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# **IMPROVEMENT OF LEARNING ACHIEVEMENT OF SMALL SCHOOLS IN THAILAND BY EDUCATIONAL NETWORK OPERATING MANAGEMENT SYSTEM (EDNET-OMS): A CASE STUDY OF BAN WANG TAKIAN SCHOOL IN KANCHANABURI PROVINCE**

### **Abstract:**

Ban Wang Takian School is a small primary school under Kanchanaburi Primary Education Service Area Office 1 in Thailand. It has 93 students and 5 teachers. It is a school with the problem of having not enough teachers for its classrooms, since it has eight classrooms from Kindergarten II (second year kindergarten) to Prathom Suksa VI (Grade 6) levels. Learning achievement of Prathom Suksa VI students in the 2016 academic year, based on the Ordinary National Educational Test (O-NET) results, of five learning areas before implementing the Educational Network Operating Management System (EdNet-OMS) was at the 41.67 percent of the full score. Later on, the school director initiated the implementation of the Educational Network Operating Management System (EdNet-OMS) that was connected with the Distance Learning Television (DLTV) system of the Distance Education via Satellite Foundation under the Royal Patronage in order to utilize the benefits from DLTV up to its full potential. Then the initiation was complemented by the development of teachers to equip them with the ability and skills for learning management via the information technology system, and the creating of the cooperation network involving the parents and local community. As a result, the O-NET result of Prathom Suksa VI students in the 2017 academic year was increased to be at the 46.71 percent of the full score. The EdNet-OMS system was composed of the following five operational steps: (1) the creation of awareness step; (2) the development of the Educational Network Operating Management System (EdNet-OMS) step; (3) the empowerment step; (4) the monitoring and follow-up of the operation step; and (5) the evaluation step. The most important factor that enabled the operation to achieve success was the factor of the administrator with innovation leadership.

### **Keywords:**

Upgrading of learning achievement, Educational Network Operating Management System (EdNet-OMS), Ban Wang Takian School

**JEL Classification:** I29, M15, D83

## 1. INTRODUCTION

This article is a study of the lesson learned from the success in upgrading learning achievement of the students of Ban Wang Takian School which is a small school under Kanchanaburi Primary Education Service Area Office 1. It has 93 students and 5 teachers. It is a school with the problem of having not enough teachers for its classrooms, since it has eight classrooms from Kindergarten II (second year kindergarten) to Prathom Suksa VI (Grade 6) levels. Learning achievement of Prathom Suksa VI students in the 2016 academic year, based on the Ordinary National Educational Test (O-NET) results, of the five learning areas was at the 41.67 percent of the full score which was lower than the national norm (43.18 percent of the full score). The new school director, Mr. Sawaengthong, who was recently assigned to be the director of this school in the 2559 academic year (2016 academic year) was aware of the importance of this problem of the students' learning achievement being lower than the national norm. So he initiated the development and implementation of the Educational Network Operating Management System (EdNet-OMS) that was connected with the Distance Learning Television (DLTV) System in order to upgrade the students' learning achievement. This article presents the learned lesson in two main issues: (1) the key operational steps of the EdNet-OMS to upgrade the students' learning achievement; and (2) the factors contributing to the success of implementing the EdNet-OMS to upgrade the students' learning achievement. The details of the study are presented as follows:

### 2. The Five Operational Steps and Results of the Operation to Upgrade Learning Achievement with Implementation of EdNet-OMS

The operation to upgrade learning achievement with implementation of EdNet-OMS comprises five steps: (1) the creation of awareness step; (2) the development of the Educational Network Operating Management System (EdNet-OMS) step; (3) the empowerment step; (4) the monitoring and follow-up of the operation step; and (5) the evaluation step. (Sawaengthong, 2017). Details of each step and its results are described as follows:

#### 2.1. The Creation of Awareness Step

This is the step of perceiving together the problem of the students' learning achievement being below the national norm by the school personnel and school board members. A meeting involving the teachers, school personnel and school board members was conducted to discuss the problem and listen to opinions of the concerned persons. Results of the meeting led to the actions of analysis of learning achievement of each individual student, determination of the innovation to upgrade the learning achievement which is the operation to upgrade learning achievement with implementation of EdNet-OMS, and determination of the goals and operation program.

#### 2.2. The Development of the Educational Network Operating Management System (EdNet-OMS) Step

This is the step that the school director and working team developed the EdNet-OMS because they perceived that the system required a small budget and did not need to have specific experts to take care and supervise, which was appropriate to the context of a small school such as Ban Wang Takian School. The important equipment for linking the components of the system was the Network Attached Storage (NAS) that functioned as the server and storage equipment linking external networks with the internal network system of the school and enabling the school personnel to make use of the external networks via smart television, smart phone, IPAD, tablet PC, notebook, and desk computer conveniently. The EdNet-OMS comprises the following four sub-systems:

1. The school management support system (SMSS). This is the system that is connected with the management supporting system of the primary education service area offices. This

system covers the four work operations of the school, namely, the academic work, the personnel administration work, the budget work, and the general administration work. The system enables the school to have the information system that is correct, convenient, speedy and up-to-date.

2. The instructional media bank system. This is the system that collects VDOs and distance instructional media via the satellite of the Distance Education via Satellite Foundation under the Royal Patronage and then classifies them into learning areas and class levels. This system enables the teachers to identify and make use of instructional media conveniently and helps facilitate the organizing of instructional time tables to be in line with the broadcasting tables of the Distance Education via Satellite Foundation. Furthermore, the system also is linked with other networks such as the instructional system management of Suan Dusit University, the 24-Hour English Instruction Supporting System of the Office of the Basic Education Commission, the Echo Hybrid Learning Supporting System, etc. So the system enables the teachers to access to and make use of wider varieties of instructional media.

3. The storage system for teachers' and students' work outcomes. This is an electronic system that helps to store the administrators', teachers' and students' work outcomes systematically and conveniently for use.

4. The item bank system. The EdNet-OMS will systematically collect test items from O-Net tests, national tests (NT), and other tests together with their correct answers, and then classify them according to the learning areas. This system enables the teachers and students to utilize the test items from these tests for self-development and preparing themselves for taking the tests and examination.

### **2.3. The Empowerment Step**

This is the step that the school prepared the teachers to have readiness in using the EdNet-OMS by enhancing their positive attitudes, training them to use the system, adjustment of the instructional time tables and teaching methods to be compatible with the system, organizing the learner-centered instructional management, and provision of supports to enhance the teachers' morale and will power on a continuous basis. For the students, the school also empowered them by organizing learning environment and atmosphere to facilitate learning and giving them the opportunity to learn based on their interests from the potential of the system. As for the parents and community, the school conducted public relations campaigns to inform the parents of the approach to develop educational quality that the school was undertaking, and allowed the parents and community to have the opportunities to participate in educational management of the school.

### **2.4 The Monitoring and Follow-up of the Operation Step**

This is the step that the school administrator provided the supervision, monitoring, follow-up, promotion and supports, and enhanced the teachers' morale and will power in organizing the instructional activities under the EdNet-OMS. The school also undertook the measurement and evaluation of the learners' quality on a continuous basis in the five main subjects, namely, Thai language, social studies, English language, mathematics, and science.

### **2.5. The Evaluation Step**

This is the step that the school employed the following two methods of evaluation of the EdNet-OMS implementation:

1. Taking the O-NET test results of the 2017 academic year, which was the academic year that the school had already implemented the EdNet-OMS for one year, to be compared with the counterpart O-NET test results of the previous 2016 academic year that was the year prior to the EdNet-OMS implementation. The comparison results showed that the O-NET test mean score of the 2017 academic year was higher than the counterpart mean score of the 2016 academic year by 5.04 percent and higher than that of the national norm, as shown in Table 1 below:

**Table 1: Comparison of O-NET Test Mean Scores of Students of Ban Wang Takian School in the 2016 and 2017 Academic Years**

Level	2016 Acad. Year	2017 Acad. Year	Comparison Results
School	41.67	46.71	O-NET test mean score of 2017 year increased over that of 2016 year by 5.04 percent and was higher than the national norm
Country	43.18	39.79	

Source: Data from results of the National Educational Testing at the basic educational level (O-NET) in the 2016 and 2017 academic years

2. The evaluation of the students' satisfaction with the implementation of the EdNet-OMS which comprised the satisfaction with the learning atmosphere, learning activities, and the received benefits. The evaluation results showed that the overall satisfaction of the students was at the highest satisfactory level.

### **3. The Factors Contributing to the Success of Upgrading the Students' Learning Achievement with the Implementation of the EdNet-OMS**

From the interview of the school director, Mr. Sawaengthong (2019, June 10) and the study of the school's work performance outcomes that were disseminated via the Internet system, the factors contributing to the success of upgrading the students' learning achievement are the following:

1. The school administrator has the innovation leadership. Mr. Sawaengthong, the school administrator has expertise on the computer and networking system and has had experiences in developing the computer network systems for various schools since the time that he was a school teacher. When he has been appointed as a school administrator, he has applied his accumulated knowledge, experiences and expertise to develop the EdNet-OMS system for Ban Wang Takian School.

2. The developed EdNet-OMS is an efficient system that can actually be utilized. The system promotes and supports both the instructional management and the general administration of the school.

3. The community provides supports for the system implementation, especially the board members of the school that accept the initiation of the school administrator in utilizing the computer networking system to develop instructional quality resulting in the mobilization of funds from the community, local area and parents to be used in developing and implementing the EdNet-OMS.

4. The teacher personnel of the school collaborate in the operation to the best of their knowledge and abilities. All of the five teachers in the school realize the benefits of the EdNet-OMS that can help to solve the problems of having not enough teachers for the classrooms and help to upgrade the students' learning achievement. Also, they perceive the serious intention of the school administrator. So, they give their cooperation and engage in self-development until they can use the EdNet-OMS effectively.

5. The school director has the administration and management system that promotes the success of the operation. He started with persuading the teachers, school board members, parents and the community to perceive the importance and benefits of the EdNet-OMS. Then he undertook the important tasks of developing the teachers' competencies to enable them to really use the system to benefit the instructional management by training, giving advices, supervising, monitoring and follow-up, and supporting their morale and will power until they can use the system effectively.

6. The school organizes the environment that promotes and enhances the students' learning with the emphasis on the learner-centered learning management approach, the provision

of opportunities for students to learn based on their interests. The EdNet-OMS has the potential to respond to the various needs of the students including the promotion of creating the atmosphere for learning exchanges between the teacher and students.

#### 4. Conclusion

This upgrading of learning achievement of Ban Wang Takian School students by implementation of the EdNet-OMS is an example of using the computer networking technology as the main innovation to solve the problems of having not enough teachers for the classrooms and the students' low level of learning achievement. The system promotes and supports both the instructional management system and the general administration system that facilitates instructional management of the school. The main factors contributing to the success of the operation are the factor of the school administrator having the innovation leadership and specific expertise on the computer and networking system, and the factor of the efficiency of the system that can be actually utilized. In addition, the factors of cooperation from the teachers, the supports from the community, the good administration and management, and the organization of environment that enhances learning are also contributing to the success of the upgrading of the students' learning achievement.

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