

# Chapter 1

## Introduction

### Background and Importance of the Problem

Information technology role in globalization era affects to rapid information distribution, effects economic, politics, social, and education changing in every country of the world. (Williams and Sawyer,2010:20) Thailand is a country that the sustaining information technology effects. Therefore, educational statute acts to use information technology in education that government must encourage research and development of production, and develop technology for education. Including, tracing checking and evaluation on using technology for education to achieve the worth using and appropriate to Thai learning process. Ministry of education promulgates of data and information administration statute in year B.E. 2549. In order to storage , collect, process, and disseminate of data and information, from school level to province level, and every educational agency. Thus, information system is important to administration and educational operations. Especially, academic affair is the most important, parents and every educational agency interest on accuracy data, fast, and trusty. So information technology operations in schools is absolutely essential because it must use systematic data, modern, complete and current information.

Results of monitoring and evaluation in education reform operations (Office of the Secretary of Education, B.E.2549) found that one major problem, of education reform was agencies that were responsible for the service lacked of necessary information for planning, monitoring, and evaluation. Especially, statistics data collection was not systematic, incomplete, and inconsistent. Research, monitoring and evaluation of education suggested that development of database, created a network of cooperation between the agencies involved and used of efficient sharing information (Test and Evaluation Center for Education and Professional Development, B.E. 2549), consistent with the research findings of Chaiporn rukngam (B.E.2549), Tipawan lakwattana (B.E.2551) found that the mainly problems of information system development in basic schools were information was not present, lacked of implementation of information technology systems used to process the data, and

produce information as desired, no central database system, and no software that helps in managing the information systems.

Elements of evaluation based learning curriculum for Basic Education B.E. 2551 ( Office of the Basic Education, B.E.2553) include measurement and evaluation of learning in 8 group learning, reading, thinking and writing skills, desired characteristics evaluation, and student activities evaluation. Data and information from the evaluation at the class level. Teachers evaluate the results. The objectives are to develop and evaluate the learners on midterm or the end of the study determined. The assessments of the students individually. contribute to the assessment study of the schools. The data and information was used to update curriculum policy, teaching methods, and plan to improve the quality of education, based approach to educational quality assurance, and report to parents, communities, committee of basic education, office of educational area, and office of the basic education. Therefore, information from evaluation is the heart of educational operations which help the students. An opportunity for students to develop and achieve success in their studies. (Somsak Phuvipadawat, B.E.2545) However, the performance on measurement and evaluation, academic affair, and registration in schools (Nidtaya patsonsiri and Kanya purokanon, B.E.2548) found that performance on measurement and evaluation was very complicated processes, lack of implementation of information technology systems used in the operation.

And the preliminary survey of the problems (Pilot Study) of teachers, administrators and staff in schools under the office of Chiang Mai primary educational area 1 found that the measurement and evaluation of teachers. Most were still processed by manual to record points to the conclusion of the class to use calculators in data processing. Lack of computer programs to assist in data processing. Some of it has been used in computer programs such as Excel program, but must have a formula which made users of complexity in the program to facilitate the measurement and evaluation of learning directly to contribute to the monitoring and evaluation of the students individually. In the academic No database of academic affair to collect data and achievement made the information available was not present. Especially average grade point (GPA) lack of program to help academically. Academic workload for a lot of data processing. The data and information could not be used in supervision or provide data to

improve instruction, course materials promptly. In addition to the registration, most still used the documents in storage to improve the academic performance of the students. Or summary level results obtained by the group subjects throughout the course the students need more time for preparation of documents and educational documents. Lack of computer programs to assist users in the investigation and evaluation of student learning directly.

Some schools have adopted information technology used in the registration and measurement, and produce information need, but on the pilot studying found that computer programs available today are still unable to meet the needs of users, could not produce information of learner individually, and schools' information. It was also not conducive to academic administration on basic education core curriculum B.E.2551 such as the program student'51 (From website <http://gpa.moe.go.th/student2551>, On line date May 16, B.E. 2555), student data was collected for 3 year to report on cumulative record, but on primary schools of core curriculum B.E. 2551 student data was collected for 6 years to report on cumulative record but the software was not update for new curriculum. So the primary schools could not use this software. This program did not store the data on the same database so it could not summarized all information of the school. The SMIS program which basic education office outsourcing program to collect student data in each school but it did not help in measurement and evaluation, academic affair, and registration operations. It could not report transcript as core curriculum B.E. 2551.

Now every school in Thailand need for quality assurance. Classified by quality assurance of education into two categories: the internal quality assurance. All schools assess and report writing, self-assessment every year. And the external quality assurance, The office for national education standards and quality assessment serves to monitor and evaluate studies in every 5 years. Assessing the quality of education both inside and outside requires a lot of information, both learners, instructors and educational institution to assess and evaluate quality assurance, and needs a lot of data to produce desired information. (Nutchahunpanich, B.E.2549) However, in most studies lack information in this respect requires the collection of new data, information that is not responding to the normal practice.

So the researcher is interested in developing of data and information technology for monitoring, supervision, and evaluation of learning in basic education. Especially in the work of measurement and evaluation of the core basic educational curriculum BE 2551, the schools should establish a system to help teachers assess learning outcomes of the students. Academic affair work should have a system of monitoring, evaluation of each course and provide information for supervisory teachers to improve the teaching and learning courses. And in the registration work should has a system to assist in the achievement processing and assisted the registrar in the preparation of documents easily, quickly, accurately and in accordance with the standards of the Ministry of Education. Also help determine monitor and modify the learning outcomes of the students to be accurate and currently. In addition, the researcher developed central database to store information and produce information as educational needs. As well as the data and information to assist in monitoring and evaluating the quality of education and comply with standards and indicators of quality education for the quality assurance in schools.

### **Research Questions**

1. What are the problems and the requirements for information technology systems in education, classified by the computer system, hardware and computer networks, software, and people ware?
2. What are the knowledge associated with the development of information systems for the monitoring, supervision, and evaluation of learning in basic education?
3. How to design and development information technology, to assist in the performance measurement and evaluation, academic affair, registration and websites offering information appropriate to meet the needs of users and comply with standards of academic quality?
4. How much efficient and effective of the information technology systems for monitoring, supervision, and evaluation of learning in basic education that developed by researcher?

## **Objectives of the Research**

1. To study problems and requirements for data and technology information system development for monitoring, supervision, and evaluation in basic educational level.

2. To study knowledge associated with the data and technology information system development for monitoring, supervision, and evaluation in basic educational level.

3. To develop the data and technology information system for monitoring, supervision, and evaluation in basic educational level.

4. To study the effects of the data and technology information system development for monitoring, supervision, and evaluation in basic educational level that developed by researcher.

## **Scopes of the Research**

### **1. Scopes on Population**

The population consisted of school administrator, teacher, educational personnel, and users of information technology in basic education.

### **2. Scopes on the Content**

This research developed the data and information technology system for monitoring, supervision, and evaluation of learning in basic education. Cover the following issues.

**2.1 The studies of the problems and requirements of information technology systems** classified by the three components of the computer system.

1) Computer hardware, networks, devices connected to the computer.

2) Software, including the operating system, program applications, and various database management programs.

3) People ware, including the computer administrators, systems analysts, programmers, and computer users.

**2.2 Applications developed in schools to provide the data and information technology systems cover the following works:**

1) Measurement and evaluation work follows the core basic curriculum B.E. 2551, consists of courses evaluation, desired characteristics assessment, reading thinking and writing assessment, and activities assessment.

2) Academic affair work contains the management of academic course, enrollment in course, activities, and achievement reporting.

3) Registration work consists of collecting and reporting of educational documents and evidence, follows the ministry of educational forms (PP.1, PP.2, and PP.3) and academic custom forms (PP.4, PP.5, PP.6, PP.7, PP.8, and PP.9) both in primary education, and the secondary level.

**2.3 The website developed to present the data and information** for monitoring, supervision, and evaluation of learning in basic education.

**2.4 Efficacy of the data and information technology developed system**, is the system helped users to work in school, cause the work rapid, accurate, easy-to-use, consistent with the manual work normally, and the users were satisfied with the system.

**2.5 Effectiveness of the data and information technology developed system**, is the system worked as the users need consisted of the measurement and evaluation work, academic affair work, and registration work.

## **Definitions**

**1. Data and technology system** is the database and the computer programs developed by the researcher to collect data, and assist in the performance of teachers works, academic affair, and registration works to produce information of each student achievement, subjects, class achievements, schools statistics, follows the core basic curriculum B.E. 2551, consisted of school data, student data, courses scores, desired characteristics assessment, reading thinking and writing, and activities assessment.

**2. Monitoring, supervision, and evaluation of learning** refers to information technology systems which developed by researcher, can be used to check the accuracy of the information, help in providing advice or guidance to develop the learner, help track progress in learning. It can help in the evaluation of student learning, the courses achievements, and the conclusion of the student achievements.

**3. Efficacy of developed system** means the ability of information technology systems enables users to easily perform accurate, fast, easy to use, meet the needs of users, and users are satisfied with its use.

**4. Effectiveness of developed system** means the ability of information technology can storage data and produce information to meet the objectives of the work, help in the monitoring, supervision, and evaluation of student learning, consistent with the core basic curriculum B.E. 2551 and in accordance with the standards and indicators education learners, in ensuring the quality of education within schools.

**5. User Acceptance Test( UAT)** refers to the developed system that users accepted that the system worked as the user needs, consistent with the measurement and evaluation work, academic work, registration work, and according to the terms between users and system developers.

**6. Knowledge to develop system** refers to the principles that found from texts, documents including the common opinion of experts on the development of information systems and the reflection on the development system.

### **The Benefits of Research**

The research results had benefits as follows:

1. Made aware of the problems and the requirements of the data and information technology systems for monitoring, supervision, and evaluation in schools.
2. Having the knowledge associated with the development of information technology systems for monitoring, supervision, and evaluation of learning in school.
3. Making the database in schools to store data and produce the information for monitoring, supervision, and evaluation of learning in basic educational level.
4. Having applications to help and performance in teachers work, academic affair work, and registration work.
5. Having a school website to present the data and information for monitoring, supervision, and evaluation of learning, responsive to the needs of schools.
6. Each school has database and applications in the same standard format, makes it possible to process concluding data and information from all schools or forward information to the education area level, or ministry of education.