

# Development of the Management System of the Instructional Innovation Enhancing Thai Language Literacy for Students in Primary Schools Located in the Border Area, in Ratchaburi, Thailand: Participatory Project Collaborated with Local Teachers

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**Abstract** - The objective of the study entitled, “Development of the Management System of the Instructional Innovation Enhancing Thai Language Literacy for Students in Primary Schools Located in the Border Area, in Ratchaburi, Thailand: Participatory Project Collaborated with Local Teachers, were: 1) to develop the management system of the instructional innovation enhancing Thai language literacy, 2) to evaluate the quality of the developed management system of the instructional innovation, and 3) to evaluate the effectiveness of the developed management system of the instructional innovation. The samples of the study were 38 Thai language teachers, from the schools under the jurisdiction of Primary Education Service Area Office 1, located in Ratchaburi, Thailand. The instruments consisted of 1) the management system of

the instructional innovation, 2) the evaluation form on the quality of the system and, 3) the evaluation form on the effectiveness of the system. The statistics employed in the study for data analysis, included frequency, mean, and standard deviation. The findings showed a very high level of the quality of the developed management system of the instructional innovation (mean = 4.86), and a very high level of the effectiveness of the system (mean = 4.78).

**Keywords** - Innovation Management System, Instructional, Reading and Writing, Thai Language

## **I. INTRODUCTION**

Suanpueng was a district in Ratchaburi Province in Thailand. It was bordered to the west by Myanmar. Most of the populations residing there included Karen-Thai, Mon, and Burmese ethnic groups. The languages used were usually dialects, varied according to each individual of the ethnic groups. There were 21 primary schools in the area. The majority of the students in the area had a limited ability of Thai language literacy. 90 % of the Thai-Karen, and Mon-Thai used their social dialects, resulting in the difficulty in communicating in Thai. The problems found were, for example, unclear pronunciation of Thai, inability to read and write in Thai, etc. Those problems were the consequences of inappropriate settings of learning environments, the contexts of their community and family in which the exposure in Thai language was very limited. According to the result of Thailand Ordinary National Educational Test (O-net), it was found that the mean score of the performance in Thai language subject of Grade 6 students (during 2013-2014), from Tako-Lang Border Patrol Police School, located in Suanpueng, Ratchaburi was lower than that of the national mean score. The test of the subject integrated all language skills including speaking, writing, listening, and speaking. Additional discovered problems were students' inability to recognize Thai vowels, to combine letters to words, and to spell words. Therefore, those problems appeared to be very critical and the development of the students' Thai language literacy and was then considered as the priority. In light of those causes, solid foundation of literacy would lead to the development of all other learning, critical thinking, the ability to apply knowledge to improve their quality of life, and the knowledge transfer of Thai language to the other members in their families. If Thai language ability as the foundation of the students could be improved at an early age like at primary school level, it would be possibility for them to be able to continue developing themselves on and on. All in all, literacy, as a tool for communication and knowledge exploration, and the key factor for learning at

all levels, could enhance the overall performance of the students. To be more specific with an empirical evidence about the problem, from an article published on 26th July, 2015, in Matichon Newspaper, Channarong Ponrungrij [1], Director of Thailand Office for National Education Standards and Quality Assessment (NESQA) revealed that the result of the third cycle of external audit of Thailand education institutions from the past 15 years, indicated 10 major problems pulling Thailand education down. "Literacy" was one of those concerns, and "the scarcity of learning materials" was also included and should be taken into account. Both problems were targeted to be solved earlier than others. Additionally, development of instructional innovation played a crucial role in instructional paradigm. Teachers who took the whole responsibility to stimulate learning should go hand in hand to find a way in designing the most effective and the highest quality instructional innovation in response to the students' demand. Still, the teachers lacked knowledge and skills to create their own innovations to improve students' literacy with the symmetry between learning contents, students' requirement, and educational area contexts. Therefore, the developed system could be promptly served to teachers as a useful tool or a platform for inputting their own designed learning contents into the system without any IT skills required in advance. It was quite convenient for teachers in designing the materials that suited the particular needs and individual differences of each group of the students, in terms of literacy development.

From the aforementioned, it could be concluded that the development of the management system of the instructional innovation enhancing Thai language reading and writing ability for students in primary schools located in the border area, in Ratchaburi, Thailand as a participatory project collaborated with local teachers, was very useful. The teachers could use it as a tool to construct a solid foundation of Thai language instruction as well as to maximize the effectiveness of learning, the quality of individuals' life, and the community, respectively.

## II. RESEARCH OBJECTIVES

The objectives were as follows: 1) To develop the management system of the instructional innovation enhancing Thai language literacy; 2) To evaluate the quality of the management system of the instructional innovation enhancing Thai language literacy; and 3) To evaluate the effectiveness of the management system of the instructional innovation enhancing Thai language literacy.

## III. MATERIALS AND METHOD

The research procedures were as the follows:

Samples of the study: they were 38 Thai language teachers, from the schools under the jurisdiction of Primary Education Service Area Office 1, located in Ratchaburi, Thailand, drawn by Purposive Sampling.

Research instruments: 1) the management system of the instructional innovation, 2) the evaluation form on the quality of the system, and 3) the evaluation form on the effectiveness of the system.

Scope of the area of the study and data collection: the scope of the areas included primary schools under the jurisdiction of Primary Education Service Area Office 1, located in Suanpueng, Ratchaburi, Thailand.

### A. Data Collection

Research procedure and data collection: there were several steps in conducting the study as follows:

1) A variety of related documents, academic textbooks, journals, research, and theories were reviewed.

2) A discussion forum was held to brainstorm ideas from the local teachers and relevant parties, for analyzing the students' actual needs, and making an agreement on what and how the management system of the instructional innovation enhancing Thai language literacy should be developed for the primary school students.

3) Content analysis was employed to analyze the collection of data, and elicit useful information for developing the management system, in terms of potential learning contents, activities design, etc.

4) The management system of the instructional innovation was designed according to the data collected in the earlier step. The design was initially divided into its sub-components such as database design, output design, and input design.

5) The management system of the instructional innovation was developed according to the design.

6) The quality evaluation of the management system of the instructional innovation was conducted by experts on 3 main aspects including the learning content, the innovation, and the learning assessment, and then necessary adjustment was made according to the experts' suggestions and comments.

7) A workshop on the management system of the instructional innovation was held in order to guide the teachers on how to use the system and to help together to refine the system.

8) The teachers implemented the developed management system with their students. Pretest was conducted before learning, then the system had been implemented for 1 month, and posttest was carried out after learning.

9) The effectiveness of the management system of the instructional innovation was evaluated after the experiment.

10) Data collected from the experiment were statistically analyzed according to the research objectives.

### B. Data Analysis and Statistics Used

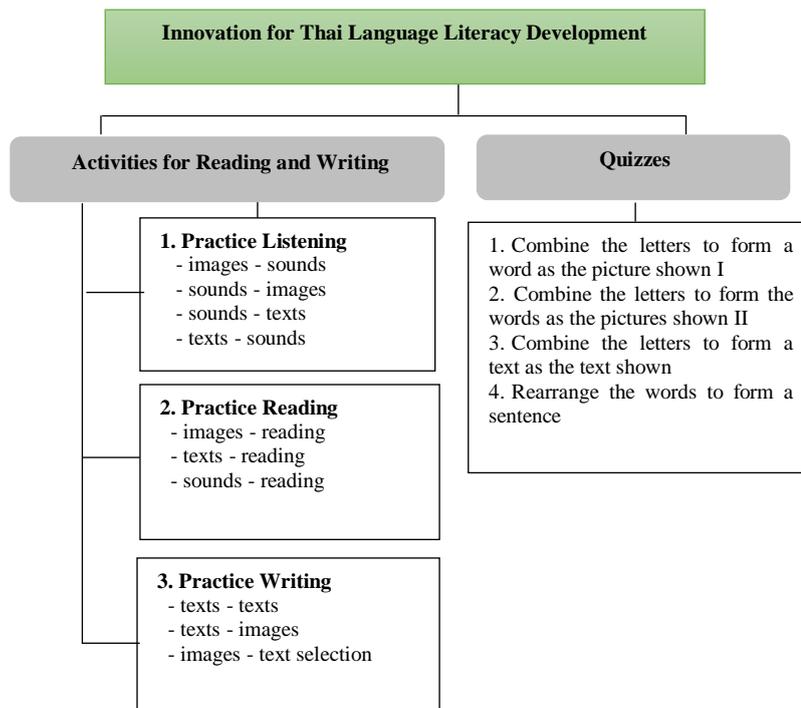
Data analysis and statistics used in the study: the statistics employed in the study for data analysis, included frequency, mean, and standard deviation, and they were calculated by a software package.

#### IV. RESULTS

The results could be summarized as follows:

1) The result was found that the development of the management system of the instructional innovation enhancing Thai language literacy was composed of two main parts including: (1) the system provided for

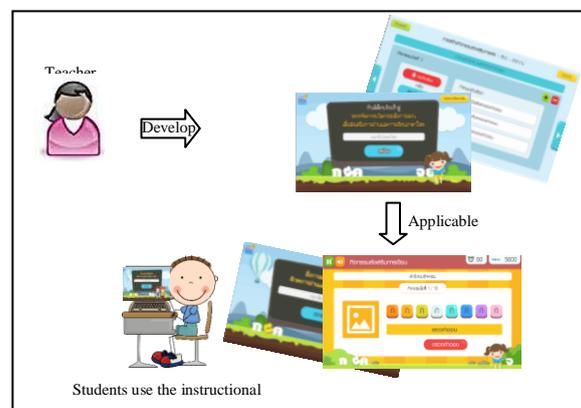
teachers to upload their learning inputs as to enhance Thai language literacy, which was subcategorized into 2 kinds of activities including the activities enhancing reading and writing, and the practice tests, and (2) the end-product of the developed innovation for students' learning, integrated with traditional teaching, as illustrated in the fig. 1.



**Fig. 1** The Diagram of the Operational Process of the Instructional Innovation for Enhancing Thai Language Reading and Writing Ability

The developed system could support the data in multiple forms including texts, images, and sounds. Teachers could automatically upload or input the data into the system according to the designed platforms. The

teachers could select the learning contents and put them into the system based on their requirement. The end product of the material could be learned through computers as self-access learning as showed in fig. 2.



**Fig. 2** The Illustration of the Process in Employing the Management System of the Instructional Innovation

2) The evaluation of the quality of the management system of instructional innovation enhancing literacy was performed by experts. The form was divided into 3 specific sections including the operational capability and management function of the system, the graphics and the design of the system, and the operation functions and technical features of the system. The result discovered that the overall quality of the management system was at a very high level (mean score = 4.86). The criteria was set up by applying the concept developed by Best (1977) and the result could be revealed as in table I.

**TABLE I**  
**SUMMARY OF THE RESULT OF THE QUALITY EVALUATION OF THE MANAGEMENT SYSTEM OF INSTRUCTIONAL INNOVATION**

Evaluation Items	$\bar{x}$	S.D.	Results
The operational capability and management function of the system	4.83	0.38	Very high
The graphics and the design of the system	4.94	0.12	Very high
The operation functions and technical features of the system	4.80	0.41	Very high
<b>Overall quality</b>	<b>4.86</b>	<b>0.30</b>	<b>Very high</b>

3) The evaluation of the effectiveness of the management system of instructional innovation was carried out after a workshop and a tryout by teacher users. It was divided into 2 main parts which included the use of the system and the design of the system. The overall result showed a very high level of the effectiveness (mean score = 4.78). The criteria was set up by applying the concept developed by Best (1977) and the result could be revealed as in table II.

**TABLE II**  
**SUMMARY OF THE RESULT OF THE EFFECTIVENESS EVALUATION OF THE MANAGEMENT SYSTEM OF INSTRUCTIONAL INNOVATION**

Evaluation Items	$\bar{x}$	S.D.	Results
The use of the system	4.78	0.42	Very high
The design of the system	4.78	0.42	Very high
<b>Overall effectiveness</b>	<b>4.78</b>	<b>0.42</b>	<b>Very high</b>

## V. DISCUSSION AND CONCLUSION

The results of the study could be discussed as follows:

According to the result of the study in terms of the quality of the management system of the instructional innovation enhancing Thai language literacy that was divided into main 3 aspects including the operational capability and management function of the system, the graphics and the design of the system, and the operation functions and technical features of the system, it was discovered that the overall quality of the management system was at a very high level (mean score = 4.86), consistent with the finding found in the study conducted earlier by Chaiyasit (2012) [2] on the Development of Mathematical Skill Exercises Application for Tablet for Grade 1 Elementary Students in Thailand. Her finding revealed a very high level of the quality of the application on its contents, its design, and its assessment system, (mean score = 4.79), evaluated by an expert panel. Also it was agreed with another study of Chaiyasit (2014) [3] when she studied on the development of Management System for Mobile Learning Application on Android (OS) Tablets: Participatory Project to Enhance Local Teachers' Competency, as her finding presented a very high level of the innovation quality (mean score = 4.97). Additional empirical evidence could be found in the study of Tipparat Sittiwong (2014) [4] on Development of PC Simulation Games to Enhance Strategic Thinking by Self-Directed Learning of Higher Education Students, as her finding showed a high level of the quality of her innovation.

The result was agreed with the previous study conducted by Sumanta Suppatheera and Pornsawan Wongtathum (2015) [5] whose investigation was on a development of digital games to promote problem solving skills in designing algorithm. It was discovered that the games were effective tools to enhance problem solving skills in designing algorithm of the students of the 5<sup>th</sup> grade. The evaluation result of its effectiveness was at a high level overall.

Regarding the effectiveness of the innovation to enhance reading and writing skills evaluated by the teachers who tried it out, the result could be described in two aspects including: 1) the application of the system, and 2) the design of the system. The mean score of the overall result of the effectiveness of the innovation was at a very high level (mean = 4.78), which was consistent with the result of a previous study conducted by Wilaipon Chayasit (2514) [3] whose study was on the Development of Application Management System for Designing Tutorial Tools on Android Operational System of Tablet Computers to Enhance the Potential of Local Teachers through Participating in The Project. The result of the present study was found that the quality or the efficacy level of the system evaluated by experts was at a very high level (mean = 4.97) and the result of the effectiveness of the system evaluated by the experts was also at a very high level (mean = 4.58). Those results could be summarized that the developed management system of the instructional innovation enhancing Thai Language Literacy had high efficacy and effectiveness suitable for local teachers to apply it in their pedagogy, with the students who were in primary schools located in the border area, in Ratchaburi, Thailand. It was effectively designed in accordance to the current educational technology paradigm of the world and in responding to the needs of learners in digital era.

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**(Arranged in the order of citation in the same fashion as the case of Footnotes.)**

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