadays, multimedia is becoming popular in the field of education as instructors incorporate multimedia into the teaching by creating an integrated multimedia instructional package which is a new type of media. The information is presented via the computer in a form of text, animation, sound, and interactivity. It is considered a kind of instructional media that is attractive to the students as it offers colorful, audio, and visual interactions between the students and computer. In addition, it can simplify a complex lesson that is difficult to understand which advantageously facilitate the students with better learning clarity. Moreover, with this type of tool, students can study independently in and out of the class where slow learners can review and revise the learning [10]. To incorporate a multimedia into a topic should be consistently with the National Education Act B.E. 2542 (1999) and its amendments (No. 2) BE 2545 (2002), section 22 which offers a guideline requiring that "an educational management shall be based on the principles that all learners are capable of self-learning and self-development where they shall be held the prime emphasis of such management. The educational process shall encourage them to develop naturally and at full potential."

From the mentioned background and importance, the researcher took a particular interest in the effects of a reading- and writing-enhancement multimedia instructional package on grade 3 students purposely to ensure that they develop the reading and writing skills with better language utilization while the teachers simultaneously develop their efficiency in teaching and learning management. Through the use of a multimedia instructional package that integrates both basic and digital media, the students are expected to gain more experiences from a multi-sensory exposure that facilitates the learning and development according to the age of the students.

II. OBJECTIVE

- 1) To construct a multimedia instructional package on "Diphthong" in Thai Subject for grade 3;
- 2) To examine the implementation effects of the reading- and writing-enhancement multimedia instructional package on "Diphthong" on the grade 3 students;
- 3) To investigate the learning retention performance of the reading- and writing-enhancement multimedia instructional package on the grade 3 students;
- 4) To assess the satisfaction level of the students on the multimedia instructional package on "Diphthong" for grade 3.

III. HYPOTHESIS

- 1) The grade 3 students who utilize the reading- and writing-enhancement multimedia instructional package on “Diphthong” receive higher posttest scores when compared to their previous pretest scores;
- 2) The grade 3 students who utilize the reading- and writing-enhancement multimedia instructional package on “Diphthong” receive higher posttest scores when compared posttest scores of the control group;
- 3) The grade 3 students who utilize the reading- and writing-enhancement multimedia instructional package on “Diphthong” receive indistinctive scores on the first and second posttest taken with a 6-week interval;
- 4) The grade 3 students are extremely satisfied with the multimedia instructional package on “Diphthong”.

IV. SCOPE POPULATION AND SAMPLE

A. Population

The population comprises 2,864 grade 3 students in Pattani Province, Thailand [11].

B. Sample

The sample comprises 60 grade 3 students in Tessaban 2 Wat Taninarasamosorn School, Anoru Sub-District, Mueang District, Pattani Province, Thailand.

V. CONTENT

The content of the study is on “Diphthong” in Thai Subject for grade 3. Thai language comprises six of the following diphthongs: (1) -ia; (2) -iia; (3) -eua; (4) -euua; (5) -ua; and (6) -uaa.

Variables

- 1) Independent variables: (1) the utilization of the multimedia instructional package on “Diphthong” in Thai Subject for grade 3; and (2) the traditional learning;
- 2) Dependent variables: (1) the academic achievement of the grade 3 students through the utilization of the reading- and writing -enhancement multimedia instructional package on “Diphthong” in Thai Subject for grade 3; (2) the grade 3 students’ learning retention through the use of the reading and -writing enhancement multimedia instructional package on “Diphthong” in Thai Subject; (3) the satisfaction level of grade 3 students towards the reading-and writing -enhancement multimedia instructional package on “Diphthong” in Thai Subject.

VI. INSTRUMENTS

The research instruments comprise (1) a reading- and

writing- enhancement multimedia instructional package on “Diphthong” in Thai Subject for grade 3; (2) Test of the multimedia instructional package on students’ academic achievement; (3) a student satisfaction survey; and (4) Lesson plan.

VII. METHODOLOGY

This is an experimental research to examine the effects of a reading- and writing-enhancement multimedia instructional package on grade 3 students where the experimental research was conducted following the designed research plan adapted from the principles of randomized control group and pretest-posttest design using the following sequence: (1) the development of research instruments; (2) the operation and data collection; and (3) the analysis of data and statistics.

VIII. DATA ANALYSIS

There are three analytical divisions of data as follows: (1) the pretest-posttest scores of the experimental group; (2) the posttest-posttest scores of the experimental and control group; (3) the first-second posttest scores of the experimental group to determine the learning retention. Percentage, mean, standard deviation, independent samples t-test, and dependent samples t-test are used for statistical analyses.

IX. RESULTS

After examining the effects of the reading- and writing -enhancement multimedia instructional package on grade 3 students, the following findings are revealed:

According to Table I, the quality assessment revealed that 1) the package manual/instructions were fair with a 3.11 mean quality score; 2) the content and media were excellent with 4.60 mean quality score; and 3) the academic assessments were good with a 4.44 mean quality score. In general, the quality of the reading- and writing-enhancement multimedia instructional package on “Diphthong” in Thai Subject for grade 3 was good with an overall mean score of 4.33.

According to Table II, it was found that the effectiveness scores (95.33/81.00) exceeded the standard evaluation criteria (80/80). In summary, the efficiency of the process (E1), the score obtained from the during-study practice, was 95.33%; whereas the efficiency of the product (E2), the post-study academic achievement score, was 81.00%.

Table III reveals that the pretest and posttest mean scores of 30 grade 3 students before and after using the reading- and writing-enhancement multimedia instructional package on Diphthong were 6.40 and 8.10, respectively. Both scores were statistically different at $p < 0.001$ significance level suggesting that the students did higher in the posttest once they used the multimedia instructional package.

TABLE I. QUALITY ANALYSIS OF THE READING-AND WRITING-ENHANCEMENT MULTIMEDIA INSTRUCTIONAL PACKAGE FOR GRADE 3

| Evaluation items on the package manual/instructions | M | S.D. | Quality Level |
|---|------|------|---------------|
| 1. The instructions are clear. | 3 | 0 | Fair |
| 2. The activity instructions are learner-friendly. | 3.33 | 0.58 | Fair |
| 3. The descriptions are thorough and clear. | 3 | 0 | Fair |
| Dimensional mean score | 3.11 | 0.33 | Fair |
| Evaluation items on the content and media | M | S.D. | Quality Level |
| 1. The content is clear and correct. | 5 | 0 | Excellent |
| 2. The content matches the objectives of the package. | 4.67 | 0.58 | Excellent |
| 3. The content suits the learners' level. | 4.67 | 0.58 | Excellent |
| 4. The content language suits the learners' level. | 4.33 | 0.58 | Good |
| 5. The end-chapter summary is appropriate. | 4 | 1 | Good |
| 6. The images match the descriptions. | 5 | 0 | Excellent |
| 7. The texts and images are clearly visible. | 4.67 | 0.58 | Excellent |
| 8. The colors are appropriately used. | 5 | 0 | Excellent |
| 9. The media package stimulates the learning. | 4.33 | 1.15 | Good |
| 10. The media and content are appropriate and attractive. | 4.33 | 1.1 | Good |
| Dimensional mean score | 4.60 | 0.45 | Excellent |
| Evaluation items on the academic assessments | M | S.D. | Quality Level |
| 1. The pretest helps to review previous knowledge. | 4.33 | 1.16 | Good |
| 2. The posttest presents to construct the knowledge. | 4.33 | 0.58 | Good |
| 3. The learners can further make use of the knowledge. | 4.67 | 0.58 | Excellent |
| Dimensional mean score | 44.4 | 0.58 | Excellent |
| Overall mean score | 4.33 | 0.36 | Good |

TABLE II. EFFECTIVENESS SCORES OF THE MULTIMEDIA INSTRUCTIONAL PACKAGE ON “DIPHTHONG” IN THAI SUBJECT FOR GRADE 3 WHERE THE E1/E2 AT 80/80 ARE THE STANDARD EVALUATION CRITERIA

| Test Scores | Package Effectiveness | Evaluation Criteria |
|---------------------------------|-----------------------|---------------------|
| During-learning assessment (E1) | 95.33 | 80 |
| Post-learning assessment (E2) | 81.00 | 80 |

TABLE III. PRETEST AND POSTTEST MEAN SCORES BEFORE AND AFTER USING THE READING- AND WRITING-ENHANCEMENT MULTIMEDIA INSTRUCTIONAL PACKAGE ANALYZED USING A DEPENDENT SAMPLE T-TEST

| Experimental group | N | M | S.D. | t | Sig. |
|--------------------|----|------|------|--------|---------|
| Pretest | 30 | 6.40 | 1.77 | -4.958 | <0.0001 |
| Posttest | 30 | 8.10 | 1.16 | | |

TABLE IV. POSTTEST AND POSTTEST MEAN SCORES BETWEEN THE CONTROL AND EXPERIMENTAL GROUP ANALYZED USING AN INDEPENDENT SAMPLES T-TEST

| Scores of the experimental and control group | N | M | S.D. | t | Sig. |
|---|----|------|------|--------|------|
| Posttest mean score of the group with traditional learning approach (control group) | 30 | 6.83 | 2.10 | -2.892 | 0.05 |
| Posttest mean score of the group with the multimedia instructional package (experimental group) | 30 | 8.10 | 1.16 | | |

TABLE V. FIRST AND SECOND POSTTEST MEAN SCORES OF THE EXPERIMENTAL GROUP ANALYZED USING A DEPENDENT SAMPLE T-TEST SUGGESTING THE LEARNING RETENTION

| Experimental Group | N | M | S.D. | t | Sig. |
|---------------------|----|------|------|-------|-------|
| The first posttest | 30 | 8.10 | 1.16 | 1.627 | 0.115 |
| The second posttest | 30 | 7.57 | 1.94 | | |

TABLE VI. STUDENT SATISFACTION ANALYSIS TOWARDS THE MULTIMEDIA INSTRUCTIONAL PACKAGE

| Evaluation items for the magnet board and flash cards | M | S.D. | Quality level |
|---|------|------|---------------|
| 1. Acquired knowledge | 5 | 0 | Excellent |
| 2. Content's correctness and accuracy | 4.90 | 0.31 | Excellent |
| 3. Appropriateness and durability of the board | 5 | 0 | Excellent |
| 4. Clarity and visibility of the texts | 5 | 0 | Excellent |
| 5. Color and attractiveness of the flash cards | 5 | 0 | Excellent |
| Evaluation items for the storybook | M | S.D. | Quality level |

| | | | |
|---|------|------|---------------|
| 1. Acquired knowledge | 5 | 0 | Excellent |
| 2. Story's attractiveness | 5 | 0 | Excellent |
| 3. Story's usefulness in application | 5 | 0 | Excellent |
| 4. Content's correctness and accuracy | 5 | 0 | Excellent |
| 5. The attractiveness of the book format | 5 | 0 | Excellent |
| 6. The attractiveness of the book format | 5 | 0 | Excellent |
| 7. Color and attractiveness of the images | 5 | 0 | Excellent |
| <hr/> | | | |
| Evaluation items for digital media-animated cartoon | M | S.D. | Quality level |
| 1. Acquired knowledge | 5 | 0 | Excellent |
| 2. Story's attractiveness | 5 | 0 | Excellent |
| 3. Story's usefulness in application | 5 | 0 | Excellent |
| 4. Content's correctness and accuracy | 5 | 0 | Excellent |
| 5. The attractiveness of the presentation format | 5 | 0 | Excellent |
| 6. Clarity and visibility of the texts and images | 5 | 0 | Excellent |
| 7. Color and attractiveness of the images | 5 | 0 | Excellent |
| 8. Loudness and clarity of the audio | 5 | 0 | Excellent |
| Overall mean score | 4.99 | 0.07 | Excellent |

Table IV indicates that the posttest mean score of the experimental group ($M=8.10$, $S.D.=1.16$) was higher than the control group ($M=6.83$, $S.D.=2.10$) at $p<0.05$ significance level.

Table V suggests that the first ($M=8.10$, $S.D.=1.16$) and second posttest ($M=7.57$, $S.D.=1.94$) mean scores, taken with a six-week interval, were indifferent in terms of the statistical significance.

Table VI indicates the highest positive satisfaction level the students had towards the multimedia instructional package at a 4.99 mean score.

X. DISCUSSIONS

The effects of the reading- and writing-enhancement multimedia instructional package on grade 3 students can be discussed by the hypothetical items as follows:

Hypothesis 1: The grade 3 students who utilized the multimedia instructional package on "Diphthong" were expected to receive higher posttest scores than when compared to their previous pretest scores and it was found that the pretest and posttest mean scores of 6.40 and 8.10, respectively. This indicates a higher posttest score, with at $p<0.001$ significance level, once the students learned from the package which positively confirms the hypothesis.

This is due to the fact that the multimedia instructional package was well designed with diverse kinds of media including the digital media-animated cartoon, storybook, and magnet board with flash cards. The multimedia instructional package also contains the instruction cards and tests which helped create a positive activity atmosphere that can motivate and attract the learners. In addition, as the learners were allowed to study independently, their confidence in the activities improved. With the help of group environment of joint activities, the students were able to brainstorm to solve the problems, apply a variety of knowledge, and cooperate to seek the answers. These benefit the learners as they can learn from direct experiences. This is in concert with [12] which suggested that an instructional package, used as an instructional media, should incorporate a variety of innovations and activities where the teacher should integrate them into a package comprising a variety of instructional materials, teaching

and learning activities, and tests based on relevant psychological principles. Moreover, the instructional package should promote a consistent content learning so that learners can change their learning behavior effectively. It is also consistent with [13] stating that an instructional package as activity set is a system that brings together the multimedia that is relevant and related to specific objectives, course content, and unit experience. An instructional media should act as software, hardware or method purposely to facilitate and promote the continuity of the content learning, and eventually improve the higher academic achievement. It is also coherent with [14] and [15] asserting that when students learn by themselves from the book, they can go over the content as many times until satisfied and opt to study when ready or sufficiently concentrated. Any difficulty in understanding can be repetitively reviewed and relearned. In addition, some books may include interactive tests for them to try and the answers for them to review. When students can voluntarily learn from attractive contents, they achieve better academic results. According to a study, the posttest result of grade 1 students in reading- and writing-enhancement exercise book on diphthong of Thai were higher than the pretest result at .01 significance level [16].

Hypothesis 2: The grade 3 students who utilized the multimedia instructional package on "Diphthong" were to receive higher posttest scores when compared posttest scores of the control group and it was discovered that the experimental group with the multimedia instructional package performed better in posttest than the control group with traditional learning method and the distinction was at a $p<0.05$ significance level which positively confirms the hypothesis.

An answer to the phenomenon could be due to the fact that the lesson plans had been reviewed by the experts in which it was later upgraded to ensure that the instrument has the quality that serves the learning objectives and research objectives. The lesson plan emphasizes the learner-centered which allows the students to independently practice reading and writing following the instructional assignments from various learning sources provided by the multimedia instructional package. The cooperative learning activities drew the students together to work in a group mixed with fast, mediocre, and slow

learners allowing everyone's opportunity to aid one another as teamwork. Utilizing a variety of multimedia like digital media-animated cartoon, storybook, and magnet board with flash cards also play a vital role in retaining the students' learning attention and developing positive learning attitudes towards the subject. These allow them to grasp the ideas from the content faster which leads to quality and in-depth learning and understanding. Similarly, [17] asserted that an instructional media useful to learners should comprise: (1) to provides an effective learning which simplifies a complex lesson, facilitates a rapid understanding with less time consumption, and helps to construct an accurate learning concept; (2) to encourage and stimulate learning interest where students are kept entertained as opposed to facing the learning boredom; (3) to promote mutual understanding and common experience of the subject; (4) to encourage more learner's participation in the teaching activities which fosters a positive learner-instructor interaction and relationship; (5) to helps build positive knowledge-seeking strategies which equips the learners with creativity in the media usage; and (6) to diminish individual differences through an allocation of personal media use. Another key issue worth mentioning is a process of learning designed by the researcher focusing on the individual participation of each learner in the during-course activities and the handed-out practice sheets. The knowledge obtained during the practice was then exchanged in the classroom where the teacher further provided additional suggestions and filled issues that the students missed out. Eventually, all students summarized the concepts into a mind mapping which is a popular approach to current educators for regular learning management. The sequence above encourages some sense of belonging where the students can feel that they take charge of the learning process where the teacher only takes a facilitator role adding recommendations to the learning. From doing so, the students become more responsible for their own learning, see the importance of learning, and feel attentive and enthusiastic to learn further. Therefore, participatory learning is a teaching strategy that encourages students to conduct a self-learning. With a modern multimedia instructional package, it is possible to introduce what would generally occur outside of the classroom into the classroom under teacher's supervision. To support this notion, [18] examined the effects of innovative character education in learning on behavior and academic achievement of grade seven students and it was found that the students were taught using the innovative character education achieve better academic results in Social Studies on Culture than the students exposed to traditional learning with a .01 significance level.

Hypothesis 3: The grade 3 students who utilized the multimedia instructional package on "Diphthong" were expected to receive indistinctive scores on the first and second posttest taken with a 6-week interval and the result suggested that the first posttest scores were higher than the second ones, however, without any statistical significance which positively confirms the hypothesis.

The reasons behind the phenomenon could be because the researcher designed the multimedia instructional package by focusing on an individual participation in the reading and writing practices where the students had to complete the handed-out and worksheet assignments. The content of the reading- and writing-enhancement multimedia instructional package comprises a set of basic media-the storybook, the magnet board with flash cards; and the digital media-animated cartoon. The learning management model employs the active learning strategies which include individual learning, group learning and specific individual learning. In terms of individual learning, the emphasis is on learner-centered education with individualized learning activities that focus on learners. The learning management allows a learner to connect and form a relationship between sets of knowledge to construct a meaningful learning. The designed activities for the individual learning began with firstly, assigning each learner to study independently from the provided learning resources in the designed multimedia instructional package on Diphthong and then the derived knowledge was used in the in-class teaching activities with the digital media-animated cartoon; secondly, all students formed the groups learning, then the derived knowledge was used in the in-class teaching activities with storybook for reading skill and the magnet board with flash cards for reading and writing skill; and thirdly, each student volunteers presented the lesson learned in front of the class and all students summarize their learning in their journals. These activities were the reasons behind the successful learning retention. Consistently with the achievement and retention of English vocabulary which come from studying storytelling by using an electronic book for grade five students which observed a two-week interval of learning retention [19] and a study of English vocabulary achievement and retention of grade five students which employed the reading plus vocabulary enhancement activities which observed a two-week interval of learning retention [20]. The results of both studies were found statistically indifferent in the posttest scores. In addition, [5] investigated the effects of integrated teaching by using flipped classroom, multimedia, and innovation in character education in social skills on behavior and academic achievement in religious history subject of grade seven students and it was discovered that the students who were exposed to an integrated teaching produced a better academic outcome than the control group at a .001 significance level; possessed better social characters than before being exposed to the teaching at a .001 significance level; and the learning retention of all three dimensions were indifferent in terms of statistical significance.

Hypothesis 4: The grade 3 students were expected to be extremely satisfied with the multimedia instructional package on "Diphthong" and the findings confirmed a positive agreement with the hypothesis when it was found that the students were extremely satisfied with it at a 4.99 mean score.

A short explanation of this phenomenon could be based on the designs which include colorful and gorgeous cartoons and backgrounds that are suitable for the content and age range of the learners. This effectively keeps them attentive, interested, and eager to follow the lessons. [21] also confirmed this phenomenon explaining that if the designs of cartoon characters, cartoon shapes, scenes, story illustrations, colors, and animations characteristically and appropriately match the learning objectives, the student satisfaction level would improve.

XI. CONCLUSION

The MIP on “Diphthong” in Thai Subject for grade 3 (multimedia as digital media-animated cartoon, storybook, and magnet board with flash cards) by the contemporary technology and new technology integrated with student-centered learning (individual learning, group learning, specific learning) effect the learner to be enable to reading and writing diphthong word in higher level. Developing MIP integrated with student-centered learning was designed appropriately which affecting to the learning retention so the learner is able to reading and writing diphthong word to the higher order learning, continuously.

XII. SUGGESTIONS

A. Application

The multimedia instructional package on “Diphthong” in Thai Subject for grade 3 can be used to enhance the reading and writing skills of slow learners.

B. Further Studies

It is recommended to further investigate the effects of a multimedia instructional package that is integrated with the augmented reality technology to enhance the reading and listening skills for grade 3.

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