

# **TEACHING AND LEARNING INTERNATIONAL SURVEY (TALIS): SECONDARY ANALYSIS OF MALAYSIAN DATABASE**

**EDUC7032: Education Research Project  
[9 Units]**

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July 5<sup>th</sup>, 2010

## ABSTRACT

This research is a secondary analysis of Malaysian TALIS database. TALIS is an International study undertaken by Organisation for Economic Co-operation and Development (OECD) that focus on the working conditions of teachers and the learning environment in schools. TALIS examine aspects of teachers' professional development, teacher beliefs, attitudes and practices, teacher appraisal and feedback, and school leadership from the point of view of teachers and school principals. Using the TALIS database, this research examines the aspect of teacher beliefs, attitudes and practices and its influence on teacher self-efficacy. Statistical analysis techniques such as Item Response Theory (IRT), Structural Equation Modeling (SEM) and Hierarchical Linear Modeling (HLM) were employed in this research. Findings of the research indicate that there are significant relationships between teachers' self-efficacy and teachers' beliefs, attitudes and practices. Factors like classroom disciplinary climate and teacher-student relationship demonstrated direct influence on teacher self-efficacy. Other factors (e.g. teacher teaching practices, instructional beliefs, professional activities) are seems to have statistical non-significance indirect relationship with teacher self-efficacy, however, the research has proven that the factors strongly inter correlated and have effect on teacher classroom disciplinary climate and teacher-student relationship, thus may also impacted teachers' self-efficacy. The research provides valuable information for Malaysian education stakeholders about lower secondary education teachers' stand of their teaching beliefs, attitudes and practices and how it affected their self-efficacy. The knowledge can be used to improve the Malaysian teacher work force and policies relating to the education system.

## ACKNOWLEDGEMENT

I wish to acknowledge with great gratitude the incessant help, advice, encouragement, valuable comments and suggestions and continuous support of my supervisor, Associate Professor Dr. Sivakumar Alagumalai, who devoted so many hours for me through the period of this research. Without his guidance, this research would never be completed.

I would like to express my appreciation and gratitude to my parents, Mrs. Kasmah Kassim and Mr. Bakar Ariffen for their never ending encouragement and love which have kept me motivated throughout the journey of this research. Many thanks for my family and friends for the continual support and for accompanying me in completing this research.

Special thank you to my employer, Universiti Pendidikan Sultan Idris (UPSI), and Kementerian Pengajian Tinggi Malaysia (KPT), for funding me with a study scholarship and for giving me the invaluable opportunity to further my study in the University of Adelaide, Australia.

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## Chapter 1: Introduction

Teacher effectiveness is a popular topic in education. Majority of the literatures were focusing on the impact of teacher effectiveness on students' achievement. The issue of how teachers affect students' academic performances has been well studied and discussed (Brophy, 1986; Johnson, Kahle, & Fargo, 2006; Rockoff, 2004). Brophy (1986) in his meta-analysis of teacher influence on student achievement posits that "some teachers consistently elicit higher achievement from comparable students than other teachers do, and more is being discovered every day about how they do it" (p. 1706). A number of studies have been undertaken to investigate what factors influences the relationship between teacher effectiveness and student achievement. The studies has revolved around various perspectives such as the characteristics of effective teacher (Opdenakker & Damme, 2006; Rushton, Morgan, & Richard, 2007), necessary condition for teacher effectiveness (Day, Stobart, Sammons, & Kington, 2006; Gu & Day, 2007), effective teaching (Johnson, Kahle, & Fargo, 2006; Harris, 1998) and teacher self-efficacy (Caprara et al., 2006). However, despite of the large body of knowledge about teacher effectiveness and student achievement, little is known about how teachers' beliefs, attitudes and practices affect teacher effectiveness.

Kagan (1992) in reviewing research on teacher belief reflects very useful findings about teachers' beliefs and how it affects their attitudes and practices:

We know that changes in teacher belief are generally not effected by reading and applying the findings of educational research (Hall & Loucks, 1982). Instead, teacher appears to obtain most of their ideas from actual practice, primarily from their own and then from the practice of fellow teachers (Zahorik, 1987). This strong empirical bias is evident even at the pre-service stage, when we know that student teachers are more influenced by

their cooperating teachers than by their college supervisors or by university courses (Calderhead, 1988; Hoy & Woolfolk, 1989; Zeichener, Tabachnick & Densmore, 1987).

After entering service, teachers continue to solve instructional problems largely by relying on their own beliefs and experiences (Ashton & Webb, 1986; Hoy, 1969; Rosenholtz, 1989; Smylie, 1989). When teachers do accept information from outside sources (e.g., colleagues or university or in-service courses), they filter it through their own personal belief systems, translating and absorbing it into their unique pedagogies (Berliner, 1987; Carter & Doyle, 1989) (Kagan, 1992, p. 75).

According to Kagan (1992), 'teacher belief appears to play an important and pervasive role in the nature of classroom instruction and in the professional lives of teachers' (p.78). In line with this, interest in this study developed from the assumptions that teachers<sup>5</sup> beliefs are strongly associated with their attitudes and practices in teaching, thus, it must also correlate with their effectiveness as teacher.

Using TALIS database to investigate the above hypothesis, this research will examine the relationship between teacher effectiveness and teachers' beliefs, attitudes and practices. TALIS was chosen given that the survey provided researcher with comprehensive data of the desired variables under investigation.

### 1.1 TALIS

Teaching And Learning International Survey (TALIS) is an International study undertaken by Organisation for Economic Co-operation and Development (OECD) that "focus on the working conditions of teachers and the learning environment in schools" (OECD, 2010b, p. 2). TALIS examines aspects of teachers' professional development,

teacher beliefs, attitudes and practices, teacher appraisal and feedback, and school leadership from the point of view of teachers and school principals (OECD, 2009c). The survey aims "to assist countries in evaluating and developing policies that foster the best conditions for effective schooling" (OECD, 2010b, p. 2). Teachers and school principals were sampled for the survey because they are the forefront of the education system thus directly influenced the education system and policies.

In order to examine how the intended school and teacher policies of education systems are actually perceived and implemented in schools and classrooms, recognising that the best intentions will only yield results if effectively and consistently implemented in the frontline (OECD, 2009c, p. 4).

The release of the TALIS first results was done in Mexico on 19 June 2009. According to OECD Secretary-General, Angel Gurría (2009) in his speech during the launching ceremony,

TALIS provides us with the first dataset on how educational policies are actually implemented, as seen through the eyes of those who are on the front line. The survey gives us an insight into the world of education, using a sample of some 90,000 teachers and school principals, representing over 2 million professionals in the 23 participating countries. The experiences and opinions of each of these educators form a key toolkit for improving our educational systems.

TALIS focuses on four key aspects of schooling which are i) the role and functioning of school leadership, ii) how teachers' work is appraised and the feedback they received, iii) teachers' professional development, and iv) teachers' belief and attitudes about teaching and their pedagogical practices (OECD, 2010b). In analysing the above aspects, two set of questionnaires; Teacher Questionnaire and Principal Questionnaire, form the basis of TALIS.

Figure 1.1 represents the conceptual framework for TALIS's teacher and principal survey questionnaires. The two questionnaires provide data at teacher- and school- levels. For the first round of TALIS, the data was collected from the lower education teachers and principals of their schools.

The executive summary (OECD, 2009c) and the full report of TALIS first results (OECD, 2010a) reported the findings of the survey from a number of perspectives. The reports illustrated the participating countries relative positions in term of the working conditions of teacher and the learning environments in schools (OECD, 2009c; OECD, 2010a). In addition, OECD has also published overviews of TALIS results for each of the participating countries. The overviews gave insight of the working conditions of teacher and the learning environments in schools of the individual countries. These reports are powerful indicators that show, in general, the effectiveness of the education system and policies in the participating countries. It "provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies" (OECD, 2010a, p. 2). However, further analyses are still needed in order to fully construe the rich database of TALIS, especially the factor that contribute and influence teacher efficacy and thus teacher's effectiveness.

This thesis seeks to examine Malaysian teacher effectiveness through self-efficacy and its relationship with their beliefs, attitudes and practices. The research will be the first attempt in the context of Malaysian educational research. The findings of this research will provide valuables information to Malaysian education stakeholders concerning Malaysian teacher effectiveness and their beliefs, attitudes and practices.

## 1.2 Background of Research

TALIS was conducted in 2007/2008 in 24 countries including Malaysia. The OECD has made available to researcher the international database of TALIS. The database is available in individual files for each country as well as in a combined file including all country, in the format of SPSS, SAS and SAS XPORT (OECD, 2010b). For this research, Malaysian dataset of TALIS in the format of SPSS was downloaded and used for the secondary analyses.

The general purpose of this research is to undertake a secondary analysis of the Malaysian TALIS database. However due to the large scale of TALIS, the aspect of teachers' belief and attitudes about teaching and their pedagogical practices and teacher effectiveness were chosen as the main focus of this research. Nevertheless, "because TALIS studies teacher (as opposed to the effectiveness of education)" (OECD, 2010c, p.1), in the context of this research, teacher effectiveness was measured using TALIS's scale of teacher self-efficacy (SELFEF - refer to OECD, 2010c, Chapter 11).

Teachers' self-efficacy refers to teachers' "judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Tschannen-Moran & Hoy in Henson, 2001, p.4). According to Tschannen-Moran, Hoy & Hoy (1998) "student motivation and performance were assumed to be significant reinforcers for teaching behaviours. Thus, teachers with a high level of efficacy believed that they could control or at least strongly influence, student achievement and motivation" (p.202). The postulation comply that teacher self-efficacy and teacher effectiveness are reciprocally related.

As for the aspect of teachers' beliefs, attitudes and practices, a selection of related variables and scales (of TALIS database) were chosen to be analysed (will be discuss in Chapter 3). This research aims to look upon these variables and scales and on how it relate and shaped the Malaysian education system in the context of teachers' belief, attitudes and practices, and thus identifying the correlates of and factors that contribute to positive teacher self-efficacy and thus their effectiveness to enable optimal student learning outcome. The selection of these variables and scales were guided by both the review of literature and the researcher's experience as a lecturer in pre-service teacher education program in Universiti Pendidikan Sultan Idris (Sultan Idris University of Education), UPSI, Malaysia.

### 1.3 Research Questions

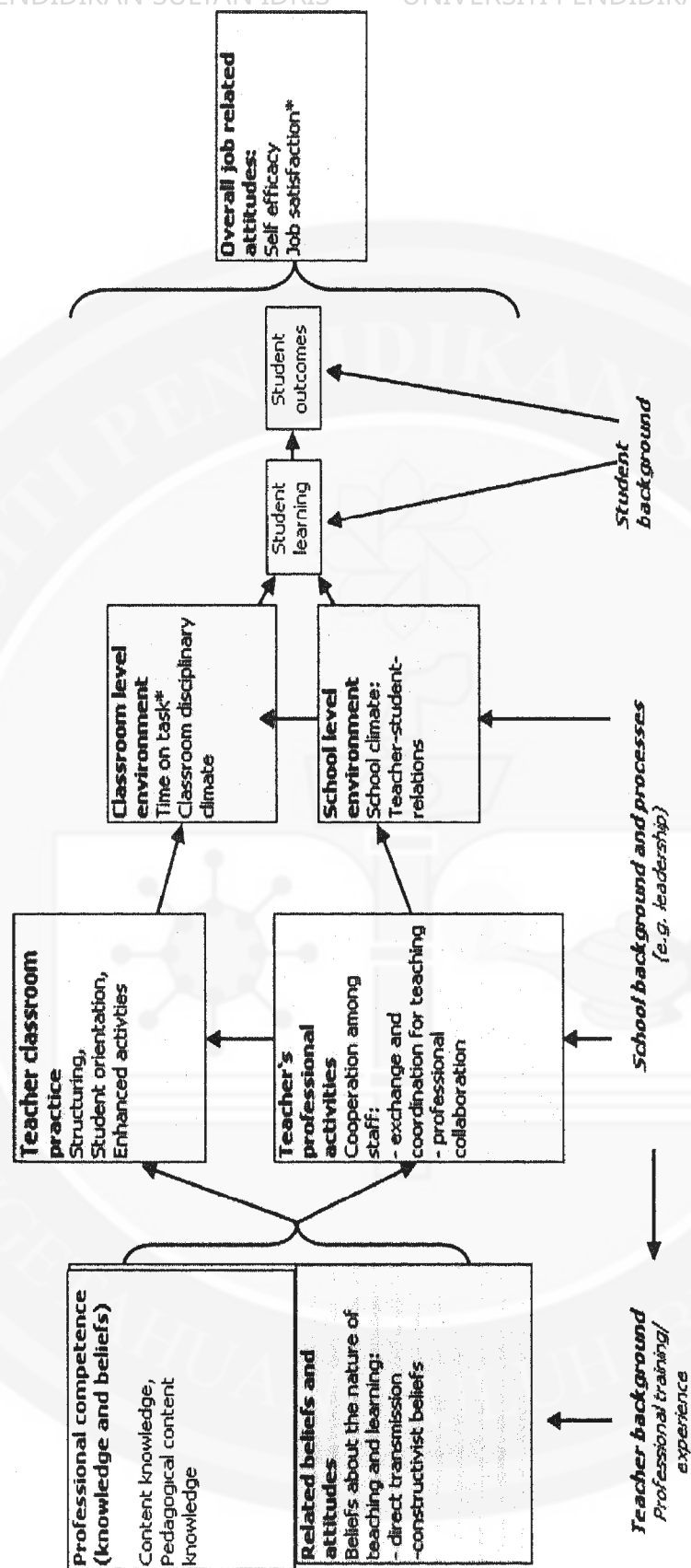
This research explores the following broad research questions:

RQ 1: What are the demographics of Malaysian secondary education teacher?

RQ 2: What are the utility (reliability and validity) of TALIS scales and instrument items?

RQ 3: What are the factors that affect teachers<sup>5</sup> beliefs, attitudes and practices that could influence teachers' self efficacy and how do these factors interact to influence teachers' self efficacy?

RQ 4: What are the multilevel (school-level factors) effects on teacher self efficacy?



Note: Constructs that are covered by the survey are highlighted in gray; single item measures are indicated by an asterisk (\*)

Source: Teaching and Learning International Survey -- TALIS 2008: Technical Report (OECD, 2010c, p. 16)

Figure1.2: Survey Themes for TALIS



#### 1.4 Significance of Research

Before TALIS, there are others international education studies, for instances, Program for International Student Assessment (PISA), Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS). These studies undertaken by OECD (PISA) and International Association for the Evaluation of Educational Achievement (IEA) (TIMSS and PIRLS) are on-going studies which were first published in 2000 (PISA), 1995 (TIMSS) and 2001 (PIRLS). Like TALIS, the studies aim to collect information regarding educational policies and practices from countries around the world. However, the foci of all the studies highlighted students' achievement, whereas TALIS focuses on the conditions of teachers' work and learning environment.

TALIS is the latest OECD's study undertaken in 2008/2009, published in 2010 and the first internationally comparative studies on the conditions of teaching and learning (OECD, 2010a). The study "draws on the OECD's 2005 review of teacher policy, which identified important gaps in international data, and aims to help countries review and develop policies to make the teaching profession more attractive and more effective" (OECD, 2010a, p.3). As reported in OECD's Teachers Matter (2005):

All countries are seeking to improve their schools, and to respond better to higher social and economic expectations. As the most significant resource in schools, teachers are central to school improvement efforts. Improving the efficiency and equity of schooling depends, in large measure, on ensuring competent people want to work as teachers, that their teaching is of high quality, and that all the students have access to high quality teaching (OECD, 2005, p.7).

It is imperative that effective teachers are crucial for students learning (OECD, 2009a). Over the years, educational research including PISA, TIMSS and PIRLS have used student's achievement as the measures of teacher effectiveness. In contrast to PISA, TIMSS and PIRLS which exhibit major findings at the student- level, TALIS provides information of teacher effectiveness at teacher- and school- levels. The study focuses on the aspects of teachers' professional development, teachers' beliefs, attitudes and practices, teachers' feedback and appraisal and school leadership. These aspects of schooling play major part in student learning and influenced their outcomes. The results of TALIS add values and new dimension towards the findings of the earlier international studies.

Further analyses are essential in order to fully extract the rich information from TALIS database. This research is the first attempt done to explore the Malaysian TALIS database. It is intended to capture the beliefs, attitudes and practices of Malaysian teachers and their self efficacy and thus demonstrate the teacher effectiveness in Malaysia. By doing the secondary analyses, this research will provides valuable information for Malaysian education stakeholders about lower secondary education teachers' stand of their teaching beliefs, attitudes and practices and how it affected their self-efficacy. The knowledge can be use to improve the Malaysian teacher work force and education system.

Moreover it is acknowledged that there are no national level studies on Malaysian teacher effectiveness have been done before. Hence this work of research can be the first references for similar studies to be undertaken in the future.

## **1.5 Limitations of Research**

Basically the limitation of the research was time constraint, which limits the analysis to the Malaysian dataset of the TALIS database. This research was undertaken as a requirement of a 9 units EDUC 7032 Education Research Project course at the School of Education, University of Adelaide. The course is a one semester course (3 months) and requisite for Master of Education (Science and Technology) coursework program. Due to the nature of this research, the time framework of the study is limited to 3 months. Because of the time constraint;

- a. This research only explores one of four aspects focuses in TALIS which is the teachers' belief, attitudes and practices, and not all of the scales and variables related to the aspects were studied. If time permits, more aspects, variables and scales will be analysed.
- b. Although TALIS is an international comparative studies, this research only able to analyse the Malaysian database. Due to the time constraint, no inter-country comparison is made.

## **1.6 Definition of Terms**

There are several terms that frequently used in this research. These terms are subjective and can be defined differently. To clarify the meaning of the terms, as being used in this research, the following are the definitions:

Teacher effectiveness is defines as "an individual resource that varies between classrooms within schools, as well as an organizational resource that varies between schools" (Heck, 2009, p.228).

Teacher self-efficacy is defines as teachers' "judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Tschannen-Moran & Hoy in Henson, 2001, p.4).

Teacher beliefs are defined broadly as tacit, often unconsciously held assumptions about students, classrooms and the academic material to be taught (Kagan, 1992, p.65).

Teacher practices are shaped by their beliefs. Kamil and Pearson (in Fang, 2006) point out that "teachers teach in accordance with their theoretical beliefs" and it "not only shape the nature of classroom interactions, but have a critical impact on students' perceptions" of teaching and learning process (p.53).

## **Chapter 2: Literature Review**

This chapter will review literatures on teacher effectiveness. Literatures on teacher effectiveness are both broad and complex. In reviewing the literatures on teacher effectiveness, the researcher divided the topic into four themes; (i) characteristic of effective teacher, (ii) necessary condition for teacher effectiveness, (iii) teacher effectiveness and student achievement and (iv) teacher self-efficacy. These themes correspond to teacher effectiveness literatures which mainly discussed from these four viewpoints. The chapter will be concluded with a preliminary conceptual framework of the literature review which represents the background of this research.

### **2.1 Characteristics of Effective Teacher**

There is a large body of studies exists that examines the characteristics of effective teacher. The underlying premise of this line of inquiry is to know the characteristics of teacher that is considered effective. The term characteristics used here is not limited only to how the teacher behaves or what the teacher do in the classroom, but it is viewed in the literatures in much broader sense including the teacher's personalities, behaviours, skills, qualities, qualifications etc. Indeed the multiple dimensions of characteristics of effective teacher are shown from the different approaches applied in the available literatures.

A study by Rushton et al. (2007) has identified effective teacher personality profiles using the Myers-Briggs Type Inventory (MBTI) and Beiderman Risk Taking (BRT) scale. The research was administered to 58 teachers living in the state of Florida, USA. These teachers are part of prestigious group of educators who were nominated into the Florida

League of Teachers (FLoT) and are considered effective teachers. The findings of the research put forward two effective teacher personality profiles which are ISFJ and ENFP.

Rushton et al. (2007), explained the ISFJ and ENFP teachers as:

The ISFJ teachers are often referred to as being the "stabilizers", "traditionalist" or "guardians" in the education arena and are an important factor in keeping the status quo (p.438)

ENFPs are energetic and enthusiastic teachers. They often stimulate students to seek out what is unknown and make it known. They promote imagination and creativity in their classrooms through many kinds of activities (Fairhurst and Fairhurst, 1995 in Rushton et al., 2007, p.439)

Polk (2006) in his work entitled *Traits of Effective Teachers* has identified ten basic characteristic of effective teacher which are: "good prior academic performance, communication skills, creativity, professionalism, pedagogical knowledge, thorough and appropriate student evaluation and assessment, self development or lifelong learning, personality, talent or content knowledge, and the ability to model concepts in their content area" (p.23). However, Polk (2006) acknowledged that "this (the 10 characteristics) is in no way a comprehensive list and is not meant to say that effective teacher will exhibit these traits only or any in combination" (p.23). There is a wealth of literatures reviewed in supporting the characteristics listed.

Harris (1998) in reviewing literatures on effective teaching emphasised that in order to be effective, there are central qualities, skills and behaviours that essential for the teacher (Harris, 1998). According to Harris (1998) effective teaching occurs when teacher shows qualities such as "structuring and organising their teaching tightly... explaining to students what they are to learn... and providing continuous feedback" (p.172). In term of teaching

skills, many researchers have agreed that active and interactive teaching skills are effective in facilitating student learning. In addition, effective behaviours such as "well organised, maximised time devoted to instruction and minimised time for presentation" (p.171) will also help student learning.

To be a teacher, one needs to have a qualification. There are many type of teacher qualification requirement and it differs from country to country. Mainly the qualification required for teachers are in terms of education degrees or courses. Wayne and Youngs (2003) discussed the dimension of teacher qualification and effectiveness and argue that, it is not necessarily true that teacher with higher qualification is more effective than teacher with lower qualification. However, they found that the case is positive for teacher with specific subject taught qualification to be more effective than teacher without specific subject taught qualification.

Mathematics students whose teachers had master's degrees in mathematics had higher achievement gains than those whose had either no advanced degrees or advanced degrees in non-mathematics subjects. In addition, students whose teachers had bachelor's degrees in mathematics learned more than students whose teachers had bachelor's degree in non-mathematics subjects (Wayne and Youngs, 2003, p. 102).

The finding raises the issue of out-of-field teacher. According to Wayne and Youngs (2003) "the effects of teacher certification appear only when teacher have certification for the subject taught, and these findings have been in mathematics." (p. 104), but unfortunately more studies about this issue from different context of subject taught are needed.

## 2.2 Necessary Conditions for Teacher Effectiveness

Much literature has shown that teacher could be a very stressful profession. For example, Kyriacou (2001) in his review on teacher stress research reported that "amongst the most common motives cited for leaving teaching were fatigue, nervous tension, frustration, wear and tear, difficulties in adapting to pupils, personal fragility and routine" (p.29). All of these factors can jeopardize teacher effectiveness. Therefore, in order to be effective teacher, teachers need to be in necessary conditions that allowed them to be effective.

According to Gu and Day (2007), one necessary condition that is crucial for teacher to be effective is resilience. Resilience refers to teachers' positive respond towards "challenging circumstances which they may meet over the course of a career" (p. 1302). Gu and Day (2007) described, throughout their career, teacher will always lives in 3 dimensions which are; the personal (related to their lives outside school), the situated (related to their lives in school) and the professional (related to their values, beliefs and the interaction between these and external policy agendas). "These dimensions were not static and change in one world affected teachers' abilities to manage others" (p. 1306). Unstable in one, two or all three of the dimensions will test the teacher resilience. If teacher did not have enough ability to maintain resilience in any possible scenarios, they will feel stress and burnout thus affecting their effectiveness (Gu and Day, 2007).

Harris (1998) emphasized that "effective teaching requires teacher commitment to be effective" (p. 179). It is necessary for teacher to be committed with their work and one way to do it is by involving in continuous professional development. OECD's report on teacher matter (2005) stressed the importance of teacher professional development;