SITUATION OF EDUCATIONAL MANAGEMENT IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING CASE STUDY: PREAH-KOSSAMAK POLYTECHNIC INSTITUTE

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ABSTRACT

The purpose of study was to study on situation of educational management in technical and vocational education and training at the Preah-Kossamak Polytechnic Institute including curriculum, trainers, and training facilites.

The populations of the study were trainers and trainees who were working and studying in the Preah-Kossamak Polytechnic Institute. Research instruments were documentary review and questionnaires. The statistics used for analyzing the data were descriptive statistics such as frequency, percentage, mean, and standard deviation.

The research findings of this study were that curricula used for training in the Institute were established from 1999 to 2000. The contents of curricula were divided into general subjects, related subjects, and skill subjects (theory and practice) which covered 2,176 hours of study. Moreover, the contents of curricula focused on field-oriented technical skills, thus enabling the trainees to apply and directly join production activities in the industries with pertinent skills and knowledge.

The qualification of trainers showed that all trainers attended pedagogy. Most trainers expressed high satisfaction with their jobs. 100% of trainers organized course syllabuses, and all trainers had a good relationship with trainees.

competency of trainers based on trainees' opinions revealed that the competency of trainers were between "Undecided" and "Agree" levels with scores of the trainees' opinions were ranging from 3.18 to 4.03. The average mean of competency of trainers was at Agree level ($\overline{X}$ =3.63, S.D =.976).

The result of training facilities indicated that the condition of training building were at moderate level. The numbers of training buildings, training equipments, and training materials is insufficient to serve training work in the Institute.

The findings suggests that curricula of the Institute should be updated. Trainers should be nominated and dispatched to attend upgraded skill training either locally or abroad. Training facilities should be developed and increased in quality and quantity to support and promote technical training.

KEYWORDS: SITUATION/EDUCATIONAL MANAGEMENT/TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING

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1.1.1 Background

Cambodia is a country in Southeast Asia in the southern part of Indochina, covers an area of 181,035 square kilometers and has a population of 13,5 million. The Kingdom of Cambodia is bounded on the northeast by the people's Democratic Republic of Laos, on the east and southeast by the Socialist Republic of Vietnam, and on the west and northwest by the Kingdom of Thailand. Cambodia is administratively composed of 20 provinces and 4 municipalities, 183 districts, 1.609 communes, and 13.406 villages. GDP per capital is USD 297. Phnom Penh is the capital city of Cambodia with the population approximately 1 million.

In 1993, the first free election was organized in Cambodia, which was controlled and supported by United Nations. Cambodia had made a lot of reform such as politic, economic, and other sectors. Since then, the country has been developing gradually and supported by international communities. Cambodia is in so-called developing countries. Depends on the changes of political and economic trends, there has been many international investors who come to invest and open companies in Cambodia especially small and medium enterprises such as garment, shoes, foods, etc.

All infrastructures have been developed and improved such as road building, bridge construction, school, etc, especially human resource development. The Royal Government of Cambodia has designated some sectors as prioritized fields which include economic, health, agriculture, rural development, especially education in the national policies. Although, education has been taken attention by the government but the quality of education is still low and unsatisfactory. And refers to the trend of the country that is going toward economic development by attracting more foreign investors to open businesses in Cambodia, so technical and skilled people are necessarily needed.

The Technical and Vocational Education and Training in Cambodia begins in 1993 under administration of Ministry of Education, Youth, and Sport (MOEYS). Technical and Vocational Education and Training (TVET) begins with the support of International Labour Organization (ILO) and has progressed with support from Asian Development Bank (ADB) since 1996. In Cambodia there are 14 public vocational training institutions that are operated by 5 ministries. The formal Technical and Vocational Education and Training (TVET) consist of a dozen institutions providing one to two year courses, and are operated under different ministries such as Agriculture, Industry, Health, Labour and Education; most of these institutions are located in Phnom Penh. While there are various vocational training institutions under different ministries, but the Ministry of education, youths, and sport (MOEYS) and Ministry of Social Affair, Labour, Vocational Training and Youth Rehabilitation (MOSALVY) have the main responsibility for Technical and Vocational Education and Training, regardless of formal and non-formal. The Vocational and Technical Education and Training, known in Cambodia as TVET is an important element of the National Education System of Cambodia.

The existing education system in Cambodia clearly shows three streams of education; the general stream, the technological stream and the technical and vocational stream. The third stream has been refined and improved so as to be an alternative to those students, who, for various reasons, would like to take up careers in this sector. With regard to Vocational Training and Education, there are currently three levels of training offered: (1) Degree level: the courses offered are of 4-5 years duration for degree level after completion of grade 12; (2) Technician/ Diploma level: the courses offered at this level are of 2-3 years duration and these courses have been designed to produce technicians; (3) Trades level: the courses offered at this level are of short duration, usually ranging from 1-6 months. Base on the above explanation of Technical and Vocational Education and Training in Cambodia, all institutions have provided technical and vocational education and training to a lot of students since the establishment of technical and vocational education and training (TVET) in 1993 which is mainly under ministry of education, youth and sport.

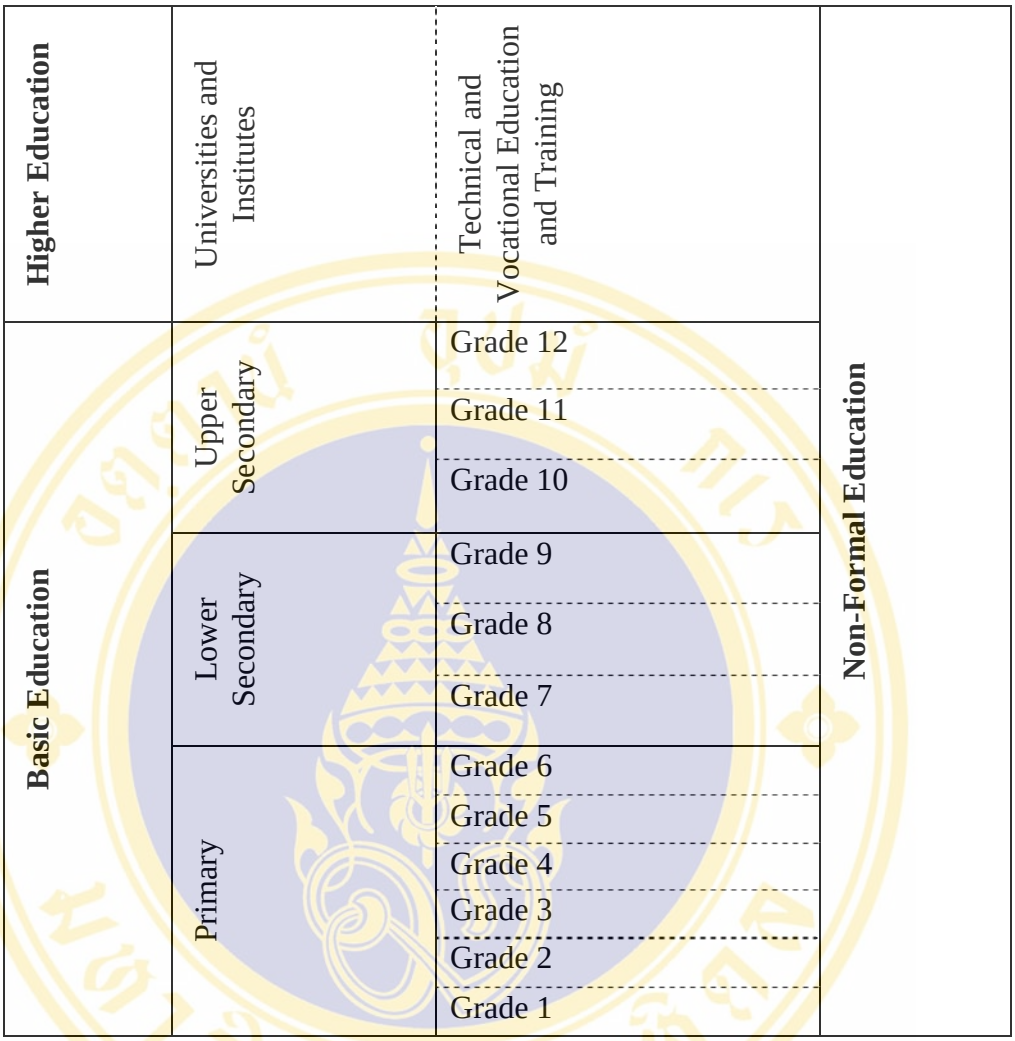

Figure 1: Education System in Cambodia

1.1.2 Rationale of Research

The Cambodian government is aware of the importance of vocational training, and puts top priority on it in its development plans. The public vocational training institutions are administered by the government and no fees are charged. However, to ensure sustainability, some of these public vocational training institutions opened charged courses for students who didn't pass exam for scholarship. The government budget for the financing of vocational training institutions is increasing commensurate with the government's increased allocation for education as a whole. As the principle expense of year 2000 without taking into account of other ministries and external aid, the Ministry of Education, Youth and Sport and Ministry of Social Affair, Labour,

Vocational Training and Youth Rehabilitation has spent over 3 billion Riels (with exchange rate of 3,800 Riels/US$) of their own budget to the vocational training sector. The government needs to give priority to the existing vocational training schools in allotting the budget, but with meager funds amount to 1.3% of the GDP, this is virtually impossible. Investment in vocational training institutions so far has reaped less success.

Even though vocational training and education institutions are diverse, national qualification system is not introduced to assure the quality of vocational training in Cambodia. On the whole, there are various vocational training institutions in Cambodia currently, but the kind of training the students received is not applicable at the worksite. Especially in the case of areas like machinery, electric and electronic, practical training is a must but is virtually impossible due to shortage of equipment, which requires heavy investment (Policy & Planning; Site Survey, Synergy Vision Inc, 2004).

These goals of education are in turn dependent on what the teachers in the school are capable of accomplishing. The rapid expansion of school systems has been achieved by taking on less qualified teachers with a consequent drop in the quality of work in the schools. But it is by no means certain that the increase in the total number of students in the schools will result in a corresponding increase in the number of useful graduates who will emerge from each level of the school system, because any fall in the quality of the work may be expected to increase the number of failures and dropouts (Quality of Education, 1975).

Trainers were employed as vocational school trainers without any prior professional training. Trainers are mostly former civil servants who do not possess a high level of professionalism. Major problems of Vocational Training and Education institutions came from financial constraints. However, it is important for trainers to undergo training. Most of the trainers are not adequately capable of training or transferring their knowledge to the participants since they lack of knowledge on how to transmit and convey their experience to the others.

There are no textbooks that are suitable for Cambodia’s present situation, and the textbooks available are not in tune with curriculum, so that there are difficulties in teaching. For improvement of equipment and facilities, not only curriculum conforms

to textbooks, but also the students should be able to practice what they learn in theory with equipment and facilities. The number of students who desire higher-level education was more than anticipated, thus showing the potential for elite education. It is better to operate long-term courses, so as to fully cultivate highly skilled workers. It's important for school to conduct social, humanist and general education for students. Most students enroll for the aim of getting a job so the curriculum should be developed focusing on employment (Site Survey, Synergy Vision Inc, 2004).

The speech of Prime Minister Hun Sen at Commencement Ceremony at National Technical Training Institute (NTTI) in July 2005, addressed that " there are several factors affecting quality of education. Those factors are management, curriculum, teachers, and students".

As explained above, there are a number of factors that happened in the management of Technical and Vocational Education and Training field, which are necessarily important and need for research study. The improvement of educational management including curriculum, trainers, and training facilities is crucial and necessary for the development of institutes operated in the Technical and Vocational Education and Training field.

1.2 Research Objective

The objective of the research study is to study on situation of educational management in Technical and Vocational Education and Training (TVET) at Preah-Kossamak Polytechnic Institute including curriculum, trainers, and training facilities.

1.3 Research Question

1. What are the qualification and competency of trainers that are important in training process
2. What is the situation of curriculum used in the institute
   - What are the contents of curriculum
   - How can curriculum be developed and evaluated for training
3. What is the condition of training facilities in institute: building, material
   - How are the buildings for training process
   - What is the quality of training materials used and needed in training

1.4 Scope of the research study

In this research study, the researcher scoped the areas of this study as follows:

- To study situation of educational management in Technical and Vocational Education and Training such as curriculum, trainers, and training facilities.
- The research is carried out in Preah - Kossamak Polytechnic Institute because the institute is one of best public technical and vocational education and training institutions in Phnom Penh, Cambodia.
- The persons involved in the research study are including director, trainers, and trainees who are working and studying at the institute.

1.5 Expected Results and Benefits of research

- The findings could show the strong and weak points in educational management such as curriculum, trainers, and training facilities.
- The findings could be important and necessary to improve the educational management in the institute.
- The findings would be used for other researchers and persons who are concerned in this field.

1.6 Definitions of Terms

- **Situation:** Situation is the condition, state of affairs, or combination of circumstances which are critical significance in the institute.
- **Curriculum:** Curriculum is the contents, standards, objectives for which schools hold students accountable and the expected means of education such as instructional plan in order to get the intended learning outcomes.
- **Trainer:** Trainer is a person who trains students skills and knowledge in technical and vocational education and training field.
- **Student:** Student is one who is enrolled or attends classes at a school, college, or university in order to get knowledge and skill and develop the capacity to earn for a living.
- **Facilities:** Facilities are the buildings, materials and other tools that serve in providing education and training.

- **Material:** Material is tool or apparatus for the performance of a given task, writing material, training material, teaching material, etc.
- **Training:** Training is the process of providing knowledge and skills to people especially technical and vocational training.
- **Work experience**: is referred to the number of years working in one place until present.

1.7 Conceptual Framework of Research

In reference to the System Theory based Educational Management, which will be described in next chapter, show that educational management covers the whole System Theory including Input such as curriculum, trainers, materials, and trainees through process of providing training to get outcome. In Literature Review, researcher will study some theories that related to the research study including concepts of educational management, curriculum, qualification and competency of trainers, and training facilities,. The conceptual framework is organized in the following:

Figure 2: Diagram of Conceptual Framework

CHAPTER II
LITERATURE REVIEW

In this chapter, Literature Review, The research study will discuss and describe some documents and theories that related to the research topic as followings:

- Educational Management
- Curriculums: Contents, Design, Evaluation
- Trainers: Qualification and Competency
- Training Facilities: Building, Materials

2.1 Educational Management

Educational Management covers the management system that is comprised of input such as learner, activity, curriculum, media and technology, and instructor, which processing (teaching) student to be a qualified student (output) with outcome that come from the work or action when student graduate and also reflect positive and negative impact.

Schools are perhaps the most complex of all our social inventions. Like other formal organizations, the school must deal with the tasks of structuring, managing, and giving direction to a complex mix of human and material resources. Unlike most other formal organizations, the school has a human product that gives rises to unique problems of organization and management. System theory conceives of an organization as a set of interrelated parts that interact with the environment almost as a living creature does. The organization trades with its environment. It receives inputs such as human and material resources, values, community expectations, and social demands, transforms them through a production process (e.g., classroom activities); and exports the product (e.g., graduates, new knowledge, revised value sets) into the environment (e.g., business, military, home, college) with valued added. The organization receives a return (e.g., community financial support) for its efforts so it can survive and hopefully prosper. The cycle begins once again (Mark Hanson, 1995).

Ellwood P. Cubberley, characterized the school as a factory processing raw materials for social consumption. Our schools are, in a sense, factories in which the raw products (children) are to be shaped and fashioned into products to meet various demands of life. The specifications for manufacturing come from the demands of 21st century civilization, and it is the business of the school to build its pupils according to the specification lay down. This demands good tools, specialized machinery, and continuous measurement of production to see if it is according to specifications, the specification of waste of in manufacture, and a large variety in the output. In the school, for example, a major cycle can be seen in the patterned events of an academic year. Students enroll at the beginning of the year, the teacher-learning process is engaged, examination are given, grades are noted, credits are accumulated, and at the end of the year students are promoted or they graduate (Mark Hanson, 1995:21).

2.1.1 System Theory Based Educational Management

System Theory based educational management is the process of managing the production line of human resource, which consisting of combination order of some parts such as inputs, process, output, outcome and impact. The system is comprised of input such as learner, activity, curriculum, media and technology, and instructor, which go through the process to be graduates with outcome that come from the work or action and also reflect positive and negative impact. The goal of education is to make student get wisdom by integration of physical body combine with knowledge /brain, heart/affected body, and skill to achieve goal (Wee Rawang, 2005).

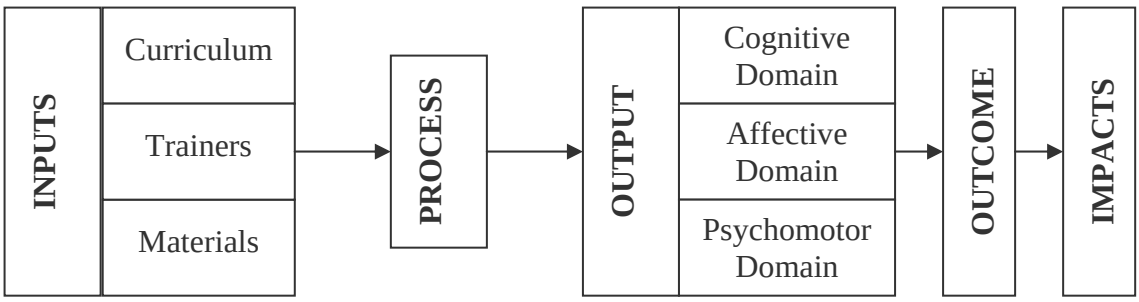

Figure 3: Systematic theory based educational management

Inputs: is one part of system theory, which is the combination of learner, curriculum, activity, media and technology, and instructor. These items are the main components of educational inputs.

Process: is major part of system theory, which is an action in processing, managing inputs appropriately to get or achieve the desired outcome. Although, we do have limited resources, with a suitable process we can get the good or quality outcome (education process).

Output: is a part of system theory, which is product of human resources that getting from the combination or operation between inputs and process. The output is comprised of cognitive domain (knowledge), affective domain (attitude) and psychomotor domain (skill). The education output is students, when students graduated they have knowledge, skill and attitude, which mean that they get learning. The outcome can give feedback to inputs and process reflecting the quality of education.

Outcome: is a part of system theory, which is result or operation of output (students) after they get learning of knowledge, skill and attitude. This means that graduated students bring their knowledge, skill and attitude that receiving from university to apply at workplace. We can say that we apply theory with direct practice.

Impacts: is a part of system theory, which is the result from outcome as well as output, process and input that reflect the features of managing the production of human resources with high or low quality. This also relate to the action or behavior of students, which show the discipline of university.

Base on the above description, the educational management covers and includes all parts of the system from input through process of education to get output.

2.2 Curriculums

A curriculum is the content, standards, or objectives for which schools hold students accountable. A curriculum is the set of instructional strategies teachers plan to use. These conceptual differences are based on a distinction between a curriculum as the expected ends and goals of education, example the intended learning outcomes and curriculum as the expected means of education example instructional plans. Thus, there are fundamental differences between people’s conceptions of curriculum,

focusing on curriculum as means or ends and curriculum as a plan for or a report of actual educational event (Posner, 2004).

2.2.1 Concepts of Curriculum

Postner George(2004) noted that these seven common concepts of curriculum are important, control function of the curriculum and prescribe various aspects of education and also reflect clearly the means and goals of education.

Scope and Sequence: Educational organizations' scope and sequence typically embodies a concept of curriculum as a set or series of intended learning outcomes. A scope and sequence document is a document listing the intended learning outcomes in each grade level, thereby giving the sequence of the curriculum. The outcomes are grouped according to topic, theme, or dimension. This concept assumes that there is a clear distinction between educational ends and means, restricting the concept of curriculum to educational plans rather than including actualities. By distinguishing curriculum from instruction, this concept places curriculum in the role of guiding both instructional and evaluation decisions.

Syllabus: The syllabus is a plan for an entire course. The plan typically includes the goals and rationale for course, topics covered, resources used, assignment given, and evaluation strategies recommended. Occasionally, syllabi might also include learning objectives, learning activities, and study questions. Thus, the syllabus represents the plan for a course, elements of both the ends and the means of the course.

Content Outline: Equating curriculum with a content outline assumes that the content of instruction is equivalent to a curriculum plan. When the sole purpose of education is to transmit information and teaching consists of covering content, such a definition may suffice. This contains covering content and information which is to transmit and teach students. However, when education and teaching have other purposes, then the content outline leaves unanswered questions of objectives, not to mention instructional method. Nevertheless, many people, when asked for their curriculum, provide a content outline.

Standards: The authors of standards note that a set of standards, like a content outline, is not a curriculum. Standards, however, are also more than a content outline and different from a scope and sequence. Standards often describe what students

should be able to do and in some cases, describe process toward achieving the learning outcomes. Unlike a scope and sequence, however standards do not describe specific teaching activities (lesson plan). Standards do prioritize what ideas are fundamental to the discipline and how key ideas are interconnected. They also cover the grades of education and thus can lay the groundwork for a course of study or a scope and sequence. Standards include more about the nature of the discipline and how both specialists and laypeople (often alluding to citizenship duties) use the discipline than other concepts of curriculum typically do and they include themes that cut cross the topics of a curriculum. Further, standards are uniformly addressed to all students.

Textbooks: The ubiquitous textbook, that is, as a guide to both the ends and the functions as a day to day guide. Traditional texts present the content, without much guidance as to what is important to learn or on how to teach. Contemporary texts are more appropriately described as instructional systems. Textbooks are for teachers who teach by the book and function as a day-to-day guide and references for development of research study in education. That is a guide to the end and the mean of instruction. They include teacher guides, student study guides or workbook, test, overhead projection masters, laboratory kits, and supplementary instructional materials.

Course of study: A course of study or a set of courses lead to a view of curriculum as a series of courses that the student must get through. This view provides a basis of one of the major metaphors that dominate thought in this field: the travel metaphor. According to this metaphor, education is a journey with an intended destination.

Planned experiences: Many progressive educators contend that the curriculum is more than a set of documents. These educators argue that rather than being a description of student learning, whether intended or unintended, or content covered-whether decided by the state, district textbook, or teacher-curriculum comprises all experiences of students planned to provide by the school. In other words, the experiences that coaches, yearbook advisor, drama teachers, band leaders, study hall teachers, assembly speakers, school nurses, and disciplinarians plan for students are as much a part of the curriculum as science, math, social studies, and English classes.

2.2.2 Curriculum Design

Forest, Glen (2000) stated that curriculum designs functions as basic program organizers. As engaging in curriculum work, this finds the choice of a particular design to be influenced by (1) the expectations of parents, guardians, and other influential community members, (2) the philosophical perspectives regarding the purposes of education, (3) the nature of the subject matter to be taught, and (4) the kinds of learning materials available to support instruction. Because local conditions vary, curriculum designs are not uniform across the country. Designs are chosen because they have features consistent with local conditions (place to place differences).

Allan, Francis (2004) described that components of curriculum design are (1) aims, goals, and objectives; (2) subject matter; (3) learning experiences; and (4) evaluation approaches. Frequently, content or subject matter receives the primary emphasis. But sometimes, schools do create designs that stress primarily objectives and evaluation approaches. Other designs give primary emphasis to learning experiences and activities.

Ronald Doll (1996) explained that there are four sources of curriculum designs including science as a source, society as a source, knowledge as a source, and learner as a source. In instructional design , individuals raise questions as to what teaching methods and materials can be employed that will facilitate learning. What resources will be appropriate for the particular lesson indicated in the curriculum plan? How should we arrange our students, and which students should be involved in particular activities.

In conclusion, curriculum design involves more than simply making sure that the parts of a curriculum are neatly organized in a document. Design is a complex phenomenon requiring of educators careful attention so that the curriculum conceived will have merit and will succeed in getting students to learn those concepts, attitudes, and skills considered worthwhile and essential.

2.2.3 Curriculum evaluation

Evaluation is a process or cluster of processes that people perform in order to gather and interpret data to decide whether to accept, change, or eliminate something -

the curriculum in general or an educational textbook in particular. Individuals must realize that as decision makers, they will engage in curriculum evaluation not only at the end of the program, at the end of a year of teaching, but at various points throughout the development and implementation, teaching of the program (Allan and Francis, 2004).

James, Naomi, and Robert (2001) presented assessment in case of curriculum evaluation, as a process of reasoning from evidence. A chain of reasoning about student learning characterizes all assessments. This chain of reasoning also take into consideration the realm of knowledge about the curriculum, its nature, its development, and delivery. The curriculum represents the commonplace of the subject matter in the school's program. It is what the teacher teach and the students learns. It organizes this subject matter in a particular scope and sequence of learning. Educators deal with questions as to what evidence is available that suggests the curriculum contemplated, planned, and then delivered has value, meets students' needs, and meets the general society's needs.

Worthen and Sanders (1987) defined evaluation as the formal determination of the quality, effectiveness, or value of a program, product, project, process, objective, or curriculum. Evaluation includes inquiry and judgment methods: (1) determining standards for judging quality and deciding whether those standards should be relative or absolute; (2) collecting relevant information; and (3) applying the standards to determine quality.

Bruce Tuckman (1985) defined evaluation as the means of determining whether the program is meeting its goals: that is whether a given set of instructional inputs match the intended or prescribed outcomes.

Daniel Stufflebeam defined evaluation as the process of delineating, obtaining, and providing useful information for judging decision alternatives.

Collin Marsh and George Willis indicated that evaluation is an activity that permeates all human activity, whether concerned with education or life in general. It deals with processing questions such as "Is something worth doing? How well is it being done? Do I like it? Should I spend my time doing something else?".

2.3 Qualification of trainers

Suda Bulsuk (2002: 27-28) stated that characteristics of a good and qualified trainer are described as follows:

Knowledge

1. Professional knowledge including knowledge on training techniques, contents, media utilization, communication or motivation
2. Basic knowledge of being a trainer such as adult learning psychology, evaluation or information about trainees

Skills are the ability to apply what is known, consisting of three aspects:

1. Skills in media utilization, problem-solving or using trainees
2. Skills with people, composing of skills in communication, motivation, compromise, giving and taking criticisms, and self and learner analysis
3. Updating skills, including skills in researching new techniques, developing media or applying new research findings or training

Qualities and attitude, composing of being generous, patient to criticisms, ethical, humorous, expressive, sensitive to learners, emotionally mature and punctual.

In addition to the above mentioned, we indicate good characteristics of a trainer as follows:

1. Sensitive to the needs of trainees
2. Ready to listen to trainees' opinions
3. Able to use suitable tactics to respond to trainees' emotional expressions
4. Active, enthusiastic, motivated and devoted to his work
5. Confident in himself and accepting his working style
6. Patient and generous to problems of trainees and immediate problems
7. Reliable

In conclusion, a good trainer should possess several good characteristics, particularly in terms of knowledge, skills, qualities and attitude. Moreover, trainer should have other special characteristics that would contribute to the success and efficiency of training.

2.3.1 Roles of a trainer

Swanya Cheusuwan (2002:29) noted that a trainer is significant to the results of the entire training. Trainer plays many roles and responsibilities, which are defined as follows:

1. Trainer has to understand the nature of trainees or learner in physical, emotional, social and mental terms
2. Trainer has to understand his role as a leader of change in terms of education and personal behaviors
3. Trainer has to put special emphasis on training techniques and methods
4. Trainer has to understand that it is necessary to use a variety of teaching media to promote better learning among trainees
5. Trainer has to put an emphasis on evaluation

Other roles and duties of a trainer included:

1. As an organizer, his responsibilities included defining training policies, conducting needs analysis, setting objectives, making lesson plans to cover all contents within the time frame, and planning and managing sales and marketing.
2. As a manager, his responsibilities included designing, developing and preparing documents and teaching media, organizing learning activities, making decision, and solving problems.
3. As an instructor, his responsibilities included passing on knowledge and understanding by using methods and techniques that helped learner attain their objectives.
4. As a facilitator, his responsibilities included facilitating trainees about information on contents, venue, instruments and other facilities, cooperating with trainees and other trainers, conducting training, and solving problems.
5. As an analyst, he has to evaluate the quality and results of training in order to get clear understanding about circumstances and guidelines for future development.

In short, the roles of a trainer are many and cover from the beginning until the end of a training. In addition to being an instructor, a trainer has to be a planner, organizer, facilitator and evaluator. Therefore, the roles of a trainer are a significant part for the efficiency and success of training

2.4 Competency of trainers

Thera Kanchanarak (2002:30) stated that competency is defined as a boundary of existing ability.

Good (1973:121) defined competency as skills, concept and attitude that existed while doing every work and is capable of applying them in actual practice.

Houston (1976) cited by Suda Bulsuk (2002:31) explained that competency based as a minimum criterion that indicated the basic value of expression and properties of practical boundary.

Francis (1983:159) defined competency as personal characteristics that are related to or affected successful job performance, and as personal qualifications resulting from knowledge, understanding, skills, attitude and habit or personality that form into competence.

In conclusion, competency is defined as characteristics indicative of personal ability in terms of knowledge, understanding, skills and attitude that affected or is related to successful job performance.

2.4.1 Desirable competency base of a trainer

Studies on desirable competency base of instructors, teachers and trainers had been carried out and good characteristics of competency could be summarized as follows:

Montri Siwalaikul (1995:9), cited by Suda Bulsuk (2002:31) defined the ability of knowledge and understanding in the fields of specialization as well as a quest for new knowledge in order to apply them in class so that students had positive mental, social and emotional development.

Gutex (1988) summarized good characteristics of a teacher as follows:

1. Personal characteristics including good conduct, being inquisitive, good mental and physical health, good personality, being punctual, positive attitude toward students and profession, and good communication ability.

2. Academic and professional characteristics including resourceful, knowledgeable, creative, flexible, understanding and adept to teaching strategies.

3. Social characteristic including having good relationships with students, parents, colleagues and people in the community or locality.

As for the competency base of a trainer, Surasak Srisan (1997:140) cited by Thera Kanchanarak (2002:32) summarized that a good trainer should be well-rounded in his specialized field, able to create lesson plans, use teaching media appropriately, know adult psychology to create better learning atmosphere, transfer knowledge in accordance with trainees' needs, and evaluate learning results of trainees.

Thanaporn Charoenchai (2000) cited by Swanya Cheusuwan (2002:32) described that competency base of a trainer must have knowledge, skills and attitude in employing techniques to pass on experiences, knowledge and skills correctly and suitably so that trainees were systematically increasing their knowledge and understanding.

In summary, competency base of a trainer is defined as characteristics of personal ability in terms of knowledge, understanding, skills and ability, and attitude, which could be applied for efficient classroom instruction that made training, achieve its objectives efficiently and effectively.

2.4.2 The competent teacher

Allan C. Ornstein (1995:57) indicated that in general, competent teacher means to be satisfactorily skilled and able at teaching. There is a number of possible components in teaching competence including (1) attitude and beliefs, (2) behavioral competencies, (3) subject-matter competencies, and (4) teaching styles, and see how each contributes to the idea of competent teacher. But first, let us consider the ways in which people have tried to define or describe teaching competence. Competencies and skills required for teacher were included as follows:

- Applies knowledge of physical, social, and academic developmental patterns and of individual differences to meet the instructional needs of all students in the classroom and to advise students about those needs.
- Enhances students' feeling of dignity and self-worth and the worth of other people; those from other ethnic, cultural, linguistic, and economic groups.
- Arranges and manages the physical environment to facilitate instruction and ensure student safety.
- Recognizes overt signs of severe emotional distress in students and demonstrates awareness of appropriate intervention and referral procedures.
- Recognizes sign of alcohol and drug abuse in students and demonstrates awareness of appropriate intervention and referral procedures.
- Recognizes the overt physical and behavioral indicators of child abuse and neglect and know the rights and responsibilities regarding reporting and how to interact appropriately with a child after a report has been made
- Formulates a standard for student behavior in the classroom.
- Deals with misconduct, interruptions, intrusions, and digressions in ways that promote instructional momentum.
- Determines the entry-level knowledge/skills of students for a given set of instructional objectives using diagnostic tests, observations, and student records.
- Identifies long-range goals for a given subject area.
- Constructs and sequences related short-range objectives for a given subject area.
- Selects, adapts, and/or develops instructional materials for a given set of instructional objectives and student learning needs.
- Selects/develops and sequences learning activities that is appropriate to instructional objectives and student needs.
- Uses class time efficiently.
- Communicates effectively using verbal and nonverbal skills.
- Creates and maintains academic focus by using verbal, nonverbal, and/or visual motivational devices.

- Presents forms of knowledge such as concepts, laws, and law-like principles, academic rules, and value knowledge.
- Presents directions appropriate for carrying out an instructional activity.
- Stimulates and directs student thinking and checks student comprehension through appropriate questioning techniques.
- Provides appropriate practice to promote learning and retention.
- Relates to students' verbal communications in ways that encourage participation and maintain academic focus.
- Uses feedback procedures that give information to students about the appropriateness of their response(s).
- Conducts reviews of subject matter.
- Constructs or assembles classroom tests and tasks to measure student achievement of objectives.
- Establishes a testing environment in which students can validly demonstrate their knowledge and skills and receive adequate information about the quality of their test performance.
- Utilizes an effective system for maintaining records of students and class progress.
- Uses computers in education.

(Florida Department of Education, 1993)

2.4.2.1 Competencies in attitudes and beliefs

1. Teaching efficacy: The concept of self-efficacy, as developed by Bandura (1977, 1986), refers to a person's self-perceived capacity to perform a task or carry out a plan of action to deal with a situation. Self-efficacious people believe they have the ability to succeed, while those lacking in self-efficacy do not share this same belief.

Teaching efficacy refers to teachers' beliefs about their capacity to affect student performance (Ashton, 1984).

Efficacious teachers believe that (1) good teachers can affect students regardless (or in spite of) the circumstances of their home environment, and (2) by trying hard , they, personally, can reach even the most difficult students (Ashton &

Webb, 1986). The first factor is sometimes referred to as general teaching efficacy and the second as personal teaching efficacy.

Ashton (1984) has found that teachers who do no have it think and do different things in the classroom that teachers who do not have it. Specifically, teachers with teaching efficacy (1) find teaching meaningful and rewarding rather than frustrating and discouraging, (2) expect student success, rather than failure, and tend to get it, (3) look inward for student failure rather than blaming it on students, (4) set goals and develop strategies for themselves and students rather than ignoring these important success-seeking activities, (5) feel good about themselves and their students rather than constantly complaining, (6) feel in control and influential rather than at a loss, and (7) not only share their goals with students but involve students in setting them.

Therefore, the competent teacher must be a self-believer, a person who believes that teachers in general and he or she in particular can make a difference in the lives of students. Teachers with this belief have a greater likelihood of succeeding than teachers who believe otherwise.

2. Teacher expectations : Expectations here refers to teachers' belief about the ability of students to succeed. This belief is important because it gives rise to what has been called the self-fulfilling prophecy, the tendency for teachers' expectations for students' performance to be borne out by students' actual performance, often as a function of the communication of that expectation from teacher to student.

Good and Brophy (1991) have documented the differences in the way many teachers communicate with high versus low achieves, thereby sending the message of their expectations. In contrast to their treatment of high achievers, teachers often do the following to low achievers: (1) wait less time for them to answer questions, (2) interrupt them more, (3) criticize them more and praise them less, (4) react more often to their responses with indifference, (5) pay less attention to them, (6) call on them less often, (7) interact within them less in private, (8) seat them farther away, and (9) demand less from them.

Given that the above behaviors are likely to limit the effectiveness of teachers, it is important for teachers to have positive expectations for all students, regardless of their achievement history. Competent teachers need to adopt teaching approaches that

are consistent with their positive expectations, and that do not discriminate against so-called low achievers, in order to break the self-fulfilling low achievement cycle.

Competent teachers also need to monitor or be aware of their communications with students and the messages that they send. Teachers who do not monitor themselves are much more likely to convey their expectations to students (Sullins, Friedman, & Harris, 1985).

3. Teacher Enthusiasm: Clark, Boyer, and Corcoran (1985) used the term vitality to describe a positive, intangible quality of teachers that led to positive production, sustained commitment, and dedication to beliefs that produce action.

Sederberg and Clark (1990) discovered that teachers high in vitality reported high energy, and internal driving force, dedication, a missionary zeal, obsession, passion, and consuming desire in describing their feelings toward teaching.

Gorham and Zakahi (1990) found that teachers who enjoyed teaching were more likely to react positively to student performance than teachers who did not enjoy teaching, and that this behavior tended to improve the performance of students.

Enthusiasm, like the other affective characteristics described above, seems to be an important part of good teaching. Not only is it important for a new or prospective teacher to start out enthusiastically, by virtue of the desire to become a teacher, but that enthusiasm must be maintained, even in the face of difficulty and occasional failure. Teachers who lose their enthusiasm are likely to lapse into a state of helplessness, thereby reducing their competence to a low level.

2.4.2.2 Behavioral Competencies

To be competent teacher, one must demonstrate specific teaching behaviors in a range of teaching functions such as planning, instructing, communicating, managing, and evaluating. We shall examine each of these areas in turn.

1. Planning: Most models of teaching effectiveness cite planning as an important ingredient, with the lesson plan being the primary manifestation. A lesson plan typically includes the following: (1) objectives, (2) motivational strategy, (3) content outline, (4) specification of teaching methodologies (including activities), (5) materials and media, (6) summaries and reviews, and (7) assignments (for example, homework) (Board of education of the city of New York, 1986). In other words,

planning means deciding what you are going to do before you do it. It may also include evaluation.

A competent teacher, therefore, develops a lesson plan prior to teaching a lesson, and that lesson plan includes objectives, content, skills, materials, methods, assignments, and evaluation or some similar or equally complete representation of coverage. The adequacy of the plan could be determined by examining it and looking at its specifics.

2. Instructing is a major aspect of teaching (probably the most major), in that it represents the methods and activities teachers use to promote learning in students. All specifications of teacher competencies place heavy emphasis on instructing.

Arnn & Mangieri (1988): There are nine effective teacher competencies that fall into the area of instructing. There are described as follows:

- Keeping the classroom and the students on task, meaning academically engaged.
- Carrying out direct instruction, including setting goals, assessing student progress, and making presentations of assigned work.
- Pacing the lesson and its difficulty level to the students' abilities and interests.
- Providing the students with feedback.
- Asking questions at different levels and using them appropriately in the lesson.
- Allocating instructional time to fit the lesson.
- Adapting the teaching method to fit the situation
- Employing organized instructional activities.
- Covering the material that it is necessary to cover.

3. Communicating: Communication can take both verbal and nonverbal forms. Within verbal communication, we refer to how teachers transmit information to students. Bellack (1966) identified four verbal behaviors of teachers, which he termed (1) structuring, which is primarily procedural, (2) soliciting, or asking questions, (3) responding to student responses, and (4) reacting to other than student responses. Effective teachers use these behaviors, primarily in cycles, proceeding from the first to the last. Most of teachers' verbal communications are oriented toward content, and most of those toward the transmission of facts.

4. Managing: Teachers must also be competent classroom managers, since ideally they must maintain the interest and involvement of twenty-five to thirty children or young adults over an extended period of time. They must also minimize disruptions so that the time spent by students engaged in the learning process can be maximized.

Doyle (1986) has identified the following sixteen which successful classroom managers perform:

- Establishing classroom activities – defining the order early.
- Rules and procedures – focusing particularly on potentially disruptive behavior.
- Academic work and activities – these are governed by procedures for maintaining a group focus and avoiding disruptions.
- Routines – making the context of instruction stable and predictable.
- Enacting processes – specifying when and what student talk is permitted.
- Hidden curriculum – emphasizing following directions, accepting responsibility, and working diligently.
- Monitoring–watching everything (groups, behavior, pace) and reacting quickly
- Maintaining group lessons – keeping everybody involved.
- Seatwork – using it; monitoring it.
- Transitions – without losing momentum.
- Engaged time – routines help maximize this.
- Cueing – verbal and nonverbal messages or signals.
- Maintaining academic work – breaking down big tasks into smaller ones.
- Cooperative learning teams – small group work.
- Subject matter as procedure – practice and drill assignment that can be carried out one after another
- Teacher expectations – using ability grouping to help activities flow.

2.4.2.3 Subject-matter competencies

In addition to knowing how to teach, being a competent teacher requires knowing what you teach. It also requires a general subject-matter competency that is often referred to as literacy.

1. Literacy: Competent teachers should be expected to have general knowledge, as well as be bale to read, write, and compute well. They should be familiar with basic facts in science and in the political realm including current events. Regardless of what a teacher teaches, these basic literacy skills can be expected to apply. Without them, a teacher will have difficulty communicating, formulating lessons, and establishing credibility. Literacy and teaching competence seem to be closely related in that the former is a prerequisite for the latter.

2. Knowing your subject: Teachers should have expertise in the subject or subjects they teach. To teach art history, one must know art history. So too with grammar, algebra, the political structure of South counties, and so on. It would seem a truism, and in little need of elaboration, to say that teachers must know what they teach.

2.4.3 Instructional activities:

Robert & Walter (1995): Research has shown that most teachers spend the greatest amount of their planning time thinking about and identifying the instructional activities they will use in their classrooms. Robert & Walter (1995) described the type of instructional activities that typically take place during a lesson as follows:

1. Motivating students: It is not surprising that research indicates that unless you have the attention of your students, it is very hard to get them to learn. We must plan activities that will motivate our students. Motivating learners is probably one of the most important issues for teacher in the classroom.

2. Informing students of objectives: Learners should be informed of what it is that they are going to be able to do when they finish the instructional process. By knowing what will be expected of them, learners may be better able to guide themselves through that process. Indeed, research has shown that in many cases learner performance will be improved if we simply make our objectives explicit before we begin our instruction.

3. Helping students recall prerequisites: Prerequisites are skills, knowledge, and attitudes students must have in order to comprehend your instruction. Research has indicated that learning is most effective when we can relate new knowledge and skills to knowledge and skills that we have already learned. In other words, new

learning is accomplished by building upon what we already know. If students have already learned the necessary prerequisite skills and knowledge, and they are reminded of them, then the learning of the new task is a relatively straightforward matter. That is why it is important that you help students recall the necessary prerequisites before you begin to teach them some new skills and knowledge.

4. Presenting information and examples: There are some information that must be presented to the learners, or information that the learners must discover, before they can perform the behavior described in the objective. If students are learning to analyze the conditions that led to the economic crisis, we must inform them what those conditions were. Similarly, in the case of knowledge objectives, it is obvious that before learners can recall some information, that information must be provided to them. In the case of motor skills, it is necessary to provide learners with a verbal or visual description of the physical process involved in performing a particular skill. As a teacher, it is important that you plan to present that information to your students or that you help guide students to that information, directing and correcting them as necessary. In addition to providing learners with the necessary information, it is important to give them examples so that they can see how they can use information.

5. Providing practice and feedback: In order for students to be able to acquire a particular skill, knowledge, or attitude, they must be practice that behavior. Therefore, practice activities should be directly related to the skill, knowledge and attitudes reflected in your objectives. After learners have practiced a behavior, it is important for them to receive some feedback. Feedback is the information a learner receives regarding the answers he or she provided. At a minimum, feedback lets the learner know whether an answer was correct. In addition, feedback may indicate what the correct answer was, why it was correct, and perhaps what was wrong with the learner's incorrect answer. Research indicates that providing learners with feedback is a crucial part of the instructional process. Simply having students practice an activity without providing them with any feedback does not necessarily result in effective learning.

6. Summarizing the lesson: It is usually a good idea to end a lesson with some type of summary to bring closure to the lesson and to help reinforce the skills and knowledge your students should have acquired. Oftentimes, it is a good idea to begin

the summary by restating, in simple terms, the lesson objective so that students are reminded of the purpose of the lesson. The rest of the summary may simply involve a brief review of the skills that were taught during the lesson. Or you may choose to have the students play a more active role in summarizing the lesson. This may be done by using such techniques as having them summarize what they learned or having them apply what they learned in order to solve a final problem or questions that you pose.

7. Selecting an instructional method: Selecting an appropriate instructional method depends upon a number of factors such as:

- The requirement of the task to be mastered
- The needs of the students who are to master the task

8. Task requirements: Some tasks can be acquired in a room environment. Others can only be mastered on the job. Sometimes the assistance of a number of people is necessary. The work entails team effort. Sometimes trainees are best left to get on and do it by themselves. On other occasions, the environment for learning has to be a simulated one. The actual work situation can be a dangerous place for learners. Yet perhaps the classroom is irrelevant for the skills that need to be acquired. Under such circumstances, an artificial environment is necessary. One that looks like the actual job site but is designed for instruction.

9. Needs of the trainees: Some people prefer to be taught in large group situations. Other people much prefer small group situations, or even one to one situations like a tutorial. For them, the intimacy of the small group is a positive factor in their learning. They also appreciate the recognition that comes from being treated on an individual basis. Many adults, once they have started work, reset being placed in situations reminiscent of a schoolroom. Older people who are being retrained for new jobs or careers, prefer instructional methods that de-emphasize telling.

Trainees who are anxious are often better instructed in environments that approximate the real world. Practical, down the earth people similarly respond well to on the job training. This is one of the reasons for the long history of apprenticeships. The place of work and the place of instruction are the same. People who know a great deal about a subject or a skill have different needs from trainees who know very little. Complete beginners usually require a great deal of training room teaching. There is a lot of basic material to be covered and mastered.

More knowledgeable people, on the other hand, usually prefer less formal situations. Independent work assignments and real work experiences, in the form of practicum and internships, are highly regarded. A practicum, for the most part, involves carrying out a set of tasks or a role in an on-the-job type of situation. Normally, it is done under the close supervision of an instructor or mentor. In fact, it is a form of apprenticeship. An internship, on the other hand, involve in carrying out the tasks or role under general supervision. It is a more advanced type of training. Interns carry out the tasks as if all training were finished. Instruction is given only on an occasional basis, as the need arises.

2.4.4 The Principal Methods of Instruction

Ivor K. David (1981) explained that instructional methods are the ways that are used by trainers in the process of providing knowledge and skills to the trainees. Instructional methods are differently used based on the contents of the courses, trainees, materials and environment, teaching time, courses' objectives, and trainers' qualification as well. There are many instructional methods that are used in providing knowledge and skills to trainees. The five principal methods of instruction are below:

1. The Lecture Method: The lecture method is widely used and well known method of imparting knowledge. In some situations it is called a speech, in others a presentation. Rarely is an audience given an opportunity to interrupt or ask question. Interaction normally takes place at the conclusion of the lecture. It is often limited to asking questions. Sometimes a lecture involves reading word for word from a prepared script. The lecturer uses a fairly detailed set of notes or prompts. Almost always there has been a great deal of detailed preparation and planning beforehand.

2. Demonstration method: In the case of the demonstration method, a considerable amount of time is also spent showing trainees how something ought to be done. It is highly visual as well as an oral method of teaching. In the demonstration method, an instructor has to impart not only knowledge but also skill. Understanding is also important. Normally, some sort of procedure is involved. This might include demonstrating the steps how to do a particular thing. The method is based on the idea that skill comes from seeing how something is done, then doing it yourself under monitoring of an instructor. The instruction is prefaced with an explanation of what

students should look for when the skill is demonstrated. As the skill is performed, student attention should be drawn to key points. As each step of the procedure is shown, it is important to stress its context in the sequence. In this way, the skill will be seen as a whole, and not just a set of separate operations. Some instructors like to demonstrate the skill slowly, so that trainees can see what is happening. Then they demonstrate it again at the normal speed. It is a good thing for an instructor to recapitulate the main points in words once the procedure is complete. Trainees should then record the main points, as well as highlighting the sequence of operations in their notes. Then, trainees practice the skill. Their performance is carefully monitored and supervised by the instructor. Errors can then be pointed out and steps taken to eliminate them.

3. Discussion method: The discussion method is student-oriented. It is participative rather than autocratic. Discussion is an informal strategy, with a great deal of involvement and interaction. The method is a particularly popular one with students and trainees alike. Discussion strategy is useful for solving problems. Discussion groups are also commonly used for exploring issues and making decisions. The discussion method is also one of the chief ways that an instruction can bring about attitude change. This is done by means of discussion and the careful examination of assumptions. Some discussion groups require the physical presence of the instructor. When an instructor is present, it is due to a number of reasons. For instance, the instructor might preface the discussion with a short lecture or demonstration. Alternatively, a film or videotape might be shown. Another reason for the presence of an instructor is leadership. While students often do take on a leadership role, it is sometimes more convenient for a teacher to exercise this responsibility.

- Debates and seminars: The most formal type of discussion group is the debate. This allows rigid rules. Then there is the leaderless group, the most informal of all. In this situation discussion is free flowing, with no one person serving to control the flow of argument. A seminar, sometimes called a group tutorial, usually involves a semi-structured discussion. It questions, in a critical manner, an argument or approach that has been presented elsewhere. For instance, it may follow a lecture, a reading assignment, or the watching of videotape. Seminars are particularly useful for

developing critical thought. They help trainees to evaluate not only their own thinking but also that of other people.

L.B. Curzon (1976) suggests that a definite sequence of events should be used in seminars. A seminar should begin with an introduction, which outlines the goal to be achieved. A lecture, demonstration, or assignment should then occur. After initial discussion, there should be a quick summary of the main points that have been made. After a short break, further and lengthier discussion should occur. The person giving the lecture or demonstration should be given an opportunity to reply. Finally, the seminar should end in a way which allows a conclusion to be reached or a position to be adopted.

- Case study Case studies are another variation of the discussion method. They also involve critical examination of subject material. In the case study, however, the material is posed in the form of a real or simulated problem. Sometimes, the problem is presented on videotape or film. More usually, the case is written up in narrative form. The narrative may be a single paragraph or may extend to a large folder containing reports, letters, memos, and numerical data. Case studies are often associated with business. However, they are widely used in other areas, from medicine to law and social work to safety training.

As an instructional method, case studies were originally used to develop general decision-making skills. Today, they are usually employed in situations in which there is no one right decision, as well as a great deal of uncertainty. More recently, they have been used to help students identify underlying principles. Instead of being told the principle, students are forced to discover it for themselves.

- Role playing: It involves students acting out an incident of themselves, rather than reading about it or watching others act it out on videotape. Role playing can be used for events leading up to a situation. It can be also be used to show students how they should deal with the situation. Interviewing, for instance, particularly lends itself to role playing.

- Game: Instructional games, using two or more players, have become very popular in many training and educational programs. Instructional games can be played on a board, involving chance, as do so many children’s games. An instructor can take a game designed for entertainment and adapt it for instructional purposes.

Finally, Good preparation and a clear focus are the twin keys of effective discussion. As with all discussion situations, careful briefing and debriefing are essential. Few discussion groups whether a debate, case study, tutorial, game have an instructional impact unless the students are adequately briefed beforehand. They need to know not only the rules to be followed but also the learning that can result from the situation. It is essential to identify and maintain the aim of the training session.

4. The independent study method: Independent study involves learners being given specific assignments. These should be prefaced with a clear statement of the objectives to be achieved. It is important that trainees also have a clear idea of how they will be assessed. In other words, independent study works best when trainees and instructor have a contract or firm understanding of what is expected.

Independent methods of study have a place in education and training. Usually, they are best used as supplements to more conventional methods of instruction. They are also useful when people have already acquired a working set of skills. Independent study can then be used to build upon what they already know and can do.

5. Lesson method of instruction: The lesson is one of the most versatile and useful of all instructional methods. It can be used for teaching both knowledge and skills. It also has its place in changing attitudes, as in safety training. The lesson can be used with both advanced and beginning trainees. In effect, a lesson involves presenting material to a group of learners in such a way as to insure maximum group activity. It is not a passive method. There is a great deal of participation involved. For this reason, attention is readily maintained. The lesson, as an instructional strategy, involves the main features of every method so far discussed. It typically begins with a short lecture and ends with an independent work assignment. The main body of a lecture includes a great deal of discussion and debate, as well as demonstrations and possibly case studies. Questioning is used continuously. This serves to sequence the material and also enables an instructor to determine whether or not students are learning. Thus there is great deal of flexibility. For this reason alone, the lesson is a particularly demanding instructional experience. An instructor or teacher who has mastered the lesson strategy has also acquired a great deal of skill in the other instructional strategies along the way.

In conclusion, Instructors and teachers often bewildered by the range and variety of the instructional methods available to them. Although the variety seems endless, there are really only five broad classes of strategy involved. They are lecture, the demonstration, the lesson, the discussion, and independent study. Each method has its own advantages and disadvantages. However, the lesson has many advantages and has become a principal method of teaching and learning. The other instructional methods have important parts to play, but they are not so generally applicable to such a wide range of situations. Once an instructor has successfully mastered the lesson method, it is relatively easy to experiment with the other alternatives. The lecture involves more instructor talk and less group participation. A discussion, on the other hand, involves less instructor talk and more group involvement. A tutorial has demonstration method highlights the imitation of a skill but does not necessarily challenge learners in the same way as a skills lesson. The lesson includes ingredients of all the main instructional strategies. This gives it the pace and variety so important to holding trainee interest and attention. Thus the lesson method has a motivating effect, not only from an instructor's viewpoint but also from the point of view of the group itself.

2.4.5 Working experiences

Suda Bulsuk (2002:37) stated that several studies have indicated that this factor is related to opinions, job performance and problem solving. It is further viewed that attitude is not innate so it was not a physical drive. When a man was born into a family, he is a member of the society and gradually absorbed social values and attitudes via family and other social members who are representatives of social and cultural psychology.

Methee Chantharopakorn (1998) quoted by Thera Kanchanarak (2002:37) discovered that personal experiences bring about learning, knowledge and understanding of what to avoid or what is good. Those with more experience are more confident in dealing with problems, have wider perspective, were careful and reasonable, and express their opinions correctly and appropriately.

Chutima Baisang (1999) mentioned by Swanya Cheusuwan (2002:38) elaborated that experiences enable an individual to understand problems and truths

better, providing better alternatives and decision-making process in coping with obstacles.

Therefore, experiences of a person are not derived only from working places, but also got from other places surrounding or in society. The working experiences of individuals are different based on their work, knowledge, skills, and other factors.

2.5 Training Facilities

Training facilities are school buildings such as classroom, workshop, etc and other materials such as equipments, tools, machines, etc that necessary needed in support and provision of training programmes. Research has long shown that poor building conditions affect student performance and have to be designed for 21st century learning needs. A growing body of research is now revealing the facts:

- School facilities can and do affect student learning and achievement
- School facilities can be designed to support learning.

(Sack, Joetta L., Education Week, 02774232, 5/5/2004, Vol. 23)

2.5.1 Classroom

A room or place especially in a school in which classes are conducted: a second-floor classroom; an outdoor classroom.

2.5.2 Workshop

- A room, or an area where manual or light industrial work is done.
- Small workplace where handcrafts or manufacturing are done

2.5.3 Library

- A place in which literary and artistic materials, such as books, periodicals, newspapers, pamphlets, prints, records, and tapes, are kept for reading, reference, or lending.
- A collection of such materials, especially when systematically arranged.
- A room in a private home for such a collection.
- An institution or foundation maintaining such a collection.
- A collection of literary documents or records kept for reference or borrowing

- A depository built to contain books and other materials for reading and study
- A building that houses a collection of books and other materials

2.5.4 Laboratory

- A room or building equipped for scientific experimentation or research.
- An academic period devoted to work or study in such a place
- A place where drugs and chemicals are manufactured.
- A place for practice, observation, or testing
- A workplace for the conduct of scientific research

2.5.5 Material

- The substance or substances out of which a thing is or can be made.
- Materials tools or apparatus for the performance of a given task: writing materials.
- Yard goods or cloth.

2.5.6 Tool

- A device, such as a saw, used to perform or facilitate manual or mechanical work.
- A machine, such as a lathe, used to cut and shape machine parts or other objects and the cutting part of such a machine.

2.5.7 Equipment

Fixed assets that are acquired as additions or supplements to more permanent assets. Equipment includes lighting fixtures in a building, for example. Equipment, unlike real estate, is generally moveable.

CHAPTER III
RESEARCH METHODOLOGY

This research study aims to investigate the situation of educational management in Technical and Vocational Education and Training at Preah-Kossamak Polytechnic Institute such as curriculum, trainers' characteristics and training facilities. The research methodology is composed of:

1. Target sample group
2. Research instrument
3. Data collection
4. Data analysis

3.1 Target sample group

There are two groups of respondents, trainers and trainees:

1. The trainers are 29 persons who have been working at Preah-Kossamak Polytechnic Institute. All of them were selected to answer the questionnaire.

2. The trainees are 883 persons who have been studying at Preah-Kossamak Polytechnic Institute. In the purpose to give trainees a fair chance to be selected to respond to the questionnaires, the 275 respondents are sampling (formula to calculate sample size in appendix).

3.2 Research instrument

3.2.1 Documentary reviews

Documentary review were applied to the curricula which have been used at Preah-Kossamak Polytechnic Institute. Because of the researcher is not specialized in technical skills, researcher would made analysis of Electrical Engineering Curriculum with technical cooperation of a technical specialist.

3.2.2 Questionnaires

There are two kinds of questionnaires, one for trainers and one for trainees.

- **Questionnaire for trainers:** The questionnaire is comprised of three parts:

  Part 1: Demographic data of trainers which consist of 6 questions

  Part 2: Qualification of trainers, include 11 questions

  Part 3: Condition of training facilities, include 7 questions

- **Questionnaire for trainees:** The questionnaire is consisted of two parts:

  Part 1: Demographic data of trainees, include 3 questions

  Part 2: Competency of trainers, consist of 48 questions with the rating scale question types based on Likert's method ranging from (5) strongly agree to (1) strongly disagree. The scores are as follows (Jack & Norman, 2006):

Strongly agree	=	5
Agree	=	4
Undecided	=	3
Disagree	=	2
Strongly disagree	=	1

The interpretation of the means of competency of trainers based on trainees' opinion are shown below (Best, 1981:179-187):

1.00 – 1.49	referred to	Strongly disagree
1.50 – 2.49	referred to	Disagree
2.50 – 3.49	referred to	Undecided
3.50 – 4.49	referred to	Agree
4.50 – 5.00	referred to	Strongly agree

3.2.2.1 Questionnaire construction

The questionnaires were developed by the researcher based on the following criteria and stages:

- Studying and analyzing the documents, thesis papers and literature reviews which relevant to the objective of the research study such as qualification and competency of trainers to bind up the questionnaires

- Determining the structure of the questionnaires that covers contents to be investigated and responded to the research's objective
- Proposing the drafted questionnaires to the thesis committee to check its content validity, connection for recommendations and improvement
- Translating questionnaires into Cambodian language
- Submitting questionnaires to director of the institute for monitoring and discussing how to distribute questionnaires to the respondents

3.2.2.2 Questionnaire evaluation

In order to test reliability of questionnaires of trainees on competency of trainers based on trainees' opinion, the research tried out the questionnaire with 30 trainees who have been studying at Preah-Kossamak Polytechnic Institute. Test its reliability of the questionnaire according to Coefficient Alpha (formula of reliabiltiy test in appendix), the result of reliability test of the questionnaire of trainees' opinion toward the competency of trainers revealed that its reliability is at 0.89.

3.3 Data Collection

- A letter from the Department of Education to certify researcher's status to submit and clarify while collecting data at the institutes.
- The researcher made contact with the director of the institute to get permission to do research in the institute
- The questionnaires were distributed to respondents to answer and complete at the research site.
- The collection of data took around 6 weeks. Then they were coded in order to process and calculate by statistic means.

3.4 Data Analysis

- **Documentary:** researcher discusses and analyses all documents, especially curriculum of the institute which are important and relevant to the research study received from research site with technical support from two technical experts to make analysis and evaluation of the curriculum.

- **Questionnaire:** questionnaires are analyzed in the Statistical Package for Social Sciences (SPSS) program, all data are analyzed by descriptive statistics to obtain frequency, percentage, mean, and standard deviation, then transformed and interpreted into the suitable forms in Ms. Word program.

CHAPTER IV
RESEARCH FINDINGS

This chapter presents the findings of the situation of educational management including situation of curriculum, characteristics of trainers, and training facilities in Preah-Kossamak Polytechnic Institute. In this research, questionnaires were used to collect quantitative data. There are two types of questionnaires (trainers and trainees), 29 trainers and 275 trainees were selected as samples to respond the questionnaires in this research study. The presentation of the findings is in the form of verbal explanation and numerical description in the following topics:

1. Background of Preah-Kossamak Polytechnic Institute
2. Curriculum
3. Demographic data of trainers
4. Qualification of trainers
5. Competency of trainers
6. Condition of training facilities

These points of research findings above to be explained below from 1-2 were discussed from documents, from 3-6 were analyzed from questionnaires.

4.1 Background of Preah-Kossamak Polytechnic Institute

Preah-Kossamak Polytechnic Institute is located a long Russian Boulevard in Sangkat Tuk Thla, Khan Russey Keo, Phnom Penh, Cambodia. The institute was established in 1965. And at that time the institute was called “Centre de Formations Proffessionelles des Cadres Techniques. It was operated until 1975. The institute was closed from 1975-1979 during Khmer Rouge Regime. After January 1979 the institute was reopened and has been running Technical Skill Training since October 1981 till 1992, this training center offered Technical and Vocational Training Programs and was fully supported by the Former Soviet Union as called “Soviet-Cambodia Friendship Technical and Vocational Training Center”. Soviet Union finished its support in 1992.

Picture 1 Name board of Preah-Kossamak Institute at the front gate

By that time the Center was renamed as Preah-Kossamak Technical and Vocational Training Center with primary responsibility of offering training courses for both skilled workers and technician levels. In November 20th, 1995 Basic skills project funded by Asian Development Bank has been supported to Preah-Kossamak Training Center. Under this project, funds were made available for infrastructure development such as additional workshops and classrooms, new equipment and for staff development. The Center was renamed to Preah-Kossamak Polytechnic Institute by Sub-decree No 110 of the Royal Government issued on 24th October 2001. Preah-Kossamak Polytechnic Institute was under administration of Ministry of Education, Youth and Sport till 2004. Since then, the Institute was transferred from Administration of Ministry of Education, Youth and Sport to Administration of Ministry of Labour and Vocational Training. Preah-Kossamak Polytechnic Institute employed 64 staffs including: 1 Director, 2 Deputy Directors, 29 trainers, and 32 administrative staffs.

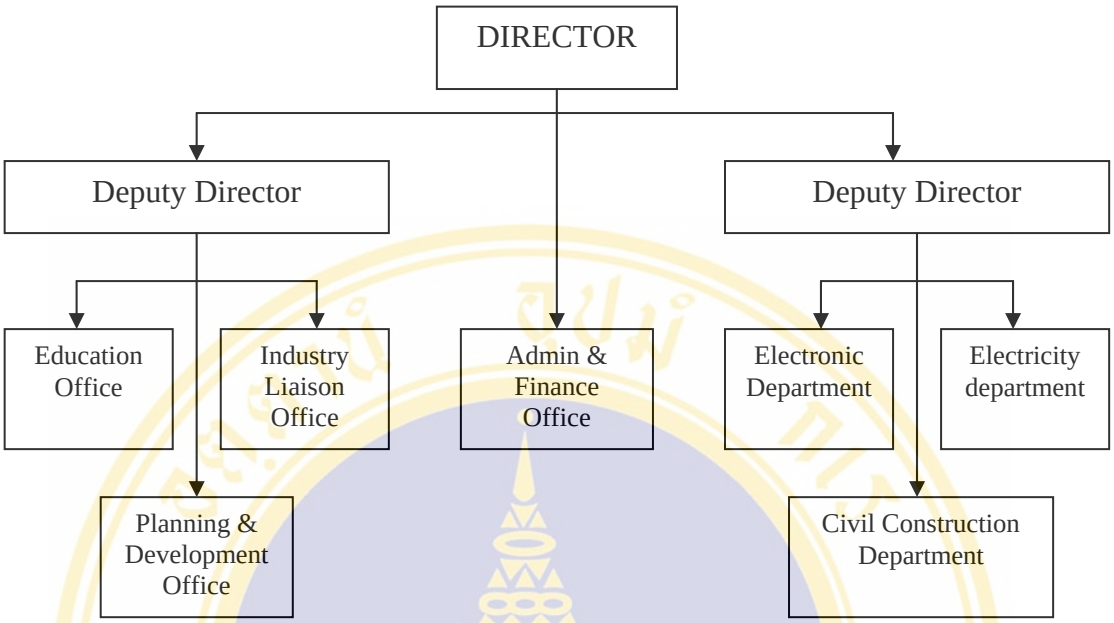

Figure 4: Organizational structure of Preah-Kossamak Polytechnic institute

Picture 2 Internal area of the institute's campus

4.2 Curriculum

Preah-Kossamak Polytechnic Institute have been providing three technical training programs for diplomas' degree such as Civil Construction Engineering, Electrical Engineering, and Electronic Engineering.

The curricula were developed from 1999 to 2000 with responsibility of Department of Technical and Vocational Education and Training under administration of Ministry of Education, Youth, and Sports. The Development of the curricula was organized by Department of Technical and Vocational Education and Training through Basic Skill Project with financial loan from Asian Development Bank. Because of the researcher is not specialized in technical skill, so in this part the researcher will make analysis of Electrical Engineering Curriculum with cooperation and facilitation from two technical experts who are specialized in the field of Electrical Engineering.

4.2.1 Curriculum Design

4.2.1.1 Title of the course

Electrical Engineering – Electrical Industry

4.2.1.2 Rationale and purpose of course

The course is to concentrate on the needs of the trainees and provide them with broad technological and specific skills required for installation surface and concealed wiring, maintenance and repairing of electrical machines and electrical equipment. This program is to design to train the trainees in the formal system to develop their skill to the Diploma level. The course is to provide the trainees of the knowledge, understanding skill and activity necessary for successful practice of the trade.

4.2.1.3 Course of study

- Theory is included general subjects, related subjects, and skill subjects
- Practice is carefully planned and assessed to ensure application of theory and provide sufficient opportunity for workshop practice, attachment of the workplaces, assignments, coursework and skill performance.

4.2.1.4 Course duration

The program is designed for 2 years program leading to Diploma in Electrical Engineering.

Time allocation:

- 32 hours per week
- 34 weeks per year
- Theory = 40%, practice = 60% (general, related, and skill subject)

4.1.2.5 Entry Qualifications

Entry to the course is open to applicants who has completed class 12 and who passed an entry examination in mathematics, physic and Cambodian studies.

4.2.1.6 Course Objectives

After trainees finished the course, trainees will be able to:

- Develop knowledge and understand the principle of electricity and electrical equipment
- Observe safe working procedures and safety precautions
- Apply this knowledge in the correct use of electricity tools, equipment, and materials
- Operated domestic surface and underground wiring system
- Repair electric motor components
- Use appliance testing
- Acquire the ability, knowledge and experience as a basic for career choice and to further studies at a higher level
- Prepare oneself to start one’s own business
- Gain cooperative attitudes and social responsibilities
- Inculcate awareness and knowledge in creative thinking that can be generated and developed through intellectual and practical activities.

4.2.1.7 Training Material and Methodology

- Unit standard: the qualifications framework is built on unit standard which spell out the criteria which students need to meet in a particular area of skill and

knowledge. Unit standard are usually make up the qualification (skill) for the course.

- Brochure (for theory and practice): Brochure are normally included the information, data, schema, table, etc, that allowing students using as reference with the Unit Standard.

- Assessment Sheet: The training system is based on competency based training, it is recommended that students must be assessed by internal assessor (teacher/trainer) when they are finished each of Unit Standard, whether they fail or pass (80-100% of topic) they are allowed to learn next Unit Standard but they must review the assessment which is incomplete.

- Assessment Methods: Assessment should be carried out to evaluate the students' level of achieving learning outcome. Assessment should be organized at the end of each subject. There are assessment methods which are recommended to use including written objective test, practical test, assignment, oral test, project work, final examination.

4.2.1.8 Marking and Grading

The allocation of marks and grades are showed as follows:

A	:	19 – 20	Excellent
B	:	16 – 18	Good
C	:	13 – 15	Satisfactory
D	:	10 – 12	Weak pass or Average
E	:	00 – 09	Fail

4.2.1.9 Certification

Each candidate who is completed successfully all assessment, terminal examination and all necessary requirements will be awarded a record of performance showing the grade of performance for the components of the courses pursued. Grade of Diploma will be awarded to candidate, are collected from results of all subjects.

4.2.2 Contents of Curriculum

4.2.2.1 Course Unit

The programs focus on transferable skills and emphasize a deep understanding and effective use of the technological tools, machine, instruments, materials, processes and systems in business and industry. The contents not only include a study of tools, machine, materials, processes and technical skills but also include the study of entrepreneurship, safety, physical education, leadership skill, and Buddhism and Cambodian Civilization to produce good and responsible Cambodian citizens as technicians.

4.2.2.2 Master Plan

Master Plan of the course indicates hours to be studied in each semester. Table of master plan is consisted of numbers of subjects to be studied including: I. General subject, II. Related subject, III. Skill subject. In each subject is comprised of total hours to be taught, how many hours to be studied in each semester, and semesters of academic years to be studied for each subject. Table of Master Plan is shown below:

Table 1 Master plan of Electrical course

Topic	Total (hour)	Year I		Year II	
		Semester I	Semester II	Semester I	Semester II
I. General subject					
1. Physical Education	51	17	17	17	
2. Buddhism and Moral	34	17	17		
3. Technical English	102	34	34	34	
Sub-Total	**187**	**68**	**68**	**51**	
II. Related subject					
1. Technical drawing	68	34	34		
2. Technical mechanic	68	34	34		
3. Technology of metal	34	34			
4. Hydraulic and pneumatic	34			34	
5. Management	68			68	

Table 1 Master plan of Electrical course (continued)

Topic	Total (hour)	Year I		Year II	
		Semester I	Semester II	Semester I	Semester II
II. Related subject					
6. Computer education	34		34		
7. Mathematic engineering	68	34	34		
Sub-Total	**374**	**136**	**136**	**102**	
III. Skill subject					
1. Basic technical skill	102	102			
2. Safety	20	20			
3. D.C. Circuit	36	36			
4. A.C. Circuit	40		40		
5. Transformer	40			40	
6. D.C. machine	34			34	
7. A.C. Machine	34				34
8. Electrical hand tool and electrical domestic	34	34			
9. Cable connection and termination	40	40			
10. Rating of cable and calculation	34	34			
11. Electrical lighting and control	48		48		
12. Electrical drawing	86		22	30	34
13. Earthling and lighting system	34			34	
14. Switch board and control panels	48			48	
15. Wiring system (1)	68		68		
16. Wiring system (2)	68			68	

Table 1 Master plan of Electrical course (continued)

Topic	Total (hour)	Year I		Year II	
		Semester I	Semester II	Semester I	Semester II
17. Testing	44			44	
18. Measuring instrument	40	40			
19. Electrical motor control	98				98
20. Electronic	68		34	34	
21. Alarm system	34			34	
22. Micro controller and program logic control	48			24	24
23. Electrical motor repair	98				98
24. Power supply system	34	34			
Sub-Total	**1231**	**340**	**212**	**391**	**288**
Internship at private and public sector and Project work			128		256
Total	**2176**	**544**	**544**	**544**	**544**

4.3 Demographic Data of Trainers

This part focuses on demographic data of trainers. It relates to analysis of frequency and percentage of the trainers categorized by gender, age, education level, work experience, income, and additional training as follows:

From the data relevant to gender of trainers who have been working in the institute, majority of trainers (93.1%) was male, only (6.9%) was female.

Trainers who aged Under 30 years old was (34.5%), between 30-40 years old (34.5%), between 41-50 (20.7%), Over 50 years old was only (10.3%).

Education Level of trainers, most of trainers, (86.2%) obsessed Bachelor degree, (13.8%) graduated Master degree, none of trainer finished doctoral degree.

Majority of trainers, (44.8%) had work experiences more than 10 years, (31%) between 6-10 years, only (24.1%) worked between 2-5 years, no one had work experiences less than 2 years.

Income of trainer, (31%) had monthly income Under 50$, (34.5%) from 50-100$, (24.1%) from 100-200$, only (10.3%) got monthly income Over 200$.

Most of trainers, (93.1%) attended additional training, only (6.9%) have never attended additional training during period of work performance.

Table 2 Number and percentage of demographic data of trainers

Demographic data	Number	Percentage
1. Gender		
Male	27	93.1
Female	2	6.9
Total	**29**	**100.0**
2. Age		
Under 30	10	34.5
30 – 40	10	34.5
41 – 50	6	20.7
Over 50	3	10.3
Total	**29**	**100.0**
3. Education level		
Diploma	0	0
Bachelor	25	86.2
Master	4	13.8
PhD	0	0
Total	**29**	**100.0**
4. Work experience		
Under 2 years	0	0
2 – 5 years	7	24.1
6 – 10 years	9	31.0
Over 10 years	13	44.8
Total	**29**	**100.0**

Table 2 Number and percentage of demographic data of trainers (continued)

Demographic data	Number	Percentage
5. Monthly income		
Under 50 $	9	31.0
50 – 100 $	10	34.5
101 – 200 $	7	24.1
Over 200 $	3	10.3
Total	**29**	**100.0**
6. Additional training		
Attended	27	93.1
Never attended	2	6.9
Total	**29**	**100.0**

4.4 Qualification of Trainers

4.4.1 Trainers attended pedagogy course

Table 3 below gives number and percentage of trainers who attended pedagogy course. All of trainers, (100%) attended the pedagogy course, which are legally eligible to be standard trainers and also important for work performance in technical and vocational education and training field.

Table 3 Number and percentage of trainers attended pedagogy course

Respondents' statement	Number	Percentage
Attended	29	100.0
Never attended	0	0
Total	**29**	**100.0**

4.4.2 Job satisfaction of trainers

Table 4 points out number and percentage of trainers' opinion toward job satisfaction. Trainers (20.7%) had highest level of job satisfaction, (51.7%) answered high level, (27.6) replied moderate, and no one said low or lowest level of job satisfaction.

Table 4 Number and percentage of job satisfaction of trainers

Respondents' statement	Number	Percentage
Highest	6	20.7
High	15	51.7
Moderate	8	27.6
Low	0	0
Lowest	0	0
Total	29	100.0

4.4.3 Trainers prepared course syllabus

Table 5 describes number and percentage of trainers who prepared course syllabus. All of trainers, (100%) prepared course syllabus for the course they have been teaching.

Table 5 Number and percentage of trainers preparing course syllabus

Respondents' statement	Number	Percentage
Prepared	29	100.0
Did not prepare	0	0
Total	**29**	**100.0**

4.4.4 Trainers organized lesson plan before training

Table 6 showed number and percentage of trainers who organized lesson for their training. Majority of trainer, (58.6%) organized lesson plan before they are training, (41.4%) didn't had lesson plan before doing training.

Table 6 Number and percentage of trainers organized lesson plan

Respondents' statement	Number	Percentage
Organized	17	58.6
Did not organize	12	41.4
Total	**29**	**100.0**

4.4.5 Training Methods applied by trainers in training

Table 7 below indicates the training methods which trainers used in providing training. Trainers, (96.6%) , used lecture method, (75.9%) used demonstration method, lesson method (55.2%), discussion method (58.6%), self-study (62.1%), and others training methods (20.7%).

Table 7 Number and percentage of trainers applied various training methods

Respondents' statement	Number		Percentage		Total	
	Yes	No	Yes	No	N	%
Lecture	28	1	96.6	3.4	29	100.0
Demonstration	22	7	75.9	24.1	29	100.0
Lesson	16	13	55.2	44.8	29	100.0
Discussion	17	12	58.6	41.4	29	100.0
Self-Study	18	11	62.1	37.9	29	100.0
Others	6	13	20.7	79.3	29	100.0

4.4.6 Training Equipments used by trainers in providing training

Table 8 below reveals training equipments are used by trainers in providing training in class. The frequency of using these equipments is based on the need of trainers in provision of training as following: whiteboard and marker (100%), TV and VCR (6.9%), Overhead projector (69%), LCD projector and Computer (72.4%), and other equipments (13.8%).

Table 8 Number and percentage of trainer using different training equipments

Respondents' statement	Number		Percentage		Total	
	Yes	No	Yes	No	N	%
Whiteboard and Marker	29	0	100.0	0	29	100.0
TV and VCR	2	27	6.9	93.1	29	100.0
Overhead Projector	20	9	69.0	41.0	29	100.0
LCD Projector &Computer	21	8	72.4	27.6	29	100.0
Others	4	25	13.8	86.2	29	100.0

4.4.7 Trainers made review of lessons for trainees in class

Table 9 explains number and percentage of trainers who made review of lesson in class. All of trainer, (100%) made review of previous lessons for trainees in class before they continued next lessons.

Table 9 Number and percentage of trainers who made review of lessons

Review of lesson	Frequency	Percentage
Review	29	100.0
Did not review	0	0.0
Total	**29**	**100.0**

4.4.8 Trainers treat students the same in class

The following table of trainers' treatment to poor and good students the same in class revealed that (44.8%) of trainers treated all students the same, but (55.2%) did not treat students the same in class. Trainers who did not make the same treatment to poor and good students in class because they always take more attention to poor students who are not able to catch the knowledge and skill as good students by trying to explain and make students understand what they have been teaching them.

Table 10 Number and percentage of trainers treated students the same in class

Respondents' statement	Number	Percentage
Treated students the same	13	44.8
Did not treat students the same	16	55.2
Total	**29**	**100.0**

4.4.9 Importance of trainers' self development

The table of importance of trainers' self development showed that (100%) of trainers said self development is important for them and would be able to increase their work capabilities.

Table 11 Number and percentage of importance of trainers' self development

Respondents' statement	Number	Percentage
Important	29	100.0
Not important	0	0.0
Total	**29**	**100.0**

4.4.10 Trainers used computers when needed in teaching

Most of trainers, (79.3%), replied that they used computer when needed in training, only (20.7%) of them did not use computer because they did not need to use in training and the lack of computer.

Table 12 Number and percentage of trainers used computer in training

Respondents' statement	Number	Percentage
Used	23	79.3
Did not use	6	20.7
Total	**29**	**100.0**

4.4.11 Relationship between trainers and trainees

Table of relationship between trainers and students showed that (82.8%) of trainers have good relationship, and (17.2%) of them have excellent relationship. It reflected that the relationship between trainers and students is pretty good and would result in well and warm atmosphere of providing training.

Table 13 Number and percentage of relationship level between trainers and trainees

Respondents' statement	Number	Percentage
Excellent	5	17.2
Good	24	82.8
Moderate	0	0
Poor	0	0
Very Poor	0	0
Total	**29**	**100.0**

4.5 Competency of Trainers

The following table 14 showed the number and percentage of competency of trainers based on trainees' opinions. The competency of trainers based on trainees' opinion was comprised of 48 points, all of them are critically related to the competency of trainers in their professions. In purpose to measure competency of trainers based on trainees' opinions, the researcher used formula to calculate the average score of analysis as following:

1.00 – 1.49 is Strongly disagree
1.50 – 2.49 is Disagree
2.50 – 3.49 is Undecided
3.50 – 4.49 is Agree
4.50 – 5.00 is Strongly agree

The results on competency of trainers based on trainees' opinions were commented as follows:

Majority of trainees' opinions toward competency of trainers, (74.9%), thought that trainers have conducted lesson plan ($\bar{X}$ =3.86, S.D =.915), (53.1%) stated that they have information of trainees ($\bar{X}$ =3.44, S.D =.996), (65.5%) indicated that they have information of the institute where training were held ($\bar{X}$ =3.67, S.D =.942), (84.4%) pointed out that they have been greeting and familiarizing trainees before instructing ($\bar{X}$ =4.01, S.D =.771), (61.1%) perceived that they have delivered training well ($\bar{X}$ =3.64, S.D =1.093), (72.3%) noted that they lectured up to date lessons ($\bar{X}$ =3.79, S.D =.793), (80%) believed that the class was open for discussion and comments ($\bar{X}$ =4.03, S.D =.801), (62.5%) affirmed that training materials were provided ($\bar{X}$ =3.58, S.D =1.082).

Most of trainees' opinions toward competency of trainers, (67.3%) reiterated that they created good training atmosphere ($\bar{X}$ =3.66, S.D=.959), (57.5%) showed that they have been using language, gestures, materials to motivate trainees to participate in training ($\bar{X}$ =3.54, S.D=1.088), (60.3%) noted that they understood trainees' problems and needs ($\bar{X}$ =3.50, S.D =1.122), (70.9%) stated that the training contents were selected and prioritized ($\bar{X}$ =3.82, S.D =.930), (76.4%) indicated that they provided contents relevant to training objectives ($\bar{X}$ =3.88, S.D =.933), (56.4%) perceived that they had pride in their professions ($\bar{X}$ =3.45, S.D =1.050), (53.9%) believed that they were not being benefit-oriented ($\bar{X}$ =3.44, S.D =1.025), (71.7%) thought that they behaved well to trainees ($\bar{X}$ =3.69, S.D =.929).

Over average of trainees' opinions toward competency of trainers, (65.8%) perceived that they had self confidence in their work performance ($\bar{X}$ =3.72, S.D =.892), (59.6%) pointed out that they have controlled their emotion appropriate to circumstances ($\bar{X}$ =3.59, S.D =.964), (73.1%) revealed that they honored and listened to others' opinions ($\bar{X}$ =3.76, S.D =.808), (65.1%) noted that they were active while providing training ($\bar{X}$ =3.57, S.D =.999), (65.1%) showed that they were friendly and paid attention to trainees ($\bar{X}$ =3.69, S.D =.960), (80.7%) reiterated that they gave trainees changes to take part in training ($\bar{X}$ =3.91, S.D =.923), (62.5%) believed that they cooperated and coordinated well with others ($\bar{X}$ =3.63, S.D =.841), (65.4%) thought that they did not ignore to solve the problems ($\bar{X}$ =3.71, S.D =.987).

Majority of trainees' opinions toward competency of trainers, (70.2%) pointed out that they are reasonable ($\bar{X}$ =3.81, S.D =.800), (69.1%) stated that they have organized learning activities relevant to contents and trainees ($\bar{X}$ =3.69, S.D =.917), (60%) believed that they explained contents of lessons clearly ($\bar{X}$ =3.56, S.D =1.080), (65.8%) thought that they have used equipments and training media correctly in training ($\bar{X}$ =3.70, S.D =1.007), (55.6%) revealed that they provided trainees strengths, weaknesses and suggestion ($\bar{X}$ =3.52, S.D =.979), (74.6%) perceived that they used relevant and clear examples to their explanation ($\bar{X}$ =3.81, S.D =.967), (54.9%) pointed out that they motivated trainees to be eager to learn ($\bar{X}$ =3.51, S.D =1.085), (63.9%) noted that they taught trainees from theory to practice ($\bar{X}$ =3.69, S.D =.960).

Most of trainees' opinions toward competency of trainers, (66.5%) affirmed that they have been using various and suitable training techniques to fit all conditions ($\bar{X}$ =3.64, S.D =.966), (53.1%) believed that work performance was assessed appropriately ($\bar{X}$ =3.47, S.D =.941), (59.3%) agreed that assignments were provided to trainees ($\bar{X}$ =3.41, S.D =1.138), (58.2%) thought that they obsessed positive expectations for all trainees ($\bar{X}$ =3.55, S.D =.948), (62.9%) revealed that they are keen to train ($\bar{X}$ =3.59, S.D =.990), (65.8%) showed that they have been using methods, activities to promote students' learning ($\bar{X}$ =3.61, S.D =.992), (55.2%) believed that they kept the class and students on task ($\bar{X}$ =3.45, S.D =1.071).

Over average of trainees' opinions toward competency of trainers, (63.3%) pointed out that they have allocated instructional time well to fit the lesson ($\bar{X}$ =3.49, S.D =1.105), (74.2%) noted that they have good relationship with trainees ($\bar{X}$ =3.76, S.D =.920), (49.1%) agreed that they managed classroom properly ($\bar{X}$ =3.30, S.D =1.059), (45.1%) stated that they minimized disruption of trainees ($\bar{X}$ =3.18, S.D =1.187), (57.4%) indicated that they maintained interest and involvement of trainees in training ($\bar{X}$ =3.51, S.D =.885), (65%) said that they created academic work and activities to engage trainees in training process ($\bar{X}$ =3.61, S.D =.962), (64.8%) affirmed that they have done evaluation of trainees achievement fairly and strictly ($\bar{X}$ =3.61, S.D =1.021), (64.4%) believed that they have good knowledge, skill and

ability to teach ($\bar{X}$ =3.65, S.D =1.111), (60.7%) perceived that they are expertise in subject they teach ($\bar{X}$ =3.64, S.D =.969).

In conclusion, the research findings of competency of trainers based on trainees' opinion could be summarized that the competency of trainers were between "Undecided" and "Agree" levels with average of the trainees' opinion were ranging from 3.18 to 4.03. The average mean of competency of trainers were at Agree level ($\bar{X}$ =3.63, S.D =.976). This result could be explained that all trainers obsessed high competency in their work profession.

The details of competency of trainers based on trainees' opinion are shown in the following table:

Table 14 Number and percentage of competency of trainers based on trainees' opinions

Competency of trainers	Level of opinions					Mean $\bar{X}$	S.D	Opinions
	Strongly agree Number (%)	Agree Number (%)	Undecided Number (%)	Disagree Number (%)	Strongly disagree Number (%)			
1. Having lesson plan	63 (22.9)	143 (52.0)	38 (13.8)	29 (10.5)	2 (.7)	3.86	.915	Agree
2. Having information of trainees	33 (12.0)	113 (41.1)	80 (29.1)	39 (14.2)	10 (3.6)	3.44	.996	Undecided
3. Having information of training venues	44 (16.0)	136 (49.5)	60 (21.8)	29 (10.5)	6 (2.2)	3.67	.942	Agree
4. Greeting and familiarizing trainees before instructing	64 (23.3)	168 (61.1)	26 (9.5)	16 (5.8)	1 (.4)	4.01	.771	Agree
5. Delivering training well	67 (24.4)	101 (36.7)	56 (20.4)	44 (16.0)	7 (2.5)	3.64	1.093	Agree
6. Lecturing up-to-date lessons	40 (14.5)	159 (57.8)	53 (19.3)	23 (8.4)	0 0	3.79	.793	Agree

Table 14 Number and percentage of competency of trainers based on trainees' opinions (continued)

Competency of trainers	Level of opinions					Mean $\bar{X}$	S.D	Opinions
	Strongly agree Number (%)	Agree Number (%)	Undecided Number (%)	Disagree Number (%)	Strongly disagree Number (%)			
7. Opening for discussion and comments	77 (28.0)	143 (52.0)	42 (15.3)	12 (4.4)	1 (.4)	4.03	.801	Agree
8. Providing training materials	55 (20.0)	117 (42.5)	39 (14.2)	60 (21.8)	4 (1.5)	3.58	1.082	Agree
9. Creating good training atmosphere	42 (15.3)	143 (52.0)	51 (18.5)	32 (11.6)	7 (2.5)	3.66	.959	Agree
10. Using activities and materials to motivate trainees	56 (20.4)	103 (37.5)	54 (19.6)	57 (20.7)	5 (1.8)	3.54	1.088	Agree
11. Understanding trainees' problems and needs	49 (17.8)	117 (42.5)	44 (16.0)	53 (19.3)	12 (4.4)	3.50	1.122	Agree
12. Selecting and prioritizing content for training	64 (23.3)	131 (47.6)	46 (16.7)	34 (12.4)	0 (0)	3.82	.930	Agree
13. Providing contents related to training objectives	67 (24.4)	143 (52.0)	35 (12.7)	26 (9.5)	4 (1.5)	3.88	.933	Agree
14. Taking pride in their profession	39 (14.2)	116 (42.2)	60 (21.8)	51 (18.5)	9 (3.3)	3.45	1.050	Undecided
15. Not being benefit-oriented	34 (12.4)	114 (41.5)	79 (28.7)	34 (12.4)	14 (5.1)	3.44	1.025	Undecided
16. Behaving well to trainees	39 (14.2)	158 (57.5)	36 (13.1)	38 (13.8)	4 (1.5)	3.69	.929	Agree
17. Being self confidence	47 (17.1)	134 (48.7)	66 (24.0)	25 (9.1)	3 (1.1)	3.72	.892	Agree
18. Controlling their emotion appropriate to circumstances	44 (16.0)	120 (43.6)	71 (25.8)	35 (12.7)	5 (1.8)	3.59	.964	Agree

Table 14 Number and percentage of competency of trainers based on trainees' opinions (continued)

Competency of trainers	Level of opinions					Mean $\bar{X}$	S.D	Opinions
	Strongly agree Number (%)	Agree Number (%)	Undecided Number (%)	Disagree Number (%)	Strongly disagree Number (%)			
19. Honoring and listening to others' opinions	35 (12.7)	166 (60.4)	47 (17.1)	26 (9.5)	1 (.4)	3.76	.808	Agree
20. Being active while teaching	36 (13.1)	143 (52.0)	49 (17.8)	37 (13.5)	10 (3.6)	3.57	.999	Agree
21. Being friendly and paid attention to trainees	54 (19.6)	125 (45.5)	55 (20.0)	40 (14.5)	1 (.4)	3.69	.960	Agree
22. Giving trainees chances to take part in training	62 (22.5)	160 (58.2)	26 (9.5)	19 (6.9)	8 (2.9)	3.91	.923	Agree
23. Cooperating and coordinating well with others	33 (12.0)	139 (50.5)	73 (26.5)	29 (10.5)	1 (.4)	3.63	.841	Agree
24. Not ignoring to solve current problems	57 (20.7)	123 (44.7)	57 (20.7)	33 (12.0)	5 (1.8)	3.71	.987	Agree
25. Being reasonable	49 (17.8)	144 (52.4)	64 (23.3)	18 (6.5)	0 (0)	3.81	.800	Agree
26. Organizing learning activities related to contents and trainees	43 (15.6)	147 (53.5)	44 (16.0)	40 (14.5)	1 (.4)	3.69	.917	Agree
27. Explaining contents of lessons clearly	54 (19.6)	111 (40.4)	54 (19.6)	48 (17.5)	8 (2.9)	3.56	1.080	Agree
28. Using equipments and training media correctly	58 (21.1)	123 (44.7)	52 (18.9)	37 (13.5)	5 (1.8)	3.70	1.007	Agree

Table 14 Number and percentage of competency of trainers based on trainees' opinions (continued)

Competency of trainers	Level of opinions					Mean $\bar{X}$	S.D	Opinions
	Strongly agree Number (%)	Agree Number (%)	Undecided Number (%)	Disagree Number (%)	Strongly disagree Number (%)			
29. Giving trainees strengths, weaknesses and suggestion	41 (14.9)	112 (40.7)	78 (28.4)	38 (13.8)	6 (2.2)	3.52	.979	Agree
30.Using relate and clear examples to their explanation	61 (22.2)	144 (52.4)	30 (10.9)	37 (13.5)	3 (1.1)	3.81	.967	Agree
31. Motivating trainees to be eager to learn	51 (18.5)	100 (36.4)	76 (27.6)	34 (12.4)	14 (5.1)	3.51	1.085	Agree
32. Teaching trainees from theory to practice	49 (17.8)	135 (49.1)	53 (19.3)	33 (12.0)	5 (1.8)	3.69	.960	Agree
33. Using various and suitable training techniques to fit condition	43 (15.6)	140 (50.9)	43 (15.6)	47 (17.1)	2 (.7)	3.64	.966	Agree
34. Assessing their performance appropriately	32 (11.6)	114 (41.5)	88 (32.0)	34 (12.4)	7 (2.5)	3.47	.941	Agree
35.Offering trainees assignment after class	39 (14.2)	124 (45.1)	39 (14.2)	57 (20.7)	16 (5.8)	3.41	1.138	Undecided
36. Obsessing positive expectations for all trainees	39 (14.2)	121 (44.0)	71 (25.8)	41 (14.9)	3 (1.1)	3.55	.948	Agree
37. Being keen to teach trainees	42 (15.3)	131 (47.6)	55 (20.0)	41 (14.9)	6 (2.2)	3.59	.990	Agree
38. Using methods, activities to promote trainees' learning	42 (15.3)	139 (50.5)	42 (15.3)	48 (17.5)	4 (1.5)	3.61	.992	Agree

Table 14 Number and percentage of competency of trainers based on trainees' opinions (continued)

Competency of trainers	Level of opinions					Mean $\bar{X}$	S.D	Opinions
	Strongly agree Number (%)	Agree Number (%)	Undecided Number (%)	Disagree Number (%)	Strongly disagree Number (%)			
39. Keeping the classroom and trainees on task	46 (16.7)	106 (38.5)	54 (19.6)	65 (23.6)	4 (1.5)	3.45	1.071	Undecided
40. Allocating instructional time well to fit lesson	38 (13.8)	136 (49.5)	42 (15.3)	41 (14.9)	18 (6.5)	3.49	1.105	Undecided
41. Having good relationship with trainees	46 (16.7)	158 (57.5)	34 (12.4)	33 (12.0)	4 (1.5)	3.76	.920	Agree
42. Managing classroom well	30 (10.9)	105 (38.2)	69 (25.1)	59 (21.5)	12 (4.4)	3.30	1.059	Undecided
43. Minimizing disruption of trainees	36 (13.1)	88 (32.0)	66 (24.0)	59 (21.5)	26 (9.5)	3.18	1.187	Undecided
44. Maintaining interest and involvement of trainees	24 (8.7)	134 (48.7)	80 (29.1)	31 (11.3)	6 (2.2)	3.51	.885	Agree
45. Creating academic activities to engage trainees in training process	40 (14.5)	139 (50.5)	46 (16.7)	48 (17.5)	2 (.7)	3.61	.962	Agree
46. Doing evaluation of trainees' achievement fairly	45 (16.4)	133 (48.4)	50 (18.2)	38 (13.8)	9 (3.3)	3.61	1.021	Agree
47. Having good knowledge, skill, and ability to teach	64 (23.3)	113 (41.1)	48 (17.5)	38 (13.8)	12 (4.4)	3.65	1.111	Agree
48. Being expertise in subject they teach	51 (18.5)	116 (42.2)	70 (25.5)	34 (12.4)	4 (1.5)	3.64	.969	Agree
Total						**3.63**	**.976**	**Agree**

4.6 Condition of Training Facilities

4.6.1 Condition of training building

Table 15 showed the number and percentage of condition of training building available in the institute based on trainers' opinion. Most of trainers, (86.2%) stated that condition of training building is moderate, only (13.8%) of them indicated that condition of the building is good. The details of table 15 and picture of technical practice workshop were illustrated as follows:

Table 15 Number and percentage of condition of training building

Respondents' statement	Number	Percentage
Excellent	0	0
Good	4	13.8
Moderate	25	86.2
Poor	0	0
Very poor	0	0
Total	**29**	**100.0**

Picture 3 Technical practice workshop of Preah-Kossamak Polytechnic Institute

4.6.2 Sufficiency of training building

Table 16 revealed number and percentage of sufficiency of training building. Majority of trainers, (72.4%) answered that training building is insufficient for providing training. Only 27.6% of them agreed that the building is sufficient. The details of table 16 and picture of practical room for electricity course were shown as follows:

Table 16 Number and percentage of sufficiency of training building

Respondents' statement	Number	Percentage
Sufficient	8	27.6
Insufficient	21	72.4
Total	**29**	**100.0**

Picture 4 Practical room for electricity course

4.6.3 Goodness and comfort of training building

Table 17 points out number and percentage of goodness and comfort of training building. Majority of trainers, (62.1%) replied that training building is not good and comfortable for training students, but (37.9%) noted that the building is good and comfortable for training. The details of table 17 and picture of office building and classrooms were illustrated as follows:

Table 17 Number and percentage of trainers' ideas toward goodness and comfort of training building

Respondents' statement	Frequency	Percentage
Good and comfortable	11	37.9
Not good and uncomfortable	18	62.1
Total	**29**	**100.0**

Picture 5 Office building and classrooms of the institute

4.6.4 Condition of training equipments

Table 18 describes number and percentage of condition of training equipments. Most of trainers, (89.7%) pointed out that the condition of training equipments is moderate, only (10.3%) said that it is good. The details of table 18 and picture of computer room were illustrated as follows:

Table 18 Number and percentage of condition of training equipments

Respondents' statement	Frequency	Percentage
Excellent	0	0
Good	3	10.3
Moderate	26	89.7
Poor	0	0
Very poor	0	0
Total	**29**	**100.0**

Picture 6 Computer room available in the institute

4.6.5 Sufficiency of training equipments

Table 19 explains number and percentage of sufficiency of training equipments. Nearly 2/3 of trainers, (62.1%) said that training equipment is not enough for training, only (37.9%) agreed that training equipment is sufficient. The details of table 19 and picture of training materials in library were illustrated as follows:

Table 19 Number and percentage of sufficiency of training equipments

Respondents' statement	Number	Percentage
Sufficient	11	37.9
Insufficient	18	62.1
Total	**29**	**100.0**

Picture 7 Textbooks, computers, and television in library of the institute

4.6.6 Suitability and fitness of training equipments available in the institute to workplace

Table 20 pinpoints number and percentage of suitability and fitness of training equipments to workplace. About half of trainers, (51.7%) answered that training equipments is suitable and fit to workplace, but (48.3%) denied. The details of table 20 and picture of training equipment in workshop were illustrated as follows:

Table 20 Number and percentage of suitability and fitness of training equipments to workplace

Respondents' statement	Number	Percentage
Suitable and fit	15	51.7
Not suitable and unfit	14	48.3
Total	**29**	**100.0**

Picture 8 Training equipments available in the workshop

4.6.7 Sufficiency of training materials used in training

Table 21 indicates number and percentage of sufficiency of training materials used in training. Over average of trainers, (55.2%) affirmed that training material used in training is sufficient, but (44.8%) disagreed on this point. The details of table 21 and picture of training materials in workshop were illustrated as follows:

Table 21 Number and percentage of sufficiency of training materials used in training

Respondents' statement	Number	Percentage
Sufficient	13	44.8
Insufficient	16	55.2
Total	**29**	**100.0**

Picture 9 Training materials available in workshop of the institute

The results of the research finding shown above clearly illustrated and responded to all the research questions including contents and design of curriculum, qualification and competency of trainers, and condition of training facilities such as buildings and materials.

CHAPTER V
DISCUSSION, CONCLUSION, AND RECOMMENDATION

The research study is to study on situation of educational management in Technical and Vocational Education and Training at Preah-Kossamak Polytechnic Institute in the purpose to find quality of curriculum, qualification and competency of trainers and condition of training facility. With the data received from questionnaires, it is analyzed with Statistic Package for Social Sciences (SPSS) using descriptive statistics to get Frequency, Percentage, Mean, and Standard Deviation. With data obtained from documentary review, it is discussed and analyzed in verbal explanation. The discussion, conclusion, and recommendation based on the research findings are described as follows:

5.1 Discussion

The researcher will make discussion of the main parts in the research study including curriculum: contents, design and evaluation; trainers: demographic data, qualification and competency; and training facilities: condition and sufficiency. The topics mentioned above are discussed in references to research findings and relevant documents as follows:

5.1.1 Curriculum analysis

The curriculum of the course is required trainees to study two years duration, after completed the program, trainees will get diploma in engineering. The contents of the curriculum were separated in to general subjects, related subjects, and skill subjects. In the purpose to analyze the contents of the curriculum, the researcher did get technical support from one technical trainer in Electrical course. The discussion of Electricity curriculum’s contents was shown in the following:

- General subjects: General English subject should be added to (102 hours), divided into 3 semesters, 1st semester (34 hours) and 2nd semester (34 hours) in 1st year, 1st semester (34 hours) in 2nd year. Technical English subject should be cut to (51 hours), (34 hours) 2nd semester in 1st year, (17 hours) 1st semester in 2nd year.

- Related subjects: Technical Drawing and Technical Mechanic subjects should be cut from 68 hours to 34 hours, study in 1st semester of 1st year. Technology of metal should be deleted. Management subject should be cut from 68 hours to 34 hours.

- Skill subjects: Basic Technical Skill subject should be cut from 102 hours to 51 hours, study in 1st and 2nd semester of 1st year. Safety subject should be added from 20 hours to 34 hours. D.C. Circuit and A.C. Circuit subjects should be combined to be Electrical Circuit subject, study hours should be decreased from 76 hours to 68 hours. Transformer, D.C. Machine, and A.C. Machine subjects should be combined to be Electrical Machinery subject, study hours should be added from 108 hours to 153 hours. Electrical Hand Tool and Electrical Domestic, Cable Connection and Termination, Rating of Cable and Calculation, and Electrical lighting and Control subjects should be combined to be Electrical Installation Design subject, study hours should be cut from 156 hours to 136 hours. Electrical Drawing subject should be cut from 86 hours to 51 hours. Switch Board and Control Panels subject should be added from 48 hours to 51 hours. Wiring System (1), Wiring System (2), and Alarm System subjects should be combined to be Wiring System Subject. Micro Controller and Program Logic Control subject should be divided into two subjects, Micro Controller subject (added from 48 hours to 51 hours), Program Logic Control (85 hours). Electrical Motor Repair subject should be cut from 98 hours to 85 hours. Power Supply System subject should be increased from 34 hours to 51 hours.

From the above discussion, if comparing to the table of master plan in research findings showed that total hours of the course are 2,176 hours, (544 hours in each semester) decreased to 2,040 hours, (510 hours in each semester). The study hours are 6 hours per day, 5 days per week (Monday – Friday), 30 hours per week, 17 weeks per semester, 510 hours per semester.

The curriculum was developed according to a number of factors as follows:

- To meet the industrial demands of Cambodia. By looking at the economic activity in each sector, it showed that the trend of industrial sector is in rapid growth.

The GDP of industrial sector was at worth of (861.6 Billion Riels, 1993), (2,413.0 Billion Riels, 1999), then continued growth to (5,402.3 Billion Riels in 2004) (National Account of Cambodia, 2004). Based on this figure, the researcher can say that the curriculum of the institute did meet and respond to the industrial demands and labor market needs of Cambodia.

- To develop in accordance with the needs of trainees. In reference to the number of trainees' enrollment in the institute, it indicated that in academic year 2004-2005, there were 450 trainees enrolled in the institute, then in academic year 2005-2006, there were 643 trainees came to attend the training programs in the institute (statistic of trainees, 2005). This indicated that the numbers of trainees registered and attended training programs in the institute were increased. The researcher concludes that the curriculum is responded to the needs of trainees.

The discussion of research findings above indicated that the contents of curriculum used in the institute included some important concepts of curriculum which described in literature review such as scope and sequence, content ouline, course of study, textbooks, and planned experiences. The design of curriculum also covered objectives of the course, subject matters, learning experiences, and evaluation approaches. The curriculum was assessed to determine the knowledge and skills to be included in the course during process of development, but was not evaluated during and after development and implementation of curriculum in order to get strong and weak points of curriculum design which were important for improvement of curriculum.

5.1.2 Demographic data of trainers

The majority of trainers' gender who worked in the Preah-Kossamak Polytechnic Institute were male (93.1%). Although, Government guideline announced that men and women have equal rights and eligibility in all activities (Women Right Day is held on 8th March every year in Cambodia), the numbers of women participated in the social work remains few. Even in the schooling, the number of female students are also less than the number of male students. These are mostly because of culture and condition of their family.

The majority of trainers were at the age of under 30 years old (34.5%) and between 30-40 years old (34.5%), only 31% were between 41-50 years old and over 50 years old. This was because of the institute recruited new trainers to serve the need of training in handle with modern technology of training facilities in the institute and in accordance with quota of the government to select new graduate students to work as civil servants every year.

The educational level of trainers, most of them obsessed bachelor degree (86.2) and master degree (13.8%). This number indicated that all trainers had high knowledge and skill and were able to do their work performance properly. This was also because of government policy to recruit students who had bachelor degree to work in the public institutions.

The majority of trainers had working experiences over 10 years, which was (44.8%), and other (55.2%) of them had working experiences between 2-10 years. This showed that most of trainers had good and long working experiences in the field of education especially technical training.

Monthly income of trainers, from the results indicated that most of trainers, (34.5%) received income between 50-100$, only (10.3%) of them had monthly income over 200$. This figure could be explained that most of trainers received low income for their work and needed additional revenue and other allowance. Since 2005 Cambodian Government announced that the salary of all civil servants is increased 15% every year in the purpose to motivate them to be more active in work.

Most of trainers attended additional training which is important for their work performance. (93.1%) of them received additional training which related to their work, only (6.9%) of them never did additional training. The result was that most of trainers got additional training which would be able to improve their knowledge and skill in work performance. Most of the additional training were short course trainings on upgrading skills in management, curriculum development, training planning, preparation of teaching and training aids, skill standards, testing and evaluation in domestic and abroad especially in neighboring countries such as Thailand, Philippines, South Korea.

5.1.3 Qualification of trainers

The results of qualification of trainers showed that all of trainers who have been teaching in the institute attended pedagogy course. In Cambodia as required by the Ministry of Education, Youth, and Sports, before being eligible to be teachers or trainers in the educational institutions, those individuals have to attended pedagogy course for duration of 18 months. So this result indicated that all trainers obsessed good knowledge and skills for their professions.

In job satisfaction of trainers, Majority of them, 51.7% showed that they had high level of job satisfaction. From this figure, researcher concluded that trainers are very happy and keen in their work performance. In Cambodian culture, being a teacher is gracious and respectful from people, as a sentence was described that “at home with parents, at schools with teachers”.

For course syllabus, all of trainers had prepared course syllabus for the course they taught. This showed that all of trainer had knowledge in organization of course syllabus because all of them attended pedagogy course and they also understood the importance of course syllabus as indicator of training course from time to time.

Majority of trainers, 58.6% prepared lesson plan before they went to class. From the result of this study the researcher concluded that most of trainers thought that lesson plan was important for them in training and used as guide while they were providing training. From understanding of the researcher, other trainers who did not prepared lesson plan because they had more experience in training, they taught the same course for years so they thought that they did not need to do lesson plan before providing training.

Major training methods applied by trainers in training were lecture method (96.6%), demonstration method (75.9%), and self-study (62.1%). The training methods used by trainers were based on knowledge and training techniques of each trainer and also on the situation of lessons they were training too. Each trainer has various methods and techniques in training.

In addition to the training methods above, training equipments used by trainers were whiteboard and marker (100%), LCD projector and computer (72.4%), and Overhead projector (69%). From this result, researcher thought that training

equipments used by trainers were based on availability of the training equipments and in accordance to the training methods they used.

Moreover, for review of lessons in class, all of trainers did review of all lessons they taught. Based on the answers of trainers, the review of lessons were usually made before starting the classes and the new lesson.

From the result of trainers' treatment to poor and good trainees the same in class showed that 55.2% of trainers did not treat poor and good students the same in class. In the explanation of this part, they said that they paid more attention to poor trainees in purpose to help them to learn knowledge and skill as other trainees. The researcher can say that most of trainers are helpful and keen to training their trainees.

All of trainers believed that trainers' self development were important for them. From this result, the researcher concludes that all trainers are willing to develop and improve their knowledge and skill in order to upgrade their work performances and professions in educational field.

In the result of study showed that 79.3% of trainers used computer when needed in training. This indicated that most of trainers obsessed computer skill. But 20.7% of them did not use computer when need in training, said that they don't need to use computer in training and because the lack of computer.

From the finding, researcher can conclude that the relationship between trainers and trainees were quite good. This results in good training atmosphere for trainers and trainees.

In the conclusion of results above comparing to the concepts and theories in literature review indicated that trainers obssessed qualification which needed to be qualified trainers such as knowledge including professional knowledge, basic knowledge, and skills in training including media utilization, communication, and motivation.

5.1.4 Competency of trainers

The result of competency of trainers based on trainees' opinions revealed that in general the competency of trainers were between "Undecided" and "Agree" levels with average of the trainees' opinion were ranging from 3.18 to 4.03. The average mean of competency of trainers was at Agree level ($\bar{X}$ =3.63, S.D =.976). The

researcher take into conclusion that trainers obsessed high competency in their work performance.

If looking at results of each point of competency of trainers, it indicated that there were some weak points as follows:

The finding of trainees' opinion on trainers have information of trainees showed that the responds were at "Undecided" level with mean ($\bar{X}$ =3.44, S.D=.996). The researcher concludes that trainers did not know more information of trainees while they were providing training to trainees.

The finding of trainees' opinion on trainers were not being benefit-oriented showed that the responds were at "Undecided" level with mean ($\bar{X}$ =3.44, S.D= 1.025). This result expressed that trainers needed more benefit from their work. In suggestion part, trainers requested for the increase of their salaries. If looking at the monthly income of trainers, most of them (65.5%) received income less than 101$ per month.

The finding of trainees' opinion on trainers' work performance was assessed appropriately showed that the responds were at "Undecided" level with mean ($\bar{X}$ =3.47, S.D=.941). Researcher can explain that trainees did not receive evaluation sheet of their trainers in the purpose to improve trainers' work performance.

The finding of trainees' opinion on trainers kept the class and trainees on task showed that the responds were at "Undecided" level with mean ($\bar{X}$ =3.45, S.D= 1.071).

The finding of trainees' opinion on trainers allocated instructional time to fit the lesson showed that the responds were at "Undecided" level with mean ($\bar{X}$ =3.49, S.D= 1.105).

The finding of trainees' opinion on trainers managed classroom properly showed that the responds were at "Undecided" level with mean ($\bar{X}$ =3.30, S.D = 1.059).

The finding of trainees' opinion on trainers minimized disruption of trainees in class showed that the responds were at "Undecided" level with mean ($\bar{X}$ =3.18, S.D = 1.187).

The four points above of trainees' opinion on trainers kept the class and trainees on task, allocated instructional time to fit the lesson, managed classroom

properly, and minimized disruption of trainees in class related with each others. From the additional comments from trainees, the researcher can conclude that there were some problem in classroom management in the following:

- Trainers did not have enough time to prepare lesson plan even assignment for trainees because in general trainers spent their time not only working in public institutes but also in private institute in purpose to get additional income to fulfill their needs in families.

- Trainers could not control some trainees who did not respect institute's discipline, cause interruption during class and disturb other trainees. This was caused from the loose application of institute's discipline. Some trainees didn't respect to the study schedule, came late to classes and absent without permission.

- Some trainers did not follow the teaching hours by coming to teach in class late and finish class earlier. This showed the bad examples for trainees. Sometimes the allocation of study time was changed and decreased because of public holidays (In Cambodia, there are 25 public holidays every years).

As discussed above on competency of trainers in reference to literature review revealed that the trainers obssessed three important components of teaching compentence including competencies in attitudes and beliefs such as teaching efficacy, expectations, and enthusiasm, competencies in behaviors such as planning, instructing, communicating, and managing, and competencies in in subject matter such as literacy, and knowing subject what and how to teach.

5.1.5 Condition of training facilities

From the findings of the research with illustration of tables and pictures, the researcher found that the condition of training building was at moderate level with most responds (86.2%). Number of training building available in the institute was not sufficient to the technical training there with majority of responds (72.4%). Goodness and comfort of training building were not so good to serve a better technical training in the institute with the responds (62.1%).

In addition to the above matter, training equipments available in the training buildings were at moderate condition with the responds (89.7%) and there was the lack

of training equipments with most of responds (62.1%). Furthermore, the researcher perceived that training materials used and needed in training were not enough.

Moreover, the additional comments of trainers and trainees on the matters shown above indicated that the training buildings were small and insufficient. Training equipments available in the practical rooms were old and not suitable and fit to the workplace, and training materials were less to serve practical training. These matters were caused from the shortage of finance provided by the Government through the Ministry of Labour and Vocational Training.

5.2 Conclusion

The conclusion of the research study on situation of educational management in technical and vocational education and training in Preah-Kossamak Polytechnic institute was made based on the matters shown in the research findings and the above discussions. The details of the conclusion were illustrated in the followings:

Curricula used for training in the institute were established during 1999 to 2000. The contents of curricula were divided into general subjects, related subjects, and skill subjects (theory and practice) which covered 2,176 hours of study. Moreover, the contents of curricula focused on field-oriented technical skills, thus enabling the trainees to apply and directly join the production activities in the industries with pertinent skills and knowledge. The curricula were mainly developed in respond to the needs of labor market in the industrial field. From the above explanation, The researcher concludes that the curricula of the institute is quite significant to provide knowledge and skills to trainees to be able to perform and apply their knowledge and skills at workplaces in a suitable condition.

For demographic data of trainers, from the results indicated that the educational levels of trainers are at bachelor degree and master degree level, none of them graduated doctoral degree. Most of them are working in the educational field more than 10 years. But most of trainers receives monthly income between 50 – 100$, and most of them (93.1%) received additional training.

The qualification of trainers in research findings showed that all trainers attended pedagogy. Most of trainers expressed high satisfaction of their jobs. 100% of trainers organized course syllabus, especially all trainers have good relationship with

trainees. The researcher can say that all trainers are able to provide training thoroughly such as organizing course syllabus, preparing lesson plan, using training methods to promote trainees' learning, and managing the classroom properly in better learning atmosphere which would build up good relationship between trainers and trainees in the purpose to make trainees get learning the better knowledge and skills.

For competency of trainers based on trainees' opinion from the results revealed that the competency of trainers were between "Undecided" and "Agree" levels with scores of the trainees' opinions were ranging from 3.18 to 4.03. The average mean of competency of trainers was at Agree level ($\bar{X}$ =3.63, S.D =.976). The researcher can conclude that all trainers obsessed high competency in their work performance.

Training facilities of the institute from the research findings indicated that the condition of training building were at moderate level. The numbers of training buildings, training equipments, and training materials is not sufficient to serve training work. So, the researcher can summarize that the training facilities necessarily needed to provide training to trainees knowledge and skills in the institute are insufficient including training buildings such as classrooms and workshops, training equipments, and training materials.

In addition, from the additional comments of trainees in the questionnaires showed that the institute's discipline was not strict and properly monitored. The absences of trainees were not resisted by any means. The accuracy of study hours was also in trouble, some trainers came to teach late, and some trainees did not come to classes on time. Some trainees always made noise and interruption in class while trainers were teaching. These points would have bad influences to trainees' behaviors.

5.3 Recommendations

5.3.1 Recommendation from research findings

From the findings, discussion, and conclusion of the research study, the researcher can give some recommendations as follows:

1. The curricula of the institute should be updated in every 5 years in the purpose to give trainees the knowledge and skills which can respond to the rapid development of advanced technology and industrial progress of the country.

2. The institute should establish a work group which is responsible for monitoring, adjusting, and improving the curricula of the institute in order to follow the progress in technical skills and demands of labour market (workplaces).

3. The institute should nominate and dispatch trainers to attend the upgraded skill training both domestic or abroad, in the purpose to improve the qualification and competency of trainers in work.

4. The institute should increase monthly income of trainers and give trainers some bonuses in order to motivate trainers in work performances.

5. The institute should take strict disciplines which are related to classroom management including study hours, absences, and manners of trainees in class.

6. The institute should develop and increase the training facilities such as training building including classrooms and workshops, training equipments, and training materials, both quality and quantity in the purpose to support and promote technical training and respond to the advanced development of training equipments and materials in workplaces of industrial field and other fields.

7. In order to get sufficiency of training facilities, the institute should make the plan of demands in training to submit and request to the supervised Ministry every year, and also do self-sufficiency from the tuition fees of students in case the financial support from the Ministry is provided late or insufficient to afford training facilities.

5.3.2 Recommendation for further study

There should be research to study on other technical and vocation training institutions in Phnom Penh and other provinces.

There should be research to study human resources management in the technical and vocational training institutions.

There should be research to investigate financial constraint and management in the technical and vocational training institutions.

There should be research to observe the management of materials resources in the technical and vocational training institutions.

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APPENDIX

THE QUESTIONNAIRE FOR TRAINERS ON SITUATION OF EDUCATIONAL MANAGEMENT IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (CASE STUDY: PREAH-KOSSAMAK POLYTECHNIC INSTITUTE)

Part I: Personal data of the trainer

Directions: Please tick (✓) in the boxes or fill in the blanks as appropriate

1. Gender:

☐ Male ☐ Female

2. Age:

☐ Below 30 ☐ From 30 – 40

☐ From 41-50 ☐ Over 50

3. Educational Level:

☐ Diploma ☐ Bachelor's degree

☐ Master degree ☐ Doctoral degree

4. Working experience in training field:

☐ Less than 2 years ☐ From 2- 5 years

☐ From 6- 10 years ☐ Over 10 years

5. What is your income per month?

☐ Less than 50 $ ☐ 50-100$

☐ 100-200$ ☐ More than 200$

6. Have you ever had additional training to upgrade your knowledge and skill?

☐ Never ☐ 1-5 times

☐ 6-10 times ☐ More than 10 times

Part II Qualification of Trainers

1. Have you ever attended the pedagogical course?

☐ Yes

☐ No

2. What is the level of your satisfaction in the present career?

☐ Very high

☐ High

☐ Moderate

☐ Low

☐ Very low

3. Do you organize course syllabus for the course that you teach?

☐ Yes

☐ No

4. Do you have lesson plan before teaching students?

☐ Yes

☐ No

5. What teaching methods do you use to provide knowledge to students?

☐ Lecture

☐ Demonstration

☐ Lesson

☐ Discussion

☐ Independent study/self study

☐ Other (please specify) …….

6. What equipments and training media do you use in teaching?

☐ White Board & Marker

☐ TV and Tape

☐ Overhead projector

☐ LCD projector & Computer

☐ Other (please specify) …….

7. Have you ever make review of the lessons that you teach students?

☐ Yes

☐ No

8. Do you treat poor student and good student the same in class?

☐ Yes

☐ No

9. Is trainer's self-development important for job performance?

☐ Yes

☐ No

10. Do you use computer when needed to support your teaching?

☐ Yes

☐ No

If no, please explain briefly …….

……..

11. What is the relationship between trainers and students in class and out-class?

☐ Excellent

☐ Good

☐ Moderate

☐ Bad

☐ Very bad

Part III: Condition of Training Facilities

1. How is the condition of training buildings that support training in the institute?

☐ Excellent
☐ Good
☐ Moderate
☐ Poor
☐ Very poor

2. Are the training buildings sufficient for providing training?

☐ Yes
☐ No

3. Do you think that training buildings are good and comfortable for students to get training?

☐ Yes
☐ No

4. How is the condition of training equipments to support training?

☐ Excellent
☐ Good
☐ Moderate
☐ Poor
☐ Very poor

5. Are training equipments enough for providing training?

☐ Yes
☐ No

6. Are training equipments suitable and fit to the working places?

☐ Yes
☐ No

7. Are training materials used in training process sufficient?

☐ Yes

☐ No

If you have any additional comments or suggestions on the above matters, please feel free to complete in below line:

……

……

……

……

Thank your for your kind cooperation.

THE QUESTIONNAIRE FOR TRAINEES ON SITUATION OF EDUCATIONAL MANAGEMENT IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (CASE STUDY: PREAH-KOSSAMAK POLYTECHNIC INSTITUTE)

Part I Demographic data of trainee

Direction: Please tick in the boxes or column below as appropriate

1. Gender

☐ Male ☐ Female

2. Age

☐ Under 20 ☐ 20-30
☐ 30-40 ☐ Over 40

3. Field of Study:

☐ Civil Engineering
☐ Electronic
☐ Electric Engineering

Part II Competency of Trainers

Competency of trainer	Level of Opinions				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. Having lesson plans					
2. Having information of trainees					
3. Having information about training venues					
4. Greeting and familiarizing with trainees before instructing					

Competency of trainer	Level of Opinions				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
5. Delivering training well					
6. Lecturing on up-to-date lessons					
7. Opening the floor for discussion and comments					
8. Providing training materials					
9. Creating good training atmosphere					
10. Using language, gestures and media to motivate trainees to participate in training					
11. Understanding trainee's problems and needs					
12. Selecting and prioritizing contents for training					
13. Providing contents relevant to training objectives					
14. Taking pride in their profession					
15. Not being benefit-oriented					
16. Behaving well to trainees					
17. Being self confidence					
18. Controlling their emotion appropriate to circumstances					
19. Honoring and listening to others' opinions					
20. Being active while teaching					
21. Being friendly and paying attention to all trainees					

Competency of trainer	Level of Opinions				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
22. Giving trainees chances to take part in training					
23. Cooperating and coordinating well with others					
24. Not ignoring to solve current problems					
25. Being reasonable					
26. Organizing learning activities relevant to contents and trainees					
27. Explaining contents of lessons clearly					
28. Using equipments and training media correctly					
29. Giving trainees strengths, weaknesses and suggestion					
30. Using relevant and clear examples with their explanation					
31. Motivating trainees to be eager to learn					
32. Teaching trainees from theory to practice					
33. Using various and suitable training techniques to fit condition					
34. Assessing their performance appropriately					
35. Offering trainees assignment after class					

Competency of trainer	Level of Opinions				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
36. Obsessing positive expectations for all trainees					
37. Being keen to teach trainees					
38. Using methods and activities to promote trainees' learning					
39. Keeping the classroom and trainees on task					
40. Allocating instructional time well to fit the lesson					
41. Having good relationship with trainees					
42. Managing classroom properly					
43. Minimizing disruption of trainees					
44. Maintaining interest and involvement of trainees					
45. Creating academic work and activities to engage trainees in training process					
46. Doing evaluation of trainees' achievement fairly					
47. Having good knowledge, skill, and ability to teach					
48. Being expertise in subject they teach					

Part III Additional suggestion

Directions Please feel free to provide additional suggestions and comments

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……

……

……

……

Thank you for your kind cooperation.

List of Experts

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Formulas

1. The formula to calculate the sample size (Yamanee: 1967):

$$n = \frac{N}{1 + N\,(e)^2}$$

n = Sample
N = Population
e = Level of precision

$$n = \frac{883}{1 + 883\,(0.05)^2}$$

The sample size was 275 persons.

2. The formula of reliabiltiy test of the questionnaire of trainees' opinions toward the competency of trainers according to Coefficient Alpha (Thera Kanchanarak, 2002):

$$rtt = \frac{k}{k - 1}\left\{\frac{1 - \Sigma s_i^2}{S_t^2}\right\}$$

rtt = reliability
k = number of items
s = variance of each item
S = variance of the total scores

BIOGRAPHY

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