

The operation of information and communication technology  
for education in school under Loei Primary Educational  
Service Area Office 1

การดำเนินงานด้านเทคโนโลยีสารสนเทศและการสื่อสารเพื่อการศึกษา  
ในโรงเรียนสังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาเลย เขต 1

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**Abstract**

The objectives of this study were; (1) to study the operation and problem of information and communication technology (ICT) for education of schools under Loei Primary Educational Service Area Office 1, (2) to compare teachers and educational personnel's opinion toward the operation and problem of ICT for education of schools under Loei Primary Educational Service Area Office 1; categorized by their positions, academic standing and school size. The samples consisted of 35 administrators and 284 teachers. A rating scale questionnaire was used for data collection. The statistics used for analyzing the data were frequency, percentage, mean, standard deviation, t-test and F-test.

Finding: it was found that operation of ICT for education of schools under Loei Primary Educational Service Area Office 1 is high and problem of ICT for education is moderate. The result of comparing teachers and educational personnel's opinion toward the operation and problem of ICT for education of schools under Loei Primary Educational Service Area Office 1 are not different, categorize by academic position and school's size overall opinions are different.

**Keywords:** ICT for education, academic standing

**บทคัดย่อ**

การวิจัยในครั้งนี้ มีวัตถุประสงค์ (1) เพื่อศึกษาสภาพและปัญหาการดำเนินงานด้านเทคโนโลยีสารสนเทศและการสื่อสาร (ไอซีที) เพื่อการศึกษาในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาเลย เขต 1 (2) เพื่อเปรียบเทียบความคิดเห็นของ ข้าราชการครูและบุคลากรทางการศึกษาที่มีต่อสภาพและปัญหาการดำเนินงานด้านไอซีทีเพื่อการศึกษาในโรงเรียน สังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาเลย เขต 1 จำแนกตามตำแหน่งหน้าที่ วิทยฐานะ และขนาดโรงเรียน กลุ่มตัวอย่าง คือ ผู้บริหารสถานศึกษา 35 คน และครูผู้สอน 284 คน เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลเป็นแบบสอบถามแบบตรวจสอบรายการ (checklist) และแบบมาตราส่วนประมาณค่า (rating scale) วิเคราะห์ข้อมูลโดยหาค่าความถี่ ค่าร้อยละ ค่าเฉลี่ย ค่าเบี่ยงเบนมาตรฐาน สถิติทดสอบที (t-test) และสถิติทดสอบเอฟ (F-test)

ผลการวิจัยพบว่า ระดับการดำเนินงานด้านไอซีทีเพื่อการศึกษาในโรงเรียนสังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาเลย เขต 1 อยู่ในระดับมาก ส่วนระดับปัญหาการดำเนินงานอยู่ในระดับปานกลาง และเมื่อทำการเปรียบเทียบ

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ระดับความคิดเห็นสภาพและปัญหาการดำเนินงานด้านไอซีทีเพื่อการศึกษาจำแนกตามตำแหน่งหน้าที่พบว่าไม่แตกต่างกัน และจำแนกตามวิทยฐานะและขนาดโรงเรียนพบว่าแตกต่างกัน

**คำสำคัญ:** เทคโนโลยีสารสนเทศและการสื่อสารเพื่อการศึกษา, วิทยฐานะ

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## 1. Introduction

In the second Decade of Education Reform 2009 - 2018, which focuses on cultivating Thai people with life-long learning by emphasize on the development of education's quality and standard that in turn allows people's access to education. This make it possible for Thai people to access high quality, life-long learning with systemic learning via information technology for education. In this case, ICT is a good complementary tool that boosts the efficiency of administration and educational management during the second decade [1].

Ministry of Education develops and applies ICT as a platform for organization management that provide the state of the art learning and teaching management to educational institutions. Ministry of Education's vision, i.e the future's education is attainable via ICT and its mission to support and promote personnel's development in term of their capability to use the ICT with good moral, ethics, discretion and media awareness. The MOE supports educational media development, complement any infrastructure to enhance the utilization of ICT for education and to support education's administration [2] but the education agency lacks personnel with knowledge of ICT and the lack of funding support to hire an expert to prepare an effective information [3].

The author, a teacher responsible for ICT in our school, an active working party on ICT with Information Technology for Education Center, Loei Primary Educational Service Area Office 1 recognized the underlying significant of this matter and had performed this research as a guideline for the implementation of ICT for school's education efficiently.

## 2. Objectives

2.1 To study the operation and problem of ICT for education of school under Loei Primary Educational Service Area Office 1

2.2 To compare teachers and educational personnel's opinion toward the operation and problem of ICT for education of school under Loei Primary Educational Service Area Office 1; categorized by their positions, academic standing and school size.

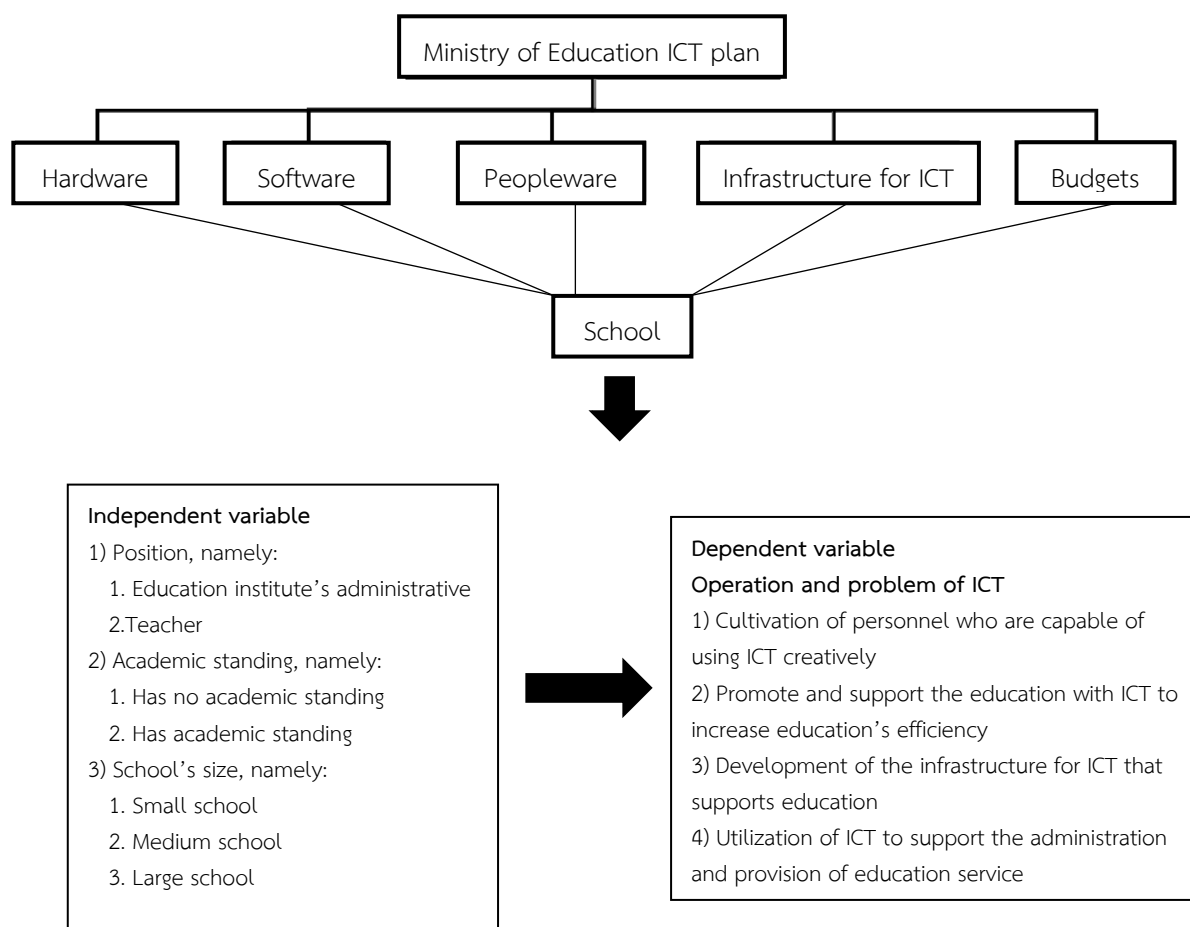
## 3. Scope of the study

### 3.1 Population and samples

1) Population of this research were 1,713 teachers and educational personnel of Loei Primary Educational Service Area Office 1; among these, there are 169 education institute's administrative and 1,544 teachers.

2) Samples of this research were 319 teachers and educational personnel of Loei Primary Educational Service Area Office 1. The samples size was determined by Krejcie and Morgan Table [4]; among these, there were 35 education institute's administrative and 284 teachers. The authors selected these samples via with stratified random sampling which is based on the school's location (district) and size as strata. The sample's size of each stratum was calculated by proportional technique and simple random sampling: drawing ballot to fill the specified proportion.

### 3.2 Research conceptual framework



### 3.3 Research methodology and data collection procedure

#### Research Instrument

For this research, the tool authors had used to the data collection is a questionnaire that we had developed and created. The questionnaire's content validity has been verified by 5 experts and it comprises of 2 parts, namely:

Part 1 Questioning participant's general information, such as, their position, academic standing and school's size; this part is checklists.

Part 2 Questionnaire teachers and educational personnel's opinion toward operation and problem of ICT for school of Loei Primary Educational Service Area Office 1; this part is rating scale and its comprised of 5 levels, namely, Highest, High, Moderate, Low and Lowest [5].

#### Data analysis

The authors analyzed the data with off-the-shelf application. The calculations of various statistics are proceeding, as follow:

1. Analyzing of participant's general status from part 1 of the questionnaire by using frequency and percentage.

2. Analyzing data on the operation and problem of ICT for education of school under Loei Primary Educational Service Area Office 1; from part 2 of the questionnaire by using mean and standard deviation.

3. Interpreting the analysis result by putting them into tables, interpret those tables, discuss about the result and present the conclusion to our research as narration and composite explanation.

4. Testing the difference between the mean scores of operation and problem, categorized by the participants' position and academic standing with t-test and by school's size with F-test. If any difference was found, we will compare each pair of those differences; by using Sheffe's method.

#### 4. Results

4.1 The overall operation of ICT for education of school under Loei Primary Educational Service Area Office 1 is high. Deeper inspection of each aspect revealed that the highest aspect is 'Utilization of ICT to support the administration and provision of education service'; following by 'Cultivation of personnel who are capable of using ICT creatively' and 'Promote and support the education with ICT to increase education's efficiency' while 'Development of the infrastructure for ICT that supports education' has the lowest average score. (Table 1).

4.2 The overall result of the problem of ICT for education of school under Loei Primary Educational Service Area Office 1 is moderate. Deeper inspection of each aspect revealed that the highest aspect is 'Development of the infrastructure for ICT that supports education';

following by 'Promote and support the education with ICT to increase education's efficiency' and 'Cultivation of personnel who are capable of using ICT creatively' while 'Utilization of ICT to support the administration and provision of education service' has the lowest average score. (Table 2).

4.3 The result of comparing teachers and educational personnel's opinion toward the operation and problem of ICT for education of school under Loei Primary Educational Service Area Office 1 is presented underneath.

4.3.1 Categorize by their position: The teachers and educational personnel's opinion toward the operation of ICT for education of school under Loei Primary Educational Service Area Office 1, both the overall result and result of separated aspects, are not different with the statistical significance of 0.05. (Table 3).

4.3.2 Problem of ICT: The teachers and educational personnel's opinion toward the problem of ICT for education of school under Loei Primary Educational Service Area Office 1, both the overall result and result of separated aspects, are not different with the statistical significance of .05. (Table 4).

**Table 1** Analyzing data on the operation of ICT for education

Operation of ICT for education of school	$\bar{x}$	S.D.	Result
1. Cultivation of personnel who are capable of using ICT creatively	3.70	0.55	High
2. Promote and support the education with ICT to increase education's efficiency	3.57	0.70	High
3. Development of the infrastructure for ICT that supports education	3.40	0.79	Moderate
4. Utilization of ICT to support the administration and provision of education service	3.76	0.58	High
Total	3.61	0.58	High

**Table 2** Analyzing data on the problem of ICT for education

Problem of ICT for education of school	$\bar{x}$	S.D.	Result
1. Cultivation of personnel who are capable of using ICT creatively	2.69	0.79	Moderate
2. Promote and support the education with ICT to increase education's efficiency	2.81	0.86	Moderate
3. Development of the infrastructure for ICT that supports education	2.88	0.85	Moderate
4. Utilization of ICT to support the administration and provision of education service	2.60	0.84	Moderate
Total	2.74	0.75	Moderate

**Table 3** Comparing the operation of ICT for education

Operation of ICT for education of school	Position				t	P
	Administrative		Teacher			
	(N=35)		(N=284)			
	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
1. Cultivation of personnel who are capable of using ICT creatively	3.60	0.67	3.71	0.53	-0.99	0.32
2. Promote and support the education with ICT to increase education's efficiency	3.48	0.72	3.58	0.69	-0.80	0.41
3. Development of the infrastructure for ICT that supports education	3.25	0.88	3.41	0.78	-1.13	0.25
4. Utilization of ICT to support the administration and provision of education service	3.70	0.66	3.77	0.57	-0.71	0.47
Average total	3.51	0.65	3.62	0.57	-1.08	0.27

\* P &lt; 0.05 , \*\* P &lt; 0.01

**Table 4** Comparing the problem of ICT for education

Problem of ICT for education of school	Position				t	P
	Administrative		Teacher			
	(N=35)		(N=284)			
	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
1. Cultivation of personnel who are capable of using ICT creatively	2.74	0.80	2.69	0.79	0.36	0.71
2. Promote and support the education with ICT to increase education's efficiency	2.81	0.70	2.81	0.88	-0.02	0.98
3. Development of the infrastructure for ICT that supports education	2.97	0.69	2.87	0.87	0.67	0.49
4. Utilization of ICT to support the administration and provision of education service	2.70	0.77	2.59	0.85	0.73	0.46
Average total	2.80	0.66	2.74	0.77	0.48	0.62

\* P &lt; 0.05, \*\* P &lt; 0.01

**Table 5** Comparing the operation of ICT for education

Operation of ICT for education of school	Academic position				t	P
	Has academic position		Does not has academic position			
	(N=61)		(N=258)			
	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
1. Cultivation of personnel who are capable of using ICT creatively	3.79	0.57	3.68	0.55	1.35	0.17
2. Promote and support the education with ICT to increase education's efficiency	3.91	0.62	3.49	0.69	4.41**	0.00
3. Development of the infrastructure for ICT that supports education	3.78	0.72	3.30	0.78	4.34**	0.00
4. Utilization of ICT to support the administration and provision of education service	3.97	0.56	3.72	0.57	3.01**	0.00
Average total	3.86	0.55	3.55	0.57	3.86**	0.00

\* P &lt; 0.05, \*\* P &lt; 0.01

**Table 6** Comparing the problem of ICT for education

Problem of ICT for education of school	Academic position				t	P
	Has academic position		Does not has academic position			
	(N=61)		(N=258)			
	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
1. Cultivation of personnel who are capable of using ICT creatively	3.02	0.61	2.61	0.80	4.32**	0.00
2. Promote and support the education with ICT to increase education's efficiency	3.01	1.00	2.76	0.82	1.76	0.08
3. Development of the infrastructure for ICT that supports education	3.00	0.94	2.85	0.83	1.28	0.20
4. Utilization of ICT to support the administration and provision of education service	2.75	0.93	2.57	0.81	1.52	0.12
Average total	2.95	0.82	2.70	0.73	2.30*	0.02

\* P &lt; 0.05, \*\* P &lt; 0.01

**Table 7** Comparing the operation of ICT for education, categorize by school's size

Source of variation	SS	df	MS	F	P
Between groups	17.25	2	8.62	29.68**	0.00
Within groups	91.81	316	0.29		
Total	109.06	318			

\* P &lt; 0.05, \*\* P &lt; 0.01

**Table 8** Comparing the problem of ICT for education, categorize by school's size

Source of variation	SS	df	MS	F	P
Between groups	3.78	2	1.89	3.32*	0.03
Within groups	179.68	316	0.56		
Total	183.46	318			

\* P &lt; 0.05, \*\* P &lt; 0.01

4.3.3 Categorize by their academic standing: The teachers and educational personnel who have and do not have academic standing, their overall opinions are different with the statistical significance of 0.01. Deeper inspection of each aspects revealed that opinion towards 'Cultivation of personnel who are capable of using ICT creatively' are not different while the rest are different with the statistical significance of 0.01 (Table 5).

4.3.4 Comparison of ICT Problems: The teachers and educational personnel's opinion toward the problem of ICT for education of school under Loei Primary Educational Service Area Office 1, either those who have or do not have the academic standing, showed the overall difference with the statistical significance of 0.05. Deeper

inspection of each aspects revealed that opinion toward 'Cultivation of personnel who are capable of using ICT creatively' are different with the statistical significance of 0.01; while the rest are not different with the statistical significance of 0.05 (Table 6).

4.3.5 Categorize by school's size: The teachers and educational personnel's opinion toward the operation of ICT for education of school under Loei Primary Educational Service Area Office 1, categorize by school's size, showed the overall difference with the statistical significance of 0.01. Once such difference was found, data were compared each pair of difference by using Scheffe' method; the overall comparison revealed that small school is different from medium and large

school while medium and large school are not different from each other (Table 7).

4.3.6 On school size: The teachers and educational personnel's opinion toward the problem of ICT for education of school under Loei Primary Educational Service Area Office 1, categorized by school's size, showed the overall difference with the statistical significance of 0.05. Once such difference was found, researchers compared each pair of difference by using Scheffe' method; the overall comparison revealed that medium school is different from large school while other pairs are not different from each other (Table 8).

## 5. Discussion

5.1 The overall operation of ICT for education of school under Loei Primary Educational Service Area Office 1 is high. The underlying reason for this trend may stem from the fact that ICT activities are performed in accordance with Ministry of Education's Master Plan on Information and Communication Technology for Education; as well as the implementations are closely and efficiently monitored by the original affiliated department.

5.2 The overall problem of ICT for education of school under Loei Primary Educational Service Area Office 1 is moderate. The probable cause for this may stem from the fact that operation of ICT for education in school is essentially a large operation and concerns various departments and personnel. Therefore, it is inevitable that some problems may occur, even though they operate strictly under the laid plan, as there will always some unforeseeable variable that affect the operation.

5.3 The overall result from comparing teachers and educational personnel's opinion showed variables that affect the difference in opinion, namely, their academic standing and the school's size. The difference in opinions of those who have, and who do not have, academic standing, may be because of their different ICT-related experience and knowledge. The difference in opinions of those

from schools of different sizes may be because the school's sizing is based on number of its student, which is in turn affect the budget and personnel allocation to any particular school. This may be the underlying reason for the difference in opinions toward the performance of ICT for education.

## 6. Conclusions

The result of this study - the operation of ICT for education of school under Loei Primary Educational Service Area Office 1 – may conclude as follow:

6.1 The overall performance of ICT for education of school under Loei Primary Educational Service Area Office 1 is high; while the overall problem is moderate.

6.2 The overall result from comparing teachers and educational personnel's opinion toward the performance of ICT for education of school under Loei Primary Educational Service Area Office 1, categorized by their title shows no difference; however, when categorized by their academic standing and school's size, we have found some differences with the statistical significance of 0.05.

## 7. Recommendations

7.1 Although the overall Operation of ICT for education of school under Loei Primary Educational Service Area Office 1 is high; however, deeper inspection of each aspect revealed that the 'Development of the infrastructure for ICT that supports education' has the lowest average score. Therefore, school should focus more on the development of its infrastructure to be capable and sufficient of its operation. This can be done via collaboration between each and every sectors that come together to provide or to develop the required infrastructure that help improve the technological infrastructure of school; to provide the most up-to-date technology, with sufficient amount to match the needs, efficiently.

7.2 The overall problem of ICT for education of school under Loei Primary Educational Service Area Office 1 is moderate; while the deeper

inspection of each aspect showed they are moderate; which are satisfiable. Therefore, school should focus on continuous development, with clear and distinct development plan that will continuously decrease the problem's level that will ultimately profits its provision of education in the future.

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