STUDENT FEEDBACK, IMPROVING INSTRUCTION,

AND INCREASING STUDENT LEARNING

AT PRINCE OF SONGKLA UNIVERSITY

By

JOMJAI SUDHINONT

Bachelor of Business Administration
Prince of Songkla University
Songkhla, Thailand
2000

Master of Arts in Applied Linguistics
Kasetsart University
Bangkok, Thailand
2003

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Graduate College of the
Oklahoma State University
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Dissertation Approved:

Dr. Kenneth Stern
_____
Dissertation Adviser

Dr. Stephen Wanger
_____

Dr. David Yellin
_____

Dr. Cecil Dugger
_____

Dr. A. Gordon Emslie
_____
Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Background of the Study

The objectives of implementing assessment in educational settings are to evaluate student learning and the effectiveness of teaching methods of the educational programs. Assessment allows instructors to determine what and how well students are learning and to adjust teaching methods to improve student learning. Finally, assessment allows academic departments to evaluate the effectiveness of entire programs (Fenno, 2002).

Assessment should be set in a course curriculum to improve both learning outcome and student learning. Assessment is a generic term for a set of processes that measures the outcome of student learning, and one of the best ways of developing student learning is by altering the method of assessment (Brown, Bull & Pendlebury, 1997; Greer, 2001). However, the use of assessment for improving student learning is hardly observed in classrooms even though it is required to be implemented more and more in higher education (Yorke, 2003).

At this level, assessment is one mechanism used to monitor the quality of education. Here, the purpose of assessment draws attention to "assessment for learning" rather than the traditional purposes of "assessment of learning" and "assessment for ranking" (Fasi, 2005; Pongi, 2004). However, the assessment practice in higher

education has engaged students in surface learning and regurgitation of memorized material in a disorderly way, rather than the development of thinking skills (Boud, 1992; Entwistle, 1981; Gibbs, 1992). Miller (2008) and Yorke (2003) view the occurrence in the continuing dominance of assessment of learning in higher education nowadays as assessment crisis.

<div align="center">Statement of the Problem</div>

Assessment fulfills more than one role, and it is divided into two categories in a learning context: summative and formative (Biggs; 1996). The primary purpose of assessment is to gain evidence of accountability for measuring the level of ability a student possesses, and it is also an instrument for helping students improve their learning (Astin, 1993; Erwin and Knight, 1995; Knight, 1995). In other words, summative assessment measures student outcomes whereas formative assessment has a primary part to play in improving their learning.

However, the learning outcomes become the most important to students rather than focusing on attention on learning (Falkchikov, 1995). Simultaneously, instructional strategies that enlist formative assessment are not well-known in many levels of education including higher education even if the literature promotes an increased use of formative assessment to improve learning (Dweck, 1999; Pintrich, 2000; Yorke, 2003).

In response, besides underlining desired learning outcomes, implementing classroom assessment, a major form of formative assessment, during instruction through a semester might be a method to increase student learning. The one-minute paper (OMP), a type of classroom assessment technique, can help yield beneficial effects for improving student learning (Cross & Angelo, 1993). The OMP is defined as a very short,

in-class writing activity in response to an instructor-posed question, which prompts students to reflect on the day's lesson and provides the instructor with useful feedback. In addition, students can consolidate the major point of what they learn into long-term memory (Menges, 1988).

To date in the United States context, the OMP has been integrated into instruction in various undergraduate courses; for example, Introductory Accounting, Economics, Computer Sciences, Astronomy, Psychology, Mathematics, Biology, Spanish, Medicine, and Sociology (Almer, Jones, & Moeckel, 1998; Bressoud, 1999; Cantillon, 2003; Chizmar & Ostrosky, 1998; Choinski & Emanuel, 2006; Craig, 1995; Murphy & Wolff, 2005; Zeilik, 2003). However, no research has been completed recently on the effectiveness of the OMP, and specifically in the Thai context. At the same time, there have been a few studies about how formative assessment affected student learning or instructional strategies modification in Thai educational context (Wongsathian, 2000).

Purposes of the study

This study explored the usefulness of the OMP, a classroom assessment strategy, for promoting student learning in the Thai context. Also, the study attempted to determine the effectiveness of the OMP in facilitating teacher assessments of student progress and developing effective instructional modifications.

Research Questions

The implementation of the OMP as an integral part of instruction might help students to better understand the content being taught and to improve their learning as well as to lead and help the instructors to modify instruction to achieve greater results. Three questions were explored:

1. How does the OMP promote student learning?

2. What are the effects of using the OMP on students and instructors?

3. What are students' and instructors' perceptions of the usefulness of the OMP?

Methodological Framework

The study used the case study research approach to explore whether implementing a classroom assessment technique, particularly using the OMP in a classroom throughout a semester, could help students improve their learning as well as instructors improve their teaching effectiveness in Prince of Songkla University (PSU), a university in the south of Thailand.

All of the process was intended to reveal the instructors' and students' common perceptions related to using a classroom assessment technique in ongoing courses. Five instructors and 240 students participated in the study. Besides examining the OMP completed by the students, the researcher analyzed the instructors' reports to discover what the instructors planned to do in the next class after receiving the feedback from the students and whether there were any changes in their instructional arrangement during the semester.

Students' behavior was observed while the OMP was conducted in the class. Also, face-to-face interviews were conducted with students and instructors to investigate their perceptions of the usefulness of the OMP.

Orienting Theoretical Framework

The theoretical framework of this research analysis is metacognitive theory which provides usefulness and the purpose of thinking in learning contexts. Metacognition focuses on the process of learning that is essential to achievement because students need

not only to receive a large amount of new information, but they need to be capable of

working through the process of learning by thinking about what they are learning (Dolan,

2000). Dolan (2000) and Nambiar (1998) state that when learners think about what they

are learning, they are seeking or arranging conditions which is an internal mental process.

To help learners know about the learning tasks, metacognitive strategy can be doing self-

evaluation. This strategy helps learners judge how well they have achieved a learning

objective. For example, learners automatically employ metacognitive strategy to focus

their attention, to develop meaning, and to make adjustments when they encounter

difficult lessons. They do not think about this strategy while they are using it. However,

they can usually describe their metacognitive processes accurately. At the same time, it

provides them a chance to monitor themselves and comment on the difficulty of the

learning task (Brown & Palinscar's, 1989). Learners unconsciously check whether how

much they comprehend a lesson or reach a learning goal.

<div align="center">Significance of the Study</div>

In the United States, studies have examined how use of the OMP provides a

number of benefits to both teachers and students (Stead, 2005). Moreover, the OMP

works well in many subjects (e.g., Economics, Mathematics, English, and Accounting),

in large or small classes, and in regular length or short-session classes. Almer et al.

(1998) found that asking students in an Introductory Accounting Course to focus on the

main concept and any unanswered questions each week by using OMPs resulted in better

student learning performance. Additionally, the effect of the OMP was studied in an

Introductory Economics course at a large public university. The results suggested that

the OMP enhanced economic knowledge on a modest investment of time (Chizmar & Ostrosky, 1998).

Considering educational norms, doing the OMP in classrooms might mean less to U.S. students since they are familiar with active interaction, giving opinions on, evaluating or discussing the instructors' ideas. The culture of the learning background of American and Asian students is diverse. Tsou (1996) states that the American students are familiar with being engaged in verbal interaction in classroom discussion while Asian students take significantly fewer speaking turns compared with American students. Consequently, two-way verbal interaction in the American classroom is more than that in Asian classrooms. And, U.S. students are more inclined to think about and express opinions about instructors than in Thailand. Thus, Thai students may be less comfortable with the OMP than U.S. students. They would feel insecure or uncomfortable expressing their idea to their instructors even though they do not have face-to-face oral discussions with their instructors.

Including the OMP into classroom activities could be a means to encourage students to participate actively in classrooms and to also touch on a part of the latest National Education Act of Thailand. The educational system in Thailand was reformed in 1999 through the enactment of the National Education Act of B.E.2542 (1999). At the core of the Act is the principle that, "all learners are regarded as being most important" (Ministry of Education, 1999: 10). The Thai government required a change in teaching approach from the traditional one called teacher-centered to a student-centered one. Instructors can employ the OMP to serve students' needs depending on their feedback on

the OMP sheets. They can adapt their instructional performance, teaching and learning materials, or even their behaviors to reach the student necessary.

However, the only Thai research effort on formative assessment affecting student learning in teaching English was at Rajamangala Institute of Technology, a public university in Thailand (Wongsathian, 2000). No research has addressed the effectiveness of using OMP in different elements of the class context such as size, course, and the length of the course in Thai higher education context. Any studies about the use of the OMP and whether or not feedback to students resulted in a modification of the instructional techniques was also not found in the literature. The lack of research focusing on this particular classroom assessment technique in Thai higher education is a gap in the literature.

Moreover, studies about advantages of instructors using metacognitive strategy are hardly found compared to ones conducted to see how the strategy benefits students as learners (Hatano, Lin & Schwartz, 2005). Instructors can also put the metacognitive strategy into a part of their teaching practice to discover how successfully it works to help them improve their instructional methods. By employing the strategy, they would prepare a teaching plan that serves their students' needs as a result of receiving students' feedback and evaluating their competence based on a learning goal set for a class session. When they think about what they are teaching, how their students are learning, and how to improve their teaching presentation to make their teaching as a quality instruction, they are using metacognitive strategy. Thus, instructors would take a role as a learner and adopt the strategy to use. Then, they can explore if it is effective and useful to help them improve their teaching practice.

This study sought to discover if the use of the OMP at the end of the class once a week could improve student learning, and how it could improve their learning. At the same time, this study tried to determine how the OMP affects instructors' teaching practice.

Summary

The purpose of this study was to explore students' and instructors' perceptions of the effects of the OMP, a classroom assessment technique used in selected courses in a Thai public university, on student learning and effective instructional modifications. The final results of improving student learning and adapted teacher pedagogic practice were determined by describing, interpreting, and analyzing the data. The metacognitive learning theory was applied to explain how students improved their learning through completing the OMP, and instructors' weekly reviewing of the OMP before adjusting their lecture for the next class session accordingly throughout the semester.

Organization of the Study

The remainder of the study includes Chapter II which presents a review of literature related to the study. Chapter III provides the research methodology and procedures used. Chapter IV introduces the findings. Chapter V concludes with a discussion and analysis of the findings and Chapter VI including a summary, conclusion, and recommendations.

CHAPTER II

REVIEW OF LITERATURE

Assessment is practiced in every institution of higher education through evaluating student learning as well as the effectiveness of instructional strategies in a variety of methods (Fenno, 2002). An instructor can measure student learning during the semester by using formative assessment as well as student performance at the end of the course by using summative assessment (Brown et al., 1997; Greer, 2001). Moreover, the assessment does not only focus on developing students' learning but also on improving teaching effectiveness simultaneously (Cross &Angelo, 1993; Ehringhaus & Garrison, 2006).

The ideal assessment in educational settings presents its practice in meaningful ways to improve student learning together with student performance or achievement. However, Yorke (2003) states that the essential role of assessment in improving student learning is decreased. He posits that assessment of learning focusing on student achievement has received greater attention than assessment for learning which is more concerned with improving student learning.

To tackle the problem, Cross and Angelo (1993) suggest that one way to turn our attention back to promote formative assessment to help students increase their learning in an on-going course is to practice at least one classroom assessment strategy in ongoing

courses. They claim that the one-minute paper (OMP), a method of classroom assessment, can help students learn better and give information to instructors to adapt their teaching practice.

Several topics are covered in this literature review to provide background information on the study and justification for the research questions. Both primary and secondary sources, including books, research reports, and journals, were examined in preparation of the literature review. The review of the literature focuses on six primary areas. First, an overview of assessment in educational contexts provides definitions, levels, and purposes of assessment as well as an assessment crisis in higher education. Second, definitions, purposes, and processes of classroom assessment are described to provide a thorough description of the assessment used for improving student learning. It is also necessary to give information about the effect of classroom assessment techniques on students and teachers. Third, an overview of the characteristics of the OMP is presented. At the same time, research on the use of the OMP in undergraduate classrooms and its effects on instructors and students is discussed. Fourth, an overview of cultural background emphasizing western and Asian student classroom participation differences is presented. Fifth, the learner-centered education in the National Educational Act of B.C. 2542 (1999) is reviewed. Finally, definitions of metacognitive learning strategy and its importance as a strategy to improve student learning are reviewed.

<div align="center">Assessment in the Educational Context</div>

Definitions

In colleges and universities, the quality of education is an issue that requires refining goals to result in curricular and program improvement. Consequently,

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assessment is a function that can determine whether educational expectations are being met or measure whether a program's graduates are completing the expected outcomes successfully (Anaya, Anderson & Moore, 2005). When assessment is conducted properly, it can provide information of what and how students learn. The information about student learning and development can be used in educational decision-making processes to improve learning and curricula.

The term *assessment* is defined in several ways by different individuals or institutions, possibly with different purposes. In this study, the term assessment has slightly different definitions in the area of educational context. Astin (1993) defined assessment as "the gathering of information concerning the functioning of students, staff, and institutions of higher education…The motive of gathering the information is to improve the functioning of the program and its people" (p. 2). Here, assessment includes an attempt toward improvement beyond individual student learning and development. Besides showing concentration on the student, assessment in this definition is associated with educators and the curriculum offered by an institution.

Assessment, according to Erwin (1991) is "the systematic basis for making inferences about the learning and development of students. More specifically, assessment is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development" (p. 5). Erwin focuses his attention on a variety of activities that are related to help develop teachers' ability to enhance student improvement on their learning.

Moreover, Banta and Palomba (1999) define assessment as "the systematic collection, review, and use of information about educational programs undertaken for the

purpose of improving learning and development" (p. 4). This statement shows that assessment results can be used to improve subsequent learning.

Two main conclusions are to be drawn from the above definitions. First, the primary beneficiaries of implementing assessment are students. That is, improvement of student learning and development is the first priority of the purpose of conducting assessment in an educational context. Second, the assessment provides a relation to educational process designed to accomplish the primary benefit to students' need, desired instructional practice, as well as it allows the department to evaluate the effectiveness of all provided programs. As a result, assessment can help focus on assuring and improving the quality of higher education as a whole.

The Levels of Assessment

Activities in the process of assessment in an educational context involve functions and outcomes that take place at different institutional levels. Anaya, Anderson, and Moore (2007) proposed that the levels of assessment are separated by its practice, and the assessment data from each level can be used in overlapping ways. They said, "the distinct categories of assessment commonly described in practice are institutional, program, and individual" (p.86). At the individual level, the persons who are within the unit are students, teachers, staff, and administrators. Assessment data reveal student learning, instructor teaching effectiveness, staff performance, and administrator development.

The Purposes of Assessment: Summative and Formative

Assessment is conducted in the higher educational context for several reasons. McMillan (2007) presents a broad view that educational assessment serves three

functions: to support learning, to certify the achievement or potential of individuals, and to evaluate the quality of educational institutions, programs, or curricula. Two broad categories of assessment, summative and formative, are generally referred to (Gronlund, 2006; McMillian, 2005; Harlenn, 2005). The first function is formative while the second is summative. And, it should be noted that every assessment is designed to serve both summative and formative purposes, not only either one of these.

Summative assessment is primarily for monitoring, measuring the level of ability a student possesses, and recording student achievement, and is employed for institutional accountability (Bardes & Denton, 2001; Harlen, 2005; McMillan, 2005). Summative assessment is for learning accountability purposes because a part of its process is that students' work is given marks or grades, enabling comparison with other students who are in the same school year (Cannon and Newble, 2000; Chappuis & Stiggins, 2006; Moore, 2007; Stiggins, 2004). This kind of assessment is generally carried out at the end of a course to summarize student academic quality. Common criteria are set for the students in the same year in school so that the levels and grades have the same meaning for all students. The purpose of setting the criteria for student achievement is to judge what level students have reached (Harlen & James, 1997; Harlen, 2005). Moore (2007) claimed that summative assessment is a one-way process that is done to students. Students are graded and informed only how well they did on their test and how much they know the course content, but they are not involved in how to improve their performance.

On the other hand, the goal of formative assessment is the improvement of student motivation and learning (Harlen, 2005; McMillan, 2005). The National Center for Fair

and The National Center for Fair and Open Testing (1999) asserted that formative assessment usually takes place through the instructional process when teachers can feed information back to students in ways that enable the students to learn better, or when students can engage in a self-reflective process. Feedback from instructors can help students improve learning when it gives students specific guidance on strengths and weaknesses, without any overall marks (Black & William, 1998).

Basically, formative assessment includes methods by which teachers discover what students are getting and not getting in the classroom, for the purposes of teaching and learning, but not for the purpose of grading. Airasian (2001) defined formative assessment as "the process of collecting, synthesizing, and interpreting information for the purpose of improving student learning while instruction is taking place" (p. 421). More recently, Gronlund (2006) stated that formative assessment is intended "to monitor student progress during instruction…to identify the students' learning successes and failures so that adjustments in instruction and learning can be made" (p. 6). The assessment is used to diagnose student needs, so that students are consistently monitored and provided feedback on their work by which they can measure their understanding and ability. To reach the purpose of formative assessment, teachers must use a continuing process that involves monitoring student ability, giving feedback to students, and adapting their teaching to help students understand better the course content. McMillan (2007, p. 3) proposed a diagram of the formative assessment cycle:

Feedback to Students
- Immediate
- Specific

Instructional Correctives
- Next Steps
- Student Activities

Evaluations of Student Progress
- Informal Observation
- Questioning
- Student Self-Evaluations
- Peer Evaluations
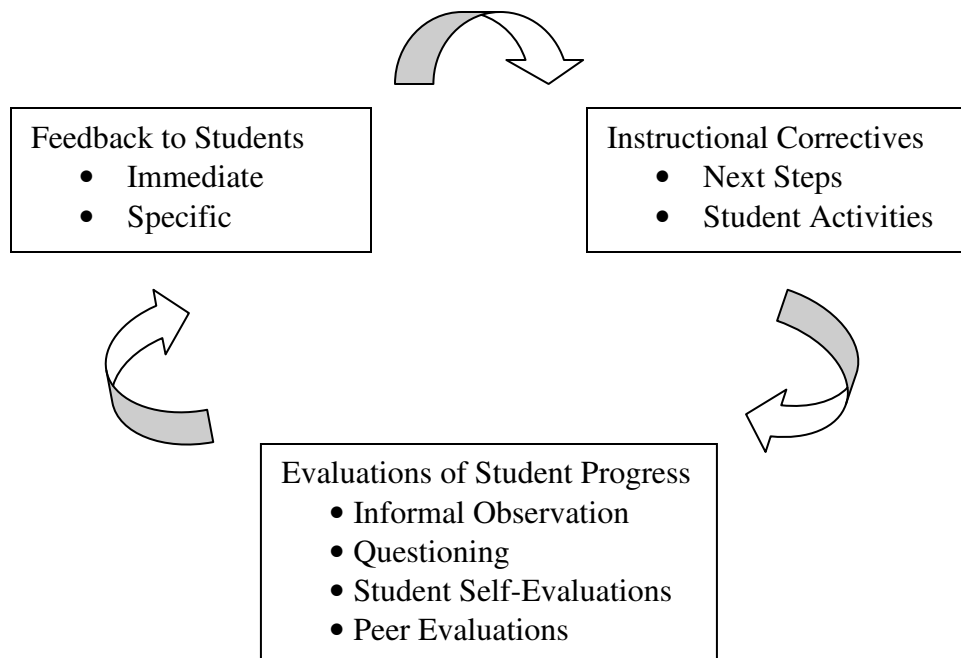
Figure 1. Formative Assessment Cycle

Further, formative assessment is identified as assessment for learning (Cannon and Newble, 2000; Chappuis & Stiggins, 2006; Knight, 1995; Chappuis, 2005; Stiggins, 2004), since the assessment is designed to help students progress continuously upon a course and to allow them to interpret and incorporate new material into their existing understanding. Moreover, the process of formative assessment is not only for enhancing learning but also for improving teaching (Cross & Angelo, 1993; Ehringhaus & Garrison, 2006). This kind of assessment is used to help students improve their learning process and teachers' teaching practice simultaneously because the information from the assessment informs both teachers and students about student understanding of course content day-by-day. Then, during student learning, teachers can adjust course content and their teaching methods, and improve student learning concurrently.

In conclusion, the purposes and timing between summative and formative

assessment are the main differences. The purpose of summative assessment is to

determine the status of learning at the end of a course whereas formative assessment is

conducted to promote greater learning during a semester. However, there are other

characteristics of these two kinds of assessment. To conclude the distinction between

summative and formative assessment, the table below described by McMillan (2007, p.

67) exhibits all of the main distinguishing characteristics of the assessment.

Table 1

Characteristics of Formative and Summative Classroom Assessment

Characteristics	Formative	Summative
Purpose	Provide ongoing feedback to improve learning	Document student learning at the end of an instructional segment
When Conducted	During instruction	After instruction
Student Involvement	Encouraged	Discouraged
Student Motivation	Intrinsic, mastery-oriented	Extrinsic, performance-oriented
Teacher Role	To provide immediate, specific feedback and instructional correctives	To measure student learning and give grades
Cognitive Levels Emphasized	Deep understanding, application, and reasoning	Knowledge and comprehension
Level of Specificity	Highly specific and individual	General and group-oriented
Structure	Flexible, adaptable	Rigid, highly structured
Assessment Techniques	Informal	Formal
Effect on Learning	Strong, positive, and long-lasting	Weak and fleeting

Assessment Crisis

Even though there are several different characteristics between summative and formative assessment, both types of assessment are keys to assuring and improving the quality of higher education when the two types of assessment are conducted effectively within all the levels at an institution (McMillan, 2007). Instructors need to have an understanding of how and why they conduct each particular assessment and its effect upon students. In addition, Yorke (2003) asserts that maintaining a balance between providing information about student achievement and aiding students in learning is crucial.

In a higher education context, however, there is an assessment tension between formative, primarily aimed at promoting learning, and summative, outlined to inform student achievement. At least two types of assessment cause the tension. First, the emphasis tends to be on summative functions (Falkchikov, 1995; Maclellan, 2005; Yorke, 2003) even though assessment serves both formative and summative functions. Summative assessment is not concerned with the process of letting students know how they are doing and how they can improve their learning, but simply providing information about student achievement and without aiding students in learning. Harlen and James (1997), stated that most teachers tend to assess student learning summatively, and may forget why and how to assess student learning formatively in an on-going classroom. Teachers' neglect to use assessment for its formative functions occurs because they place strong emphasis on application of the criteria to students' performance, for the purposes of deciding what levels they have reached.

Second, students in higher education are primarily interested in their marks rather than any feedback from teachers that helps them to promote learning and to facilitate

improvement (Dweck, 1999; Pintrich, 2000; Yorke, 2003). Performance goals (e.g.

grades) are primarily more important to the student than learning goals. Students try to

reach the certain official criteria for identifying who passes the test or completes the

program of study. Yorke (2003) claims that students are concerned about the expected

criteria which is evaluated by summative assessment and give less attention to formative

assessment which can support their learning.

Consequently, to shift the role of formative assessment back and keep a balance

between both types of assessment, teachers and students need to appreciate the value of

formative assessment (Harlen & James, 1997). Newstead (2003) states that the process

of formative assessment is providing information on what an individual student needs to

practice, should be re-taught, or is ready to learn next, and how students themselves

might become formative users of assessment information. Moreover, he states that

effective formative assessing is the key to help students succeed not only in the learning

process, but also in achievement ultimately.

<div align="center">Classroom Assessment</div>

Definitions and Purposes

Cross (1993) defined the term 'classroom assessment' as "small-scale

assessments conducted continuously in college classrooms by discipline-based teachers

to determine what students are learning in that class" (p. 35). It can be seen that

classroom assessment is a major form of formative assessment in that it is controlled by

teachers to make immediate changes to benefit current students continuously. Angelo

(1991) and Haugen (1999) claim that the role of classroom assessment is distinct from

outcomes assessment which is the major form of summative assessment in that it is

controlled by administrators of an institution to make changes to benefit future students and future courses they take. The major roles of classroom assessment are different from outcome assessment, but complementary benefits to students.

The primary purpose of classroom assessment is to provide teacher and students with information and insights needed to improve teaching effectiveness and learning quality (Angelo, 1991). Instructors collect feedback through classroom assessment to monitor carefully how well students learn what they are being taught, and they use the feedback to adjust their teaching. Moreover, Angelo (1991) asserted that instructors can share feedback with students to help them improve and develop their learning strategies and study habits to become more successful learners.

Process

The process of classroom assessment is relevant to selection of techniques to determine students' performance. Cross and Angelo (1993) described the technique as "specific instruments and methods designed to inform teachers what students are learning in the classroom and how well they are learning it" (p. 2). In other words, designing or selecting a classroom assessment technique (CAT) can help instructors identify a matter of learning by using the technique as a device for collecting and analyzing information about students' understanding of course content, and use the results from assessment to improve student learning through a course. The process of classroom assessment is shown in figure 2 (Cohen and Harwood, 1999, p. 23).
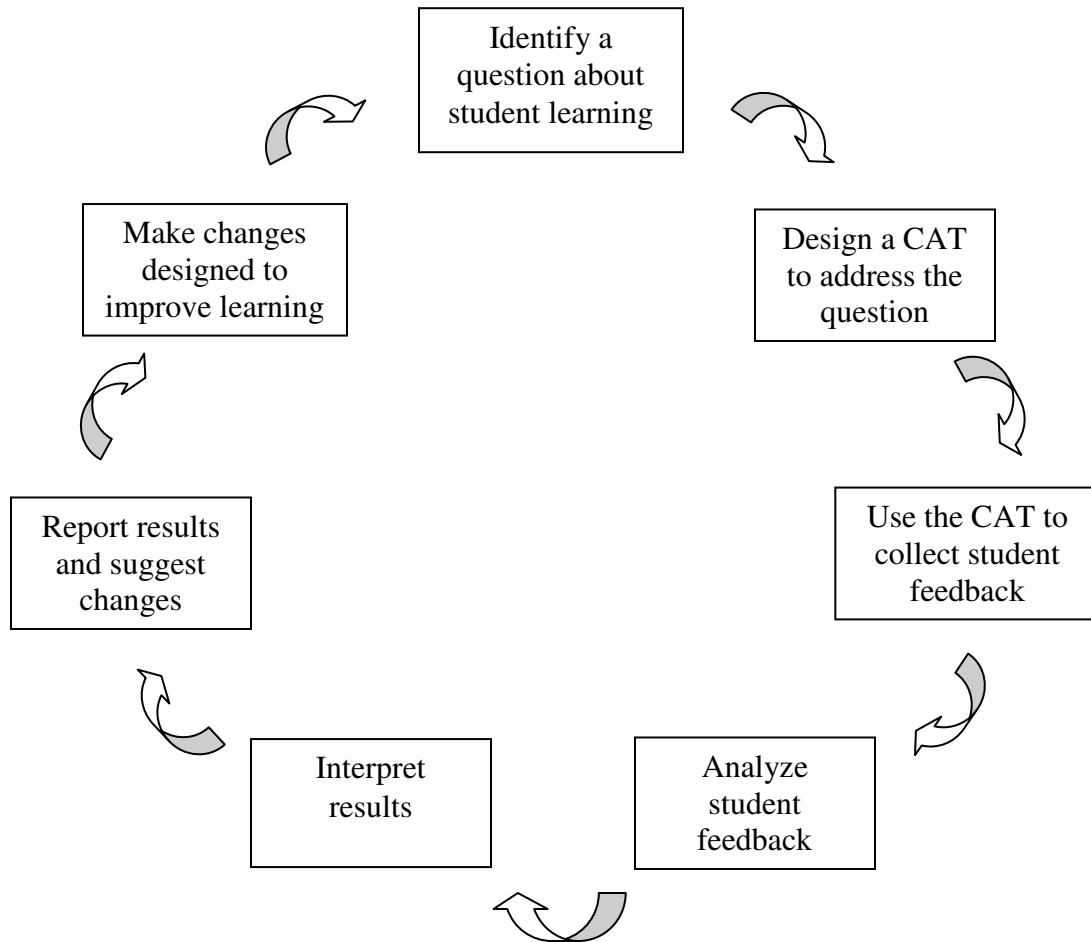
Figure 2. The Process of Classroom Assessment

The Effects of CATs on Students and Instructors

CATs are formative evaluation methods that serve two purposes: accessing the degree to which students understand the course content, and providing information about the effectiveness of teaching (Cross & Angelo, 1993; Haugen, 1999). There are many researchers who support the idea that classroom assessment has the potential to improve the talents of both instructors and students (Cross & Angelo, 1993; Cohen & Harwood, 1999; Curry, Eisenbach, Fabry & Golich, 1997; Soetaert, 1998; Stetson, 1993; Tebo Messea & Van Aller, 1998).

Cohen & Harwood (1998) and Walker (1991) concluded that CATs can emphasize metacognitive development in students and improve student learning. Students' response on classroom assessment techniques can promote their metacognitive development. However, the researchers did not find that using classroom assessment techniques led to statistically significant improvements in student grades. The reason is student grades are the result of a number of factors that affect the students, the instructors, and the learning environment.

At the same time, CATs also help instructors make important course-planning decisions and instructional changes needed to improve student learning. Classroom assessment encourages instructors to discover more effective teaching and learning methods (Anthony, 1991; Beard, 1993; Olmsted, 1991; Walker 1991). Further, the assessment challenges instructors' assumptions about what students have learned from their classes (Cottell, 1991), and how instructors change the way they conduct classes (Berry, Felbeck, Rothstein-Fish, & Saltman, 1991; Eisenbach et al., 1998; Stetson, 1991; Tebo Messina & Van Aller, 1998).

<center>The One-Minute Paper (OMP)</center>

What is the OMP?

The one-minute paper (OMP) has become pervasive in higher education (Chizmar & Ostrosky, 1998; Cross & Angelo, 1993; Yorke, 2003). As said by Angelo and Cross (1993), who first developed the OMP, "No other Classroom Assessment Technique has been used more often or by more college teachers than the [one] Minute Paper" (p. 148). The OMP is a simple and widely-used CAT which is usually employed at the end of class

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or at the end of any topic. Cross and Angelo (1993) claim its value as a productive wrap-up activity.

During the last few minutes of a class period, students are asked to use a half-sheet of paper to respond to the following questions proposed by Cross and Angelo (1993): 1) What was the most important thing you learned in class today?, and 2) What important questions that you have from class today remain unanswered? By using these two questions, instructors can examine what the students learned and what is still confusing.

Cross and Angelo (1993) state that the OMP's major advantage is that it provides rapid feedback on whether the teacher's main idea and what the students perceived as the main idea are the same. Another advantage, it is especially important in higher education classrooms, where many issues and questions have limited life spans and time is in short supply. Moreover, the OMP encourages individual students, in both small and large group teaching, in active listening and engagement in studying.

The Effects of the OMP on Students and Instructors

The frequency of using the OMP in class to improve student learning can be seen in three ways. First, Almer, Jones and Moeckel (1998) found that students who enrolled for an Introductory Accounting Course and were required to complete the OMP at least once a week increased their understanding of class material. The researchers asserted that asking the students to focus on the main concept and unanswered questions each week helped them concentrate on a topic being learned and resulted in better academic performance. Second, Chizmar and Ostrosky (1998) as well as Murphy and Wolff (2005) stated that asking students to complete the OMP after every class can improve

their learning because the students must evaluate themselves about the knowledge they are taught before reflecting what course content they understand clearly and what part they still have unanswered questions. Doing the OMP after each session helps the students identify what topic is most important, and what they find confusing and want to learn more about. Third, Cottell and Harwood (1998a) as well as Walker (1991) claimed that many instructors in accounting and other disciplines suggest using the OMP at least once for each topic, or more often for challenging course materials.

There are many opinions on times classroom assessment techniques should be used in a class during a semester. Cohen and Harwood (1999) stated that using many different classroom assessment techniques may cause students to become confused. Moreover, Cottell and Harwood (1998b) viewed that when they employed a variation of classroom techniques in a class during a semester, they did not notice any improvement in student participation, grades, or even students' perceptions of what they had learned in the class. However, when Harwood (1999) used only one classroom technique throughout a semester, she discovered that a large number of her students believed that the particular technique encouraged them to be more involved in the class and to ask questions that they would not necessarily ask during the class.

A major finding of the Harvard Assessment Seminars (Light, 1990) is that the OMP is a modest, relatively simple, and low-tech innovation that can improve students' learning and active participation in class. Moreover, the OMP is an often-cited pedagogical tool that has potential performance benefits to student learning and it is recommended to be used for every college course to improve student learning (Almer et al., 1998; Zakrajsek, 2004). Although the OMP is a simple technique, it assesses more

than mere recall. Williams and Burden (1997) assert that students have to evaluate what they recall before coming up with the most important thing they have learned in the class or the question they still have at the end of the class. They claim that when students ask themselves how well they understand what they have just studied, they are using metacognition learning strategy to improve their learning.

Simultaneously, OMP is generally approved by many instructors as a learning tool, not only for students, but also for instructors and across a wide range of disciplines as well (Stead, 2005). He asserts that the OMP responses ascertain the extent to which the aims and objectives of the class have be achieved, as well as help set the future pace of teaching. Moreover, the valuable information helps instructors decide whether corrections or changes are needed and, if so, what kinds of the instructional adjustments to make (Cross & Angelo, 1993).

Research Using the OMP

The usefulness of the OMP, a CAT, for facilitating student learning improvement has been studied in many disciplines. For example, research on using the OMP in Introduction to Economics and Introduction to Accounting yielded positive results. Assessing students once a week by having them write the OMP at the end of every class period yielded improvement in student performance when compared to students who did not complete this kind of assessment. All students were required to do a pre-test and a post-test and the result of the study showed that students who did the OMP had better scores in the post-test than the ones who did not do the assessment (Almer et al., 1999; Chizmar & Ostrosky, 1999). In addition, a recent study was undertaken in Computer Science Labs by Murphy and Wolff (2005) to evaluate the use of the OMP to improve

student learning and teachers' teaching improvement. The students were asked to complete the OMP after class weekly. Then they were asked to comment about their appreciation for the OMP. The researcher found that doing the OMP improved students' awareness of their learning and helped instructors adjust their teaching methods.

While studies about the benefits of OMP have been conducted in the United States, benefits related to OMP in Thailand have not much been studied. The most recent study, focused on the effects of formative assessment on motivation and learning outcomes of first year students in a university in Thailand, was finished in 2000 (Wongsathian, 2000). The result of the study was the students' learning motivation increased, and the learning outcomes improved as well. However, there is not any evidence of research about the classroom assessment in higher education in Thailand before and after that study. Also, there is no evidence of studying the effectiveness of using OMP on student learning in Thai higher education.

<center>Cultural Background Consideration</center>

Several studies have been conducted to investigate differences of participation habits and learning behaviors in classrooms between Western and Asian students. Hwang (1993) and Tomizawa (1990) conducted qualitative studies and revealed that cultural backgrounds including classroom participation and instruction pattern in U.S. educational settings were different from ones in Asian countries. They reported that Asian students have passive and quiet classroom participation habits. Their classroom participation style makes them reluctant to question their instructor and to speak out voluntarily. In Asian culture, Yeh (1969) indicated that students are not expected to give

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opinions or discuss the instructor's idea. Most students come to class to receive whatever their instructor is going to offer and not to contribute what they have to the class.

On the contrary, Tomizawa (1990) indicated that American students do not have teacher-dominated learning style and that they are all involved in classroom interaction. They are familiar with sharing ideas with the class voluntarily. They can also provide a convincing argument to their instructor. Two-way verbal interaction is an ordinary form of instruction in the U.S. classrooms. It is obvious that the appreciation of interaction between student and instructor differs from the American norms. And, students' diversity in cultural education background influences their participation habits and learning behaviors in the classroom.

The Learner-Centered Education in the National Educational Act (NEA) 1999

Education reform in Thailand and the National Education Act of 1999 mandated changes specific to the teaching-learning process. One of the most important cores of the act is to develop the instructional process into a learner-centered approach where the instructor acts as a facilitator and students act as active learners. The principle of the new instructional method was reported that, "all learners are regarded as being most important" (Ministry of Education, 1999: 10). However, the traditional style of teaching is still prevalent nowadays among teachers in Thai educational settings due to many factors that may obstruct change into the recommended approach as written in the NEA 1999. Combs (1976) indicated characteristics of a situation that helps the learner-centered method possibly to occur. One of the suggested characteristics is an atmosphere which facilitates involvement, interaction, and socialization in classroom, and the

methods used to encourage a personal discovery must be highly individualized and adapted to the learner's own style and pace for learning.

Definitions of Metacognition and its Importance to Improving Student Learning

and Instructor Teaching Practice

The theoretical framework of this research analysis is metacognitive learning theory. A brief description is given first and then applied to the research to provide a framework to explain how metacognition possibly affects student academic learning in the classroom contexts.

The higher order thinking that involves active control over the thinking processes involved in learning is called metacognition, a term first introduced by John Flavell (1976, 1979, and 1981). Metacognition, or awareness of the process of learning, has a significant feature to promote successful learning (Baker & Brown, 1984). Students' recognition of what they know and what they do not know is the first step and the key to success in using appropriate study strategies effectively. Metacognitive awareness is a powerful tool in establishing conscious control and monitoring students' learning and success (Burden & Williams, 1997).

Metacognitive strategies include an awareness of what one is doing and the strategies one is employing, as well as knowledge about the actual process of learning. Both knowledge and strategy are included in most definitions of metacognition (Williams & Burden, 1997). Knowledge is considered to be metacognitive when it is actively used in a strategic manner to ensure that a goal is achieved. Metacognition is commonly referred to as "thinking about thinking" and is used to assist students "learn how to learn." Metacognitive strategies are indirectly used to ensure that the goal has been

accomplished by centering, planning, arranging, and evaluating one's learning while cognitive strategies are considered as mental processes directly involved with the processing of information to learn (Hacker, 1998; Livingston, 1997; Williams & Burden, 1997).

In addition, metacognition unites several attended thinking and reflective processes. Metacognition can be defined as "the ability to understand, reflect upon, and evaluate one's learning" (Schraw & Dennison, 1994, p.460). That is, planning the way to deal with a learning task, monitoring comprehension, and evaluating the development that happens in a learning task are qualities of metacognitive learners. Metacognition can also be defined as an essential skill for learning to learn that includes thoughts about what learners know or do not know and regulating how they start to do a learning task (Huitt, 1997).

Providing students opportunities to practice self-reflection is an important strategy for promoting student learning (Flavell, 1970, 1976; Marzano, 2006). At the same time, Marzano (2006) claims that to ensure that giving students opportunities to reflect on their learning using information obtained from experiencing classroom assessment is one way to improve their learning. He also states that classroom assessment is a tool involving students in self-assessment activities and in learning development. The OMP developed by Cross (1998), a CAT, is defined as a vehicle for self-reflection. By doing the OMP, students are encouraged to improve awareness and reflection upon their own learning process (Cross and Steadman, 1996). They also claim that students must evaluate what the most significant thing they have learned in class is or what are the unanswered questions they still have at the end of the class. Dominowski (2002) asserted that

arranging activities engaging in metacognition like CATs can encourage students to reflect what they have learned.

Metacognitive strategy also helps improve instructor teaching practice. Hanato, Lin, and Schwartz (2005) stated that metacognitive strategy is traditionally introduced to students to help them monitor and control the effectiveness and accuracy of their own understanding and problem-solving behaviors in a particular subject matter. They argued that traditional applications of metacognition were rarely used by instructors even though it could help them deal with challenges in classroom. Their research findings revealed that successful teaching can benefit from adopting metacognitive strategy which involves change to oneself and to one's environment, in response to a wide range of classroom social and instructional variability. Instructors, who adopted metacognitive strategy in their teaching profession, reflected deeply on information they gathered from students and made appropriate decisions or solutions to teach effectively. And, Bransford, Sears, and Schwartz (2005) stated that instructors confront highly variable situations from student to student and class to class. One solution does not fit, and instructors can use self-questioning, a metacognitive strategy, to help them adapt their teaching strategies. Reflecting on what they are doing and why is a metacognitive way of thinking to improve their teaching performance.

<div align="center">Summary</div>

Assessment in educational settings serves two purposes: measure student achievement and improve student learning. However, the apparent lack of the assessment aimed at student learning improvement has been emphasized in the cited references. Thus, CATs have been developed and suggested to implement in classrooms to increase

student learning as well as improve teaching effectiveness. And, the metacognition

theory lies in the regular practice of the OMP.

CHAPTER III

METHODOLOGY

The methodology is described and discussed in this chapter. The methodological framework and procedures were selected based upon the purpose of this study which was to explore the usefulness of the one-minute paper (OMP) as a strategy for promoting student learning and developing teaching practice.

Methodology

Choosing the most appropriate research framework to make all procedures manageable and contribute to the research findings is vital. This study, a qualitative case study, was the analysis of non-numerical data originating from multiple sources of information. Moreover, the study was about an exploration of a case over time through detailed, in-depth data collection involving several sources of information. The participants' perceptions were studied through the analysis of the OMP sheets, instructors' reports, observations, and interviews.

Patton (2002) points out that "a qualitative study is defined as an inquiry process of understanding a social or human problem, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and taking place in the natural setting" (p. 20). Such an inquiry allows researchers to explore perceptions, attitudes, and motivations, and to understand how they are formed. Patton (2002) writes

that qualitative research involves the use of multiple methods that are interactive and humanistic like interviews, documents, and participant observation data, to understand and explain social phenomena. Berg (2001) states that typically findings are in the form of themes, categories, concepts or tentative theories, resulting in richly descriptive research.

Case study is an approach of strategies associated with qualitative research. Stake (1995: xi) defines case study as "the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances." This strategy is an in-depth study to explore processes, activities, and events. Moreover, the case study deals with a full variety of evidence such as documents, artifacts, systematic interviewing, audio or video recording, and direct observations.

Case study was the appropriate approach to be used in the study. The main purpose was to explore significant behaviors and perceptions of students and instructors involved in assessment during a semester of 2008, using three kinds of data collection methods: interviews, observations, and document analyses.

<center>Theoretical Framework: Metacognition</center>

The theoretical framework of this research analysis was metacognitive learning. Metacognitive strategies involve an awareness of one's own mental processes and an ability to reflect on how one learns. At the same time, effective learning requires metacognitive awareness (Williams & Burden, 1997). Strategies for promoting metacognition include self-questioning (e.g. "what do I already know about the lesson? How have I solved problems like this before?"), thinking aloud while completing a task, and making graphic representations (e.g. concept maps, flow charts, semantic webs) of

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one's thoughts and knowledge (Hartman, 2001). Wenden and Rubin (1987) point out that teachers and researchers have observed that some students who engage in metacognitive behaviors could be more successful in learning than others who never approach this learning strategy. They claim that students have potential to learn successfully if they check their comprehension during studying a learning task, checking the outcomes of their own learning against a standard after it has been completed, and planning to review specific difficult parts regularly. Chamot and O'Malley (1990) state, "metacognitive strategy allows students to monitor their comprehension for information that should be remembered, or monitor learning task while they are learning" (p. 44).

Metacognition is the learning strategy that enables the researcher to analyze the way students manage the content they have been taught to reflect on how well they understand what they learned (Chamot and O'Malley (1990). By using the strategy, Chamot and O'Malley (1990) claim that an instructor can identify students' difficult points needing resolution in the learning task. The advantage of metacognition lies in its potential to help explain the effects of implementing the OMP, a classroom assessment technique (CAT), on improving student learning.

<div align="center">Participants and Settings</div>

Five instructors and 240 students (number enrolled) from five selected courses at the primary campus and a branch campus of Prince of Songkla University (PSU), the largest university in the south of Thailand, participated. Seven criteria were used for selecting courses: required and elective, length of class sessions, frequency of class sessions per week, students' faculties attending each course, students' school year attending each course, class size, and multiple campuses (Table 2).

Table 2

Criteria Used for Selecting Courses, Students, and Instructors

Courses / Criteria	CP	MA	PEUS	RC	SAC
Elective / required courses	Required	Required	Required	Elective	Elective
Length of class session (mintes)	50	150	75	75	75
Frequency/wk	Thrice	Once	Twice	Twice	Twice
Students' faculty/major	Chinese (major)	Medicine	Mixed	Mixed	Animal Science (major)
Students' school year	Second	Third	First	Second - Fourth	Third - Fourth
Class size	Small	Large	Small	Small	Small
Campus (primary and branch)	Primary	Primary	Branch	Primary	Primary

Following are the selected courses: Chinese Pronunciation (CP), Medical Administration (MA), Preparatory English for University Study (PEUS), Reading Comprehension (RC), and Small Animal Care (SAC).

Table 3

Number of Students Enrolled for the Selected Courses

Courses	No. of Students
CP	20
MA	110
PEUS	50
RC	35
SAC	25
Total	240

The names of the selected courses are changed to protect the identification of the instructors and the students who participated in the study. The first selected course was Chinese Pronunciation (CP). According to the curriculum of the Faculty of Liberal Arts, students who major in Chinese are required to enroll in the Chinese Pronunciation course when they are in the second year. The students practice Chinese pronunciation and study the articulatory and acoustic properties of the sounds of Chinese.

According to the curriculum of the Faculty of Medical Sciences (in the United States, the reference would be College of Veterinary Medicine), students are required to register for the Medical Administration course (MA) when they are in the third year. In this course, the first compulsory administrative course for the medical students, students are taught to develop their creativity and competency in medical administration so they can apply their knowledge to improve quality of medical work effectively.

Third, a course called Preparatory English for University Study (PEUS) (417-100) is taught at a branch campus. This compulsory course, provided for freshmen who have English Entrance Examination (EEE) scores less than or equal to 30/100, is particularly designed to help students improve their basic English grammatical structures and vocabulary, basic listening, and reading and writing skills for preparation for the compulsory English courses, English I (417-101) and English II (417-102).

Next, as background, all students at the primary campus of PSU are required to study English for 6 credits, Foundation English I and Foundation English II. Students in some faculties (e.g., Engineering, Natural Resources, and Sciences) are required also to study any foreign language courses for 9-15 credits plus the first two courses of English which are compulsory to them.

Among 28 elective English courses offered by the Department of Languages and Linguistics (Faculty of Languages and Linguistics, Prince of Songkla University, 2007), Reading Comprehension (RC) is chosen by many students each semester. Thus, the course is offered continuously every semester. It provides reading skills for students to develop their knowledge in their field of study.

The last selected course was Small Animal Care (SAC) as it is a professional elective course for Natural Resources students who are studying in the third and fourth years, majoring in Animal Science. The SAC course is offered to fulfill students' occupational needs in the pet care and small animal industries.

Among the five selected courses, the first three are required. The students enrolling for MA are the third year medical students. The students registering for the CP course are the second year students majoring in Chinese who have completed the prerequisites (Chinese I and Chinese II) before taking this course. And, the students enrolling in PEUS are freshmen from various faculties whose scores for the EEE were less than or equal to 30/100. The other two courses are electives. The RC has the second to fourth year students from several faculties (Faculty of Liberal Arts in the study would be the College of Arts and Sciences in the United States) who have completed the prerequisites (Foundation English I and Foundation English II) before enrolling in the elective courses. Another elective course, a professional elective course called SAC, is offered for the third and fourth year students majoring is Animal Science.

In addition, the five courses can be divided into two categories according to the class size: large and small. MA was the only large lecture course, and it contained approximately 100 students in class. The instructor continuously delivered lectures and

had students do case studies in this one 150-minute class per week. On the other hand, the instructors of the other courses usually used other teaching methods. They demonstrated or focused on applications of language skills, and had students complete exercises, quizzes, or assignments in classes containing 30-40 students. The students enrolling in the CP course attended three 50-minute classes per week while the students enrolling in the RC, SAC, and PESU courses attended two 75-minute classes per week.

After selecting the courses according to the seven criteria, I chose five instructors to participate for several reasons. The first reason was professional diversity of instructors. One was a veterinarian while another one was working in the medical professional. In addition, two others were working in a teaching English profession and the last one's profession was teaching Chinese. The second reason for multi-campus was that I wanted to account for the diversity between the main campus and a branch one. The third reason was my familiarity with the English language, so I invited two English instructors. The last reason was their willingness to participate in the study since they were familiar with me in a working relationship. And, all of them, especially ones who never took any courses relating to teaching methodology before, desired to improve their teaching practice.

Instructors' Demographic Data

Five instructors who taught different courses participated in the study. One of the five was on the Pattani Campus and the other four were located on the Hat Yai Campus. Three instructors were female and two were male. The age range of the instructors was 33-50. One of them graduated with a bachelor's degree from a university in Thailand while three graduated with bachelor and master's degrees from Thai universities. The

fourth one earned her bachelor's degree from a university in Thailand and her master's

degree from a Chinese university. For teaching experience, the CP, RC, and SAC

instructors had at least 10 years each while the MA and PEUS instructors had eight and

two years of teaching experience, respectively.

Table 4

Universities the Instructors Graduated from and their Degrees

Instructors	Degrees	Universities
CP	M.A. in Chinese History and. Ethnic History and Culture	Yunan University (China)
MA	M.A. in Business Administration	Prince of Songkla University (Thailand)
PEUS	M.A. in English	Prince of Songkla University (Thailand)
RC	M.A. in Applied Linguistics	King Mongkut's University of Technology Thonburi (Thailand)
SAC	Doctor of Veterinary Medicine	Chulalongkorn University (Thailand)

Two of the five instructors participating in my study were my colleagues. They

worked at the same department as I. The other three were teaching for other faculties.

One of the three was from a branch campus in Pattani. Initially, I had face-to-face

conversations with everyone except the one teaching Chinese because she was abroad at

that time. Thus, I contacted her via e-mail. I tried to interest the instructors by describing

my study and how they could benefit from participating even though they would need to

complete extra activities inside and outside of their classes. Finally, they agreed to

participate since they were interested in improving their instruction which could have

positive effects from doing the OMP throughout the semester. And, they were asked to sign their names on the IRB consent form.

Students' Demographic Data

Twelve students were purposively selected from the five courses for interviewing about their perceptions of using the OMP. Two of the 12 students were freshmen studying in the Pattani Campus PEUS-S (PEUS-S meant a student who passed the PEUS course) and PEUS-U (PEUS meant a student who failed the PEUS course) while the rest were sophomores and juniors studying at Hat Yai Campus. Four of the students were males and the others were females. Four were selected from two elective courses: SAC and RC. The two junior students were from SAC (SAC-A meant a student who earned grade A and SAC-D meant one who earned grade D from the SAC course), and one sophomore (RC-A) and one junior (RC-D) were from RC. All students studying MA were juniors (MA-A, MA-A1, MA-D, and MA-D1) and all students studying CP were sophomores (CP-A and CP-D). Two (one earning an A and the other a D) were selected from each small class and four (two earning A's and two earning D's) from the one large class.

Table 5

Student Interviewees' Demographic Data

	Pattani Campus		Hat Yai Campus	
	Male	Female	Male	Female
Freshman	PEUS-S	PEUS-U	-	-
Sophomore	-	-	-	CP-A, CP-D
Junior	-	-	MA-D, MA-D1 and RC-D	MA-A, MA-A1, RC-A, SAC-A and SAC-D
Senior	-	-	-	-
Total	1	1	3	7

All of the students had never used any learning strategies similar to the OMP previously. It was their first time they were required to evaluate themselves at the end of the class about the lesson they had just studied.

Data Collection Procedures

Biases and a one-sided view should be avoided while gathering data. LeCompte and Preissle (1993) say that triangulation plays a useful role to help prevent biases and to achieve more clarity in collecting data. They also posit that triangulation assists in making sure that research is interdisciplinary and holistic. Moreover, Erlandson, Harris, Skipper and Allen (1997) claim that, besides validating findings, triangulation is an important means the researcher uses to obtain multiple types of sources from different points of view. A researcher can check data against different questions, different sources, and different methods. To establish trustworthiness, several methods were employed to collect data: explaining documents, conducting interviews, and conducting observations. Data collection through each method occurred at various intervals during the semester. Following are the details of the data collection.

The OMP Sheets

The OMP sheets are written materials that enable the researcher to obtain the characteristics of students, participants of the study, which reveal what and how they respond to the two questions in the sheet. The OMP was administered only once a week in any session the instructor considered appropriate or convenient. Every course, except MA, had two-three sessions per week so the instructor was able to decide when the OMP should be done. The OMP was administered throughout the semester except the first

week, the first week after the midterm examination, and the last week before midterm and final examinations. It was administered a total of 10 weeks for the semester. The OMP forms and the instructor's report forms were placed separately in 10 paper bags and sent to each instructor. All instructors were explained how to use the OMP. They were suggested to stop class about five or 10 minutes early and inform the students that they, the instructors, wanted thoughtful, brief, and legible answers. Then the instructors would hand out the sheets and ask the students to respond to the two questions from Cross and Angelo (1993) on the sheet:

1) What was the most important thing you learned in class today?

2) What important questions that you have from class today remain unanswered?

These two questions were translated into Thai because Thai on the OMP was used to communicate between the instructors and the students in all selected classes. Students attending the class wrote briefly what they saw as the most significant things they had learned on one side of the sheet, and then they wrote what their major questions were on the other side of it.

Collecting the sheets, the instructors could quickly check how well their students were learning what they were teaching. The feedback could help the instructors decide whether any corrections or changes were needed, and what kinds of instructional adjustments to make in the next class meeting.

Before the first week of the semester, I met each of the five instructors face-to-face for about 15 minutes to explain the study and the use of the OMP, for example, the purposes of the OMP, how often it should be administered, and how many times it should be done during the semester. The instructors were also told that when they introduced the

OMP to the students in the first class session, they should emphasize that the students were expected to give any comments based on their understanding. Doing the OMP was to help them learn better by giving feedback to the instructors. Asking them to put their names on the forms was not to grade them, but to allow the instructor to know who needed extra help from the instructor. Afterward, a hard copy of instruction and suggestions about administering the OMP (Appendix F) was sent to the instructors.

Instructors' Reports

All instructors were asked to write a brief report of what they decided to do in the next class according to the students' responses to the two questions on the OMP sheets. The instructors gathered the concise report and the OMP sheets together and sent them to me once a week.

Observations

Through observation and without participating in any activities occurring in the class, I got firsthand information of the OMP process. During the semester, the responses of the students and the instructors to the OMP were observed. The observations were carried out on the behaviors of the students while they were doing the OMP at the end of a session. I took about 10-15 minutes to observe how the students responded to the assessment and what was happening in the classes. The first three observations of all five courses in the first three weeks that the instructors used the OMP were made to see the students' reactions and the time they spent in completing the OMP. Two more classroom observations were conducted after the students took midterm examinations. The observations were carried out to see whether there were differences in the length of time

students spent doing the OMP and their behavior toward writing the OMP at those two periods of the semester.

Interviews

Interview was another data collection method to gather any information that could not be obtained from observations. To get good data from respondents, the researcher should ask appropriate questions (Rubin & Rubin, 1995). The semi-structured interview is the most common form of interviewing used in qualitative study which is used for gathering certain information and guided by a set of questions and issues that should be explored (Merriam, 1988). Moreover, Coombes (2001) claims that the semi-structured interview facilitates having various types of information desired such as opinion, experience, feeling, knowledge, sensory or demographics as a mean in deciding which types of question and what questioning strategy to adopt. This study employed the semi-structured interview. At the end of the semester, face-to-face interviews with the five instructors, two students in each small class, and four students in the large class were conducted to reflect instructors' and students' perceptions of the benefits of using the OMP in class.

Purposive sampling was employed in selecting the student interviewees. Patton (1990, p. 169) proposes that "Subjects are selected because of who they are and what they know, rather than by chance." For this study, stratified purposive sampling was used to elicit characteristics of the particular students who received the different grades in each class that used the OMP through the semester. By doing this, it also facilitated comparisons between students who got different grades.

By purposive sampling, students were selected as respondents in this study according to the grade they received. Two students in each course were chosen (one who earned an A, one a C and one an E), and asked five open-ended questions about their perceptions whether or not the OMP helped them improve their learning and how. Grades A, C, and E were the criterion for selecting students because students getting those grades might have different perceptions of the OMP. In the case that no one received grade E, students who received grade D were selected instead. At the same time, four students were selected if the course contained 50 or more students like MA. Thus, two students getting A and two students getting C or D were chosen. For PEUS, the students were graded into only S (Satisfied) and U (Unsatisfied). Thus, one student getting an S and one student who received a U were chosen.

The interviews with the 12 students from the five courses in Pattani and Hat Yai campuses were conducted face-to-face as soon as they received their grades. The instructor and student interviews were conducted to determine their perceptions of the usefulness of the OMP and the effects on them as a result of doing it throughout the semester. The instructors sent the grades their students received as an Excel file. I grouped the students into categories according to the grades they received, A and D. Then, I arranged their first names into alphabetical order before selecting one whose first name was in the first of the arrangement. I had their telephone numbers and email addresses on their last OMP sheets so I phoned and made an appointment with them to have an interview. When I scheduled the interviews, the students chose the date and the time they were available. The settings of the interviews were at the students' faculties. I informed them it would not take more than 15 minutes for an interview. Before starting

the interviews, I explained the study to the students and asked them to sign their names

on the IRB consent form if they were willing to participate. All of the transcripts of the

interviews were sent to the interviewees so they could confirm whether my recording was

correct.

<div align="center">Instruments</div>

Four instruments were used in the study: OMP sheet, instructor's report form,

classroom observation form, and interview protocols.

The OMP Sheet

The OMP sheet is a half A4 paper with two questions, one on each side, proposed

by Cross and Angelo (1993):

1) What was the most important thing you learned in class today?

2) What important questions that you have from class today remain unanswered?

(Appendix A)

The Instructor's Report Form

I provided an instructor's report form together with OMP sheets weekly. This

report form was for the instructors to write briefly what topic or topics or what course

content they planned to explain or re-teach the students in the next class after they had

read the students' responses from the OMP sheets. (Appendix B)

The Classroom Observation Form

The classroom observation form, used during observations of each course,

included guidelines for taking notes that would be useful to examine the instructors' time

management, their pace of processing the OMP, and their class control during the process

of the OMP. Moreover, the information received from observations was needed to

examine the students' completion of the OMP to see if they were involved and satisfied with the activity, and length of time they spent in writing the OMP. (Appendix C)

The Interview Protocols

There were two sets of the interview questions: one for students' interviews and another for instructors' interviews. Each set contained five, broad, open-ended questions to elicit information about the instructors' and the students' perceptions of student learning and pedagogic practice due to the OMP, and how the classroom assessment technique affected both the instructors and the students (Appendixes D and E).

<div align="center">Data Analysis Procedures</div>

During the semester I described what and how the students responded to the two questions on the OMP sheets. To strengthen interpretations as well as to improve credibility of the study based on the available evidence, the data were gathered from three sources: document analysis, observations, and interviews. Document analysis was involved with instructors' reports and the OMP sheets.

As soon as the five instructors finished reading all of the sheets and taking some useful notes from the sheets to prepare feedback for their next class session, they sent to me all of the sheets and a brief report of what they were going to do in the next class as a result of the information they learned from the sheets. The instructors' reports were analyzed to discover what the instructors planned to do in the next class as a result of the students' feedback and whether any changes of their instructional arrangement emerged during the semester.

The OMP sheets completed by the students in the five courses were placed by course into three groups. Group I was the sheets done in the first three weeks, Group II

were ones completed in the second three weeks, and Group III was for the last four weeks of doing it. Afterwards, all the sheets were placed again according to the time frame to see the whole picture. The OMPs were examined according to the significance of the words written and the amount of information on the OMP sheets. Writing styles meant aspects of students' writing. For example, I examined how students used topics, subtopics, phrases, short or complete sentences to answer the questions. The amount of the information meant details and examples they wrote to support their ideas as well as numbers of points they thought the most important and the most difficult. This examination was conducted to discover how the written word affected the time or effort that the instructors put in reading and analyzing their responses on the OMPs to prepare the content that they wanted to conduct a review for the students in the next period. Besides, the amount of information on the OMP sheets was also investigated to discover how many questions most students tended to ask and what those questions were. By examining this throughout the semester and comparing three groups of the sheets, the researcher got the overall picture of the students' underlying perceptions of how much they considered the advantages of doing the OMP.

Also, the notes in the classroom observation form and the research diary taken during observations described how the students responded to the OMP. Then, occurrences in the classroom were examined to determine the effects of using the OMP on the students. Besides, at the end of the semester the information I received from interviewing the instructors and the students was described.

Finally, the metacognitive learning strategy was considered to determine whether doing the OMP enhanced the students' learning. This strategy was used to examine the

students' and the instructors' perceptions of the advantages and disadvantages of doing the OMP in class throughout the semester as well.

<center>Potential Researcher Bias</center>

In the study, I was the only person who collected and analyzed the data. My role might have bias in some ways that might affect data collection and analysis. First, I had a positive perception of the OMP, a classroom assessment technique. According to the literature I studied, I believed in the positive results that using the OMP regularly can yield benefits to students.

Trustworthness, integrity, and credibility of the researcher were needed to respond to the bias that would occur. Guba and Lincoln (1985) claim that triangulation by using several data collection strategies is one way to help lessen the bias. Thus, interview, observation, and document analysis were data collection strategies.

<center>Summary</center>

Methodology and procedure were implemented to achieve essential strategies for collecting important data to use and providing clear insights into the usefulness of administering the OMP classroom regularly. The purpose of this study was to examine whether classroom assessment, in particular employing the OMP, helped increase student learning as well as improved instructional effectiveness at a large public university in Thailand. In Chapter IV, the data collected from each course will be presented. These data are based on the OMP sheets, classroom observation notes, and interviews to give a realistic depiction of the context of this study.

CHAPTER IV

PRESENTATION OF DATA

Introduction

The purpose of this study was to examine the usefulness and effectiveness of the one-minute paper (OMP), a classroom assessment strategy (CAT), to promote student learning as well as to facilitate teacher assessments of student progress and effective instructional modifications. The OMP sheet (Appendix A) was administered throughout the semester to check the students' understandings of the lessons they had studied in class. By using this assessment at the end of the class once a week, students had the opportunity to evaluate themselves in terms of what they thought they understood most and best clearly and what they understood least. Three primary questions were of interest:

1) How does the OMP promote student learning?

2) What are the effects of using the OMPs on students and instructors?

3) What are students' and instructors' perceptions of the usefulness of the OMP?

Subsequently, the instructors noted what they planned to do in the next class after they had read all the comments on the OMP sheets.   Realizing how much the students understood the lessons taught in the last class could help the instructors know what they should do to present future lessons more clearly.

Overview

This chapter begins with the findings from the OMP sheets completed by the students in Medical Administration (MA), Chinese Pronunciation (CP), Preparatory English for University Study (PEUS), Reading Comprehension (RC), and Small Animal Care (SAC). Next, the data from the instructors' reports are presented. Afterward, the direct observations of the behavior of the students and instructors during completion of the OMP sheets are discussed. Finally, the findings from the interviews, both the five instructors and 12 purposively selected students, from the five courses are shown.

One-Minute Paper Sheet Findings

The instructors were requested to use the OMP strategy at the end of the class once a week for 10 weeks during the semester. The table below displays the information of the OMP strategy used in each course and the number of the students registered for the courses.

Table 6

Administration of the OMP Sheets

Course	Frequency of OMP Administration	Number of Students Enrolled
Chinese Pronunciation (CP)	9	20
Medical Administration (MA)	8	110
Preparatory English for University Study (PEUS)	9	50
Reading Comprehension (RC)	10	35
Small Animal Care (SAC)	10	25
Total	46	240

In the 16 weeks in a semester, I planned to have the students complete the OMP sheets 10 times. The first week of the semester, the weeks before and after the midterm examination, the week before the final examination, and the university open week were excluded from the 16 weeks. However, for two courses only, RC and SAC, the instructors were able to use the strategy 10 times as requested. For the other three courses (CP, MA, and PEUS) , the students completed the OMP eight and nine times respectively, because the instructors did not administer the OMP in the weeks they went abroad to attend conferences.

The amount of information on the OMP sheets and the significance of the written words by the students were analyzed to see how much these two aspects affected the time or effort that the instructors invested in reading the information provided by the students. At the same time, by using these aspects, all OMP sheets were examined to obtain a picture of the students' underlying perceptions of how much they considered the advantages of doing the OMP in general.

Approximately 2,000 OMP sheets throughout the semester of all courses were placed into three groups (I, II, and III) according to the time frame the students completed the OMP sheets. Group I was the OMP sheets completed in the first three weeks (the early period). Group II was the sheets the students completed in the fourth to the sixth weeks (the mid-period) and Group III was the sheets collected in the last three or four weeks in the semester (the late period). (Examples of OMP sheets completed by students participating in the study can be found in Appendix G.) And, the sheets completed by the students in the five courses were placed by the groups. By doing this, I was able to detect differences that occurred during the semester both within a course and among courses.

Table 7

Number of OMP Sheets, Completed by Students in Five Courses, in each Group

	Group I	Group II	Group III	Total
CP	57	58	58	173
PESU	145	147	147	439
MA	308	210	310	828
RC	97	99	134	330
SAC	74	75	99	248
Total	681	589	748	2018

OMP Sheets Placed by Course

The CP course.

Data from OMP sheets Group I showed that the CP students failed to describe the

particular sounds that they could not pronounce appropriately. They wrote a broad topic

that they claimed was their most difficult in a period without any specific details. A

small number of students explained how they had problems in pronouncing a Chinese

phoneme. Approximately 10 of 25 students clarified the most difficult points they

experienced. An example of this occurrence in the first few weeks was taken from an

answer to the questions on an OMP sheet. This student answered that how to pronounce

Chinese sounds correctly was the most important point and the most difficult point

simultaneously. She did not give any indication of which phonemes were difficult or of

places of articulation to pronounce a phoneme.

From the data of the OMP sheets Group II, on the other hand, an increasing

number of the students gave more details about what they wanted their instructor to

explain to them again in the next period. Moreover, no students wrote only a broad topic

without exact details of what they claimed the most difficult point. Another thing noted was that the difficult points made were very different and could be divided into five to six groups.

The last group of sheets near the semester's end revealed that many students wrote Chinese phonemes and the Chinese alphabet besides writing the description of the most difficult part of the lesson. They provided specific Chinese phonemes together with an explanation of how they experienced a difficulty.

The MA course.

Data from the Medical Administration (MA) OMP sheets of the first three weeks showed that more than half of the MA students responded to the questions on the sheet without a specific idea. They wrote only a broad view without including any subtopics or phrases to detail the specific point they understood most or the most difficult point. They did not give a short clear point, but seemed to write all information they had to answer the questions. Moreover, some students wrote a broad topic with no details. It could be concluded from Group I of the OMP sheets that some students gave too many details while some reported too broad ideas when they presented their most important and the most difficult points they got from a period. Only a few from about 100 students wrote nothing about difficult points they had. They answered the first question, but did not report anything about what they did not understand.

However, some changes were noticed in Group II of the OMP sheets. The way the MA students gave feedback was quite the same. When they reported the most important and the most difficult points, some wrote only a few sub-topics while others added exact details for each sub-topic. No one provided feedback by describing the

points with many details or writing only a broad topic the instructor taught in a period. Also, the difficulties the MA students had in each session were usually similar. Conversely, the OMP sheets reflected that the most important point in each session was sometimes quite different.

For Group III of the OMP sheets, the way the MA students described their key points and difficulties they had in a period was quite similar to the ones in Group II. Their key points or what they claimed as difficulties were described by using sub-topics with or without short and clear details. The points the students reported as the most important were fewer. At the same time, many students reported that they did not have any difficulties about the learning task in a period especially in the eight and the ninth weeks of doing the OMP.

The PEUS course.

Data from the OMP sheets Group I showed that most students used a topic accompanied by a short sentence when they described their most important and most difficult points. The students not only specified the most important point, but also gave reasons why they thought this. They continued doing this throughout the semester. And, this was quite different from the other four courses. The PEUS students most often went into detail about the topic they thought was the most important. One thing found in this group was that students requested their instructor to speak slower. Approximately half of the students completed question two and ended with a request for the instructor's slower talking speed. Besides, they requested the instructor to repeat difficult points as often as he could. They stated that they did not grasp some difficult points and wanted him to emphasize difficult and important parts of the lesson. Another thing discovered from one

of the first three weeks of doing the OMP was that 10 to 12 students claimed that all lessons the instructor taught in the session were the most difficult. They did not identify a specific point under a broad topic the instructor taught.

However, none of the Group II students reported that everything they learned in classroom was difficult. The students gave exact information of what they thought was their most difficult. The requests asking the instructor to reduce his talking speed also disappeared. No one wrote that the instructor's talking speed was one of the difficulties faced in a period in the fourth to the sixth week of doing the OMP. What did continue was the students giving a reason why they thought their selected point was the most important. They often gave more details of what they thought towards the most important points they had in a period.

For the OMP sheets Group III, on only two or three OMP sheets did the students write that they understood all the things they had studied and had nothing that could be claimed as their most difficult. Most students still wrote difficulties they experienced in a period until the last week of doing the OMP. Those few students did not report any difficulties they faced but gave further information that they understood all lessons the instructor taught. One thing that the PEUS had obviously done until the end of the semester was that they added a reason for choosing a particular point as the most important.

The RC course.

A remarkable thing I found from the OMP sheets Group I was that approximately two out of three students claimed the most important thing and the most difficult thing as the same. For example, one of the RC students wrote in the first week, "I think phrasal

verb is the most important part of the lesson today. I think knowing meaning of phrasal verbs helps me understand what I read." The same student also answered the second question that "Today, for me, phrasal verb is the most difficult because when a verb and a preposition are combined, a meaning is often different from the original verb." Another thing that could be noted from the first stack of the OMP sheets was that the first question, which asked students about their most important thing from the lesson in a period, was diversely answered. The students had different ideas of what was the most important thing of the lesson. A variety of reponses was also found in their answers for question number two, which asked them to write about the most difficult point they had in a period. The answers to the two questions in the first three weeks were quite dissimilar and could be divided into approximately five to six groups.

The OMP sheets in the fourth to the sixth weeks differed from those completed at weeks one to three. Students seemed to give answers for questions one and two similarly. About 3-4 groups emerged according to their questions. And, they defined specific details of what they thought was most important and most difficult. They seemed to consider the important point and difficult point in more detail, not just writing only a broad topic.

In the last four weeks of doing the OMP, however, most students wrote nothing about difficulties they had in a class session. They did not give any answers to question number two. For those who encountered difficulties, the questions they wrote were quite similar. At the same time, data from the OMP sheets showed that students, approximately half the RC class, wrote only topics of the lessons to describe the most

important point instead of giving details of what they thought was the key point of the learning task compared to the beginning of doing the OMP.

Data from all groups of the OMP sheets showed that some RC students wrote only the topic they thought was the most important or the most difficult in a period. At the same time, some often wrote a topic with a supporting reason why they decided to choose the topic as the key point or the difficulty.

The SAC course.

The OMP sheets in Group I revealed that the students had a diversity of the points they thought the most important and the most difficult in a class session. They made different points which related to the main topic in a period. The points they thought were the most important could be divided into four to six groups. In the OMP sheets in Group I, some students wrote short sentences as an explanation to support their ideas which they claimed the most important and the most difficult of the lesson they had studied. They did not write any topics, but they made short conclusions of the points instead. On the other hand, some wrote only an exact topic without any explanation. They often used the topics they had studied to answer the two questions on the OMP sheets: the most important point and the most difficult point of the lesson they studied on that day.

A reading of the OMP sheets Group II found that the significance of the words written on the OMP sheets was quite the same as the one they had in Group I. Some used a short sentence to answer the questions on the OMP sheets while those specified the points clearly they thought the most important or the most difficult. However, the points they claimed as the most important and the most difficult were not as diverse as those in the first three weeks of the OMP.

In Group III of the SAC OMP sheets, many students raised points that they did not understand most while others said they did not encounter any serious problems which could be claimed as the most difficult. And, the questions most students had and the most important points they had were quite the same. They had only one or two different points for each question on the OMP sheet.

The data from the OMP sheets from all five courses provided a general view that most students usually wrote the topics, which were phrases, when describing their most important and most difficult points. A short sentence was sometimes written when they provided details on the particular topic they had already mentioned. One thing noticed from CP and MA was that the students did not give an exact idea of what they thought the most important or the most difficult in the very first week. They only wrote a broad topic of the lesson they had studied on that day without any detailed information. However, they finally changed the way they provided feedback to their instructors on the OMP sheets. I noticed from all the OMP sheets that only the PEUS students added reasons why the topic was most important or most difficult for them. They did not only give the most important topics of a period, but also provided reasons why they decided to choose those topics as the most difficult.

OMP Paper Sheets Placed by Time Frame

After all the sheets were placed by course into three groups according to the period of time in the semester, the sheets were rearranged according to the total groups to see the whole picture of students' responses. Group I consisted of the sheets completed by students in all five courses in the first three weeks (the early period), Group II was the sheets done in the fourth to sixth weeks (the mid-period), and Group III was the last three

or four weeks of doing the OMP (the last period).

Group I: The early period of the semester.

Students had a wide range of points they thought the most important and the most difficult in a class session. Four to six points were claimed as the most important points in small classes like CP, PEUS, RC, and SAC. For MA class, the large class, the important points the students had varied from five points to 10 points. The number of questions the students had were also diverse, especially the MA students who asked many varied questions to the instructors.

The students in all courses gave broad views when answering both questions on the OMP sheets. They did not give any details of what they thought the most important and the most difficult in a class period. They wrote only a topic or a subtopic and did not explain specific points they claimed the most important or ones they had problems with. And, many students answered the same thing to both questions. The most important point and the most difficult were the same point. They simply gave a topic without any details.

Only PESU students wrote comments about their instructor's behaviors while others tended to report their difficulties in comprehending a learning content. They requested the instructor to speak slower since they could not grasp important points.

Group II: The mid-period of the semester.

The numbers of the most important point and the most difficult point decreased. The answers given by students in each course were quite the same. In small classes, three to five points were raised for both questions.   Four to seven points for both questions were written by MA students who studied in a large class.

The students seemed to narrow their points of view when responding to the questions. They specified what they thought the most important and the most difficult. For example, CP students gave exact details of the phonemes they had problems with while RC students wrote exact grammatical points they thought the most important and the most difficult. Besides, PEUS students explained why they thought the select points were the most important and the most difficult for them. A few students in each course did not ask any questions to the instructors, they reported only the most important points.

Group III: The late period of the semester.

Students in each course had similar responses for each question. And, the numbers of the most important point and the most difficult point decreased. One to three points were presented by students studying in small classes as their most important points. For a large class, MA students had fewer points as well. And, the questions or difficulties of all of the students in the five courses were also fewer. Students reporting having no questions increased; they wrote that they understood all of the contents in a class session.

Students continued giving specific details of what they thought the most important and the most difficult. No one wrote only a broad view or a topic without exact details. Students who gave reasons for choosing the points or giving examples of learning content continued doing that until the last time they did the OMP.

Instructors' Report Findings

The instructors were asked to complete the Instructor's Report Form after they had read the OMP sheets completed by their students. They were requested to describe briefly what they were going to do in the next class according to the students' feedback

on the OMP sheets. Both the student OMP sheets and the instructors' reports were then sent to me. (An example of an Instructor's Report Form completed by an instructor participating in the study can be found in Appendix H). Following are the findings from the instructors' reports.

CP instructor.

CP instructor's reports through the semester showed that she frequently chose to review places of articulation in the Chinese language as well as symbols which were used to represent Chinese sounds. Each data on the OMPs showed that she planned to explain the difficult points to the students in the first five minutes of the class. She determined that most students encountered problems pronouncing the Chinese phonemes. Data on the second week of the instructor's report indicated that she planned to have her students do supplementary exercises. In the third week's report, the CP instructor planned to arrange the Chinese phonemes from a paragraph into a table. She expected her students to consult the table when they encountered problems from reading in a paragraph. Later, in the sixth week, the instructor planned to start using a cassette tape as a teaching material to help her students pronounce the Chinese sounds correctly. From her reports after the sixth week, she often permitted the students to repeat after the cassette tapes to practice pronouncing the sounds that were problematic. From this instructor's reports, it was evident she planned to explain more than one difficult topic to the students after the first few weeks. And, she tended to adjust her teaching materials to help her students learn the Chinese sounds more effectively, for instance, arranging extra exercises, creating the Chinese phonemes table, and using some cassette tapes.

MA instructor.

A total of nine reports were completed by this instructor and two guest lecturers. He selected content of the course to review differently from other instructors. This instructor clearly concluded what his students thought was the most important point and selected two or three points to review in the next period. He was not concerned about the difficulties his students encountered whereas other instructors classified students' difficulties, tallied up questions the students had, and finally chose topics to review. He did not choose only one point to explain. Instead, he frequently selected two to three points that his students could least understand. He prepared some questions due to the students' feedback and posted them in the Virtual Classroom. He asked the students to respond to the posted questions interactively before he concluded about them again at the beginning of the next class. The fifth and sixth weeks' reports were completed by the guest lecturers of this course. They wrote two or three topics they selected from the students' questions on the OMP sheets completed in the periods they gave a lecture. However, these lecturers marked at the end of their reports that the instructor was responsible for reviewing with the students since they lectured only two periods in the semester. After I looked through all reports, I noted that the instructor gave fewer details of why and how he planned to review the selected topics. The first three reports revealed that he provided an explanation of why he chose the topics and how he planned to describe them to the students in the next period. However, he did not give as many details in the reports of the last few weeks; rather, he chose to explain how to review only one of two or three selected topics.

PEUS instructor.

The instructor reported in the first weeks of doing the OMP that many students wanted him to speak slower and repeat difficult parts frequently. He also wrote that, in addition to choosing difficult points to explain to the students, he intended to speak slower and explain difficult points to his students before starting new lessons. He never reported about his speaking speed after the first few weeks past. Besides, he proposed in the second week's report that he planned to employ a learning strategy that could help his students improve their learning. Along with the OMP, he intended to use collaborative learning strategy during the semester. Because his students were quite poor at English, he determined that they needed a great deal of encouragement to study successfully. He believed that a collaborative strategy could help the students support each other while they were learning. He decided to have them sit in groups of five, let them share knowledge, and help each other to understand learning tasks. The topics he wrote from the third to the ninth week's reports were about arranging supplementary exercises according to the students' feedback on the OMP sheets. He also wrote that teaching only the lessons which were planned in the course outline to his students was not enough because their English background knowledge was not very good. From all nine PEUS instructor's reports, it was found that the instructor usually proposed to present difficult grammar points and an extra exercise via PowerPoint at the beginning of the class before having the students do the exercise together. By doing this, he wanted to make certain that all understood the difficult parts before they learned new things. Another technique he described on the fifth report was that he assigned the students to write answers on the board one-by-one. Then, after his students finished giving answers and he found the

answers were wrong, he planned to explain the grammatical points to the whole class immediately. It was obvious that the instructor planned to have his students do supplementary exercises regularly to help them understand the difficult points better.

RC instructor.

The instructor administered the OMP a total of 10 times in the semester. By reading through her reports, it was found that sometimes she tended to review the same topics with the students in different weeks. For example, the eighth week's report showed that the topic the instructor planned to explain to the students was the same as that she intended to review due to the students' feedback on OMP sheets in the seventh week. Her reason for doing this, reported at the end of the eighth week report, was that the topics were related to the lessons she continuously taught in the seventh and eighth weeks so that it was not a surprise why the students faced the same problem in those two weeks. One thing noticed from all reports throughout the semester was that the instructor planned to review selected difficult points at the end of the period instead of at the beginning like other instructors did. Even though she reviewed difficult points with her students at the beginning of the class in the first few weeks of doing the OMP, she marked at the end of the fourth, seventh, eighth, ninth and tenth week reports that she intended to explain difficult points at the end of her class. Another thing noted across the 10 reports was that the topics the instructor planned to review in the last month of doing the OMP were not as many as she did at the beginning of the semester. However, she prepared at least one topic, the students' most difficult, to explain to her students in the next class.

SAC instructor.

One thing I noticed from the first few weeks from the SAC instructor's reports was she wrote one or two topics she planned to review with her students in the next period without any explanation about when and how. After the second week passed, I noticed that the instructor tended to employ some teaching materials and add some teaching techniques to her instruction for the next period. From the second and the third reports, it was evident she assigned her students to do extra study from academic papers that she suggested. She also posted two or three questions with some useful websites related to the lesson taught in the class on the Virtual Classroom (VCR). Then, she let her students respond to the questions interactively on the VCR. However, posting the questions on the VCR and assigning reading academic papers were not found in any other reports so that I was not sure whether or not she continued this practice throughout the semester. An additional activity in the classroom, according to the students' feedback, was giving a quiz to the students instead of simply reviewing some difficult points. This teaching technique was done for the first time in the fifth week of doing the OMP. And, the instructor explained at the end of the report that she believed having a quiz regularly would help her students have a clearer understanding of the difficult issues. She planned to give a quiz to the students on Friday because the length of the period that day was longer than Monday's. From the rest of the reports, she wrote that she gave her students a quiz until the last week of administering the OMP.

From their reports, all instructors continuously made decisions about their students over the semester. The students' responses were good information for them, the instructors, to reflect on their teaching practice and design instructional strategies to

facilitate their students understanding the content clearer. They adapted their behaviors, and modified teaching materials and instructional strategies.

<p style="text-align:center">Classroom Observation Findings</p>

I observed the instructors and their students only when they were completing the OMP. Each of the five classes was observed during the first three weeks and again in the sixth and the seventh weeks. In the first week, instructors spent 2-3 extra minutes to explain how to use the OMP.

In the first two weeks, students seemed not to feel relaxed when they were assigned to answer the two questions on the OMP sheets, although the instructor told them that they would not be graded from doing this assessment. To have something to write on the OMP sheets, some students looked at their friends' answers, some flipped through the pages to get an idea of the contents they had just studied, and some just sat and did nothing. Many students did not write their answers until the instructor rushed them into submitting the OMPs. The students spent about five to seven minutes answering the two questions on the OMP sheets.

However, after the first two weeks, the students seemed less nervous and more relaxed, spending less time, averaging only three minutes or fewer to complete the OMPs. And, the questions like why they had to do this or the instructor would really not grade their answers disappeared. Different student behaviors in the five courses were noticed in the beginning and the middle periods of doing the OMP. Students in the PEUS course, who were poor at English, often asked friends sitting next to them for something they could write on the OMP sheets. They repeatedly turned over the pages they had just studied, and did not write their answers on the sheets until the instructor hurried them to

<p style="text-align:center">66</p>

submit the sheets. On the contrary, after the first two weeks of doing the OMP, students

studying MA, CP, RC, and SAC usually did the OMPs by themselves without asking

their friends or looking at their friends' answers. Some students flipped through their

books to find the particular part they thought was the most important part or the part they

did not understand clearly without delay before writing on the OMP sheets.

The Chinese Pronunciation (CP) instructor who taught the course lasting only 50

minutes sometimes assigned the students homework or reminded them about making up

classes while the students were doing the OMPs. The CP course was taught on Monday,

Wednesday and Friday. Students seemed not to be in a hurry when they were assigned to

complete the OMP in a Friday period since they did not have any classes after studying

CP. On the contrary, they rushed to complete the OMP sheets in Monday and

Wednesday periods. In those periods, the students who finished the OMP sheets

immediately returned them to the instructor and left the classroom without delay.

However, the students' behavior I could observe in Friday periods was different. They

kept sitting and chatting after they finished doing the OMP sheets and submitted them to

the instructor. They could wait until the instructor said goodbye and left the classroom.

On the contrary, the length of the session of other courses was longer so that the

instructors rarely talked to their students during the OMP time. Instead, the instructors

erased the board, shut down the computer, or prepared to move to another class while the

students were completing the OMP sheets. The behaviors of students in CP, MA, PEUS,

and SAC who studied in a long session were quite the same. The instructors commonly

started distributing the OMP sheets at the last 10 or 15 minutes. The students seemed to

complete the sheets without any rush. Moreover, some of them left the classroom slowly

while some hung around with their friends in the classroom or had a conversation with their instructor.

Completing the OMPs commonly took more time in the large MA class than in the other smaller classes. Approximately 100 students were in a large lecture room that had 12 rows of stationary chairs with students sitting in all rows. The instructor stood on the stage most of the time. The MA instructor distributed the OMP sheets by handing the sheets to the students sitting in the front row and asking them to pass the sheets to the students sitting at the back of the room. It normally took about two to three minutes to give all students the sheets. Then students spent about two to three minutes completing them. Finally, the process of collecting the sheets from the students took about another three to four minutes. The total time to complete OMP was about seven to 10 minutes in the large class.

Considering only the period of time the students spent answering the OMP's questions, it was not different between the students studying in a small class and those studying in the large class. The students took about two to three minutes to complete the OMP. However, the time spent in distributing and collecting the sheets in a small class was less than that spent in a large class.

On the other hand, the amount of time students spent giving answers was quite different between English and non-English classes. Students registered for the PEUS course were those who had low ability to study English. In this class were contained the students who got English Entrance Examination scores less than the standard of English score which was set for PSU freshmen so that they had to register for PEUS as the university required. Two of the other four courses were required courses while two were

electives. The students in the four courses had mixed abilities. If considering the students as a whole class, it can be seen that students studying PEUS spent a longer time than students in CP, RC, SAC, and MA. It meant that the PEUS students' lacked basic English for studying in the advanced English courses. They took two to three minutes flipping the textbook's pages to find something to answer the questions on the OMP sheets.

The seating arrangement in small classrooms did not affect the time spent distributing and collecting the OMP sheets. A traditional classroom, with the desks in rows and the instructor's table somewhere in front of the room, was found in CP, RC, and SAC. An arrangement for group work was set for PEUS. Although the seating arrangement was different among the small classrooms, it did not significantly differ in the amount of time the instructors spent distributing and collecting the OMP sheets.

Interview Findings

Instructor Interview Findings

All instructors said they needed three to five minutes for the OMP activity so they stopped the class for that amount of time at the end of the session and asked their students to complete the questions on the OMP sheet. They also spent an equivalent amount of time at the beginning of the class to explain the difficult point that the students wrote on the OMP sheets during the previous session. Moreover, the instructors had to scan through the OMP sheets to divide the difficulties the students wrote on the OMP sheets into groups. The criteria they used to select the point to review in the next session were the number of students who did not understand the lesson and the importance of the topics.

The CP, PEUS, RC, and SAC instructors shared the observation that the students who did the OMP regularly needed not to wait until a few weeks before an examination to learn of their difficulties. They could reflect as soon as they finished their lesson in each session. When they identified their difficulties, they could find information by themselves as well as listen to their instructors' explanation in the next session.

CP instructor.

The CP instructor viewed the OMP as a tool she employed to communicate with the students besides using the Virtual Classroom on the Internet. She also confirmed that it challenged her students to talk to her much more than before. When the students had a conversation with her, she was able to drill important or difficult points to the students and to explain to them until they understood.

The instructor said she spent about 10 minutes at the beginning of the class to reemphasize the chosen points to the students again before giving them new lessons. She explained that she modified her teaching style by asking the students to pronounce phonemes in pairs instead of asking the whole class to repeat after her loudly together. She often asked her students to pronounce phonemes one-by-one. She selected students to practice pronouncing Chinese phonemes. According to the students' feedback on the OMP sheets, the instructor knew the particular students with pronunciation problems. She noted the names of the students with pronunciation difficulty. For such a mixed ability group, some students who pronounced the phonemes correctly and others who mispronounced them were asked to do more practice. The reason for doing this was that the instructor did not want to embarrass her students who could not pronounce correctly.

The CP instructor also put the Chinese phonemes into a table instead of letting her students learn the phonemes from the general description.

The instructor shared an opinion about benefits of using the OMP that, "If the students can evaluate themselves, they will certainly know how well they understand the lesson. If they can't tell what they have studied, they will not be able to answer the questions on the OMP sheets." She also stated that not only the students benefited from the use of the OMP, she as an instructor could take advantages from it as well. She said that, "I feel like I learned all the time how to teach them effectively and I used their feedback to decide what should be done in the next period."

Talking about disadvantages of using the OMP, the instructor commented that some students failed to evaluate themselves properly. They thought that they clearly comprehended all the contents they had studied even though they actually did not really understand it. She said that, "This could lead this kind of students into missing chances to improve themselves."

MA instructor.

The instructor who taught the large class, which contained about 100 students, said that he spent about 20 minutes once a week to scan the OMP sheets before selecting two or three important points to explain to his students.

The instructor described that he adapted his teaching method by posting questions, due to the students' feedback from the OMP sheets, on the Virtual Classroom on the Internet. He wanted his students to comment on his questions. He thought that questions and answers would be a method to help the students to improve their learning autonomously. He also claimed that the OMP helped him identify his students' strengths

and weaknesses in the subject. His technique to determine the points he would reemphasize in the next session was different from other instructors. He gave attention to the points the students thought were the most important instead of the difficult ones the students encountered. He said that it was very difficult to deal with a variety of questions. Focusing on the responses to question number one could save his time to find out how much the students grasped the significance of the content before he selected points to review. He added that he commonly planned to spend about 10 minutes to review the selected difficult points to his students again before starting new lessons.

The instructor viewed that, "I did not do any thing to judge whether or not the OMP could improve their learning. However, the students at least practiced evaluating themselves by thinking carefully about what they had learned in a session before answering question number one which asked about the most important point they learned in the period. At the same time, they realized what the difficulties were."

PEUS instructor.

The PEUS instructor said that, "The OMP is a benefit for both students who are good and especially for those who are bad at any subjects. The students who have little ability to learn a subject do not usually ask the instructor about the difficulties they encounter because they feel embarrassed if their classmates know that they are not good at the subject." The instructor said that he spent about 10 minutes to explain the difficult points to his students before presenting new lessons. He described that he adjusted his teaching practice as soon as he got his students' feedback on the OMP sheets. Besides reviewing the difficult points with the students, he prepared supplementary exercises for them. Before starting a new lesson, he presented an exercise via PowerPoint and gave a

few minutes for the students to finish it. After that, he asked students who had problems

about the learning task to do the exercise one-by-one. He learned who had some

problems with the English grammar that he had taught by reading the OMP sheets. Thus,

he wanted to make sure they understood the former lessons clearer before starting new

ones. The PEUS instructor said that he tended to speak slower and to repeat the

important content as some students requested on the OMP sheets. He explained that his

students were very poor in English, so he decided to do whatever he could to help them

learn better.

Talking about the advantages of using the OMP regularly, the instructor viewed

that when the students thought carefully about the lessons they had just studied, they

were taking an opportunity to learn their problems. And, they could find out an effective

way to learn successfully. He also claimed that using the OMP helped to provide an

opportunity for his students to develop meanings of what they had learned by themselves.

He said, "The students needed not to depend on me all the time. They should have an

opportunity to think by themselves sometimes."

RC instructor.

The instructor explained that she often gave more examples to make her students

understand the difficult points better. Extending the time for the parts that most students

had problems with for the next time she taught this course was planned and some content,

especially the parts that most students questioned about them was adjusted. She said she

frequently spent time reviewing the difficult points with her students at the end of the

period, "The questions the students had needed not to be clarified at the beginning of the

period since they were grammatical points which were used for all reading strategies, not for specific learning task."

The instructor said that she would like to adapt the teaching plans of this course the next time she taught it. She had many ideas of how to improve her teaching practice as well as teaching materials in the near future. She explained that, "I had a lot of my students' feedback when I used the OMP. And it was useful for me to develop my course in the future."

The instructor was not sure whether the OMP could help her students improve their learning. She said that, "For me, I think the OMP could help them improve their learning. But I have not done anything to prove that my belief is true." She thought that the students could tell better whether the OMP helped improve their learning.

The instructor also viewed that the students needed to think carefully about all topics they had just studied before completing the OMP sheets. Doing this regularly could help them realize their problems.

SAC instructor.

The instructor said after she realized her students' difficult points, she tried to stimulate her students to participate in the class more by raising the questions relating to the important content. She tried to elicit answers from the students, believing that if her students could answers the questions that she had prepared from the feedback she got from the OMP sheets, the students would remember the important parts of the lesson and be able to do the examination finally. She added that she usually spent about 10 minutes explaining the selected difficult parts to the students again before starting new lessons.

The instructor also said, "I am not sure if the OMP directly improved the student learning, but one thing, due to the OMP, I noticed my students were more alert to study because they knew that they were going to be asked the two questions at the end of the class. And, it could be claimed that doing the OMP may help them learn better eventually." She explained that the atmosphere while the students were completing the OMP forms was like they were learning independently. She said, "I love when the students took a short period of time to evaluate what I had just taught. They learned to do self-reflection which was useful for them to learn autonomously."

When asking the instructor about disadvantages of using the OMP, she claimed that, "I am afraid that doing the OMP would make my students feel stressed." However, she mentioned that it was common that everybody would be a little worried when he or she used his or her brain especially when working on academic tasks.

From interviewing the five instructors, they agreed that the OMP was a means to help them have feedback from the students. They could use this to adapt their teaching strategies and materials. Each instructor had a different way to adapt his or her teaching performance. And, they believed that the students benefited from practicing thinking about what they are learning and evaluating their understanding of content as soon as they finished a class session. However, not all instructors felt certain that their students improved their learning because of the OMP. Two of them said they did not do anything to prove this such as giving them a test or interviewing them, so they could not say it really improved student learning.

Student Interview Findings

Following are the findings presented according to these research questions. The first two questions were combined since they yielded similar information.

Students' views on advantages and disadvantages of using the OMP and to what extent it helped them to learn the course content, compared with not doing it.

Ten of the 12 students who participated in the study expressed many advantages of using the OMP. Views were from students who got grade A or S and from those who got grade D or U. Eleven of 12 students stated only advantages of the OMP. However, one of the students who got an A proposed a disadvantage of using the OMP. The following are the advantages and the disadvantages proposed by the students who were asked to do the OMP weekly throughout the semester.

When asked about the advantages of doing the OMP regularly throughout the semester, 10 of the 12 students had the same opinion that the OMP was a means to check their understanding. By doing this, they were able to know how much they learned in class in each session. SAC-A (SAC-A meant a student who earned grade A from the SAC course) commented that, "The OMP helped me evaluate myself immediately of what I had just studied in the last period. I knew my weak points and also my weakest point that I needed to revise or correct." And, MA-A stated, "I think practicing self-reflection regularly helped me realize my competence at that moment."

PEUS-S (PEUS-S meant a student who passed the PEUS course) and all students who got grade A from RC, MA, CP, and SAC viewed that doing the OMP repeatedly really helped them feel less nervous before taking an exam since they had opportunities to know their strengths and weaknesses week-by-week. They continuously searched for

information about specific difficulties they had. CP-A stated, "I felt like I was given chances to review the points I didn't understand fully over a long period of time. Normally, I review only before an examination." PEUS-S said that, "I am very poor at English and never feel comfortable to learn it. However, I really felt more confident to take a quiz after the instructor reviewed the content and arranged some extra exercises for me."

Another advantage from the students' views was that the OMP was a means by which the instructors were able to realize their difficulties. The students noticed that their instructors were concerned with their difficulties and tried to help them to understand lessons. RC-A viewed, "It would be our culture that students never raise their hands to ask an instructor a question. Instead, Thai students always keep their questions in their minds. For me, the OMP helped me communicate with the instructor easier." MA-A1 said, "I felt more comfortable when I let the instructor know my difficulty by writing, not talking in front of many people especially in a large class." PEUS-U was another one who confirmed that doing the OMP was a way to let the instructor know his problems. He said, "The instructor often prepared exercises for the students. His exercises were related to the things I questioned on the OMP sheets. I feel like he paid attention to his students."

Two of students who earned grade A and PEUS-S had the same idea that using the OMP was a way that they could communicate with the instructor with more comfortable feelings. CP-A and RC-A explained that they did not have a lot of a face-to-face verbal interaction with their instructors. Giving feedback to the instructors by writing on the OMP sheets increased opportunities to interact between students and

instructors. CP-A said that, "I like this form of interaction because I needed not to directly communicate with my instruction verbally.   I feel embarrassed to interrupt her lecture and ask her a question in front of my classmates." And, RC-A said that, "For me, I feel more comfortable to express my ideas through the forms. I do not get used to have a conversation with the instructor both inside and outside classroom." PEUS-S described that, "I often wanted to ask my instructor a question but I felt embarrassed. I did not know how to talk to him when my classmates stared at me. When the instructor asked the class who couldn't grasp what he had taught, I dared not to raise my hand despite I realized I couldn't."

SAC-A, CP-A, and MA-A agreed that using the OMP encouraged them to learn more actively and independently. They explained that they got used to a class that was dominated by an instructor and were familiar with copying what the instructor presented on the board. However, they adopted it as a learning strategy which could help them control their own learning path even though they did not feel comfortable doing it in the first few weeks. CP-A viewed that, "Doing the OMP helped me practice organizing what I'd learned and planning what to do next. I can control my learning path. I was sometimes proud that I could learn by myself." SAC-A said that, "I like doing the OMP because I feel like I can learn by myself instead of doing everything as the instructor assigned to."

MA-D viewed that, "the OMP stimulated me attend the class." He knew that the instructor checked the student attendance from the names written on the OMP sheets. Another advantage was that he at least knew what he had learned in the class.

There was only one disadvantage of the OMP claimed by MA-A. She maintained that she sometimes got confused when she tried to analyze and prioritize the importance of the content. She said that "There were two or three main points I had in each class and I was sometimes not sure whether it was the most important part I studied in that period. This would lead to misunderstanding."

However, MA-D1 did not feel that he considerably benefited from doing the OMP during the semester. At the same time, doing the OMP did not cause him any negative effects. He stated, "I did not gain anything from doing the OMP." For him, there was not any difference between doing and not doing the OMP.

How practicing writing the OMP regularly and getting the feedback from the instructor helped the students improve their learning.

Nine of the twelve students believed that doing the OMP regularly in the classroom improved their learning. They believed that their learning improved because of practicing thinking about what they had just learned regularly. Several reasons were behind this belief. All students from the five courses, except the MA-D, MA-D1, and PEUS-U viewed that extra explanation given week-by-week by the instructors was very useful for them. When an instructor revised the specific points that were the students' difficulty, they were given chances to study that difficult part again. The PEUS-S commented that, "In my opinion, I like it when my teacher explained to me the grammar point that I didn't understand even though I felt nervous when giving the information on the OMP sheet in the very first weeks."

Besides, CP-A, SAC-A, SAC-D, MA-A1, PEUS-S, RC-A, and RC-D stated that when they had understood the difficult part, they could learn the next related part better.

Both SAC students said that they often could not understand the rest of the lesson when they encountered difficulties in learning the beginning part of the lesson. RC-A said that, "Giving additional explanation in the next session helped me a lot to understand the point that I could not understand as well as the new part of the same lesson."

The CP-A, CP-D, PEUS-S, MA-A, MA-A1, SAC-A, SAC-D, RC-A and RC-D viewed that thinking about what they had studied in each session helped them improve their learning. For example, CP-A stated, "Before writing down the answers, I tried to recall the lesson I had just studied. And it made me realize what I have learned and the difficulty I had." Prior to the semester when the students did the OMP, they said they usually left the class without thinking back to the lesson the instructor taught. Moreover, most of the students never reviewed the lesson day-by-day. They mostly reviewed only before an examination and found many difficult points they needed to study again.

At the same time, half of the interviewed students claimed that practicing evaluating themselves on what they were taught helped them remember the content of the course better. RC-A said, "Even though I couldn't remember all the details, at least I knew the main topics I have studied in that session." MA-1 noted that, "Regularly, thinking over the contents before writing down the most important point I had studied and the most difficult point I encountered helped me recall the knowledge while doing an examination easier." These students agreed that evaluating regularly helped them a lot to recall the content they had learned in the semester. They said that they spent not much time to recall what they had been taught when completing the examination paper. Thinking about the comments they gave the instructors was a part that helped them remember the important points of the learning task.

Application of the OMP in other courses.

The students who did the OMP were not asked to do it in other courses in the semester. I wanted to know whether or not the students found it valuable enough to do it voluntarily in other classes. When asking students whether they employed the technique of the OMP in other courses, it was found that four of six students getting grade A used the idea of the OMP when studying other courses in the semester. A CP student commented that, "I used the idea of self-evaluation in Chinese Grammar in the semester I did the OMP. I judged myself how well I accomplished the lesson and I tried to check myself carefully over the semester whether I found answers for the questions I had." And, SAC-A said that, "When I was in school, the teacher frequently assigned me to read more or do extra exercises. However, instructors in the university had different teaching styles. They just gave a lecture and assigned homework before leaving class. Thus, I employed the OMP as a tool to help me manage my learning in the university. I could tell myself by thinking about what I'd learned to see how much I could accomplish."

Two students getting grade A and all students getting C or D never used the idea of self-evaluation or self-monitoring in other subjects after using the OMP strategy. One of the two students getting grade A claimed that she did not get used to asking herself at the end of the session about the lesson she had just studied. She just underlined or circled the parts she could not understand while studying. For other students, they said they never thought about the idea of the OMP. When an instructor finished the lesson, they just left the classroom without checking their understanding.

Summary

The findings from the OMP sheets, the instructors' reports, the classroom observations, and interviews with the five instructors and the 12 students were presented in this chapter. These findings highlighted the concerns of the participants directly involved in their perception of the usefulness of using the OMP to improve student learning in the view of students and instructors, and the instructors could employ it as a valuable resource to improve their teaching practice as well. Transcriptions of all statements were used to understand the concerns more clearly.

CHAPTER V

DATA ANALYSIS

To achieve and maintain a high quality of education, assessment is very important since it is a means to evaluate student learning and student performance as well as instructor teaching practice (Fenno, 2002). Although theoretically, assessment is used for improving student learning and measuring student performance, Yorke (2003) stated that the assessment for improving student learning is generally used less than for measuring student performance. Thai education has also encountered this dilemma, and there were few recent studies about how formative assessment affected student learning or instructional strategies modification in Thai educational context (Wongsathian, 2000). And, culture background difference is another issue that would make the results of the study different from ones in the U.S. American students have an active learning style whereas Asian ones have a passive learning style (Tomizawa, 1990). A comparison of the use of the OMP between American and Asian students might show different results. Thus, this case study was conducted in Thailand to explain the effectiveness and usefulness of the one-minute paper (OMP), an assessment for learning, to help improve student learning and instructor teaching practice during a semester. Metacognitive theory was used as the lens in this case study to understand how a classroom strategy called the

OMP helped develop student learning as well as facilitate instructor assessments of student progress and effective instructional modifications.

The effort sought to understand how the OMP promotes student learning and instructors' teaching adaptation. The data from the pertinent documents, classroom observations, and the interviews, described in chapter 4, presented the effects of using the OMP on students and instructors as well as students' and instructors' perceptions of the usefulness of the OMP.

The following begins with a summary of the study. Then, discussion and analysis of all data findings related to the research questions are given: the OMP sheets, the instructors' reports and the classroom observations; the instructor and student interviews are discussed respectively. Finally, the three primary research questions are discussed to understand the effects of the OMP on both the instructors and the students.

Summary of the Study

The purpose of this study was to explore the usefulness of the OMP for promoting student learning as well as for facilitating teacher assessments of student progress and effective instructional modifications. The study, conducted qualitatively, employed the case study research approach which is used when a contemporary phenomenon is to be examined within its real-life context (Yin, Bateman & Moore, 1983, Yin, 1994). The primary questions of interest were:

1. How does the one-minute paper promote student learning?

2. What are the effects of using the one-minute papers on students and instructors?

3. What are students' and instructors' perceptions of the usefulness of the one-minute paper?

Assessment should be used to improve student learning, evaluate student performance, and develop teaching practice. However, decreasing formative assessment, an assessment for improving student learning, in higher education has continuously happened (Pintrich, 2000). And, this has occurred in the Thai context as well for a very long time. Under this condition, York (2003) claimed that students have been focusing on their performance at the end of a course rather than giving attention to improve their learning during a course.

The qualitative components involved the pertinent documents, classroom observations and interviews. OMP sheets and instructor report forms were used weekly and classroom observations occurred 4-5 times during the semester. Interviews with five instructors and 12 students, who participated fully in the use of the OMP throughout the semester, were conducted.

Discussion of Findings, Analysis, and Emergent Themes

Findings resulted from the analysis of pertinent documents, classroom observations, and interviews with instructors and students in Chapter IV, leading to an understanding of how the OMP helped students improve their learning and their teaching modification. The first section below shows four dominant themes that emerged from analyzing the OMP sheets, the instructors' report findings, the instructor and student interview findings, and the classroom observations. The second section presents how the themes answered the research questions and where the theory, metacognition, fits the results of the study. And, the last section illustrates the connection between the themes, the research questions, and the theory.

Themes from Analyzing the Data

Four themes were derived from analyzing the OMP sheets, the instructors' report findings, the instructor and student interview findings, and the classroom observations. The first theme was student learning improvement. The second one was instructional modification. The third one was increase of student comfort level with OMP, and the last one was increase of instructor comfort level with OMP.

Student Learning Improvement

Student learning improvement occurred through realizing how much they learned in a session and how much they achieved the goal of the learning task. Ten of 12 students from the interviews perceived that their learning improved since they practiced thinking about what they had learned and evaluated themselves before giving feedback to their instructors through the use of the OMP. And the improvement was through realizing what exactly they did not understand clearly; through grasping the significance of what they learned in class; through recognizing the importance of the OMP; through instructors' improving their teaching practice and material; and through expressing their opinions nonverbally to their instructor using the OMP.

> *Through realizing how much they learned in a session and how much they*
> *achieved the goal of the learning task.*

It could be understood and interpreted from the instructors' interviews and the students' feedback on the OMP sheets that doing the OMP helped the students develop their learning. Trying to give an answer to the two questions on the OMP sheets forced them to think through the lessons they learned in a period before evaluating how much they learned. The first question, what was the most important part?, helped students

realize what they had studied in a session and how much they achieved the goal of the learning task. When the students tried to answer the second question, they knew what they did not understand and tried to find answers. Doing this was a means to let the students immediately realize what difficulties they faced and how much they achieved a learning task in a period. At the same time, they had a chance to monitor themselves throughout the semester by doing this regularly. The students, who carefully checked themselves to see how they learned over a period of time, could improve their learning gradually.

Through realizing what exactly they did not understand clearly.

Data from the instructors' interviews revealed that when the students added details of their most difficult topic on the OMP sheets, they needed to think carefully about the lesson they had just studied before explaining to the instructor how they did not understand it clearly. The students, who never thought carefully about what they had learned, what the key points were, and what difficulties they experienced, seemed not to exactly realize whether or not they reached the objective of a learning task in every period during the semester. They might learn some difficulties once they reviewed before the midterm or final examinations. And, it would be too late for them to improve their learning overnight.

Through grasping the significance of what they learned in class.

Many of the students provided specific details in addition to giving a topic they thought was the most important on the OMP sheets. If their answers were the actual objective of a lesson the instructor needed the students to accomplish, it could be concluded that they reached the learning goal the instructor had set for the lesson of the

period. Again, if they evaluated themselves about what they had learned and what should be most important in every period over the semester, it was concluded that they tried to grasp the significance of what they learned in class. And, they would improve their learning by continually doing this during the semester.

Through recognizing the importance of the OMP.

A significant aspect emerged from interviewing the students. Those who earned grade A recognized the importance of the OMP differently from those who earned grade D. Students earning grade A commented on the academic aspect while those getting grade D commented on the attendance aspect. The students earning grade A appreciated the value of the OMP as a means used to improve their learning. It encouraged them to reflect on their learning achievement in each period. And, those receiving grade D viewed that it was a means to force them to go to class. This could be explained why they got grade D. For them, the OMP was not used for checking their academic standard achievement, but rather than checking a class attendance. They knew that the instructor was able to check their name on the OMP sheets.

Through instructors improving their teaching practice and material.

The students would also improve their learning from their instructors' attempt to help them learn a task better. When the instructors realized the students' difficulties or misconceptions from their feedback on the OMP sheets, they tried to improve the student learning by having extra activities, modifying their teaching practice, and providing a variety of teaching materials. The instructors used the students' feedback on the OMP sheets as information to improve their teaching practice and material over the semester to improve the student learning.

Through expressing their opinions nonverbally to their instructor using the OMP.

Another point that should be discussed here was that the OMP was a means of communication for an instructor and students, especially for ones who were not able to learn things quickly and for any classes containing a large number of students. The students felt more comfortable when they gave feedback on the OMP sheets to let the instructor know how well they accomplished a lesson and what were still their questions. Wiriyachitra (2002) reported that Thai students are passive learners. They tend not to give opinions, raise their hands to ask a question or have an argument to the instructor's idea in their culture. The OMP helped them feel more comfortable expressing their opinions nonverbally to their instructor. Moreover, students who sat at the back or in the middle of a large class, like the MA course, used the OMP as a means to communicate with their instructor. The instructor rarely had a conversation with the students in such a large class, so reading their feedback on the OMP sheets helped him, the instructor, know better how well they learned a lesson. He planned what he needed to review or explain to the students in the next period to help them learn successfully.

Instruction Modification

The instructors added or changed instructional strategies and activities resulting from the students' feedback on the OMP sheets. And, they modified their instruction through reviewing the most difficult topic/s in the following session; through reducing their speaking speed; and through modifying their teaching materials.

Through reviewing the most difficult topic/s in the following session.

All instructors reported modifying their teaching practice. They selected at least one topic to explain to their students in the next period they met their students. The

instructors weekly reviewed carefully selected points with the students after they had read

through the students' feedback on the OMP sheets. After grouping the sheets into

themes, the instructors spent time deciding the topics they wanted to explain in the next

period before starting a new lesson. From interviewing the instructors, it was found that

the criteria the instructors used to choose the topics were the importance of the topics and

the number of students who wrote on those topics. The number of the students asking

questions was a criterion to select a point to explain to the students. However, the

instructors chose the important points to review since the topics the students claimed the

most difficult were not deemed very important by the instructors.

Through adapting their behaviors.

Another example of teaching practice modification was PEUS instructor's attempt

to reduce his speaking speed. He tended to speak slower when giving an explanation to

the students. Moreover, he tended to emphasize difficult points often as his students

requested on the OMP sheets. He agreed to explain the points repeatedly in the case that

his students could not follow his lecture.

Through modifying their teaching materials.

The instructors also modified their teaching materials to suit their students' needs

according to their feedback on the OMP sheets. The instructors sometimes spent time

preparing supplementary exercises for the students to practice in the next period. For

example, after the CP instructor learned that her students were experiencing a problem

about places of articulation of the Chinese phonemes, she tried to arrange the description

of the Chinese phonemes from a linear form into a non-linear form. She believed that

putting all the phonemes into a table was easier to understand than reading a description

from a paragraph. She applied this table to explain the places to articulate the set of phonemes in her CP class.

All of the evidence pointed to the conclusion that the instructors modified their teaching activities and materials as a result of the students' feedback on the OMP sheets. Some instructors explained difficult points to their students without any supplementary exercises while some added activities to a lesson plan, (e.g., arranging supplementary exercises, providing websites related to lessons, and giving a quiz). Even though they were requested to write only topics they planned to review in the next class session, modifications of teaching strategies and teaching materials were added to their former lessons plans to diminish their students' difficulties and help them understand clearer. Adapting their practice and teaching material week-by-week is interpreted as their employment of metacognitive strategy in their professional responsibility. They tended to think about their previous teaching practice or their classroom behaviors before finding more effective methods that were suitable for their students. Doing this continuously, the instructors evaluated their practice and prepared a teaching arrangement to serve their students' needs. The instructors learned to teach better as a result of their use employment of metacognitive strategy.

Increase of Student Comfort Level with OMP

Student comfort level with the OMP increased during the semester. It was achieved through realizing the advantages of doing the OMP; through being familiar with doing the OMP; and through practicing thinking regularly what they learned and what was still confusing.

Through realizing the advantages of doing the OMP.

The students realized that they could take advantage from doing the OMP with the assistance of their instructor so that they eventually did it without stress. When they completed the OMP forms, they practiced thinking about what they were learning and realized their strengths and weaknesses. Moreover, the instructors tried to help them understand learning contents clearer by reviewing difficult or important points, and adapting teaching material to help them learn better according to their feedback on the OMP sheets. The OMP provided them opportunities to monitor their own learning path over the semester. Data collected from various sources provided the overall picture that most students generally appreciated the advantages of doing the OMP.

Through being familiar with doing the OMP.

Student reaction to the OMP became different as the first few weeks passed. The first time the students were assigned to complete the OMP sheets, they seemed to feel insecure about giving their answers on the sheets. Even though it was explained that they would not be affected at all, they seemed to feel stress and delayed completing it. They completed the form after the instructor rushed them to submit it. After the first few weeks, they answered the questions on the sheets without asking their friends or flipping through their book repeatedly looking for ideas. They learned their instructor did not punish or blame them when they asked about the previous lesson, and doing the OMP did not affect their grades. On the other hand, after the instructors had read their feedback on the OMP sheets, they explained the difficult points to the students again in the next class. Familiarity with the process of doing the OMP made the students complete the sheets more comfortably since they knew what was happening and got used to doing the OMP

at the end of a session. Students were more familiar with learning by themselves through evaluating and organizing information they had before expressing their thoughts to the instructors. They were able to go through the process of thinking of what they learned and understood without the assistance of the instructor.

Through practicing thinking regularly what they learned and what was still confusing.

After the first few weeks passed, the students spent less time completing the OMP sheets. More time was spent in answering the two questions on the sheets in the first few weeks and less time as the semester moved on. The time spent in completing the sheets decreased because the students became familiar doing it. Practicing thinking regularly what they learned and what was still confusing allowed them to take only a few minutes to answer the OMP sheets without reluctance.

Although the students completed the OMP reluctantly in the first few weeks, they eventually did it without hesitation. Later in the semester, the students immediately answered the two questions on the OMP sheets as soon as the instructor assigned them to do it. Some students flipped the pages they had just learned and wrote their answers on the sheets without delay. They never looked at their friends' sheets, but completed the OMP sheets by themselves. That is, the students were familiar with doing the OMP weekly so they were ready to do it as soon as the instructor assigned. Besides, it was a result of the instructors' reactions to their feedback on the sheets. The students learned that the instructors never blamed them when they questioned the points they did not understand; rather, they explained the lesson again in the next period. By doing the OMP, it was a means to let the instructor know the students' difficulties. Without the

OMP, the students dared not to ask their instructor about their difficult points in the class

and they did not have a chance to understand the lessons clearer. They could

communicate with their instructor via the OMP when they experienced some problems

with a lesson.

Increase of Instructor Comfort Level with OMP

The instructor comfort level with the OMP increased during the semester through

using the OMP as a tool to know how well their students achieved a learning task and

how to adapt their teaching materials or practice to help their students learn better, and

through managing their time effectively.

> *Through using the OMP as a tool to know how well their students achieved a*
>
> *learning task and how to adapt their teaching materials or practice to help their*
>
> *students learn better.*

From interviewing the instructors, it was discovered that they gradually felt more

comfortable using the OMP during the semester. They allotted time for extra activities

occurring in a class period and outside the class as well. The process of the OMP

occurred in the allotted time. Extra activities in the classroom were reviewing the

difficult points, giving a supplementary exercise, giving a quiz, and presenting new

teaching materials to the students. Besides making a lesson plan, extra activities outside

the class occurred and they were different depending upon the instructor. The extra

activities were reading through the OMP sheets, classifying students' difficulties into

groups, selecting the topics that should be explained to the students in the next period,

preparing some supplementary exercises, and searching interesting websites related to

lessons. The instructors became familiar with the activities that occurred according to the

OMP and thought they could take advantage from doing it. They considered it useful and helpful for them to use it as a tool to know how well their students achieved a learning task and how to adapt their teaching materials or practice to help their students learn better.

Through managing their time effectively.

The instructors felt more relaxed using the OMP in their classes since they finally could manage their time in a period effectively. The OMP process and the extra activities according to the OMP were continuously done in the same pattern throughout the semester so that the instructors knew how long each activity took and how to arrange the prepared activities appropriately and effectively in a period.

How the Themes Answered the Research Questions and Fit with Metacognition

This part reports how the themes emerged from the answers to the research questions and where metacognitive theory helps explain the results of the study. The answers to each research question are orderly presented as follow.

How the OMP Promotes Student Learning

The students and the instructors reported that the OMP helped improve student learning. To explain how the OMP promoted student learning, the students developed their process of evaluating and monitoring themselves at the end of each lesson and received additional review from their instructors according to their feedback on the OMP sheets. When the students carefully considered what they had studied, concluded what should be the most important point, and identified the most difficult problem they encountered, they were practicing evaluating themselves according to how much they

achieved the course objectives. And, practicing this over the semester meant they regularly checked their proficiency of the learning task and realized difficulties.

Suggesting the notion that the students improved their learning due to the use of the OMP during the semester was that most students in a class seemed to give similar answers for the first questions on the OMP sheets which asked them to write the most important point of the lesson they had just studied. In the first weeks of doing the OMP, the points the students claimed as the most important varied. There were at least five to six different points in one class. However, the most important points identified by the students seemed to be more similar in the last three to four weeks of the semester as the number of the points decreased to one to two only. Moreover, the contents they wrote on the sheets in the early period were different from ones they did in the mid-period and the late period. Their responses on the sheets completed in the early period of the semester revealed that they wrote only broad topics or general ideas without any details when answering the questions. However, some changes occurred on the sheets completed in the mid-period. They started giving specific topics they thought the most important or the most difficult with supporting ideas or examples as well as reasons why they decided to select the topics to answer the questions. It was obvious that they continued giving clear explanation and specific information until the late period of the semester. These changes provided evidence for the conclusion that the students acquired a skill that could promote their learning as a result of regularly practicing thinking what they were learning in each period.

The students regularly evaluated and monitored themselves regarding how well they accomplished the course objective in each period throughout the semester. Thus,

they became aware of their problems while learning. The instructors explained and made them understand what they reported on the OMP sheets as their most difficult points in a period. Extra review, supplementary exercises, or any additional activities in classroom, were arranged due to the students' needs. Thus, it could be claimed that the instructors regularly responded to the students' feedback by preparing teaching materials or modifying teaching practice to solve any problems explained by the students. These instructors' responses would help much to improve student learning.

The Effects of Using the OMP on Students and Instructors as Reported by the Students and the Instructors

The effects on students of using the OMP was the development of their mental process involved in using metacognitive strategy which involves thinking, learning, and understanding about what they had learned (Burden & Williams, 1997). The strategy gradually encouraged the students to be actively involved with organizing and evaluating the knowledge. They thought about all of the content they were taught in a period and evaluated the most important and the most difficult before leaving the classroom. At this point, the students who attentively did the OMP determined what they had learned in a session. They seemed to develop their responsibility to complete the OMP process to learn how much they gained knowledge of what they were taught and what difficulty they encountered in a period. At the same time, doing the OMP regularly helped the students to be familiar with learning by themselves. They were able to evaluate what they learned and understood in a class and might plan how to deal with difficulties they had, and decide how and when to read without the instructor's order.

The students were positively affected by the OMP, the instructors learned how much their students achieved the goal of the lesson, and they modified their instruction as a result of the students' answers on the OMP sheets. It is difficult to have Thai students who are passive learners discuss or give opinions orally in the classroom (Wiriyachitra, 2002). Fortunately, students' feedback on the OMP sheets could be a useful resource for the instructor to learn how the students learn in each class session. As a response to the feedback, they added or changed some teaching materials or teaching methods. An obvious thing happened throughout the semester because of the use of the OMP, all instructors gave extra explanation to their students after they realized what the difficulties were. Another example of the OMP effect on the instructors was that one of the instructors tended to speak slower and to repeat key points his students requested him to do that on the OMP sheets in the very first week. Moreover, instructors prepared supplementary exercises, materials, or short tests which they hoped would help their students understand the content clearer. Information on the OMP sheets helped the instructors realize the students' problems.

Students' and Instructors' Perceptions of the Usefulness of the OMP

An analysis of the data and interviews of the 12 students showed that the students perceived the OMP as a means to check how well they learned the content in a period. They also realized difficulties about which they should be concerned. Doing the OMP during the semester provided them opportunities to evaluate and monitor their own learning path regularly.

Seven of the students interviewed used the OMP in other courses in which they were enrolled in the same semester. They did not specifically write the most difficult or

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the most important point on a paper, but usually thought about the lesson they had just studied and evaluated how much they acquired or how well they understood. Doing this by their own decision seems to indicate that they appreciated doing the OMP.

It could be stated from the students' responses on the OMP sheets and their behaviors during the OMP process at the end of the class throughout the semester that they valued doing the OMP. They gradually began to adopt this strategy as a part of their learning process. Monitoring themselves regularly helped them have more confidence to study a subject or take an examination. They could adopt the OMP as a means to help them become aware of their problems of learning. For example, the students studying CP and PEUS gave reasons to support the point they thought was the most important and often gave examples of what they thought was the most difficult topic in a period. Not only was there value to the students, the instructor benefited from the feedback. Students learned that the instructors did not ignore the feedback they gave on the OMP sheets, but spent time in class giving explanation, an exercise, a quiz, and helpful learning materials.

As the semester progressed, the students gradually spent less time doing the OMP. Less time in this sense would seem to indicate that they became more confident giving responses to let their instructor know what they understood as the most important or the most difficult point. They learned that their responses did not affect their grades. The instructor did not blame them for having problems with a lesson. Besides, the students did not take time to ask or look at their friends' answers on the OMP sheets as they did the first two or three weeks. And, they seemed not to flip their textbook pages as often as they did in the first weeks.

For the instructors' views, they also perceived that their students benefited from doing the OMP weekly throughout the semester. The students were commonly monitored by the instructor to ensure that they reached the objectives of the course in each period. The instructors could evaluate the level of understanding of the students as soon as they finished giving a lecture. Then, they immediately realized what topic should be explained to the students again in the next period due to their feedback on the OMP sheets. A two-way communication via the use of the OMP seemed to be a means to improve student learning in a context where students rarely raised their hands to ask an instructor a question. The students could use it to inform the instructor about their learning achievement in each period and the instructor employed their feedback as a resource to prepare teaching materials or adjust their teaching practice to help them learn properly as well.

At the same time, by looking at the students' answers on the OMP sheets, the instructors checked whether or not their students had a misconception about the key points they should accomplish in a period. The OMP involved the instructors in the process of solving problems and making decisions to help their students learn better. The instructor planned appropriately how to deal with the students' misconception with no more hesitations. Correcting the students' idea after they finished the examination would be too late to help the students to understand better. Besides this formative assessment which helped the instructors evaluate their students' competence, it was a means that could be used immediately to help their students understand accurate information week-by-week.

Metacognitive strategy was considered as a learning strategy that helped to explain the results of the study which sought to answer three research questions. Metacognitive strategy is described by Flavel (1981) as learning self-awareness of the student learning process.   This process encourages learners to concern themselves with an ongoing attempt to plan, check, monitor, select, revise, evaluate, etc. In this study, the OMP was used as a treatment given to students weekly during a semester to discover whether or not they improved their learning. The metacognitive theory was related to the use of the OMP in that it encouraged learners to think about what they have learned or thought. When the students did the OMP, it meant that they were in a process of thinking about their thinking. Afterward, they would learn about what they had learned. To answer what were their most important or most difficult points, they needed an ability to make their thinking visible. In other words, it was an ability to reflect on what they learned in a period. The students did not just think back to the lesson they had recently learned and describe what they had learned or how they felt. Instead, by using the OMP regularly, the students developed an ability to learn in more depth as suggested by metacognitive strategy. The instructors also adopted the strategy into their teaching practice. Metacognitive strategy provided them opportunities to reflect on their previous teaching practice before identifying teaching methods which could help students learn better. They thought about the students' feedback and evaluated their competence before planning what they were going to do to help their students understand difficult points. They continuously used the strategy to improve their teaching practice during the semester as did their students. The strategy helped them realize and benefit from their

own strengths while improving their weaknesses since it allowed them to be aware of their own mistakes in their instructional practice.

<div align="center">Connecting the Themes, the Research Questions, and the Theory</div>

The themes which emerged answered all the research questions. At the same time, the metacognitive theory described how the participating students developed their learning through the use of the OMP regularly during the semester as well as how the instructors tried to improve their instructional presentation. Moreover, the relationship between the themes, the research questions, and the theory was discovered. It was obvious that the students and the instructors realized how the students learned by adopting the practice of thinking carefully about what they had recently been taught in a period. The students could immediately check their understanding of the learning task at the end of class. They learned by evaluating their own competence carefully through completing the OMP sheets. The students were able to learn by themselves independently in a relaxed atmosphere since they knew that their answers were not graded. They could think what they learned and finally plan to achieve the learning goal. Besides, the instructors learned how their students accomplished a particular course objective in a period. They could evaluate their competence from the feedback before preparing a lesson plan that exactly served the students' needs. In a culture where students tend not to express ideas or ask the instructor a question in front of many classmates, the instructor could receive the responses through the use of the OMP. It was an option to receive students' feedback when the degree of face-to-face verbal interaction between instructor and student is low. The instructors and the students seemed to

appreciate using the OMP in the classroom over the semester since they all could take advantage from it.

To reach the goal of the OMP, a formative assessment, metacognitive strategy was applied to both students and instructors. The strategy was kind of a protocol which allowed the students to think aloud. They learned how to organize and evaluate what they had learned in class before deciding the points that should be the most important and the most difficult of a lesson. Doing this regularly helped them check their learning path during the semester. Giving feedback to the instructors also helped them know the level of their competence. Then, the instructors could suitably arrange a lesson plan to improve the students' weaknesses weekly without delay. They paid attention to adapting their behaviors and changing their teaching materials or methodology as a result of the students' feedback. Thus, it can be said that they employed metacognitive strategy to improve their teaching performance. It helped the instructors learn and progress in managing a resource, students' feedback, to produce or adapt teaching methods and materials. The instructors thought about the feedback they received, and then evaluated methods or materials they used in previous class sessions.   Finally, they rearranged classroom activities or adapted some behaviors to suit the students' needs as well as they could throughout the semester.

CHAPTER VI

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Study

Although an educational setting has an attempt to balance both summative and

formative classroom assessment practices to promote student learning, students have

more likely been assessed summatively (Yorke, 2003). Ehringhaus and Garrison (2006)

define summative assessment as a part of the grading process which is used as a means to

gauge student learning relative to content standards at a particular point of time. For the

formative one, they assert that it plays an important role in the learning process and

provides information needed to adjust teaching and learning while they are happening

within a set time frame. They also state that dependence too much upon one or the other,

results in the reality of student achievement in a classroom becoming unclear. Yorke

(2003) posits that it was obviously seen in higher educational contexts that instructors

emphasized the use of the summative assessment. Considering culture, American and

Asian students have different classroom behaviors. American students are expected to

give comments, ask questions, respond to questions, and present alternative views while

Asians did not tend to do these in their culture (Wiriyachitra, 2002). The perceptions of

benefits of using the OMP in American classrooms would not be like ones in Thailand.

And, the latest National Education Act of Thailand in 1999 focused on the

change of teaching style. Learner-centered approach was recommended for use in classrooms. It is difficult to change dramatically since the traditional approach has been used for a very long time. However, the OMP is a practical classroom activity that provides an opportunity for students to learn how to evaluate and plan their own learning path in a relaxed atmosphere. Thus, I conducted this study to investigate how the one-minute paper (OMP) helped improve student learning and instructional adaptation, and also to determine whether or not instructors and learners perceived that the OMP, a formative assessment, benefited them. The results of the study could help encourage instructors to appreciate the values of the formative assessment and to recognize it is equally important to the summative one.

This study was conducted qualitatively at real classrooms at Prince of Songkla University, a public university in Thailand. The participants included five instructors and 240 students enrolled in five courses.

Multiple methods, including interviews, observations, and document analysis, were used for data collection. The purpose of data collection and analysis was to present the findings in reference to the advantages of using the OMP to improve student learning and instructor teaching practice.

The OMP, a formative assessment, was incorporated into classroom practice 10 times throughout the semester. Students were to respond to questions that asked them about the most important point and the most difficult point they found in a period.

These were the research questions:

1. How does the one-minute paper promote student learning?

2. What are the effects of using the one-minute papers on students and instructors?

3. What are students' and instructors' perceptions of the usefulness of the one-minute paper?

To answer these questions, data collected from various sources were analyzed. I first analyzed approximately 2,000 OMP sheets done by the students. Then, I examined 8 – 10 reports of every instructor during the semester. Moreover, I completed five classroom observations for each course throughout the semester. Lastly, 12 selected students and the five instructors were interviewed one-by-one at the end of the semester to elicit their perceptions of the utility of the OMP.

Summary of the Findings

Findings indicated that the students and the instructors agreed that the OMP helped promote student learning. Completing the OMP helped students reflect on their ability to accomplish the standard of a targeted goal. The students weekly practiced carefully what they had just learned before writing about the most important points as well as the most difficult points they encountered in a period on the OMP sheets. By doing this regularly, both students and instructors realized the level of students' understanding of what they had studied. Moreover, the instructors made adjustments to ensure the students achieved targeted standards-based learning goals that they set for a learning period. They could determine next steps during the learning process as soon as they realized the students' difficulties. In addition, the students could improve their learning since they gradually became familiar with thinking about what they had just learned, and realized how much they could grasp a significance of what their instructors recently taught. The OMP involved the students' ability to adopt self-evaluation and self-monitoring as a part of their learning style. At the same time, when incorporating the

OMP into classroom activities, the instructors eventually adapted their instructional strategies to serve their students' needs. Although the students had typical classroom behaviors like other Asian students in that they did not have verbal interaction with their instructor as much as American students, the instructors were able to receive their feedback through the use of the OMP.

The findings also suggested the use of the OMP regularly during the semester significantly affected the students' learning improvement and the instructors' teaching modification. The OMP was a means that the students could use to reflect their competence to themselves and the instructors. The more information the instructors had about students, the clearer the picture they had about the students' achievement or where gaps occurred. In the same way, the more the students realized how much they achieved the learning target in a period, the more they could improve themselves to reach it. This could be explained that, by using the OMP every week continuously throughout the semester, the students' feedback helped the instructors improve their teaching practice as well as the students themselves could improve their learning. The instructors also adopted metacognitive strategy into their teaching profession. They thought about what they had done in the previous class and plan to arrange an appropriate teaching planned due to the students' competence to use in the next class.

In summary, the findings of this study provided a picture of how the OMP helped improve student learning as well as instructor teaching adaptation. Due largely to the students' responses on the OMP sheets, the students could better understand their own learning path while engaged in metacognitive thinking as well as the instructors could plan a lesson which served their students' needs. By doing the OMP habitually,

moreover, the students were involved as assessors of their own learning and as resources to their instructors. Both the instructors and the students could work together to improve the student learning through the continuous use of the OMP.

Conclusions

The OMP, a type of formative assessment, was perceived by the instructors and the students as a way to improve student learning as well as instructional modification. The students seemed to develop the concept of metacognitive thinking through the repeated use of the OMP in a class for a semester when reflecting on what they had just learned in a period. When the students were engaged in metacognitive thinking, they learned to evaluate their progress toward the completion of a task before planning how to deal with a given learning task. Finally, they learned to monitor their ability to learn over the semester. Diversity of students' cultural background might cause students' perceptions of usefulness of using the OMP. In a culture where students depend on the instructor and do not have interaction with classmates or the instructor, the OMP was a means students used to provide feedback to the instructor. Students in an Asian culture can learn to think about their learning and can give feedback to instructors in a non-threatening manner if provided a mechanism to do so.

In addition, the OMP was a tool to improve teaching practice. It was noticeable that all instructors who participated in the study were interested in modifying their behaviors, teaching materials, or classroom activities. Some prepared supplementary exercises relating to the points that the students thought difficult while others arranged several teaching materials to help them better understand. Some also tried to modify their behaviors by speaking slower and explaining the important points more than one

time. Furthermore, the instructors were willing to include the OMP into their original teaching plan even though they realized that the process of the OMP both inside and outside classroom took extra time. Their use of the students' responses to prepare for a particular period depended on the students' needs. And, receiving the students' feedback provided an opportunity to reflect on teaching practice. The feedback was useful information that they used to modify their teaching practice to become quality instruction as well. Quality instruction was very important since it directly affected student learning. And, instructors desiring to improve their teaching strategies and activities, even in an Asian culture, can receive student input through the process of the OMP. OMP is a culturally changing technique and, as such, can be used to help achieve Thai educational act.

In conclusion, the results of the study revealed that not only students, but also instructors benefited from metacognitive strategy through the use of the OMP. The students perceived that they improve their learning when they were in the process of evaluating themselves to realize how much they understood content or how well they achieved learning goals. They could monitor their learning path and planned for effective learning. This study also provided a new insight into the way the instructors could improve their instructional strategies by reflecting on their previous teaching practice. Adopting metacognitive strategy played an important part of their teaching effectiveness and professional development. And, the OMP was a type formative assessment that could facilitate instructors to begin moving to student-centered approach in an Asian classroom. This significance beyond the classroom context was that student participation in their learning through the use of the OMP was one avenue to reach to reaching the goal

of student-centered in a real Asian classroom context as required by Thai Educational Act 1999.

<div align="center">Benefits</div>

The findings from this case study affected research, theory, and practice. Following is a discussion of these areas.

Research

Research investigating improving student learning through the use of the OMP were reviewed in Chapter II of this study. However, any study to investigate the advantages of the use of the OMP to modify teaching practice was not found in the literature. Thus, more studies are needed to determine if the OMP could improve student learning and help instructors modify their instructional strategies as well.

The result of the OMP incorporated into classroom practice showed student learning and teaching practice improvement while a formative assessment was happening. Consequently, using the OMP in this qualitative study served to increase the understanding of improving student learning and teaching practice by means of using a formative assessment.

Theory

Metacognitive strategy is the ability to understand, reflect, and evaluate oneself. Huitt (1997) believed that it is an essential skill for learning to learn that includes thoughts about what learners know or do not know and regulating how they begin a learning task. In accordance with the particular quality, it was found useful to include the metacognitive strategy in self-evaluation which is a logical step in the learning process.

The results of the study proved that it has been successful in describing how metacognition played a critical role in improving student learning. In this study, moreover, metacognitive strategy was useful to determine how instructors can apply their cognitive resources through metacognitive control. They adopted the process of thinking, evaluating, organizing, planning, and monitoring what they were practicing in the classroom to improve their teaching performance. Instructors, moreover, could become aware of own mistakes and their students' problems through the use of the OMP when reflecting on their previous instructional practice. Thinking about what they had performed in previous class and what difficulties their students faced helped them develop new teaching methods and teaching materials.

Practice

The study provided implications for practice related to incorporating the OMP into a course. This study also developed new insights into how the OMP helped promote student learning and teaching practice modification. In addition, the theoretical framework helped provide a useful perspective on the students and the instructors' perceptions of the benefits of using the OMP regularly.

The findings of the study represented considerable advantages to the students and the instructors related to practicing the OMP regularly for a period of time. The results encouraged instructors to include the OMP as a part of any course. This study assists instructors to realize that metacognitive thinking helps students in the learning process through the use of a formative assessment called the OMP as well as assist them to have a quality teaching practice.

Besides the use of the OMP helps promoted student learning and teaching adaptation, it could help instructors establish a student-based learning approach in a real Asian classroom context. Stimulating students to think aloud of what they had learned could be a way to promote students to be autonomous learners. The OMP could be a choice to pave the way for reaching the approach that was required by the Thai Educational Act 1999.

Recommendations

Several recommendations for further study emerged from this study. The descriptive qualitative study was employed to determine how the use of OMP could improve student learning as well as teaching practice. Based on the results of the study and the information gathered from the literature, the following recommendations are made:

1. Since each academic subject has its own nature, an investigation of the advantages of the use of the OMP could be carried out to see how to apply it to help improve student learning or modify teaching practice effectively and appropriately.

2. Under the similar practice of including the OMP into a course, a further study could be conducted to find out whether it would encourage students' active learning or students' motivation to learn.

3. The frequency of using the OMP in class could be adapted to make it suitable for an instructor's course or classroom conditions. The instructor could use it every time he or she finished a lesson or at the end of every class period.

4. Adding two questions to the most common questions proposed by Cross and Angelo (1993) are suggested. I think the additional questions would help stimulate and encourage students to have further consideration about how much and how well they had learned. Students would not report only the points they thought the most important and the most difficult, but also explained why they thought it was and how to work it out. These are the additional questions:

    1) Why do you think it is the most important?

    2) How might the questions you are having be resolved?

The applicability of metacognition to the OMP practices was successful enough in this study to warrant further research. The concept of metacognition could be developed through the use of the OMP in other further research in different practices. For example, a study could be conducted to discover whether students completing minute papers scored higher than those who did not.

Final Thoughts

The results of the study brought me an idea to apply the concept of metacognition to encourage student and instructor to do more reflection. And, for me, the OMP could be one way to help promote metacognitive thinking among students and instructors. By using metacognitive strategy, students could assess how well and how much they had learned while instructors could reflect on their teaching performance.

As far as I have searched for metacognitive strategy and its advantages, I have rarely found articles and research studying how the strategy helps improve instructors' teaching practice compared to those talking about students improving their learning or outcomes by using it. My research can be included into unusual investigations about

metacognition used to improve teaching strategies in the real world context of higher education. Metacognitive strategy can be used to improve instructors' professional status. It brings instructors to a new kind of professional practice and leads them to autonomous professionalism. Students' feedback was a great resource for them to adapt their behaviors, instructional strategies and teaching materials. The OMP can be used to provide opportunities for instructors to refine their teaching skills and develop new instructional methods.

I hope the results of the study can convince instructors to include the OMP into their course since it is possible to use this kind of effective formative assessment in any courses in any class sizes with any additional length of class session. I believe the OMP can help provide an opportunity for instructors to receive feedback from students especially in an Asian classroom where students tend not to discuss their ideas in class. It provides instructors a way to move to learner-centered approach that has been in the midst of Thai Educational Reform, and also produces the immediate effects that helps instructors teach better and students learn better in classroom. The use of metacognitive strategy while the OMP was happening could help establish a culture of autonomous learning for both instructors and students. It could also help promote lifelong learning for students and lifelong professional development for instructors. I hope the OMP can be used effectively in the way suited to each context to facilitate instructors' teaching development and students' learning improvement to help increase quality of education in the long run.

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APPENDICES

Appendix A

The One-Minute Paper Sheet

Name: _____ **Student' ID:**_____ **Date:**_____

Course: _____ **Section:** _____

Please answer each question in 1 or 2 sentences:
 1) What was the most important thing you learned in class today?

_____

_____

…………………………………………………………………………………………

2) What important questions that you have from class today remain unanswered?

_____

_____

Adapted from Angelo, T. A. & Cross, K. P. 1993. *Classroom Assessment Techniques,* San Francisco: Josey-Bass Publisher.

Note: the one-minute paper sheet is a half A4 paper with the first question on one side of the sheet, and another question on the other side of it.

Appendix B

Examples of OMP Sheets Completed by Students
(Translated into English)

Example A

Name: - **Student' ID:** - **Date:** *June 19, 2008*

Course: *Reading Comprehension* **Section:** *02*

The One-Minute Paper Sheet

Please answer each question in 1 or 2 sentences:
 1) What was the most important thing you learned in class today?
  - *Phrasal verbs, Signal verbs, and their meanings*

2) What important questions that you have from class today remain unanswered?
  - *The meanings of words formed by prefixes and suffixes*

Example B

Name: - **Student' ID:** - **Date:** *June 27, 2008*

Course: *Chinese Pronunciation* **Section:** *01*

The One-Minute Paper Sheet

Please answer each question in 1 or 2 sentences:
 1) What was the most important thing you learned in class today?
  - *A distinction of phonemes has already been drawn between active and passive articulators, which started from the comparatively higher or lower degree of mobility of the organs involved in the articulation.*

2) What important questions that you have from class today remain unanswered?
  - *Distinguishing differences of each phonemes*

Appendix C

The Instructor's Report Form

Name: _____ Date:_____ Course: _____ Section: ____

According to the latest students' responses to the one-minute paper, please write briefly about the issue(s) you intend to put into the teaching plan for the next session.

_____

_____

_____

_____

_____

Appendix D

Examples of Instructor's Report Forms Completed by Instructors
(Translated into English)

Example A

Instructor's Report Form

Name: -   **Date:** *June, 27, 2008*
Course: *Reading Comprehension*   **Section:** *2*

According to the latest students' responses to the one-minute paper, please write briefly about the issue(s) you intend to put into the teaching plan for the next session.
The topics selecting for reviewing are:
- *using context clues and*
- *participial phrases.*

Example B

Instructor's Report Form

Name: -   **Date:** *June, 22, 2008*
Course: *Preparatory English for University Study*   **Section:** *1*

According to the latest students' responses to the one-minute paper, please write briefly about the issue(s) you intend to put into the teaching plan for the next session.

Supplementary exercises about types of noun will be prepared and presented by PowerPoint before starting new lessons.

Note: I'm trying to speak slower and reemphasize difficult points as requested by the students.

Appendix E

The Classroom Observation Form

Date_____ Time_____ Course _____

Instructor _____ No. of students _____

1) Classroom Environment:

_____

_____

_____

_____

2) How time was used in the process of the one-minute paper:

_____

_____

_____

_____

3) Students' behavior toward the one-minute paper:

_____

_____

_____

_____

Appendix F

An Example of Classroom Observation Note)
(Translated into English)

Date: June 8, 2008   Time: 2.35 – 3.00 P.M.   Course: PEUS

Instructor: Mr. D   No. of students: 50

1) Classroom Environment:
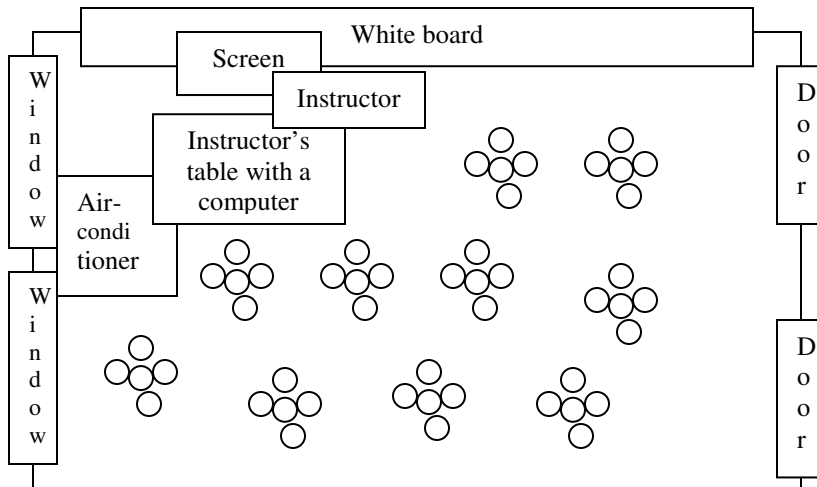
       Light and temperature are okay. The air-conditioner makes a little noise. The instructor walks back and forth between the board and the table since he uses PowerPoint to explain content and writes some examples on the board. Students sit in groups of five. The classroom has a relaxed atmosphere.

2) How time was used in the process of the one-minute paper:

    2.43 – 2.45: The instructor asked the students to complete the OMP sheets while distributing the sheets.

    2.45 – 2.50: The instructor prepared to leave the class while the students completed the sheets.

    2.47:   A student handed her sheet to the instructor.

The instructor asked one of students in each group to collect all sheets before sending them back to him.

2.55:   The instructor received all the sheets and left the classroom.

3) Students' behavior toward the one-minute paper

PEUS students seemed not to feel relaxed when they were assigned to answer the two questions on the OMP sheets, although the instructor told them that they would not be graded from doing this assessment. Some students looked at their friends' answers, some flipped through the pages to get an idea of the contents they had just studied, and some just sat and did nothing before writing on the OMP sheets,. Many students did not write their answers until the instructor rushed them into submitting the OMPs.

Appendix G

Questions for Instructors' Interviews

1. What do you do when you learn from an assessment that a student or many students do not understand the lessons?

2. What are advantages and disadvantages to you as an instructor of using the one-minute paper?

3. What are advantages and disadvantages to your students of using the one-minute paper?

4. Have you changed anything about your teaching behaviors or classroom activities as a result of feedback from the one-minute paper? Please describe any changes.

5. How did the one-minute paper and your feedback help the students increase their learning?

6. Please add any comments about the one-minute paper that you would like to share.

Appendix H

Questions for Students' Interviews

1. What are advantages and disadvantages to you as a student of using the one-minute paper?

2. When compared doing the one-minute paper with not doing it, to what extent do you think it helps you learn the course contents?

3. In your opinion, how useful was practicing writing the one-minute paper regularly and getting the feedback from the instructor help you improve your learning?

4. After you did the one-minute paper in this course, would you apply the same technique in other courses? Why?

5. Please add any comments about the one-minute paper that you would like to share.

Appendix I

The Instruction on How to Use the OMP

The Purposes of Using the OMP
1. To assess students' understanding as soon as they learned a lesson
2. To realize whether or not the students could grasp the significance of a lesson
3. To help the instructor prepare for what you are going to do in the next class to serve the students' needs, for examples, reviewing points the students encounter or adapting your teaching practice.

Frequency of Using the OMP
1. Administer only once a week in any session the instructor considered appropriate or convenient.
2. The OMP should be administered 10 times throughout the semester except the first week of the semester, the first week after the midterm examination, and the last week before midterm and final examinations.

Advantages of Using the OMP for your Students
The OMP is self-evaluation that students are able to realize how much they could achieve a learning objective in a class session. They can learn their learning path and improve their learning.

Attachments
1. OMP Forms
2. Instructor's Report Forms

The process of administering the OMP
1. Possibly inform the students that they will be asked to fill out a form which they could assess their own understanding of a lesson.
2. Stop class about five or 10 minutes early and distribute the sheets.
3. Have the students provide thoughtful, brief, and legible answers to both questions.
4. Collect the forms back after the students complete the forms.
5. Read through all students' response on the sheets and write briefly on the Instructor's Report Form what points the instructor is going to reemphasize in the next period.
6. Send the OMP forms completed by students and the Instructor's Report form to the researcher.

Note: For the first time of using the OMP, please explain to the students about the purposes of using the OMP before having them do it. The OMP can be a means for the students communicate with the instructor. The instructor can realize the students' competence and the difficulties that the students want the instructor to review or reemphasize.

Suggestions
1. The instructor can check students' attendance from the students' names on the OMP forms. And, to encourage students to attend class, the instructor could tell them that the instructor will check their attendance from the OMP sheets.

2. To encourage students to fill out the forms attentively, the instructor would give them some points as a part of classroom participation or class attendance. And the points are not related to the content they fill out the form.

3. To encourage students to give any comments based on their understanding, please explain them doing the OMP is a means to communicate with the instructor in case that they feel uncomfortable to ask a question during a class.

4. To make the students feel comfortable to do the OMP, please inform them the instructor will not say any students' names according to their answers on the OMP sheets.

5. After the instructor read through students' feedback on the OMP sheets, please review points that the instructor thinks they are useful for students. The teaching practice modification may occur depending on the instructors.

Your cooperation is appreciated.
Jomjai Sudhinont

Off. Tel. No: 784-286-074
Mobile: 085-895-6692
Email Address: jomjai.s@psu.ac.th

Thai Version of the Instruction on How to Use the OMP

คำชี้แจงการใช้แบบประเมินความเข้าใจของผู้เรียน (One-minute Paper) สำหรับอาจารย์ประจำวิชา

วัตถุประสงค์ของการใช้แบบประเมินความเข้าใจของผู้เรียน

1. เพื่อประเมินความรู้ความเข้าใจของนักศึกษาทันทีที่นักศึกษาได้เรียนรู้เนื้อหา
2. เพื่อทำให้ผู้สอนได้ทราบว่านักศึกษาเข้าใจเนื้อหาที่เรียนหรือไม่
3. เพื่อปรับเนื้อหาการสอนในชั่วโมงต่อไปเพื่อช่วยนักศึกษาที่ยังไม่เข้าใจเนื้อหาบางส่วนได้ทัน ท่วงที

ความถี่บ่อยในการใช้แบบประเมินความเข้าใจของผู้เรียน

1. ใช้แบบประเมินความเข้าใจฯ เพียงสัปดาห์ละ 1 ครั้งในคาบเรียนใดก็ได้ที่อาจารย์เห็นว่า สะดวกหรือเหมาะสม
2. ใช้แบบประเมินความเข้าใจฯ ทั้งสิ้น 10 ครั้งในภาคการศึกษายกเว้นสัปดาห์แรกของการเปิด ภาคการศึกษาอาทิตย์แรกหลังสอบกลางภาคและอาทิตย์สุดท้ายก่อนสอบกลางภาคและปลาย ภาค

ประโยชน์ของการใช้แบบประเมินความเข้าใจของผู้เรียน

นักศึกษาสามารถประเมินได้ว่าจากบทเรียนที่เพิ่งเรียนไปนั้น แล้วทำให้รู้ว่าตัวเองมีระดับความ เข้าใจในเนื้อหาที่เรียนมากน้อยเพียงไร เนื้อหาใดที่ตัวเองไม่เข้าใจมากที่สุด และบรรลุจุดประสงค์การ เรียนรู้ในคาบเรียนนั้นหรือไม่

สิ่งที่แนบมาด้วย

1. แบบประเมินความเข้าใจของผู้เรียน
2. ใบรายงานผลของอาจารย์ผู้สอน

ลำดับขั้นตอนการใช้แบบประเมินความเข้าใจของผู้เรียนในชั้นเรียน

1. อาจารย์อาจจะบอกนักศึกษาในช่วงต้นชั่วโมงว่า ท้ายชั่วโมง จะให้กรอกแบบฟอร์มเพื่อวัด ความเข้าใจของนักศึกษาในสิ่งที่ได้เรียนไป
2. ก่อนหมดชั่วโมงสอนประมาณ 10-15 นาทีแจกแบบประเมิน ความเข้าใจฯให้นักศึกษาทำ
3. ให้นักศึกษาตอบคำถามทั้ง 2 ข้อทั้งด้านหน้าและด้านหลังของแบบฟอร์ม (โดยตอบเพียง 1-2 ประโยคสั้นๆ เท่านั้น)
4. เก็บแบบฟอร์มประเมินความเข้าใจฯ คืนเมื่อนักศึกษาทำเสร็จ

5. ขอให้อาจารย์อ่านคำตอบของนักศึกษาในแบบประเมินความ เข้าใจฯ และเขียนสรุปใน
   แบบฟอร์มรายงานผลว่า เมื่อได้อ่านคำตอบของนักศึกษาแล้วอาจารย์ตั้งใจจะทบทวน
   หรืออธิบาย เนื้อหาใดในคาบต่อไป

6. ส่งแบบประเมินความเข้าใจฯ และใบรายงานผลของผู้สอนคืนผู้วิจัย
   <u>หมายเหตุ</u> ก่อนหมดชั่วโมงสอนประมาณ 10-15
           นาทีของคาบแรกที่ใช้แบบประเมินความเข้าใจฯ ก่อนขอให้อาจารย์อธิบายให้
           นักศึกษาฟังว่าวัตถุประสงค์ของการทำแบบประเมินความ เข้าใจของผู้เรียนนั้น
           เพื่อช่วยให้นักศึกษาและอาจารย์ได้สื่อสารกันทำให้อาจารย์ทราบว่านักศึกษาเข้าใจ
           เนื้อหาส่วนใดดีแล้วและส่วนใดที่มีปัญหาที่สุดซึ่งเป็นส่วนที่นักศึกษาต้องการให้
           อาจารย์อธิบายใหม่หรือสอนซ้ำ

ข้อแนะนำ

1. กรณีที่อาจารย์ต้องการตรวจสอบการเข้าชั้นเรียนของนักศึกษา สามารถดูได้จากชื่อสกุลของ
   นักศึกษาที่ปรากฏในแบบประเมินความเข้าใจของผู้เรียนได้ ดังนั้นเพื่อเป็นอีกวิธีหนึ่งที่ส่งเสริม
   ให้นักศึกษาทำแบบประเมินความเข้าใจของผู้เรียน

2. อาจารย์อาจจะบอกนักศึกษาว่าจะเช็คการเข้าชั้นเรียนจากชื่อที่ปรากฏในแบบประเมินความเข้า
   ใจของผู้เรียน

3. เพื่อเป็นการส่งเสริมให้นักศึกษาตั้งใจทำแบบประเมินความเข้าใจของผู้เรียน อาจารย์อาจจะให้
   คะแนนในส่วนของการมีส่วนร่วมในชั้นเรียนหรือคะแนนเข้าชั้นเรียนโดยไม่เกี่ยวกับเนื้อหา
   ของคำตอบที่นักศึกษาเขียนในแบบฟอร์ม

4. เพื่อให้นักศึกษาตอบตามความเป็นจริงโปรดทำความเข้าใจกับนักศึกษาว่า การทำแบบประเมิน
   ความเข้าใจของผู้เรียนนั้นเป็นวิธีทางหนึ่งในการช่วยเหลือนักศึกษาในกรณีที่นักศึกษาไม่เข้าใจ
   เนื้อหาในบทเรียน โดยเฉพาะอย่างยิ่งในกรณีที่นักศึกษาไม่สะดวกใจที่จะยกมือถามในชั้นเรียน

5. เพื่อสร้างบรรยากาศที่ดีไม่ตึงเครียดอาจารย์อาจจะบอกนักศึกษาว่าจะไม่มีการเอ่ยชื่อนักศึกษา
   คนใดคนหนึ่งในชั้นเรียนอันเนื่องมาจากการตอบคำถามในแบบประเมินความเข้าใจของผู้
   เรียน

6. หลังจากนักศึกษาได้ทำแบบประเมินความเข้าใจของผู้เรียนแล้ว ในคาบต่อไปขอให้อาจารย์
   กรุณาทบทวนหรืออธิบายเนื้อหาที่อาจารย์เห็นว่าเหมาะสมให้แก่นักศึกษาอันเนื่องมาจากการ
   อ่านคำตอบที่นักศึกษาได้เขียนไว้ในแบบประเมินความเข้าใจของผู้เรียน ทั้งนี้กลวิธีในการสอน

เพื่อทบทวนนั้นขอให้ขึ้นอยู่กับดุลพินิจของผู้สอนเป็นสำคัญว่าจะใช้วิธีการสอนซ้ำในชั้นเรียน
อภิปรายในชั้นเรียนอย่างสั้นๆ หรือมอบหมายให้อ่านเพิ่มเติมในหัวข้อใดหัวข้อหนึ่ง ฯลฯ

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ขอขอบคุณในความร่วมมือ

จอมใจ สุทธินนท์

</div>

เบอร์โทรศัพท์ที่ทำงาน   074-286784

เบอร์โทรศัพท์มือถือ   085-8956692

อีเมล์แอดเดรส   jomjai.s@psu.ac.th

Appendix J

IRB Approval

Oklahoma State University Institutional Review Board

Date: Tuesday, June 10, 2008

IRB Application No   ED08100

Proposal Title: Instructors' and Students' Perceptions of the Use of the One-minute Paper
                   to Improve Instruction and Increase Student Learning at a University in
                   Thailand

Reviewed and   Exempt
Processed as:

Status Recommended by Reviewer(s): Approved   Protocol Expires: 6/9/2009

Principal
Investigator(s):
Jomjai Sudhinont   Ken Stern
Prince of Songkla Univ.,   311 Willard
Hat Yai, Songkhla, 90112 TH   Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the
rights and welfare of individuals who may be asked to participate in this study will be respected, and that
the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45
CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval
stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol
   must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar
   year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are
   unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the
authority to inspect research records associated with this protocol at any time. If you have questions
about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219
Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Shelia Kennison, Chair
Institutional Review Board

VITA

Jomjai Sudhinont

Candidate for the Degree of

Doctoral of Education

Dissertation: STUDENT FEEDBACK, IMPROVING INSTRUCTION,
                AND INCREASING STUDENT LEARNING AT PRINCE OF
                SONGKLA UNIVERSITY

Major Field: Applied Educational Studies

Biographical:

    Personal Data: Born in HatYai, Songkhla, Thailand on July 2, 1979, the
            daughter of Sakda and Umpairat Sudhinont.

        Education: Graduated from High School at the Center of Non-Formal
                Education-Songkla, Department of Non-Formal Education, Thailand,
                April, 1996; received Bachelor of Business Administration (Personnel
                Management) degree from Prince of Songkla University, Songkhla,
                Thailand, April, 2000; received Master of Arts (Applied Linguistics)
                from Kasetsart University, Bangkok, Thailand, October, 2003.
                Completed requirements for the Ed.D. with an option of AEST/College
                interdisciplinary at Oklahoma State University, Stillwater, Oklahoma,
                August, 2009.

        Experience: Administration Assistance of Production Manager, Kimberly
                Clark-Safeskin (Thailand) Ltd., Songkhla, Thailand, September 2003-
                April 2004.

        Professional Memberships: Instructor, Dept. of Languages and Linguistics, Fac.
                of Liberal Arts, Prince of Songkla University, Hat Yai, Songkhla,
                Thailand, June 2004-present.

Name: Jomjai Sudhinont   Date of Degree: July, 2009

Institution: Oklahoma State University   Location: Stillwater, Oklahoma

Title of Study: STUDENT FEEDBACK, IMPROVING INSTRUCTION,
                AND INCREASING STUDENT LEARNING AT PRINCE OF
                SONGKLA UNIVERSITY

Pages in Study: 136   Candidate for the Degree of Doctoral of Education

Major Field: Applied Educational Studies / College Interdisciplinary

Scope and Method of Study: This case study examined the usefulness of the One-Minute
        Paper, a classroom assessment strategy, for promoting student learning. Also, the
        study attempted to determine students' and instructors' perceptions of the
        effectiveness of the OMP in facilitating teacher assessments of student progress
        and developing effective instructional modifications. The primary questions
        were: 1) How does the OMP promote student learning? 2) What are the effects of
        using the OMPs on students and instructors? and, 3) What are students' and
        instructors' perceptions of the usefulness of the OMP? The methodology
        involved qualitative data collection from documents, classroom observations, and
        interviews. Five instructors and 240 students participated in the study. Interviews
        involved 17 participants: five instructors and 12 students.

Findings and Conclusions: This study showed that the OMP could help improve student
        learning. The instructors and students perceived the OMP helped promote student
        learning as well as develop instructional modification. Metacognitive theory
        provided a framework to explain if the theory helped to reveal something about
        the relationship between the OMP and student learning improvement and in
        developing strategies for instructors to adapt their classroom behaviors or
        instruction. Among key findings, students and instructors reported that the OMP
        helped improve students' learning. And, instructors improved their teaching
        practices through the use of the OMP. Several themes emerged: student learning
        improved, instructors added or changed instructional activities, and student and
        instructor comfort level with the OMP increased during the semester. These
        themes were examined through the lens of metacognitive theory. And,
        recommendations for reform and further research were presented.

ADVISER'S APPROVAL: Dr. Kenneth Stern