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Aligning Instructional Practices with Content Standards in Junior Secondary Schools in Indonesia

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Doctor of Philosophy

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ABSTRACT

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This study examines the degree of alignment between instructional practices and national curriculum standards, which may vary as a function of teacher characteristics. Using self-reports from teachers about their experiences teaching the national curriculum standards, the study explores three aspects of the alignments: (1) topic coverage, (2) level of difficulty for teachers to teach, and (3) level of difficulty for students to learn. While topic coverage is determined by the percentage of the national curriculum standards topics taught during the year of 2008/2009, the level of teacher difficulty to teach and the level of students difficulty to learn are assessed using a scale from 1 (very easy to 4 (very difficult). I used mixed multilevel regression analyses to examine the relationships between alignments and teacher characteristics. The study involved 501 junior secondary school teachers from three western provinces in Indonesia (Lampung, Jakarta, and East Java) who teach the following nationally-assessed subjects: Indonesian, English, science, and mathematics.

The findings showed that the majority of teachers taught 100% of the topics outlined in the national curriculum standards. For the level of difficulty, teachers generally found the topics easy to teach; however, according to teachers, there is some difficulty for students to understand the topics they were taught. In terms of the relationships of alignments with teacher characteristics, the findings suggested that these relationships varied.

Theoretically, this research provides two contributions as (1) lacking research in the area of curriculum standards and classroom instruction as mediator of student competencies, the findings of this study make an important contribution to the current research of the standards-based education system; (2) predicting alignments as a function of teacher characteristics in this study contributes to the theoretical discussion of teacher characteristics. As practical implications, the low scale score of the students understanding the topics required by the national standards suggests a big problem in the system that requires great concern from the government at all levels. Regarding topics, there is an urgent need to identify the specific topics that teachers think are difficult for the students to understand.

Keywords: alignment, survey, curriculum standards, classroom instructional, topic coverage, level of difficulty, teacher characteristics, junior secondary school.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Chapter 1

Introduction

Background

The concept of alignment in education was introduced in the systemic reform initiative in the 1990s (Smith & O'Day, 1991) to apply a standards-based curriculum. It was recently applied in the current No Child Left Behind program to improve both the quality of and access to education. The concept aims to offer more equitable educational opportunities and improve the quality of learning, which can lead to better achievement, to students from different backgrounds by aligning aspects in education. In classroom practice, for example, higher quality teachers will be able to improve student learning and to better align the mandated standards.

UNESCO calls for improvement in the quality of all aspects of education, aimed at creating a situation where all people can achieve better quality. For UNESCO (2006), quality of education means that everyone should be able to achieve recognized and measurable learning outcomes, particularly with regard to literacy, numeracy, and other skills essential for life. The message that every government should seek both quality and equity is important. Many governments are aware of these issues and respond by setting policies and pronouncements about educational reform for school improvement. In most developing countries, policies aimed to improve access and quality are formulated by referring to the goals of EFA (Education for All), an initiative sponsored by UNESCO and the World Bank. One of the EFA's goals is to increase both the opportunities to learn and the outcomes and quality of learning (World Bank, 2008).

In the United States, one reform effort began with the release of *A Nation of Risk* , which called for the promotion of world-class education standards in the United States, in 1983 (National Commission on Excellence in Education, 1993). The adoption of standards-based reform by the federal government hoped to improve both quality and equity in education. Since

1983, various reform plans have been enacted to support quality and equity, such as America 2000 (1991), Goal 2000 (1994), Title I (1994)—Improving The Academic Achievement of The Disadvantaged—as amendment to Title I of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6301 et seq.), and the No Child Left Behind Act (2002), which explicitly embodied standards-based reform in which alignment plays a critical role in school improvement.

The standards-based notion of education reform strongly embodied in the No Child Left Behind Act addresses three important aspects: standards, tests, and accountability (Clarke et al., 2003). The law requires states to establish challenging content standards in reading and mathematics. To measure achievement in relation to said standards, annual tests are required for all students in grades three through eight, and the results must be categorized according to the students' level of poverty, race, ethnicity, disability, and limited English proficiency. School districts and schools are held accountable if they fail to make adequate annual progress toward the goals; they will be subject to corrective action and restructuring measures while successful schools are eligible for rewards.

Standards, the first component of standards-based reform, are sometimes used interchangeably with curricular frameworks. Their purpose is to provide both explicit guidelines for the curriculum at various grade levels and implicit guidelines for what is to be tested (Clarke et al., 2003). The standards provide broad scope for the educator to structure a curriculum at the local or school level (Griffith, 2006). The aim is to provide guidelines that teachers can use to create a challenging, high-quality curriculum for all children, regardless of where they attend school (Clark et al, 2003). Although historically the United States' education system has been strongly controlled by state and local governments, the national standards-based reform has been

accepted and implemented widely in the United States. As of 2009, all 50 states have adopted both the standards and assessment policies.

The second component of standards-based reform is assessments aligned with the curriculum standards. The assessments, it is argued, provide an external, objective measure of how well students have learned the content and skills specified in the standards (Clarke et al., 2003). Implementing testing programs to measure the standards varies from state to state; each state can adopt a high-, moderate-, or low-stakes test model. Accordingly, the states also vary in the adoption of the statewide assessment initiative, where states may implement the tests as state assessments or as part of the National Assessment of Educational Progress (NAEP).

The third component of standards-based reform is accountability. This component seeks to hold teachers and administrators accountable for how well students have learned the contents and skills laid out in the standards. The No Child Left Behind Act increased the accountability component relative to previous proposals by requiring all students from third grade through eighth grade to take tests annually to demonstrate a proficient level of reading and mathematics by the year 2014 (Clark et al., 2003). Again, states vary in adopting the accountability models. For example, Ohio holds students more accountable, Kentucky tends to put accountability on teachers, and Florida holds both students and teachers equally accountable (Clark et al., 2003). More importantly, the No Child Left Behind Act also mandated that states put a qualified teacher in every classroom (McGuinn, 2006). Taken together, standards-based reform in the Unites States is the centerpiece of the federal initiative to put qualified teachers in classrooms so that the standards are well aligned with instructional practice and, in the end, will achieve both quality and equity for all students.

The need for alignment is also suggested by international research. An international-based ethnographic case study done by the Trends in International Mathematics and Science Study

(TIMSS) highlights two possible explanations for the general patterns in school teaching: (1) the universal elements that shape teaching practice in most schools are the physical environment, the social dynamic of the classroom, and the content to be learned; and (2) countries have shaped teaching by evolving classroom methods that aligned with their national cultural beliefs, expectations, and values (Givvin et al., 2005). These beliefs include such things as a nature of subject, how students should learn, expectations about the level of performance a student should demonstrate, and the value of school processes and outcomes. In this context, alignment plays a critical role, not only for the match, continuity, and synchronization among the main components of the instructional system such as classroom practice (Fonthal, 2004), but also to ensure that the knowledge and skills assessed through tests are the same knowledge and skills specified in the content standards (NASBE, 1997; Rothman, 2003; Martone & Sireci, 2009; Grossman et al, 2008). Specifically, the importance of alignment can be seen in the United States' federally mandated standards-based reform through the No Child Left Behind Act because it requires that state-level assessments be aligned with content standards. Since then, various agencies have conducted many studies on alignment. Scholars such as Norman L. Webb (1997, 1999), Andrew C. Porter (2002), Porter et al. (2007), and Wixson et al. (2002) are among those who produced criteria and procedures to measure alignment. In those studies, both Webb and Wixson et al. focus their research mostly on the alignments between standards and assessments, while Porter addresses the studies on alignment of the standards with both classroom practice and assessment.

Learning from Porter's studies, the instructional practice where teachers make decisions about what to teach and how to teach it is a critical aspect for alignment perspectives and plays a key role in student performance with respect to the standards. Studies in this area are mostly focused on the effects and influence of the standards and assessments of teaching and student learning. For example, assessment results suggest that pedagogical change is taking place in the

direction shaped by the standards and standards-based assessment and are strong influences on teachers' decisions about what they teach in terms of content (NASBE, 1997). Clarke et al. (2003) also suggested four recommendations to highlight the importance of alignment in different areas:

1. States should invest in high-quality, ongoing professional development for educators, related to the state standards and tailored to their particular needs and contexts.
2. Educators should have high-quality classroom materials and other resources that are aligned with the state standards and support their integration into classroom instruction.
3. States need to work with schools and districts to ensure that local and state standards are appropriately aligned with tests.
4. States need to ensure that their standards and tests are aligned not only in terms of content, but also in terms of the cognitive skills required. (p. 6)

In this context, alignment, as the component of standards-based reform designed to help students learn more and perform better on the assessment, is believed to offer more equitable educational opportunities for all children. Alignment will help to ensure not only that students have a fair shot at doing well on the tests and be prepared in class for what is on the tests, but also to ensure the validity of the results (Rothman, 2003). Based on this assumption, alignment is a critical issue not only in the content and assessment of standards but also in instructional practices, where teachers play important roles.

Two areas of focus of the systemic reform are the creation of new policy instruments that can enact systemic reform and the reduction of the inherited tangles of incoherent governance (Smith & O'Day, 1991). A coherent system is what the systemic reformers seek to provide the state for guidance in instruction (Cohen, 1993). Moreover, Schmidt and Prawat (2006) argued that in order to bring coherence to education, one must examine the relationship between

curricular governance at the system level and content coverage at the classroom level. For this purpose, Schmidt and Prawat (2006) explored alignments in curriculum studies to measure content and curriculum coherence. Accordingly, Newmann et al. (2001) suggested that studies of the broader educational system tend to discuss coherence as an alignment of a school's instructional program with external policies and standards.

As many countries have shaped their teaching by using evolving classroom methods aligned with their national cultural beliefs, expectations, and values (Givvin et al., 2005), Indonesia has recently adopted the standards-based approach to education reform in order to promote both quality of and access to education. Although the new education act, called the National Education System, Law 20/2003, responded to the change of governance from a centralized model to a decentralized model under the two major instruments of decentralization (Law 22/1999 on regional government and Law 25/1999 on fiscal relations), the national standards and assessment, as a key initiative by the central government, dominated the new education system. Under this new law, the government adopted two components of the standards-based reform, national standards of curriculum and the national assessment, as part of the package of "what students should know and able to do." Conversely, the third component of the standards-based reform, accountability, is barely discussed in the system.

In the history of education in Indonesia, a centralized system was more dominant than a decentralized one. From earlier centuries (1598–1942), when Indonesia was a Dutch colony, Holland's control over local governments, including education, was very strong. Education was available to the local elite group only. After colonialism ended, the first presidency (1945–1966) faced a country in economic and political turmoil. This instability made implementing decentralization policies far from successful. As a result, education was not a high priority.

However, education in Indonesia evolved during the second presidency (1966–1998). During the second presidency, education remained centralized. It was the awareness of social instability and the need for nationalism that provided one of the key justifications for Indonesia to remain centralized (Bjork, 2003; Schwarz, 1999). During this era, education was an effective instrument for keeping national unity by disseminating top-down government decisions. A minor move towards decentralization was introduced in 1994 to allocate 20% of total instructional hours to locally designed subject matter. This localized requirement became known as the Local Content Curriculum (LCC). According to Bjork (2003), the program was not successful due to the school cultures had previously directed obedience rather than initiative, as is demanded in the LCC, and because of the top-down system of government that was too deeply ingrained in the educational process.

Major government decentralization initiatives were introduced in mid-1998 by the third presidency (1998–1999) as a result of the economic crisis that caused the collapse of the second presidency (1966–1998). The succeeding governments (1999–2001, 2001–2004, & 2004–2009) established national standards and assessments in an effort to increase the quality of and access to education. By initiating national standards and assessments, current Indonesian education reform is directed towards a standard-based system, similar to the United States' education reform model but without the accountability aspect. Since the accountability aspect is not applied to the educational system, the reform is centered on standards and assessment. Unfortunately, the system also pays less attention to one important tool in implementing standards-based reform: alignment. This study attempts to explore such alignment of the standards and classroom practice.

Statement of Problem

Alignments are keys to successfully increasing both quality of and access to education in standards-based reform. In the case of the alignment between classroom instruction and the standard curriculum, the alignment is the mediator to reach the goals. However, although aligning classroom practices and standards plays a key role, and research on alignment can offer a deeper view of the educational process (Martone & Sireci, 2009), very few studies have been done. Appropriately, although the concept of standards-based reform is "widely accepted" in Indonesia, the term *alignment* is hardly mentioned when implementing the standards. There is a lack of knowledge regarding alignment within the Indonesian educational system in connecting standards, classroom practice, and assessment. The lack of clarity on this issue may greatly affect many aspects of education, including the link between standards, classroom instruction, and assessment, which can potentially hinder achieving the goal of improving both quality and access. Also, the current progressive implementation of the national standards and testing program to determine school completion for each school level in Indonesia was less followed by intervention in classroom instruction, which may result in limited information about teachers' knowledge about the standards, classroom practices on standards, and the assessment program; as well as the alignment between them.

Meanwhile, prior research shows that the effect of the instructional process in reading not only increased reading achievement on tests but also improves achievement in different content areas like science, mathematics, and writing (Guthrie et al., 2000). Another important role of classroom instruction is presented in a study conducted by Brown et al. (2010) on improving classroom quality; the findings support intervention in the classroom-level social process, which is fundamental to positive youth development. Eliminating the instructional process from the mainstream of the reform will definitely create disparities among teachers' knowledge about the

standards and their classroom practice. As a result, teachers may align their class instruction by referring more to the test rather than to the curriculum standards. If this is the case, the principles of education are narrowed down only on the assessment, which will violate the concepts of the standard-based reform.

More importantly, the government, whose function is to facilitate the improvement of quality and access, may find an unintentional consequence if teachers align their classroom instruction more to the test rather than to the curriculum standards. If this is the case, in addition to violating the concept of the standards-based system, there might be also greater misallocation of the resources for schools, which would hinder students from different backgrounds from receiving the opportunity of going to a better quality schools.

In summary, there is a lack of knowledge about the degree of alignment between content standards and classroom instruction. Without this knowledge it is difficult to know whether the students' achievement scores on the national exam reflect their actual learning or the degree to which the content standards were taught in the classroom. In addition, it is difficult to determine whether the national reform initiative is making any difference in student achievement. Research concerning how well teachers align their classroom instruction with content standards is urgently needed.

Purposes of the Study

The major purpose of this study is to determine the extent to which instructional practices align with the national standards and their correlation to teacher characteristics such as gender, working status, college major, level of education, years of experience, and professional development.

Research Questions

The study addresses two key research questions:

1. To what extent does classroom instruction align with national curriculum standards?
2. Are there associations between teacher characteristics to the degree of alignment between national curriculum standards and classroom instruction?

Methods

The study used a quantitative method to better understand the alignment of the national curriculum standards and classroom practices for junior secondary schools in Indonesia. The research was also supported by qualitative data that provided explanations of the phenomenon in depth. The study collected quantitative data through teacher surveys and applied quantitative methods for data analysis, including descriptive and relational approaches. In addition, semi-structured interviews were used to collect in-depth information regarding the alignments and were analyzed with the qualitative approach to support the survey data to provide more explanations about the class instruction.

The study focused on the four nationally assessed subjects: Indonesian, English, science, and mathematics. A survey instrument was used to collect data from a sample of junior secondary school teachers in three provinces of Indonesia: Lampung, Jakarta, and East Java. The survey questionnaire consisted of two parts: (1) a list of teacher characteristics: gender, working status, college major, level of education, years experience, and professional development; and (2) a list of the standards for each of the four nationally assessed subjects, followed by questions to measure three aspects of the alignment, specified as topic coverage, level of teacher difficulty for teaching, and level of student difficulty for learning, between the standards and the classroom

practice. Meanwhile, a semi-structured interview was used to collect data from teachers to explore the alignments in depth.

The data analysis was organized around questions of the study. The first analysis explored the extent to which classroom practice aligns with the national curriculum standards and was organized around the topic coverage and the level of student difficulty. The second analysis focused on the associations between alignment and teacher characteristics. A mixed multilevel regression was used to examine whether teacher characteristics associate with alignment. In this model, the dependent variable was alignment and the independent variable was teacher characteristics. Additionally, data from the interviews were analyzed to support the quantitative analysis, especially to provide more explanations about the implementation of the standards in classroom instruction.

Delimitation

This study involves only three provinces in western Indonesia. No private schools in Jakarta were included for timing reasons. Given the limitations in terms of both area and the types of schools covered, the results may not be generalized beyond the respondents' regions and scope because there may be numerous differences among them. In terms of the analysis, the relatively small number of teachers who answered the same questions does not allow for a higher level of analysis, such as modeling structural equations.

According to a study on alignment between state performance assessments and mathematics classroom activities conducted by Parke and Lane (2008), students may have provided a better reflection on the bigger picture of classroom instruction than their teachers. This finding limits this study, since the researcher was only able to cover teachers as respondents. Further research is needed to triangulate data on alignment for both teachers and students in order to provide more complete information about classroom instruction. Also, this

study does not involve certification as a teacher characteristic for various reasons, the most significant being that teacher certification was administered recently as a credit point to get a salary increase rather than for actual improvement of school quality. Including certification as one of the predictor variables in future research may give different results. The study is also limited in addressing characteristics such as schools with religious affiliation, which may differ significantly from public schools. Further research needs to address this issue specifically to examine whether such schools align their classroom instruction better than public schools.

Importance of the Study

Standards-based reform suggests that alignment of educational aspects is key in efforts to improve schools. Indeed, the concept of alignment is the heart of systemic reform (Porter, 2002), assuming that if aspects in educational activities align with each other, both school improvement and an increase in the opportunity to learn will be achieved. Unfortunately, the majority of research in this area focuses on alignment between tests and standards; few studies have been done focusing on alignment between standards and classroom practice. This study contributes to this neglected area of study.

School surveys can provide valuable information to both the school studied and to other agencies and groups whose operations are school-related (Gay & Airasian, 2000). Accordingly, this study of alignment is valuable for two reasons. First, this study provides information about the alignment of standards with classroom practices in terms of whether teachers teach the curriculum standards in their classrooms, as well as teachers' reports of the degree of difficulty both for teachers and for students. This information is very important to help understand the extent to which the standards have been taught in the classroom and the level of difficulty of each topic highlighted in the national curriculum standard.

Secondly, the study provides information about teacher characteristics in relation to the alignment between the standards and classroom practice. The results may help the government design professional development programs to help teachers align curriculum standards and classroom practices. They may also help the government allocate more resources to schools where teachers are struggling to align with the standards. Another contribution may be that it helps the government find the best solution for the topics that are difficult for teachers to teach and for students to learn.

In summary, this study addresses several descriptive questions about alignment and its relationship with teacher characteristics. The results of this study provide useful information regarding alignment of classroom practices with the standards. These results can serve as a baseline for measuring change in alignments of the nationally mandated standards and teacher capacity in aligning their instructional practice to the standards. However, a follow up study, conducted either independently or by the government, is needed in order to get a more complete understanding about the alignment of classroom practices and the standards, especially regarding the possibility of alignment leading to achievement or improved relationships with the school demographic.

Chapter 2

Review of the Literature

The purpose of this chapter is to provide a theoretical background for this study through a review of the literature. The review will go from a broad to a specific focus on the issue of alignment in education. It will also discuss various studies of teacher characteristics associated with student achievement. Specifically, this chapter presents six major sub-topics: setting standards in education; standards-based reform, including advantages and disadvantages of the national standards and assessment; concepts of alignment; promising signs of alignment; studies of alignment; and teacher characteristics.

Setting Standards in Education

In the field of education, standards are usually used to address "criteria" in either the context of content application in schools or in the context of assessment to measure student learning over time (Simmons & Resnick, 1993; McCombs, 2005). the establishment of standards is almost always followed by testing to measure student performance in relation to the contents of the standards; without testing the implemented standards will have no teeth (Rohlen, 2000). In this context Rohlen highlights the importance of the tests in measuring the extent to which student learning the content.

An example of a nationwide policy in which standards provided the operational framework is the "America 2000" (1991) strategy that was developed during the President George H.W. Bush administration. At the beginning of this campaign, the term *standards* was used to suggest the need for national content and content assessment. From this a broader meaning was developed through the systemic reforms of the 1990s (Smith & O'Day, 1991; Fullan & Miles, 1991). Within this broader meaning, O'Neil (1993) identified education standards as what students need to know and be able to do, the essential core knowledge in a

particular subject area, a passing score on an assessment, or a model demonstration worthy of emulation. Accordingly, the National Council on Education Standards and Testing (NCEST) further enlarged this scope of requirements by not only recommending that national standards should include content standards (what students should know and be able to do) and student performance standards (the levels of student competence in the content), but also system-wide performance standards (to assess the success of schools, districts, states, and the nation as a whole in helping all students attain performance standards) and school delivery standards (to judge whether schools are providing students with the opportunity to attain the standards). Porter (1994) not only supported the definitions sponsored by the NCEST, but also suggested the need for funding standards, school delivery standards, and opportunity to learn standards. These aspects should be activated before applying the culmination of content standards, student performance standards, school process standards, school performance standards, and to generate school accountability.

Both the NCEST and Porter enlarged the definition of standards to highlight its potential to address both the imbalance in both the quality of and the access to learning in school and also to also assure that curriculum-appropriate instruction is taking place. The planned outcome is that, through standards-based reform, both quality and access will be well addressed. This will ensure that students from low SES groups will have access to quality schools in a way that will enable them to reach the standards designed to enrich and empower the individual and society.

Standards-Based Reform

In the 1990s, standards-based reform was a dominant policy of education in the United States, emerging right after the America 2000 proposal. Standards-based reform was designed to promote school improvement as the reform recommendation did, but it sought to incorporate the opportunity to learn for all children by placing accountability on additional resources.

The central tendency of this reform was to create a more coherent (or aligned) and applicable policy centered on instructional practices (Smith & O'Day, 1990, 1991, 1993; Smith, O'Day & Cohen, 1991; Fuhrman, 2001; Clune, 2001). By aligning educational aspects around instructional issues, the opportunity for all children to learn is made possible. Fuhrman (2001) described standards-based reform as "reform intended to anchor key aspects of policy—curriculum, assessment, teacher education, and teacher professional development—around policy level statements of what students should know and be able to do" (p.1). More specifically, Clune (2001) describes the foundation of the standards-based reform as "a greater degree of alignment of policies of instructional guidance around new standards of learning, thereby producing widespread and substantial gains in the quality of teaching and learning for all students throughout the area affected by the policies" (p. 14).

The development of standards-based reform was also proposed as a viable solution to problem in the United States of decreasing achievement scores on internationally comparative testing. The lesson from comparing the testing outcomes of other industrialized nations suggests that "if exams are used to motivate students to be more serious about their studies then the content of exams must be very closely tied to the curriculums of the schools," (Smith, O'Day, & Cohen, 1991, p.78). In looking to Asian countries, Japan in particular, United States policy makers learned the importance of coherence in the educational system and the necessity to integrate aspects of education around instructional goals. The standards-based perspective argues that, to achieve an effective and coherent policy, it is essential that all elements of the policy should be aligned to one another in a way that reifies established standards. In addition, Clune (2001) supports the work of Smith and O'Day and reinforces the point that the central thesis of standards-based reform is that creating greater coherence (or alignment) of instructional guidance policies (those affecting

the content and quality of instruction in schools) is the only way to create large numbers of effective schools —schools producing desirably high levels of student achievement. (p. 13-14)

Alignment is a critical aspect in a standards-based reform system (O'Day & Smith, 1990, 1991, 1992, 1993; Porter, 2002, Fuhrman, 2001), and incorporating this principle is one important step in helping students succeed (Odden & Archibalad, 2001). Alignment, central to standards-based reform, offers more equitable instructional opportunities for all children. By aligning curriculum, assessment, and classroom instruction, students have a richer educational experience. Ideally, this occurs for all students because the student first receives adequate instruction in the classroom and then achieves adequate results on standardized testing.

According to Clune (2001), systemic reform and standards-based reform are virtually synonymous. At this point, under the systemic reform initiative, instruction for all students is challenged, and coherence in education policy and practice is requisite to achieve school improvement. Fuhrman (1993) summarizes three major elements of reform as the establishment of ambitious outcome expectations for all students, the coordination of key policies in support of the outcome expectations, and the restructuring of government systems to support higher achievement. The systemic approach seeks more coherence in both instructional policy and practice. One distinguishing characteristic of standards-based reform is the links between the standards, the curriculum, and the instruction that teachers apply in the classroom and in the resulting student work (Supovitz, 2001). In addition to Porter's (2002) emphasis that "at the heart of systemic reform is the concept of alignment" (p.11) is the assumption that if aspects in educational activities align with each other, improvement in both schools and the opportunity to learn will be achieved. More importantly, Cohen (1993) suggests that in the implementation

stages of a policy, three aspects are crucial to the systematic sustainability and progress of an approach, namely a teacher's knowledge (also Supovitz, 2001), a teacher's professional values and commitment, and the accessibility of social resources. Social resources are critical to reform since they refer to the amount of external-to-the-classroom peer collaboration and familial support. These additional, valuable resources can help further engage the student in academic work and provide additional socioeconomic support.

Advantages and Disadvantages of the National Standards and Assessments

Higher standards in education were proposed in the America 2000 federal initiative. Critics vary in their barrage of expressed concerns, but most of the turbulence centers around the following issues: the difficulty of providing all students with a genuine chance for success (Howe II, 1991); excessive social costs (Jaeger, 1991); unbalanced levels of diversity in schools, teachers, and children, which hampers the equity goals outlined in America 2000 (Stake, 1991); poor measures of students' overall abilities; failure to develop comprehensive thinking and analytic skills (Darling-Hammond, 1991); pushing kids; privatizing public education; and giving up on equity (Meier, 2000). The weight of this criticism spurred Smith and O'Day (1991) to suggest the importance of systemic reform. Smith, O'Day, and Cohen (1994) offer four important elements for standards to be effective: specificity of content, sequence and timing, depth and breadth, and local flexibility for addressing the opportunity to learn. Systemic, standards-based reform addresses the opportunity to learn as an important issue on the educational standards setting. Additionally, the National Council on Education Standards and Testing (NCEST, 1992) recommends that national education standards would help to provide an increasingly diverse and mobile population with shared values and knowledge. In term of performance, school standards are designed to raise student performance across the nation (O'Day & Smith, 1993).

Despite all the criticisms, the argument for adopting national standards is widespread. With national standards, the system shifts societal demands from passive, rote learning to engaged problem solving, inverts management of information, resources, and ideas from basic skills to higher order thinking and performance skills, and transforms a high level of education for a few into a challenging curriculum for all (Cohen et al. 1993; Darling-Hammond, 1993). Another argument is that coherent guidance at the upper levels of government is a necessary starting point for local consistency in planning and management (O'Day & Smith, 1993). The belief that a properly designed assessment system can motivate students and teachers to work harder to enhance learning is an important assumption underlying standards and assessment. Based on the SCANS report, Linn (1993) underlined the assumption and suggested that the establishment of clearly defined high standards and sanctions will motivate students and teachers to put forth greater efforts. In addition, the negative effects based on high-stakes uses of standardized tests can be overcome by introducing assessments, particularly performance-based assessments, that are closely aligned with national content and performance standards.

Generally, theorists and observers claimed that the basic idea of standards in education derived from assumptions related to the behavioral approach rather than the cognitive approach of developing and maintaining constructive educational practices. There are some distinctive theoretical differences between the two approaches. Posner (1992) contrasted the two theories by saying that behavioral perspectives on learning focus on behavior and performance, whereas cognitive perspectives focus on the acquisition of internal mental structures and processes that lead to successful performance. Another distinction is that, whereas behavioral theorists place their interests in the phenomena of behavior, cognitive theorists seek to address the phenomena of thinking, reasoning, mental development, decision making, memory, and perception.

If the behavioral approach is in line with the classical empiricist ideas of John Locke, who believed that a baby is born with a blank mental slate, then the cognitive approach, in contrast, makes reference to Immanuel Kant and his view that people are born with certain innate capacities (Posner 1992). In summation, the behavioral approach to education focuses on performance that is directly measurable, and the cognitive approach focuses on indirect, internal thought processes and cognitive structures that lead to changes in the students. From these distinctions, it becomes clear that setting policy standards in mainstream education currently applies more to the behavioral perspective, which strongly emphasizes performance-based outcomes, than it does in emphasizing the cognitive approach, which primarily focuses on internal processes.

The link between behavioral perspectives and educational standards is stronger when educational practices graft technological system production into the educational organization process. The adoption of this system, which applies industry-oriented "scientific management" to education, was spawned during the early decades of the twentieth century. This perspective closely links behavioral psychology to an educational system that aims to change behavior by "mastering the desired learning." This idea was initiated by Franklin Bobbitt and W.W. Charters who wished to apply to education the production models used in business and industry (Posner, 1992).

While Franklin Bobbitt identifies curriculum as the educational engineer and defines learning as "that series of things which children and youth must do and experience," Charters describes the operating system where "in its simplest forms it involves the analysis of definite operations, to which the term job analysis is applied, as in the analysis of the operations involved in running a machine" (as cited in Tanner & Tanner, 1980, p. 24). This approach was strengthened by Pophan and Baker who promoted outcome-based education by defining

curriculum as "all planned learning outcomes for which the school is responsible" (as cited in Tanner & Tanner, 1980, p. 24). Additional sponsorship for this way of management comes from B.F Skinner, who promoted the idea that the rationale for operant conditioning and application of curriculum has been formulated according to behavioristic objectives or terminal behaviors (Posner, 1992). Among the critics of the behavioral approach theory are Tanner and Tanner (1980), who considered the approach highly mechanistic, since assessment is an end product and is measured quantitatively.

Concepts about Alignment

The study of coherence began long ago; great thinkers such as Aristotle, Descartes, and Comte have all proposed ways of classifying and describing various ways of knowing (Posner, 1992). Aristotle, for example, organized all studies according to the purpose that each serves and the nature of the knowledge (theoretical, practical, and productive). Descartes's model for having a coherent system of knowledge uses mathematical and deductive principles. And Comte based his method for organizing knowledge on the complexity of the academic subjects studied by the individual (beginning with physics at the bottom, chemistry, biology, and sociology at the top). These philosophers show that the importance of coherence and alignment is not new in the organizational systems.

Currently in education, the standards-based, or systemic, reform approach often suggests that coherence or alignment is critical to its success. The question is whether coherence is synonymous with alignment. Literature suggests that although the term *alignment* is used more often—perhaps due to its ties to the No Child Left Behind Acts—*coherence* very often replaces *alignment* in text (Newmann et al., 2001; Schmidt, 2004; Schmidt & Prawat, 2006). Since both terms tend to be used interchangeably, both are seen as having the same primary assumptions. To this point Ananda (2004) says that those who argue that the assumptions underlying alignment

suggest that the coherent system will positively influence the teaching and learning of both teachers and students. Theoretically, then, standards-based reform suggests that all the elements of educational policy should be aligned with one another and be an appendage to the standards so that the policy is coherent and contributes to the same objectives. In simplified terms, alignment means agreement (Ananda, 2004) or consistency (Schmidt & Prawat, 2006). In the broader scope, it refers to the degree to which standards, assessments, and other important elements in the educational system are complementary and work together to effectively gauge student learning (Webb, 1997; Fonthal, 2004). Focusing all aspects of the educational system in the same direction will positively influence what teachers teach and what students learn (O'Day & Smith, 1990; Ananda, 2004, Odden & Archibald, 2001). For example, aligning the standards and tests ensures that students have learned the content on the tests; students will not find test questions on information they have not been taught.

Under the No Child Left Behind (2001) programs, alignment became an important aspect for states to design and mandate that select assessments be aligned with state standards (Ananda, 2004). Under these policies, states are required to set "challenging content standards in academic subjects" and develop assessments that are "aligned to the state's challenging content and performance standards and provide coherent information about student attainment of the standards" (Rothman, 2003, p. 1). Rothman argued that alignment between standards and tests in standards-based reform will help ensure that students have not only a fair shot at doing well on the tests and will not find material on tests that they have not been taught but will also ensure the validity of the results. It is evident that the theory of alignment comes not only from standards-based reform but also from validity theories that are especially designed to assure that teaching content is aligned with tests that measure intended outcomes (Rothman, 2003; Ananda, 2004).

Another important concept of alignment can be found between the standards and classroom instruction, which is often referred to as teacher coverage. Schmidt and Prawat (2006) measured alignment as consistency to assess the degree of overlap between the content and the coverage. By drawing data from 37 countries that participated in TIMMS, the study set dependent variables by measuring alignment between content standards and textbooks, alignment between textbooks and teacher coverage, and alignment between content standards and teacher coverage. However, this coverage measures only the breadth, not the depth, of the teaching. In addition, Porter (2002) and Gamoran et al. (1997) provided more comprehensive coverage by measuring the breadth (level of coverage) and cognitive demand (configuration of coverage) e.g. memorize information, perform procedures, communicate understanding, solve non-routine problems, and conjecture/generalize/prove.

Promising Signs of Alignment

Regarding the question of how alignment affects student learning, there is evidence from various studies and assessments that holds promising signs of improvement. O'Day and Smith (1993) indicated that coherence and alignment in education had produced success in the US, especially in increasing African-American students' test scores during the seventies and the early eighties, when the curriculum emphasized basic skills. They believe that similar promises are offered in any standards-setting initiative promoting both educational quality and the opportunity to learn. In terms of assessment, Fuhrman (2001) identified promising evidence supporting alignment in three areas: (1) students in more coherent instructional environments became successful achievers (data taken from the California's Math A and New York's "Stretch Regents" courses); (2) district alignment of curriculum guidelines, textbook adoption, and testing could be a powerful support for teaching, for meaning, or for understanding (based on Knapp's study); (3) student results on the Texas Assessment of Academic Skills, Maryland School

Performance Assessment Program in 1995 and 1997, Michigan and Connecticut for both state tests and NAEP, Philadelphia on the Stanford-9 test between 1996 and 1998, North Carolina and Texas on progress in NAEP mathematics scores from 1990-1996 (data taken from Girssmer, Flanagan, Kawata, & Williamson's study).

In terms of instructional practices, Supovitz (2001) identified a relationship between professional development and teaching practice in the context of standards-based reform. The results show (1) a strong relationship between standards-based professional development and teachers' attitudes toward reform (data taken from study conducted by Supovitz, Mayer, Kahle), (2) a strong association between teacher learning opportunities around elements of instruction and kinds of practice supported by the framework (data taken from Cohen & Hill's study), and (3) strong links between the quantity of professionally developed teachers and teaching practices (from study conducted by Supovitz & Turner). Another promising study regarding alignment can be drawn from the research of Newmann et al. (2001), who investigated instructional programs coherence, in order to answer the question of what alignement is and why should it guide school improvement policy. In this study, Newmann et al. (2001) presented information that suggested that schools with stronger instructional programs based in coherence made larger gains in student achievement than multiple and unrelated efforts of school improvement did.

Studies on Alignment

Many exploratory studies have been completed in the field of alignment. Generally, studies on alignment are conducted either by states that adopt the Statewide Systemic Initiative (SSI), since alignment between standards and tests has been required by federal legislation since 1994 and continues with the No Child Left Behind Act (2001), or by independent institutions and researchers as an effort to provide a view of alignment. The adoption of the Statewide Systemic Initiative by states can be implemented either through state assessments or through the National

Assessment of Educational Progress (NAEP). In terms of alignment studies that have been completed, many have analyzed the relationship between standards and tests, whereas other studies relate alignment to instructional practices and policy. The major studies investigate the alignment between standards and tests, which might be due to the overarching influence of the Improving America's School Act (1994) and the No Child Left Behind Act, which requires alignment between standards and tests if states want to get funding from the federal government.

When implementing these mandates, states vary in determining their alignment between standards and tests. According to Rothman (2003), states that developed their own tests also conducted their own studies, while states that purchased commercially available tests used studies developed by publishers for determining alignment. Interestingly, Rothman indicates that the results from independent researchers and educational organizations found a lower degree of alignment than the states that used publishers for reporting.

In terms of scope, studies on alignment have been done either as a single focus on alignment or as part of a broader design. One condition of the society we live in is that we prefer to quantify things. Likewise, a disproportionate amount of studies on alignment are conducted on the subjects of mathematics and science. Approaches for studying alignment also vary; for example, Rothman (2003) noted that "although reform literature and validity literature emphasized the importance of alignment, the research did not spell out how to determine alignment: people must analyze the standards and test items and make a determination whether they match" (p. 19) and "there is no mathematical criteria formula for alignment," because "all methods demand some form of human judgment" (p. 20). This suggestion was supported by Porter et al. (2007), who added that there is considerably more room for further work in the area of finding accurate tools for measuring and describing the alignment of instruction with content

standards and its association to student achievement test scores. Studies on major and minor alignment designs will be briefly highlighted in the following section.

Alignment as the major focus. Studies on alignment between standards and testing have so far represented the largest number of studies on alignment where the major studies focus on mathematics and sciences. Consequently, methods to define and measure alignment are limited to either alignment between standards and testing (Porter et al., 2007) or the degree of the match between test content and content standards (Ananda, 2003). Studies of alignment have resulted in a number of procedures for defining and measuring alignment. In his study on imperfect matches of alignment, Rothman (2003) analyzed eight of the independent studies and compared them in terms of research similarities and differences and the possible advantages and disadvantages of using one method or another. After his analysis, he drew conclusions that suggest that "standards and tests are generally not well aligned," and contrast with "the results from studies by states and publishers which typically show a higher degree of alignment" (p. 25). In fact, studies on alignment are relatively new and have only been undertaken intensively since the federal mandate of the Improving America's School Act (1994) and No Child Left Behind Act (2001). According to Ananda (2004), many past alignment studies were criticized as arbitrary and subjective; but with the newer studies, "promising methodologies are now emerging" (p. 9).

First, through research monograph no. 6 (1997), alignment between standards and tests was investigated by Norman L. Webb. In this monograph, Webb developed a procedure to measure alignment between standards and tests for mathematics and science. Five general categories were applied as a comprehensive set for judging the alignment between standards (expectations) and assessment. The categories are (a) content focus—categorical concurrence, depth of knowledge consistency, range of knowledge correspondence, structure of knowledge comparability, balance of representation, and dispositional consonance; (b) articulation across

grades and ages, cognitive soundness determined by the best research and understanding, and cumulative growth in content knowledge during students' schooling; (c) equity and fairness; (d) pedagogical implications—the engagement of students and effective classroom practices, and the use of technology, material, and tools; and (e) system applicability.

Second, in 1999 Webb analyzed the alignment of assessment and standards in mathematics and science from four states. Six reviewers were asked to compare the match between assessment items and standards in mathematics, and seven reviewers in science. The degree of alignments was then judged by applying four criteria of the content: categorical concurrence, depth-of-knowledge consistency, range-of-knowledge correspondence, and balance of representation. In this study, Webb found that categorical concurrence criteria were well-balanced between standards and assessment in the subjects of mathematics and science, but there was less harmonization in meeting the other three criteria. Webb's procedures, particularly on the content focus, were then applied by Wixson et al. (2002) and modified by dropping the categorical concurrence and adding coverage criteria. Thus, in this study, Wixson et al. focused on the criteria of range-of-knowledge and balance of representation, coverage, depth-of-knowledge consistency, and structure of knowledge and comparability. Unlike Webb, who focused on mathematics and science, Wixson et al. (2002) conducted their study on the elementary reading subject. They found out the alignment of standards and tests are "reasonably well align[ed]" in two states, "moderately align[ed]" in a third state, and "poor[ly] align[ed]" in the fourth state.

Different tools for measuring alignment as content analysis were developed by Porter (2002). The tool was created by developing a uniform language to describe the content and to build indices of alignment—uniform descriptors of topics and categories of cognitive demand. Content of instruction is then described as the intersection between topics and cognitive demand.

Teachers were then asked to indicate for the past school year (a) the amount of time devoted to each topic (level coverage) and then, for each topic, (b) the relative emphasis given to each student expectation (category of cognitive demand). A two-dimensional matrix was applied in which the rows represented topics and the columns described categories of cognitive demand. The alignment index that ranges from 0 to 1.0 indicates the degree of alignment.

Other procedures on the study of alignment between test and standards were developed by ACHIEVE. To measure the alignment, ACHIEVE relies on four criteria:

1. Confirmation or construction of a test blueprint, in which reviewers check to see that each item corresponds to at least one standard or objective.
2. Content centrality, which examines the quality of the match between the content of each test item and the content of the related standard. Reviewers determine how closely the content of the item matches that of the related standards and then assign the item to one of four categories based on degree of alignment, from "not aligned" to "clearly aligned."
3. Performance centrality, in which each item places a certain type of cognitive demand on a student to "identify," and the corresponding standard requires a student to "analyze" when there is a mismatch between the two performances. Reviewers assign each item to one of four categories based on the degree of alignment, from "not aligned" to "clearly aligned."
4. Challenge, which applies both the individual items and a set of items that measure an entire strand, such as "measurement." Its purpose is to determine whether doing well on these items requires students to master challenging subject matter. At the item level, reviewers consider two factors related to challenge: source of challenge and level of cognitive demand. At the item-set level, reviewers consider the overall level of challenge of the items mapped to a strand. Adopted from ACHIEVE (2003), p. 15.

While those studies focused on the alignment between standards and tests, Newmann et al. (2001) investigated instructional program coherence. Two waves of survey data were conducted to allow comparison of teachers' responses in 1994 and 1997. School coherences were computed through hierarchical linear models to produce a measure of each school's level of instructional program coherence for both years. Data were then analyzed to find relationships between the survey measures of coherence and the observers' ratings. The Level 1 dependent variable was student ITBS scores, in logits (Rasch-equated ITBS scores). The model then introduced adjustments for the various grade levels taught in elementary schools (at Level 1), possible time trend changes in student composition (at Level 2), and other school characteristics (at Level 3). This study differs from previous studies because it does not produce specific procedures for determining the alignment but instead assesses the strength of the instructional program coherence within schools by providing judgment on the continuum bases, from low to high degrees of coherence. These studies have provided information about both the degree of alignment of the standards and tests and the need for procedures to measure the alignment. Although the studies outlined above do not cover all studies, they do help frame the discussion about important issues and characteristics of alignment.

Another study was conducted by Schmidt and Prawat (2006) to investigate curriculum coherence. This study examined the relationship among what the standards documents say teachers ought to emphasize, the amount of space devoted to topics in textbooks, and the amount of emphasis teachers report actually devoting to topics in the curriculum they teach. The three measures of consistency or alignment are (a) the amount of overlap between mentions in the content standards document and coverage in textbooks (relationship A), (b) the amount of overlap between textbook and teacher coverage (relationship B), and (c) the amount of overlap

between content standards and the amount of emphasis, or the number of lessons teachers devoted to the topics at the classroom level (relationship C).

Alignment as part of a study. This section highlights a number of studies in which alignment was the central focus of investigation. In a study of curriculum coherence and national control of education, Schmidt and Prawat (2006) defined alignment as consistency, which was used to see the coverage, or the percentage of the school year devoted to each particular topic on the content standard. In this study, alignment was measured between the content standards document and the amount of emphasis given by teachers in the classroom. A small standard deviation for a topic indicates that teachers are in substantial agreement about the amount of time that ought to be devoted to the topic. Similarly, when the variability of the standard deviations across the set of intended topics is small, it indicates a high degree of alignment, consistency, or coherence.

Another study was conducted by researchers at SRI International Inc. to evaluate the validity of three major national assessments done by the National Assessment of Educational Progress (NAEP), the New Standards Reference Examination (NSRE), and the International Mathematics and Science tests (TIMSS). One section of this study focused on alignment and examined the extent to which the test items measured the standards. To measure alignment, the eight standards of the National Science Education Standards (NSES) were broken down into 24 target codes, and each standard was evaluated by several target codes. In a study of teachers' responses to standards-based accountability (Hamilton, Berends, & Stecher, 2005), alignment was included to see the relationship between assessment and related instructional practices. The results showed that a majority of teachers reported being in alignment with both standards and testing; however, alignment was lower in relation to testing than it was in relation to standards.

Other studies measuring the progress in implementing standards, assessments, and the highly qualified teacher provisions of NCLB was conducted with teachers in California, Georgia, and Pennsylvania. The study defined alignment as the degree to which the standards had influenced teaching (McComb, 2005). The result showed that almost all teachers in California and Georgia reported that they had aligned their instruction with content standards in mathematics and science, and 85–90% of the mathematics teachers in Pennsylvania reported that they aligned instruction with state content standards. Interestingly, only 42% of elementary science teachers and 77% of middle school science teachers in Pennsylvania reported aligning their instruction with state content standards. In terms of assessment, the results showed that the majority of mathematics teachers reported aligning their teaching with the mathematics assessment: 62–65% in California, 80–81% in Georgia, and 85–86% in Pennsylvania. The majority of science teachers in California reported aligning their teaching with the assessment, but in reality only 60% of middle school science teachers and 42% of elementary school teachers met assessment criteria.

Teacher Characteristics

Teachers play key roles in various educational goal attainments. Larger studies focus on the association between teacher characteristics and various outcome variables such as student achievement and motivational beliefs, e.g., self-efficacy. Teacher characteristics commonly explored are teacher quality (Heck, 2007), teacher certification (Boyd et al, 2006; Goldhaber, 2002), and teacher degree, experience, and pedagogical knowledge (Golhaber, 2002). In a review study of the existing body of research examining the relationships between teacher characteristics and student achievement, Wayne and Youngs (2003) attempted to provide a clear interpretation of the research for policymakers and researchers interested in these topics. Of the 21 research designs meeting their criteria, they reviewed and synthesized the information to (a)

describe all relevant studies and findings, (b) render joints interpretations, and (c) consider implications for policy and future research (p. 95). Other research is commonly done on motivational beliefs (Wolter & Daugherty, 2007; Ross, Cousin, & Gadalla, 1996).

These various studies suggest that teacher characteristics can be combined with many different dependent variables, including classroom alignment as developed in this study. Although there are a great number of research studies on teacher characteristics, literature shows that no studies have been done specifically to examine the association of teacher characteristics with classroom alignments. Overwhelming research has modeled teacher characteristics as an important predictor variable, and the similar model applied in this study also suggests that changes that occur in teacher characteristics may also involve changes in the classroom alignments.

The importance of teacher characteristics in the classroom has also become the object of many studies. Studies suggest that teacher characteristics are among the identified factors that affect student outcomes (Goldhaber, 2002; Heck, 2007; Smith et al., 2005). While Heck (2007) identified teacher characteristics as teachers' expertise, instructional strategies, and effectiveness, Smith et al. (2005) characterized teacher characteristics as educational level, experience, major or minor, and professional development. However, other researchers increasingly argue that teaching is a form of expert work that requires extensive professional preparation, strong subject matter knowledge, and a variety of pedagogical skills (Rowan et al., 2002). With this variety of viewpoints, teacher characteristics and its influences have become interesting research subjects.

Studies were often done to find links between teacher quality, which is often measured by classroom effectiveness; , content knowledge, experiences, and professional development; and student achievement (Nye, Konstantopoulos, & Hedges, 2004; Darling-Hammond, Berry, & Thorenson, 2001; Smith et al., 2005). In the NCLB, a qualified teacher is defined as one who has

full certification, a bachelor's degree, and demonstrates content knowledge in all the core subjects taught (Smith et. al., 2005). The quality of teaching staffs is believed to enhance learning outcomes and mediate inequalities in students' opportunities to learn (Darling-Hammond, 2006; Smith et al., 2005; Hanushek, 2003, 2005).

Studies also show that there is a relationship between the importance of teachers' content knowledge and student achievement (Greenwald, Hedges, & Laine, 1996). Although findings from studies that examine teachers' levels of education and their effectiveness with students are often contradictory, some studies have found positive relationships between teachers' professional coursework and their teaching performance (Guyton & Farokhi, 1987), including their students' achievement (Denton &Lacina, 1984). In a review of studies, Laczko-Kerr and Berliner (2002) conclude that a teacher's depth of knowledge in a subject matter influences students' achievement more in the upper graders than in primary grades. The teacher characteristics that most consistently made a difference in students was teacher experience (Laczko-Kerr & Berliner, 2002; Darling-Hammond, 2006). Rowan et al. (2002) also supported teacher experience as a statistically significant predictor of the growth in student achievement in both mathematics and reading. Studies also found that teachers with bachelor's or master's degrees in education with one year of student teaching were more effective as senior teachers (Andrew & Schwab, 1995). Wilson, Floden and Ferrini-Munday (2002) concluded that clinical experience and fieldwork through student teaching might be the most powerful force for teacher preparation.

In Australia, professional development for teachers is lead by two competing approaches between managerial and democratic conceptions of professionalism (Hardy, 2008). According to Hardy, the former is system driven and involves external regulation and based on the competitive market; the latter is more profession driven and regulated to encourage longer-term, collegial

relations. He concluded that the competing systems lead to confusion at the policy level as well as conflicted and contradictory responses at the practical level.

In terms of professional development, Correnti (2007) provided evidence of the importance of professional development as the lever for changing teacher practice. The study indicated that teachers receiving intense professional development in comprehension offered 10% more comprehension instruction than teachers not receiving intense professional development. Additionally, teachers receiving intense professional development in writing offered 13% more writing instruction and had students write 12% more text than other teachers. Similarly, the change in teacher practice from year one to year three resulted from professional development focused more on the content of the teaching practices being measured (Desimone, Porter, Garet et al., 2002). The significant results of professional development suggest that any reforms in education need to be more transformative and not merely make additive changes to teacher practice, which is a challenge for designers of professional development (Stein, Silver, & Smith, 1999). Correnti (2007) suggested that, for reform purposes, professional development should be integrated, coherent, and focused on research-based content. Regarding application, NCLB mandated that professional development efforts advance teachers' understanding of effective instructional strategies that are based on scientific research, be sustained and intensive (as opposed to one-day or short-term workshops), and be classroom-focused and developed with the participation of teachers (Teaching Commission, 2004). Specifically, the report of the Teaching Commission suggested that professional development efforts be aligned with state and district goals and standards.

Gender is an important teacher characteristics that needs to be explored. In examining whether a gender gap exists in the workplace, several studies indicated that women are at a disadvantage. Some examples are that women must work harder than men in Britain and the US

(Gorman et al., 2007), and families headed by a single mother live in greater poverty in Europe and North America (Misra et al., 2007). Another study showed that, in the concept of hamulas (a candidate for municipal election in Palestinian Arab communities in Israel), political leadership is created to hire women but continues to exclude them (Herzog & Yahia-Younis, 2007). However, studies also indicated that the enforcement of gender discrimination can help women get better opportunities. In Sweden, where the government promotes gender equality, father-friendly companies have prioritized entrance for women into the public sphere (Haas & Hwang, 2007).

In Indonesia, the country with the highest Muslim population in the world, gender can be an interesting issue, since Muslim women are often perceived as having fewer opportunities than men. In a study about sex composition of fields of doctoral receipt, England et al. (2007) highlighted devaluation theory to address how men avoid increasingly feminized fields because they want to avoid the stigma of being in a field with too many women or because they are afraid that the feminization will lead to lower pay. The perspective of devaluation in gender studies views the cultural devaluation of women as leading to a devaluation or stigmatization of all things associated with women, including styles of clothing, names, leisure activities, fields of study, and jobs (England et al.). This perspective may help explain the male/female composition of teachers, where female teachers tend to dominate elementary schools and male teachers tend to dominate high schools. While many studies exploring gender differences between students have been done, few investigating gender differences between teachers, especially studies focusing on any difference in class instruction, have been done.

Teachers' perceptions are most frequently used to assess relationships between teachers and students (Saft & Pinanta, 2001). Teachers' perceptions of the students are often used in many studies to assess predictors such as student gender differences (Hamre & Pinanta, 1999;

Eccles & Blumenfeld, 1985), ethnicity (Patterson, Kupersidt, & Vaden, 1990, Brady et al., 1992; Payette & Clarizio, 1994; & Zimmerman et al., 1995), and age (Zill, 1999; Saft & Pinanta, 2001). Unsurprisingly, teachers' perceptions may be affected by their characteristics (Saft & Pinanta, 2001), particularly when they relate to classroom instruction.

Conclusion

To summarize this chapter, educational standards are usually used to either address criteria in the context of content application in schools or in the context of assessment to measure student learning over time. In setting standards, the standard is almost always followed by measuring student performance output against content input. In the 1990s, standards-based reform was the predominant policy of education in the United States. It emerged right after the America 2000 proposal and was designed especially to improve schools and provide the opportunity for all children to learn by placing accountability on additional resources.

The standards-based reform approach suggests that coherence or alignment is critical to success. Alignment, as the center of standards-based reform, offers more equitable instructional opportunities for all children. The assumption is that by aligning curriculum, assessment, and classroom instruction, students have a richer educational experience. Ideally, this occurs for all students because they first receive adequate instruction in the classroom and then achieve adequate results on testing.

In the United States, a great number of exploratory studies have been completed in the field of alignment. Most studies investigate the alignment between standards and tests while others relate alignment to instructional practices and policy. Since most studies on alignment linking standards and testing focus on mathematics and sciences, methods to define and measure alignment are limited to alignment between standards and tests. However, several studies have

explored alignment in a larger scope, investigating curriculum coherence and teacher coverage (Schmidt & Prawat, 2006) as well as instructional program coherence (Newmann et al., 2001).

Another important aspect of alignment is teacher characteristics. Many studies suggested that teacher characteristics affected student outcomes. In addition, teachers' perceptions and teachers' self-reports were often used to assess the relationships between teachers and students. The major purpose of this study was to explore whether teachers' self-reports of the effects of standards on classroom instruction and the level of difficulty, both for teachers and students, varies as a function of teachers' level of education, college major or minor, experience, gender, and professional development.

Chapter 3

History of Education in Indonesia

This chapter presents the history of education in Indonesia from the Dutch occupation to the present. In particular, the chapter is divided into two important periods in the history of Indonesian education. The first is the colonial period in which schools were designed only for members of the socioeconomic elite. The second section is the post-colonial era, when schooling became available for every citizen.

Prior to and Under Colonialism

Prior to colonialism. Before the Dutch-colonial era, Indonesia consisted of sultanates and kingdoms that had existed since the thirteenth century A.D. Amongst them the two most famous are *Sriwijaya* at South Sumatra and the *Majapahit* at East Java. The education system during this era iss rarely described. According to Johns (1975), Islam came to the region in the 1300s. The first Islamic port cities began with the Sultanate of Pasai in the thirteenth century. Other Islamic port cities were established during the next two centuries in Sumatra, Malay Peninsula, the north coast of Java, Borneo, and the Celebes. The port cities evolved into Muslim city-states, which brought the influence of Islam into the indigenous population (Johns, 1975). With the formation of Muslim city-states, formal education in Indonesia began for those who embraced Islam. Johns suggested that education at this time was centered on the study of Islam and its intellectual and spiritual tradition. According to Johns, formal education for the followers of Islam began with a journey or pilgrimage to study in the Middle East. When they returned home, they developed a self-sustaining education system that reflected the Islamic character of any Muslim city-state. The existence of Islam in the region can be traced from a number of writings such as the *Sejarah Melayu* from the fifteenth century, *Babad Tanah Jawi* from the seventeenth century, which provides a fairly full account of the saints of Java to whom are

attributed the preaching of Islam on the Island, the Book of *Bonang* from the sixteenth century, which provides information about the establishment of the sultanate of *Banten*, a port city on the north coast of Java that was the first port visited by the Dutch trading fleet in 1598. Johns noted that there were intellectual activities by scholars throughout this period, especially in Aceh region, such as Hamzah Pansuri (c.1600), the first example of an independent Islamic intellectual in the Malay world; Shams Al-Din (1601), a religious writer; Al-Raniri (1637); and Abd al-Ra'uf (1661). Through the pre-colonial period, education in Indonesia began with studies abroad to learn Islam, which was introduced by the merchants from the Gujerat and Malabar.

Indonesia as a Dutch colony (1598-1942). In 1598, the Dutch came for the first time to the region for trading purposes, and at this point the colonial era began. During Indonesia's colonial period, the central government (the colonial government) was the ruling institution that controlled local authority. It was not until 1903 that the Dutch colonialists finally introduced decentralization to the East Indies. The main objective of this decentralization plan was to place the fiscal burden and associated financial accountability on the local governing body. The colonialist Dutch government introduced a formal education system in nearly every province of the colonial state. However, this system was targeted only to the local elite group. There was almost no information or documentation regarding the education of indigenous people provided by the Dutch until the introduction of a formal education system towards the end of nineteenth century.

The initiative to provide education to the native Indonesians came under the western liberal approach referred as the Ethical Policy. Through this policy, cultural goals for education were introduced in 1862 by Protestant missionaries. According to Dewantara (1967), the cultural function of education was "quite consonant with the evangelistic point of view" (p. 154) of the leaders of the Protestant missionaries. Dewantara noted that Van Hoevell, Graafland, and

Neurdenburg were three important persons who urged the improvement of educational facilities in the colony and the adjustment of education based on the needs and customs of Indonesia. Dewantara divided the liberal approach into two stages: early Ethical Policy and recent Ethical Policy. Under the recent policy, Dewantara identified several prominent figures as the pioneers and leaders who initiated education for the Indonesians, figures such as H. van Kol, C.Th. van Deventer, D. Fock, C. Snouck Hurgronje, J.H. Abendanon, and C. van Vollenhoven. Under the influence of the Ethical Policy, these educational pioneers pushed for reforms such as adjusting the education system to the Indonesian culture, establishing secondary and higher education, admitting Indonesians to higher study in the Netherlands, improving educational facilities, and increasing access to Dutch-language education.

In the early part of the twentieth century, when the colonial government began providing education to the indigenous elite, the education system consisted of three levels: the primary (ELS or Europeesche Lagere School) school level, the middle (MULO or Meer Uitgebreid Lager Onderwijs) school level, and the high school (AMS or Algemeene Middelbare School) level. Unfortunately, all of these institutions were only for the aristocratic population under the implementation of the Ethical Policy and sought to produce educated employees for the Dutch government. The indigenous elites were dominated by two social groups: the Muslim elite and the *priyayi* (aristocrats). According to Kahane (1973), the Muslim elites held some legitimacy at the grassroots level but lacked any significant political power. The *priyayi*, however, held political power but lacked any significant legitimacy among the people. Geertz (1960) classified the Indonesian elite into three culturally integrative groups, known as the *abangan* (those who are without a particular religion), the *santri* (Muslim), and the *priyayi*. Of these three groups, only the *priyayi* had access to the western education system during the first decade of the twentieth century. At the same time, a community-based Islamic education system established

and led by Islamic leaders was very prominent with the indigenous commoners. These institutions were very popular with villagers, as the education offered was both free and widely accessible for them.

In addition to the education systems established by Dutch and Islamic leaders during the late nineteenth century, there were a number of private educational institutions established particularly by indigenous people educated in the West. These educational institutions followed, for the most part, the Dutch public education system for the Indies; others designed their own unique approach to education. In regard to this, there are two important figures that made significant contributions to the education during the colonial period in Indonesia: Ki Hajar Dewantara and Kartini.

Ki Hajar Dewantara and the Taman Siswa. In Indonesia, Dewantara's birthday is honored every year as National Education Day. Dewantara observed that schools had been founded by Indonesian themselves long before the introduction of the idea of national education. He pointed institutions such as Budi Utomo's schools,established in 1908 with the *Darmo Woro* Scholarship Fund; the *Pasundan* association for the Sundanese; *Muhammadiyah* schools everywhere; religious courses; and the *Adidarma* Institute of Education. Dewantara argued that of the aforementioned educational institutions were (a) established because the education provided by the government was far too inadequate to meet the great need; (b) sought only to provide the same instruction as the government schools; and (c) expected to receive government subsidies, without which it was thought impossible for these schools to function. (p.159)

Dewantara criticized the existing colonial government education system as too impractical, too theoretical, and too irrelevant to the everyday life of the people. Based on this critique, he sought to align education with the local cultural context and ordered a "return from western to national principles" (p. 157). In 1921, he set up an educational institution known as the *Taman*

Siswa and declared it to be a national institution of education. The general principles of *Taman Siswa* held that the school was to be a center of study, have a previously defined philosophy of education, and at the same time be the dwelling place for the teachers. These general principles can be found in the following statement:

> Our schools call themselves *perguruan* (Javanese: *paguron*), which is derived from the word guru (teacher). It means, literally, the place where the teacher lives. It can be also taken as a derivation of the word *berguru* (Javanese: *meguru*), i.e., learning from somebody else. In this sense, the word may also mean a center of study. *Paguron* often implies the art of teaching itself, notably in these cases where the personality of the teacher constitutes the most important element, and in this sense it means the school of thought being pursued. (p. 158)

In terms of the teacher's personality, the *Taman Siswa* argued that according to the ancient Javanese system of education, and indeed that of ancient Indonesia and, perhaps, even of Asia in general, the school should also be the dwelling place for the teacher. For the *Taman Siswa*, formal study comes second and the most important thing was always the personality of the teacher, which provides guidance for life. This guidance for life or "upbringing" made a distinction between *pendidikan*, or education in the sense of character-building, and *pengajaran,* or teaching, as in educating as a means to convey knowledge. Compared with the contemporary education provided by the colonial government, the *Taman Siswa* claimed to be more of a family or home-like environment for students. This boarding school system claimed to provide a complete synthesis of education, developing character and conveying knowledge. Students were constantly engaged in study, sports, or art activities under the leadership of their teachers. The teachers, as the leaders, remained in the background to act as advisers or as *tutwuri andayani*—a

Javanese term meaning those who, though remaining in the background, constantly make their authority felt.

In terms of the curriculum, the *Taman Siswa* directed that the schools should follow their own internal principles but also utilize the curriculum of public schools. The *Taman Siswa* insisted that their secondary schools teach many of the same academic subjects as other schools, prepare students for entrance into a western university, and "introduce both qualitative and quantitative changes in the curriculum in response to specific purposes of a national or practical social nature" (p. 162). With regards to teaching methods, the *Taman Siswa* encouraged the use of both indigenous methods and methods generally practiced elsewhere. An example of integrating local and regional approaches can be seen from the languages of instruction. The native tongue (Javanese) served as the general vehicle of instruction, particularly for the lower primary grades, while Dutch and Malay (Indonesian) were the languages of instruction for the higher primary grades and English was the language of instruction for secondary schools.

The *Taman Siswa* schools were established in many areas of Indonesia. By the end of the colonial period, the *Taman Siswa* system had 199 branches with 207 schools. There were 4 branches in Bali, 70 in East Java (with 71 schools), 42 in Central Java (with 45 schools), 28 in West Java (32 schools), 49 in Sumatra, two in Borneo, two in Celebes, one in Ambon, and one in Ternate. The association of these schools was called the *Persatuan Taman Siswa*, under the leadership of a *Majelis Luhur*, or central executive, who was elected by a congress held every four years.

Kartini. She is regarded as national hero and to honor her birthday, there is national celebration every year known as Kartini's Day. Her contribution to education, especially for women, was urging the colonial government to empower the Indonesians by allowing them to participate in the welfare scheme initiated by the Ethical Policy. According to Jean Taylor

(1974), Kartini argued that the welfare scheme would not assist the Indonesians unless they were allowed to participate and that the colonial government should transfer western technology and send a rapid influx of European goods and ideas to the Indonesians. The Ethical Policy had indeed reoriented the thinking and perspectives of the overseas Dutch and of the indigenous elite toward the Netherlands.

Kartini herself was a product of the Ethical Policy period, the era of change in the last quarter of the nineteenth century. She was one of the first Indonesian girls who had access to a primary school for Europeans (Taylor, 1974). Taylor noted that "by the early 1900s Kartini had become known to a small circle of liberal Dutchmen and Javanese aristocrats through her articles in Dutch-language journals and through her open confrontation with Javanese tradition" (p. 83). Her popularity came after she summed up her views over the condition of the Javanese people at the close of the nineteenth century and set out concrete proposals for change. Her views were originally an answer to the questions of a high-level official in the Ministry of Colonies in 1903, J. Slingenberg, over what type of education Indonesians should receive. Kartini herself came from an aristocratic family; her father was the head of district (*bupati*) of Japara. Taylor considered Kartini an observer of colonial society in a period of great demographic and social change, a promoter of reform, and a very early representative of the first generation of western-educated Indonesians. Kartini's letters to her Dutch friends were printed and edited by J.H. Abendanon, who appended the document "Educate the Javanese" to her letters, and are now known as *Habis Gelap Terbitlah Terang* (Out of Dark Comes Light). Abendanon viewed her as "the best product of a Dutch education and promoted her thought and aspirations as demonstrating the righteousness and success of the Ethical Policy" (Taylor, 1974, p. 84). According to Taylor (1974), the document "Educate the Javanese" "adds a new dimension to Kartini and increases our knowledge of [Indonesian] society at the turn of the century and is an

example of the thought of the first generations of western-educated Indonesians about Her Indies social problems and stressed the role of women in their resolution…. It represents the first time an Indonesian woman publicly addressed herself to [Indonesia's] social problems and stressed the role of women in their resolution" (p. 84).

Indonesia as a Japanese colony (1942-1945). The short occupation of Indonesia by Japan during World War II did not cause any changes within the education system. The Japanese were too absorbed with the war to pay much attention to education.

Postcolonial Indonesia

The first presidency (1945-1967). Indonesia declared its independence on 17 August 1945. During the period of the first presidency (1945-1967), also known as the Old Order, the country was in both economic and political turmoil. Liddle (2005) observed that the conflicts between 1950 and 1966 were over three unresolved foundational issues: (a) should Indonesia be a secular or an Islamic state; (b) should authority be concentrated in the central government or dispersed to the various regions; and (c) should Indonesia align itself with the capitalist West or Communist Russia and China?

Although an effort to decentralize the government was attempted in 1956, with the Balanced Finance Law under Law No. 32/1956 (Matsui, 2003), its implementation was inconsistent due to the nation's political instability. Thus, for the time being, the government remained centralized. Due to this instability, the education was not on the government's list of priorities. In 1950, only about 10% of the population ages 6–14 were in elementary school. The absence of a government-sponsored education system was the primary reason for the low school-enrollment rate during this era of Indonesia's rebirth.

The first national curriculum after independence was known as the Instructional Plan. The curriculum framework was designed with a Dutch orientation toward serving a more

national interest. For example, the educational principle behind the Instructional Plan was *Pancasila*, which consisted of the five pillars of Indonesia's ideology. This curriculum was implemented in 1950 and consisted of a list of subjects, instructional time, and guidelines for class instruction. In general, the curriculum focused more on aspects such as national character building, nation-state building, life experience–based arts, and physical education than on the sciences and mathematics. The Instructional Plan then developed into the Specified Instructional Plan in 1952, in which every syllabus clearly specified every topic that teachers should teach in class. This curriculum was improved in 1964 and became known as Curriculum 1964. This focused on subjects that would develop human creativity, sensitivity, and morality. The subjects were classified into five core subjects: civic, intelligence, arts, skills, and physical.

The second presidency (1966-1998). The second presidency came to power after the first presidency stepped down due to the political crisis in 1966. The second presidency was known as the New Order, a term used to refer to a period of Indonesia modern history after the fall of Sukarno (the Old Order) (Raihani, 2007).

The new presidency focused on economic stabilization, reducing inflation to single-digit levels and returning the country to sustained economic growth (Booth, 2000). The rapid increase in oil prices increased both economic growth and income distribution in Indonesia. This rapid economic growth had a significant impact on education.

School curriculum. The political perspective of the second presidency influenced changes in education. The first curriculum under the second presidency, Curriculum 1968, focused on theory rather than experience and comprised three curricular groups: *Pancasila*, basic science, and particular skills. Curriculum 1968 became Curriculum 1975, improving effectiveness and efficiency in the education system. Under the curriculum guidelines of the Procedures for Developing Instructional System (*Prosedur Pengembangan System*

Instruksional), every topic was broken down into more detailed aspects: general goals, specific instructional goals, instructional contents, instructional facilities, teaching-learning activities, and evaluation.

Curriculum 1975 then became Curriculum 1984. This revision introduced a new approach to teaching/learning activities called the Process Skill Approach. In this curriculum, students were expected to learn through a model of Student Active Learning (SAL), or *Cara Belajar Siswa Aktif (CBSA)*, by observing, categorizing, discussing, and then reporting on the topic. This curriculum was perceived as a theoretically sound concept of learning, and it worked well in the schools where the approach was piloted but failed when it was applied nationally. The rejection of this model led to the creation of Curriculum 1994. Curriculum 1994 proposed to integrate the goals approach of Curriculum 1975 with the process emphasis of Curriculum 1984. It was strongly criticized for over-loading students with a wide-ranging curriculum that attempted to accommodate a variety of interests at both national and local levels. Due to the economic crisis in 1997 and the end of the second presidency in 1998, Curriculum 1994 was revised by adding several more subjects, known as Curriculum Supplement 1999.

Centralization of management. During the New Order era (1945-1967), education remained centralized. Realizing the great diversity of cultures, regional languages, ethnicities, and religions within the archipelago country of Indonesia, the New Order government was highly concerned with maintaining nation cohesion, growth, and unity. It was this awareness of diversity and the need for nationalism that justified Indonesia's remaining centralized (Bjork, 2003; Schwarz, 1999). During this era, education was an effective instrument for maintaining national unity by disseminating top-down government decisions.

There were various examples of government policies that were designed to maintain national cohesion through education. One of the more practical and openly participative methods

was enacted through the Monday morning flag ceremony in school. Every student and faculty member in primary and secondary schools had an obligation to not only honor the national flag but also to participate in the singing of the national hymn, the reading of the constitution, and in the recitation of the national ideology of *Pancasila*. This ceremony was performed on a weekly basis by all public schools and most private schools in all regions of the country. Bjork (2002) noted that the New Order needed to ensure that "members of school communities recognized their identities as Indonesian and respected their ties to the nation" (p. 473).

An additional requirement of this centralized system of education was the mandatory acquisition of a thirteen-digit registration number (*nomor induk pegawai*) by public school teachers who were hired and placed by the central government. Other evidence of the centralized management system could be seen in the national curriculum, since "curriculum specialists in Jakarta wrote the content followed in all schools; an instructor's primary responsibility was to disseminate the information outlined in the textbooks" (Bjork, 2003). In addition, the central government regulated class schedules, school procedures, and other school operations. The centralized power of the government during this era, which was maintained without conflict or rejection, occurred for several reasons: rapid economic growth, a culturally hierarchical society in which power rested at the top, and the intergenerational community pattern that required obedience rather than the questioning of one's superiors (Bjork 2003)

Primary school expansion. In the 1970s, Indonesia experienced an oil production boom. With the increase in the price of oil, abundant oil revenues afforded the government the resources to emphasize the need for equity and the opportunity to learn across the country and to implement educational development programs to meet this goal. Education became a national priority. The expansion of the primary school program during this time period was substantial, achieving high enrollment rates across Indonesia. The effort to provide a learning opportunity to

all children was administered through presidential instructions for primary school (*SD INPRES: Elementary School of the President's Instruction*). The government provided a special budget for building new schools across all regions in Indonesia. This budget also provided money for renovating existing schools and increasing the number of classrooms.

To increase the number of teachers for primary school, the government established policies allowing both public and private institutions to open higher secondary schools to prepare students to be primary school teachers (SPG). During this period, the government was responsible for placing and employing every secondary school graduate as primary school teachers. As a result, all graduates were absorbed in employment as primary school teachers. Furthermore, not only were large amounts of funds allocated for primary school buildings across the country, but there was a massive infusion of funds for regional development as well. The result of the primary school expansion was huge: for example, between 1973–1974 and 1978–1979, there were 61,807 primary schools built (Duplo and Breierova, 2003) with around a 95% net increase in enrollment in 1980s (Jones and Hagul, 2001). By 1983, almost all children were enrolled in primary school (Jones, 2002). Duflo (2001) estimated that the economic returns from attending and graduating from school ranged from 6.8 to 10.6%.

The compulsory education program. In 1984, the government applied an internationally promoted and sponsored program of compulsory primary education for children ages 7–12. The new education strategy was successfully implemented with the enrollment rate of 91% in 1988. This success encouraged the government to advance the program from six years to nine years of mandatory education. In 1994, based on Education Law No. 2/1989, compulsory basic education consisted of six years of primary school and three years of lower secondary school. The program was also in line with the Education For All (EFA) program mandate. The implementation of nine-year compulsory education was accommodated during the Second Long-Term National

Development Plan, starting from the sixth Five-Year National Development Plan (Repelita VI, 1994/95–1998/99) to the tenth (Repelita X, 2014/15 – 2018/19. This program was especially designed as a way to increase enrollment at the lower secondary level (ages 13-15), as the compulsory program was expected to be completed by the end of Repelita VII (1999/2000–2003/04). The campaign for nine years of compulsory universal education witnessed a sharp rise in lower secondary enrollment, especially among those students who came from low socioeconomic families. The success of this government initiative indicated that government intervention was required to maintain retention and graduation.

The government was able to identify the main reasons why primary school children left their studies prematurely by not continuing on to secondary school: low socioeconomic status, distance from home to school, and negative attitudes of the parents about schooling. As a result of these findings, the government provided a new approach to attract primary school students to continue to the lower secondary level. Strategies for encouraging primary school dropouts to enroll in lower secondary levels were scholarships and social and cultural approaches (UNDP, 2000). Scholarships were mainly provided by the National Foster Parent Family Plan (GNOTA). This program was established to first collect money and then to require that it be donated for schooling purposes. The social approach provided information for parents about the benefits of education, both for their current station and for the future life of their children and other human beings. The cultural approach showed the concrete benefits of education in real life.

To further support compulsory basic education, a non-formal education program was administered in the form of two instructional packages: packages A and B (*Paket A* and *Paket B).* The first package consisted of a nonformal education equivalent to a primary school level education and was designed to encourage those who dropped out from formal schools. The second package was the nonformal education equivalent of lower secondary school and was

established to meet the needs of community members, especially those who dropped out, in acquiring the knowledge, skills, and attitudes equivalent to a lower secondary education.

According to the UNDP (2000), there were 123,000 people accommodated by the *Paket B* program in 1994 by using the modular system modified from the 1994 formal education curriculum, and face-to-face instruction, self-learning, and peer group work. Nonformal school activities were done in primary school buildings, lower secondary school buildings, or district learning centers. The minimum time allocated for effectively learning the activities found within these packages was three times a week, three hours per day. In the later development, *Paket B*, was not only designed to serve children in the age range of 13–15 years old but was also developed for nontraditional (over-aged, and adult) learners who also dropped out of school and are beyond the indicated age range.

Lower secondary open schools (*SMP Terbuka*) were for those attending school part-time and were also established to accommodate those who could not attend regular lower secondary schools for economic reasons. However, although it was generally thought that Indonesia reached its goal of achieving universal primary school education around 1983, Jones & Hagul (2001) argued that only about 70% of children entering primary actually graduate from sixth grade, meaning that "primary education is universal only in the sense that almost all children spend some time in primary school" (p. 207). Likewise, at the nine-year basic education program, concern was raised was over the enrollment gaps across groups; as Oey-Gardiner (2000) noted, there was an enrollment gap between rural and urban areas and between the poor and the rich. In addition to the issue of enrollment disparity, the issue of educational quality deserved more attention and corrective direction in the education development program.

Minor decentralized initiative. In 1994, the Indonesian Ministry of Education and Culture (MOEC) established a policy requiring all elementary and junior secondary schools

across the regions to allocate 20% of total instructional hours to locally designed subject matter. This localized requirement became known as the Local Content Curriculum (LCC). The LCC was attached under the umbrella of the pre-and post-1994 curriculum. This requirement came into being because the central government realized that the national curriculum could not adequately accommodate the diverse needs of the country.

The LCC was intended to encourage local personnel and motivate teachers by allowing them to experiment with innovative pedagogies that were more sensitive and integrative locally. This curriculum devolution was administered at the province, district, and local school levels and required the participation of individuals at all these levels. Within the implementation of the LCC, teachers were expected to be partners in curriculum design, planning, implementation and evaluation. Although the percentage of content given was low, it represented a significant move from the previous highly centralized system in the content, the roles, and the responsibilities of schools. The LCC was the first decentralized initiative program in the Indonesian education system. It was designed to accommodate the unique conditions of the local communities the schools served. The program was administered to all primary and junior secondary schools, both public and private.

Although it was decreed as an ethno-culturally sensitive initiative, Bjork (2003) argued that the LCC was an ambitious reform, used by the government "to remedy a plethora of problems currently facing the education system" (p. 195). The implementation of the three main goals of this plan, namely to delegate authority locally, reduce the percentage of students that leave school, and create tighter links between curricula and local context, remained salient features. Such a fact contrasts with the successful claim of the government. Part of the failure of the LCC, according to Bjork, was due to school cultures that had previously rewarded obedience rather than initiative as is demanded in the LCC. Also, the top-down system of government that

was too deeply engrained in the educational process presented another obstacle. Such aspects hindered teachers at the school level from participating actively and enjoying the distribution of power found in any degree of educational decentralization.

The newer presidencies (1999–Present). The economic crisis that began in mid-1997 forced Indonesia's long-serving second president to resign after he had been elected to his seventh five-year term. Since then the current order is often referred as the Reform Era because the country has experienced a relatively peaceful transition into a more democratic country (McLeod, 2005). The country was then led by the third presidency (1998-1999), the fourth presidency with the "National-unity" cabinet (1999-2001), the fifth presidency (2001-2004), and the sixth presidency (2004-present).

The economic crisis impacted Indonesia's school system, which had previously been viewed by many as a model system in which the country matched its rapid economic growth with significant development in education. The greatest challenge of the crisis for education was to devise a way to maintain enrollment levels and provide tangible ways to improve the quality of education. Since the equity issue remained the greatest concern, the number of those students and families categorized as low socio-economic status citizens may have increased and affected the effort to increase quality education. During this time of economic downturn, the educational budget was reduced in order to pay off government debts to the Structural Adjustment Program, a program sponsored by the World Bank and designed as an economic solution to development. It often required a significant reduction of government public expenditures to its auxiliary branches, such as education and health. The negative implications that stemmed from these reductions were identified by Carnoy (1995) as "increased poverty, inequality of income and wealth, and slow economic growth" (p. 656). The implication was that the increased numbers of those in poverty coupled with the limit on the government's ability to provide scholarships for

needy children and other subsidies for schools would spell disaster. The lack of funding also limited the government's ability to provide subsidies for private schools. Parents of low socioeconomic status were also affected by the crisis, which limited their efforts to keep their children in school, especially at the lower secondary school level.

Minimizing the effect of the economic crisis. The government and various international agencies agreed that the schools needed a strong intervention program or policy to prevent an increase in the number of students who drop out. Private schools, except for a few prestigious schools, were affected more severely than were public schools. The Scholarship and Grant Program was one of the governmental interventions used to help stave off school dropout rates. Under this plan, individual scholarships were given to students from low socioeconomic status. Similarly, a block grant was provided to schools with the flexibility "to help schools maintain their educational service in the face of rising prices of schools' needs" (*Depdikbud*, 1999, p. 1).

Since not all students from low socioeconomic families received the scholarship, many schools used their block grant to "widen the net of students helped directly through lightening of the fee burden" (Jones & Hagul, 2001, p. 225). The grant helped keep school fees low enough so that even the very poor could remain in school. Other implemented programs designed to help maintain the enrollment rate came from various programs and initiatives that were usually either community-based, or government-based. These included such programs as the foster parents movement (GNOTA), free schooling for those in poverty, such as the open lower secondary school program (*SMP Terbuka*), and a literacy program (*Paket A & Paket B*). Other interventions as identified by Jones & Hagul (2001) included waiving the requirement of wearing an approved uniform or shoes, contribution by wealthy students, early registration, and community solidarity.

The major decentralization initiative. The economic crisis of mid-1997 was the starting point for a new movement from centralization to decentralization. The decision to decentralize

was a political consideration driven by external agencies such as the World Bank, to fulfill the demand of democracy and to address the failure of the highly centralized government. There were two major constitutions enacted in 1999 and put in force in 2001 regarding decentralization in Indonesia: the Law on Local Administration (Law no. 22/1999) and the Law on Balanced Finance between the Central and Local Government (Law no. 25/1999). Under these laws were four significant aspects: (a) strong decentralization, (b) horizontal line of responsibility, (c) firm allocation of the funds between the central and local governments, and (d) accommodating the local law (*hukum adat*). These legal reforms were enacted to promote the "principles of democracy, community participation, equity and justice, recognition of the potential and diversity among the regions, and the need to strengthen the local government" (World Bank, 2004, p. 4).

Education, like the agriculture and health sectors, was an area of policy largely devolved to the district because of decentralization. To implement the decentralization initiative in education, the centralized nature of Education Law no. 2/1989 was replaced by the new decentralizing Law no. 20/2003. This new law reflected the voice of decentralization and gave authority to local governments for to make decisions. The World Bank–sponsored decentralization initiative, as widely publicized, was supposed to achieve efficiency and quality in education and to deal with financial pressure (Behrman et al, 2002). For a nation to achieve optimum technical efficiency, according to the World Bank (Bonal, 2004), it will need to decentralize. By doing so, administration costs would be reduced, management would improve, and academic performance would increase. It was also argued that decentralization would improve social efficiency and meet local needs because "it bring[s] the management of service closer to the people who can directly and more effectively express their requirements and preferences" (p. 662). Some of the school management strategies and class instructional plans

introduced to address the decentralization initiative were school-based management, joyful learning instructional programs, and home schooling.

During the policy implementation stage of this new approach to governance, it was hard to determine if specific policies were a success or a failure, especially when the entire country sought holistic reform. If the plan or components of the plan were indeed destructive, the challenge would be adjusting the harmful aspects of the plan that might be associated with decentralization so that it could then lead to more constructive applications. The indicator of which path a nation has undertook in decentralization, according to the World Bank, was this: Decentralization could be constructive, if it "changes the distribution of accountability on measurable educational outcome" (p. 5). In contrast, decentralization could be destructive if "conflicts and inefficiencies arise when the goals of the different levels of government contradict each other" (p. 5).

As a result of enacting Law No. 20/2003, a major share of responsibility for administering basic education was delegated to the district government, a change that was in harmony with the concept of decentralization. District governments were now in charge of managing and financing schools. Research is needed in this area in order to measure whether or not this reform approach was effective. Bjork's study of the LCC program contains important points about the decentralization of education in Indonesia, especially with the expectation that schools would have major responsibility for management and instructional issues.

The structure of the education system. The current structure of the national education system is based on the 1945 constitution and the state ideology of *Pancasila* and its five principles of the state's philosophy. The 1945 constitution highlights that one obligation of a government is to develop the intellectual life of the nation. Explicitly, article 31 mentions that every citizen has the right to obtain an education and that the government should provide one

national education system that is supported by law. To implement passage of the constitution, two education acts providing guidelines for the national education system in Indonesia have been produced: (a) Education Act No. 2/1989 and (b) Education Act No. 20/2003. The former was a product of the New Order era with centralized management as the general characteristic. The latter, which was established during the Reformation Era, emphasizes a decentralized national education system.

The current schooling system consists of six years of primary school, three years of lower secondary school, three years of upper secondary school level, and various kinds of higher education. The primary schools are largely public schools (82%) and financed through the Ministry of Home Affairs. Around 11% of the primary schools are *madrasah* schools and are regulated by the Ministry of Religion. Their curriculum content is structured in such a way that 60% of the instruction is the same as that found in public schools. The remaining 40% of the curriculum is religious (Muslim) education. The number of private secondary schools has increased to 40% for lower secondary, 54% for upper secondary, and 70% for vocational upper secondary. At the higher education level, private institutions constitute a much higher percent of higher education institutions than public or government-sponsored institutions. At the end of the primary and junior secondary school levels, pupils take a national examination to determine their progression to senior secondary school. Since 2005, the national examination has been administered more aggressively, and the minimum scores required for passing junior and senior secondary schools have increased. A university entrance examination is also administered.

Access and quality. The inadequate amount of resources available to schools and teachers in Indonesia is of great concern. This inequity in the provision of educational resources negatively affects quality of education, as can be seen from both PISA and TIMSS international tests. In 1998, the World Bank noted that students leaving basic education generally lacked

essential competency in numeric, reading, and reasoning skills. The World Bank suggested that the poor quality of education input was the primary reason for the poor quality of education output in Indonesia. A UNESCO report (2006) also indicates that the Education For All (EFA) challenge focused on the issues of quality, geographic inequalities, resource shortages, and teacher quality. The quality of public schools is generally better than private schools. Unfortunately, private schools are more numerous than public schools after primary school level.

The recent effort to increase both access to and excellence of education is done by adopting known standards-based reform. The adoption of the reform was strongly indicated in the new Educational Act no. 20/2003: The Law of the National Education System. To implement the reform, the government has not issued a number of regulations, particularly in regard to standardization of education, but did establish in 2005 the Office of Educational Standards. This new government office has the responsibility of organizing the implementation of the national standards for education.

As for the national standards, the new government's regulations are Government Regulation No. 19/2005, concerning the national standards of education; the Ministry of National Education Regulation No. 22/2006, concerning content standards for the elementary and secondary education; (3) the Ministry of National Education Regulation No. 23/2006, concerning the standards-passing competence for elementary and secondary education; and the Ministry of National Education Regulation No. 24, 2006, concerning the implementation of the content standards and standards-passing competence for elementary and secondary education. In addition, a national assessment program has been established to regulate the administration of the annual national examination. The Educational Act No. 20, 2003, chapter XVI: 57–59, concerning evaluation, states that evaluation is a form of accountability and is used to monitor the quality of education in Indonesia. It is believed that greater education quality can be achieved

by initiating the standard for competency or a passing score. This cutoff score for minimum competency required for graduating from school or passing each subject will be a source of motivation to improve education.

School curriculum and standards. During the Reform Era, Curriculum Supplement 1999 was almost completely revamped and the new curriculum emerged as the Competence-based Curriculum. This new curriculum introduced levels of competence that students should achieve in their grades. However, this curriculum was criticized for being deficient in its capacity to adequately measure the student learning outcomes, since both the national examination and the final school test only contain multiple choice questions. Critics argued that, if competence is the target of learning, an assessment of learning needs to measure student practices and contain open-ended questions to better measure student competences.

The School-level Curriculum 2006 was produced in response to these criticisms. This curriculum claimed to implement the Law 20/2003 of the National Education System and adopt the standard-based reform. The characteristics of the standards-based reform can be seen from new government regulations, which describe the need to implement standards of education such as standards of content, standards for process, standards of competence, standards for teachers and other educators, standards for facilities, standards for management and finance, and standards for assessment.

Model of organization. Using Posner's (1992) term in conceptualizing the curriculum implementation, the Indonesian education system was organized primarily to apply the behavioral approach rather than experimental approach. The review of literature pointed out the tension between the behavioral perspective of education and the experimental approach to education. The behavioral perspective is considered highly mechanistic and applies a technical

approach to the nature of teaching in the classroom. For example, it views quantitative assessment as the end product and is the only legitimate measure for behavioral objectives.

The Indonesian educational community became more active in education policy towards the end of 1970s. It was during this time that the country enjoyed the oil boom and government interest in education was high. This can be seen from the increase in student enrollment at both the primary and secondary levels. At the same time, the country was greatly influenced by foreign consultants in a variety of public sectors, including the education sector. In adopting the behavioral perspective to education practice in Indonesia, the system was redesigned to apply the linear RD&D (Research, Development, and Diffusion) model to education (Posner, 1992). This approach was then implemented by the office of the RD&D Directorate General, which comprised five centers: Curriculum and Development, Assessment, Research and Innovation, Education Statistics, and Educational Technology. This department was designed to be a national education think tank and to provide recommendations to the other technical directorates under the Ministry of Education, such as the directorates of primary school, junior and high schools, and teachers.

Conclusion

Education in Indonesia had gone through numerous changes since Dutch occupation. Under colonialism, schools were designed only for the elite. In the postcolonial era, schools were designed for every citizen. Efforts have been continually made to improve both access to and quality of education in Indonesia. Education has been decentralized as the political system has become more democratic. Major efforts are under way to raise educational expectations for all through a national curriculum and a national assessment. A major key in achieving success will be the degree of alignment between national curriculum standards, classroom instruction, and the national assessment exam.

Chapter 4

Methods

The main objective of this chapter is to describe the methods applied in the study to address two key research questions: (a) to what extent does classroom instruction align with the national curriculum standards, and (b) is there a relationship between teacher characteristics and the degree of alignment between national curriculum standards and classroom instruction? This chapter describes the methods, the conceptual model, and the processes and procedures involved in answering these two questions. This chapter is divided into eight major sections: research design, conceptual model, exploring alignments, examining relationships between alignments and teacher characteristics, data sources, instrumentation and data collection, pilot project, and data analysis.

Research Design

Two major tasks in any research design are to specify as clearly as possible what the study wants to find out and to determine the best way to do it (Babbie, 2004). The first question explores the alignment between curriculum national standards and classroom instruction practices, and the second question examines the association between alignment and teacher characteristics; specifically, the main idea of the second question was to determine whether change in education level, years of teaching experience, professional development, and categorical variables like gender, work status, and college major predict alignment.

In specifying the purposes and identifying the best way to achieve them, the study first explored the alignment of the standards with classroom practice, which was then followed by examining the relationships between alignment and teacher characteristics. In exploring the alignments, measures of three indicators were specified: (a) topic coverage, (b) level of teacher difficulty, and (c) level of student difficulty. In examining the relationships, teacher

characteristics were designated as the independent variable and specified in terms of gender, working status, college major, years of teaching experience, education level, and two kinds of professional development dealing with the national curriculum standards and the alignment of the standards and classroom instruction. Additionally, qualitative data were collected from the interview with teachers to support the survey data analysis.

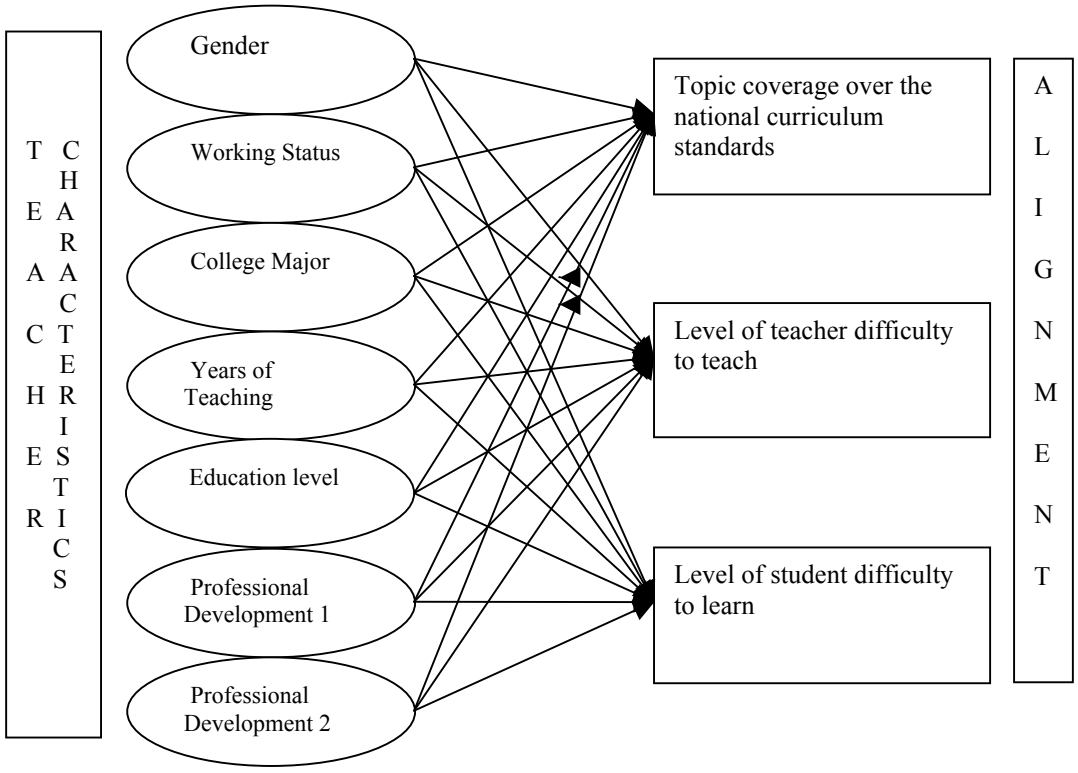
In terms of survey organization, the study focused on the four nationally assessed subjects: Indonesian, English, science, and mathematics. To organize data collection, a survey instrument was designed to collect data from a sample of teachers from three provinces in western Indonesia: Lampung, Jakarta, and East Java. The survey consisted of two sections: (a) teacher characteristics or demographics, such as gender, working status, college major, years experience, level of education, and professional development (regarding the national curriculum standards and the alignment of the standards and classroom instruction); and (b) a list of the standards for each of the four nationally assessed subjects. This second section also contained questions to assess topic coverage and the level of teacher and student difficulty during the 2008–2009 school year. In addition, semistructured interviews were conducted with 35 teachers, all of whom were also survey respondents.

The analyses of the data were organized around the two research questions. The first analysis explored alignment, where topic coverage was explored through the percentage of the national curriculum standards topics taught during the year 2008–2009, while the levels of teacher and student difficulty were explored by examining the average score on a scale from 1 (very easy) to 4 (very difficult). In analyzing the relationships, statistical analysis of maximum likelihood and a mixed multilevel approach were used to examine associations between teacher characteristics as the independent variable and alignment as the dependent variable. While maximum likelihood was used to estimate the parameter to maximize the likelihood function

because teachers were nested within schools that were taken as a cluster, a mixed-model regression was used to adjust for potential cluster effects due to possible school effects on the teacher responses. Then, a mixed multilevel regression was used to consider the multilevel teachers in one school and the multilevel random effect.

Conceptual Model

The following model (Figure 1) illustrates the basic elements of the research design. As seen in the model, the study went through two phases. In the first phase, the study explored alignment of the national standards with instructional practices in the classroom of the four nationally assessed subjects (Indonesian, English, science, and mathematics). In the second phase, relationships between alignment and teacher characteristics were examined to see if any correlations existed.



Professional Development 1 = the national curriculum standards
Professional Development 2 = the alignment of the standards and classroom instructional

Figure 1. Model of Proposed Alignments and Associations with Teacher

Exploring alignments. The degree of alignment between national curriculum standards and classroom practice could be determined by the degree to which the teacher covers the subjects. In this context, while Schmidt and Prawat (2006) provided an explanation about measuring the coverage in teaching (the amount of overlap between content standards and the number of lessons teachers devote to the topic at the classroom level), Porter (2002) and Gamoran et al. (1997) provided a wider scope of alignments by measuring the breadth (level coverage) and cognitive demand (configuration coverage).

Both studies introduced an important approach in measuring the alignment of the curriculum and classroom practice. Since the cognitive demands are not specified in the curriculum standards in Indonesia, this study excluded these variables, although they are very important aspects. Instead, the study explored the breadth of alignment specified in three areas: topic coverage, level of teacher difficulty to teach, and level of student difficulty to learn. The last two measures were taken to find additional information about classroom instruction and to provide more details about the coverage of the curriculum topic. These last two measures, level of teacher difficulty to teach and level of student difficulty to learn, contributed to the research in the alignment between standards and class instruction. As acknowledged in the review of literature, studies on alignment are relatively new. Rothman (2003) noted that the research did not specify how to determine alignment. "People must analyze the standards and test items and make a determination whether they match" (p. 19) and "there is no mathematical criteria formula for alignment" because "all methods demand some form of human judgment" (p. 20). Porter et al. (2007) supported this assertion and added that there is considerably more room for further work in the area of finding accurate tools for measuring and describing the alignment of instruction to content standards and its association to student achievement test scores. Based on

this emerging research of alignment, this study applied the level of teacher and student difficulty as additional measures of the alignment of the standards and classroom instruction.

Examining the relationships between alignment and teacher characteristics. In examining relationships, I developed a hypothesis for this study. In this context, the study examined the extent to which highly qualified teachers were more likely than less-qualified teachers to align the curriculum standards and their instructional practices. Specifically, the study focused on whether teacher characteristics (gender, working status, college major, years experience, education level, and professional development) were related to teachers' aligning the curriculum national standards and their classroom practices. This study hypothesized that there are no statistically significant differences in the level of alignments of the topics taught in 2008–2009 with teacher characteristics such as gender, working status, college major, experience, education level, or level of professional development. In this study, professional development consisted of two major topics: (a) the national curriculum standards and (b) alignment of classroom instruction and the national curriculum standards.

Pilot Study

In an effort to improve the quality of the survey instrument and the semistructured interview format, a pilot project was conducted in Jakarta with 24 invited teachers consisting of two teachers for each subject and grade. Before gathering the teachers, the English version of the questions for both the survey and the semistructured interview were translated into Indonesian. Teachers were then given both the Indonesian and the English versions.

Teachers were asked to review the survey instrument and the semistructured interview questions for possible changes in clarity and content. Minor changes were made based on the teachers' reviews. On the survey instrument, the teaching year was changed from 2007–2008 to 2008–2009. The other change was on the question about teacher coverage over the national

standards of curriculum. Another change made was for teachers to indicate the topic they had taught by marking (√) and the topic they had not taught by marking (0) instead of asking them to calculate the total hours they spent teaching the topics.

A semistructured interview had been designed to collect in-depth, qualitative information by the use of a focus group discussion. However, teachers in the pilot project recommended interviewing teachers individually. According to teachers, focus group discussions may discourage junior teachers from providing in-depth explanations on some questions. Based on this pilot project, the semistructured interview was developed for interviewing teachers individually.

The study focused on the four nationally assessed subjects, Indonesian, English, science, and mathematics. Teachers were considered the main source of information about their position, the most salient decision maker regarding instructional practices, and an obvious influence on the classroom (Wolter & Daugherty, 2007). Using a self-reported teacher survey, the collected data measuring instructional practice had both positive and negative aspects. Mayer (1999) suggested that a negative feature of self-reported survey data is the lack of capturing the quality of the interaction between teacher and student, but a positive feature addresses the fact that a composite of classroom practice indicators created from self-reported surveys provide reliable and valid data. Hence, teachers were also interviewed using a semistructured interview to collect more information about their classroom instruction.

Sampling

Geographically, Indonesia (see Figure 2) consists of three regions, commonly called the western, central, and eastern parts. The western part is made up of provinces located along Sumatra Island (10 provinces) and Java Island (six provinces); the central part was made up of those provinces located on Kalimantan Island (four provinces) and Sulawesi Island (six

provinces); and the eastern part is scattered along the islands of Maluku (two provinces), Bali (one province), Nusa Tenggara (two provinces), and Papua (two provinces).

Figure 2. Map of Indonesia

Three provinces located in the western part of Indonesia provide the sample of teachers for the study. Using the Excel software program, random selection was performed to sample province, district, and schools. The Lampung province was randomly selected from the ten provinces on Sumatra Island, but Jakarta was chosen intentionally because it is the most populated province in Indonesia, the capital of the country, and different in many ways than the other provinces. Meanwhile, East Java province was randomly selected from the other five provinces on Java Island.

From each province (Table 1), two districts were randomly selected to represent one urban district, commonly called a city district or *kota,* and one suburban district, commonly called a *kabupaten* (n = 6 districts). One of the differences between the two is that a *kota* is a district without a rural area while a *kabupaten* is a district with rural areas. Jakarta was an exception for two reasons: (a) there are no *kabupaten* districts, and (b) policy for all school levels was managed at the provincial level rather than the district level as in other provinces. In

addition, teachers were taken from two *kota* districts without private schools, since according to the province's office, the private schools were on holiday by the time the data were collected.

Table 1
Selected Districts

Province	District	
	Kota	**Kabupaten**
Lampung	Bandar Lampung	Pringsewu
Jakarta	Jakarta Pusat	Jakarta Selatan
East Java	Pasuruan Kota	Pasuruan Kabupaten

After the districts were selected, two assistant researchers from the Office of the Educational Research and Innovation Center, who were working on their own research projects in the districts that had been randomly selected for this study, assisted me. These assistant researchers helped by asking the district network official to provide lists of the junior secondary schools, the number of teachers who taught the four subjects (Indonesian, English, science, and mathematics), school addresses, telephone numbers, and emails if available, and to specify the schools with these criteria: location (rural or urban) and operation (government or private). Four districts, two in Lampung and two in East Java, were obtained through the aid of these two assistant researchers. The same information was collected in the school districts that randomly selected for this study, which were not those being used by the Educational Research and Innovation Center as research projects. For these districts, I went to Jakarta and met with the district official to ask for a list of schools and other information for sampling selection purposes.

Enough schools were selected in each district to obtain around 75 teachers for each district or 150 teachers per province. However, in East Java, due to the large number of schools,

more teachers were taken—around 200 teachers. Finally, in each school, all teachers who taught a core subject—Indonesian, English, science, and math—in grades seven and nine were selected as respondents for the study. Based on this sampling strategy, the total number of schools was 27 (Lampung: four *kota* district schools and four *kabupaten* district schools; Jakarta: four *kota*; and East Java: six *kota* and nine *kabupaten*). Table 2 presents total number of teachers for each province.

Table 2
Number of Teachers

		Grade 7	Grade 8	Grade 9	**Total Teachers**
Lampung	Indonesian	14	9	11	**34**
	English	18	9	11	**38**
	Science	12	11	11	**34**
	Math	14	10	14	**38**
	N	58	39	47	**144**
Jakarta	Indonesian	14	11	11	**36**
	English	19	10	11	**40**
	Science	15	11	10	**36**
	Math	18	11	15	**44**
	N	66	43	47	**156**
East Java	Indonesian	21	17	16	**54**
	English	21	13	14	**48**
	Science	16	14	15	**45**
	Math	23	17	14	**54**
	N	81	61	59	**201**
	N Total	**205 (40.9%)**	**143 (28.5%)**	**153 (30.5%)**	**501 (100%)**

Note. n=501. n = number of respondents

Data Collection

Surveys. Surveys are one of the most commonly used methods to understand the way societies work and to test theories of behavior (Groves et al., 2004; Gzaja & Blair, 2005). In this study, a survey instrument was used to collect data from a sample of teachers in three provinces in Indonesia. The teachers reported on whether they taught curriculum standards, how hard it was for them to teach the concepts in the standards (the level of difficulty for them to teach), how hard it was for students to learn the concepts (the level of difficulty for students to learn the topics), and their characteristics as teachers. The self-report approach was selected for this study because "teachers' perceptions are one window into teacher-child relationship that can inform work related to improving relationships and interactions" (Saft et al., 2001, p. 126). Although there had been doubt about teachers' honesty in reporting their own instructional practices accurately in an effort to give socially desirable answers, prior studies provided validity measures (Wolters & Daugherty, 2007; Kaplan, Gheen, & Midgley, 2002).

There were two sources of data in this study. The first major source of data was junior secondary school teachers self-reporting about their classroom instruction practices through a survey. This provided the data to explore the alignments with curriculum standards. These data were accompanied by teacher characteristics to help examine any relationships with the degree of alignments. The second source of data was an interview with teachers using a semi-structured interview guide. This secondary data helped find additional explanations about the classroom instruction as reported on the survey data.

There were two parts to the survey. The first part contained questions regarding teacher characteristics or demographics (Appendix E.1). The second part contained a list of the standards for each of the four nationally assessed subjects, followed by questions to measure the breadth of the alignment between the standards and classroom practice (Appendix E.2 for Indonesian,

Appendix E.3 for English, Appendix E.4 for science, and Appendix E.5 for mathematics). In this survey, teachers were asked to provide responses about whether they taught the topics identified in the classroom during the year 2008–2009 by putting a 0 for each lesson topic within the standard that the teacher did not teach or a 1 for each lesson topic within the standard that the teacher did teach. This response provided the measure for the coverage of topics. Then, for each lesson topic, teachers were asked to rate the level of teacher difficulty to teach the topic and the level of student difficulty to learn the topic by using a scale of 1 (very easy) to 4 (very difficult). These three kinds of alignment measure were the dependent variables of the study. Teacher characteristics were the independent variables used to explore the possible relationships with alignment.

As an additional source of data, a semistructured interview was used to collect qualitative data in order to obtain further insights about the degree of alignment between the national standards and classroom instruction. The interview consisted of six main questions organized around whether teachers taught the topics, the level of teacher difficulty to teach, and the level of student difficulty to learn. The other three questions were asked to explore reasons why teachers were able to teach all topics, the amount of time and attention paid for each topic, and the sharing of personal experiences.

I used three ways to collect data. First, experienced data collectors were sent from the Educational Research and Innovation Center to come to schools while they also collected data from these schools for other projects. Second, I sent experienced data collectors from the district network to collect data from schools in their districts. Third, I went to schools that were not part of either the first or second type of data collection.

Procedures. After I received the IRB approval from Brigham Young University (Appendix A) and permission letters from six districts (Appendices B.1–B.6), the data collection

began. After the information of the schools were obtained and schools were randomly selected, I contacted the school district official responsible for educational research and innovation networking to find the assistants for administering the survey and conducting interviews. This was done either by traveling to the districts to meet face-to-face with the district networking official or by communicating through telephone, email, or other forms of long-distance communication.

The availability of the network at the district level was initiated by the Educational Research and Innovation Center in 1997 to assist in data collection for the center's projects. However, with the change from centralized to decentralized government management, the role of the district network was no longer to assist the center, but it assumed a larger role as a partner in research and innovation projects. The availability of the educational research and innovation network at the district level was very helpful in this study because personnel in the district network have been trained in research methods and data collection.

Survey. There were two strategies for administering the questionnaire and the semistructured interview to teachers. For the questionnaire, data collectors gathered teachers in a room and explained the purposes of the study and the importance of their answers to the study. For those teachers who did not come for the group meeting, the data collectors left the questionnaires with either the principal or senior teachers to coordinate the administration of the questionnaire to the teachers in their schools. In fact, there were only a few teachers from one school who did not come. Data collectors then set an appointment with the school to arrange the time for both picking up the questionnaires and interviewing several teachers who had been previously contacted to participate in the personal interviews.

When explaining the purpose of the study to teachers, I also addressed the consent form (Appendix C) and reassured them that their responses would be confidential and that only Iwould

have access to the data. In addition, without any names on the survey, respondents were assured that their identities would not be recognized. Teachers were given a week to complete the survey and then could choose to either return the questionnaire when the data collector came back to the school to interview them or mail the questionnaire in a provided stamped envelope to the address provided. In less than four weeks, 95% of the questionnaires had been completed and received. At the end of the data collection period, the response rate for the questionnaire was 98%. The questionnaires took approximately 30–35 minutes to complete and there was no compensation for participating in this survey.

Interviews. While in the process of survey data collection, data collectors also conducted interviews with teachers from several schools. The interviews were conducted with teachers either during break time or after school on the day the data collectors came to the school. Each interview took about 25 minutes. The interviews involved a total of 35 teachers from three provinces. The data collectors used the semistructured interview guide to interview teachers (Appendix D).

Data Analysis

While data collections were done in different regions, the information from the completed surveys was immediately transferred into a Microsoft Excel spreadsheet to record the participants' responses. The same process was used for the qualitative data, with the interviews transcribed from tape into Microsoft Word. After arriving in the United States, the survey data were then analyzed using the SPSS statistical package with the assistance of Dr. Joseph Olsen, professor of sociology at Brigham Young University. Meanwhile, the qualitative data were coded and evaluated using the NVivo software program.

The analysis was organized around the study questions (Table 3). The first question deals with exploring alignment. The alignment of classroom instruction and the national curriculum

standards was explored by three measures: (a) topic coverage, (b) level of teacher difficulty, and (c) level of student difficulty. The topic coverage was measured by the percentage of the national curriculum standards topics taught during 2008–2009. Meanwhile, the level of difficulty for teachers to teach and the level of difficulty for students to understand the topics were measured on a scale from 1 (very easy) to 4 (very difficult). Based on this calculation, every teacher had two averaged scores to represent his or her self-reports on the level of teacher difficulty to teach and the level of student difficulty to understand.

Table 3
Indicators, Measurements, Data Source, Data Collection, and Analytical Procedures

Objective	Indicator	Measurement	Data Source	Data collection method	Analytical procedures
Exploring alignment	Alignment	Percentage of topic coverage of the national curriculum standards on the classroom practices.	List of topic standards per subject. Teacher teaching practices over the standards: "yes" or "no" teaching for each topic required by the national curriculum standards.	Teachers survey instrument	Descriptive statistics to generate the percentage of topic coverage and the pattern of not covered topics.
			Interviewed teachers	Semistructured interview	Quotations from teacher interviewed.
	Alignment	The level of teacher difficulty to teach and the level of student difficulty to understand the topics taught by teachers. Scale: 1 (very easy), 2 (easy), 3 (difficult), and 4 (very difficult).	List of standards per subject. Teacher teaching practices over the standards: Teachers rated for themselves and for their students for each topic.	Teachers survey instrument	Descriptive statistics to generate the scores as the average scores for each teacher for both teacher and student level of difficulty which is averaged from each teacher total score from the scale divided by the number of the topics.
			Interviewed teachers	Semi-structured interview	Quotations from teacher interviewed.
Examining relationships	Relationships	Association between alignment and teacher characteristics	Teachers: gender, working status, major in college, education level, years of experience, and professional development.	Teachers survey instruments	maximum likelihood and mixed multilevel regression analysis to examine the associations.

The second question focused on the relationship between alignment and teacher characteristics. In this study, maximum likelihood was used to estimate the parameter to maximize the likelihood function, thus making the response appear as likely as possible (Rabe-Hesketh & Skrondal, 2008). Since teachers were clustered and nested within schools, a mixed-model regression was used to adjust for potential cluster effects due to possible school effects on the teacher responses.

Afterwards, a mixed multilevel regression was used to predict the three alignments and to test the hypothesis that teacher characteristics (gender, working status, college major, years of teaching experience, education level, and level of professional development) were associated with the alignments. In this model, the dependent variable was the alignments (topic coverage, level of teacher difficulty, and level of student difficulty) and the independent variables were teacher characteristics. The use of mixed multilevel modeling as a general form of regression analysis was critical because the study consisted of multilevel teachers in one school, and it is typical of data in education to have a multiple structure (Marsh et al., 2008; Marsh et al., 2009; Little et al., 2000). Using this model, the multilevel random effect was examined. The following equations modeled the association between teacher characteristics as the predictors of the alignment of teacher instruction. It was worth noting that,"as in ordinary regression analyses, one outcome variable is regressed on several predictor variables in each model" (Marsh et al., 2009, p. 858). The regression formulas were as follows:

$$\text{topic coverage}_{oj} = \gamma_{00} + \gamma_{01}(\text{Level of Education})_j + \gamma_{02}(\text{Professional Development1})_j + \gamma_{03}(\text{Professional Development2})_j + \gamma_{04}(\text{Having Major})_j + \gamma_{05}(\text{Gender})_j + \gamma_{06}(\text{Years of Teaching})_j + \gamma_{07}(\text{Work Status}) + u_{oj} + e_{ij}$$

$$\text{teacher score}_{oj} = \gamma_{00} + \gamma_{01}(\text{Level of Education})_j + \gamma_{02}(\text{Professional Development1})_j + \gamma_{03}(\text{Professional Development2})_j + \gamma_{04}(\text{Having Major})_j + \gamma_{05}(\text{Gender})_j + \gamma_{06}(\text{Years of Teaching})_j + \gamma_{07}(\text{Work Status}) + u_{oj} + e_{ij}$$

$$\text{student score}_{oj} = \gamma_{00} + \gamma_{01}(\text{Level of Education})_j + \gamma_{02}(\text{Professional Development1})_j + \gamma_{03}(\text{Professional Development2})_j + \gamma_{04}(\text{Having Major})_j + \gamma_{05}(\text{Gender})_j + \gamma_{06}(\text{Years of Teaching})_j + \gamma_{07}(\text{Work Status}) + u_{oj} + e_{ij}$$

The symbols and components in this formula are to represent the following:

The topic coverage, teacher score, and student score are the topic coverage and scale score of level of teacher difficulty to teach and level of student difficulty to learn defined as alignment for teacher i expressed as function of the independent variables level of education, professional development 1, professional development 2, having major, gender, years of teaching, and working status.

γ_{00} is the y-intercepts, interpreted as the expected alignment for a male government teacher who is teaching the subject he majored in school with zero education, experience, and professional development.

The γ_{01}- γ_{07} are slope terms interpreted as the change in average of the alignments for each unit increase in the following characteristics: level of education, years of teaching subject, professional development, having major/minor, gender, and working status variables.

u_{oj} is the unique school effects

ε_{ij} = the error term interpreted as all other factors that affect average degree of alignment that are not accounted for in the model.

Conclusion

This chapter highlighted the methodology used in this the study, with the key research questions as reference points. The concept of the study, explained through the model and then summarized in Table 1, was to explain how data were collected and analyzed. The first question was to find alignment to the standards in classroom practices by measuring topic coverage, the level of difficulty for the teacher to teach, and the level of difficulty for students to learn, all of which represent the breadth of instruction. The second question examined the relationships between alignments and teacher characteristics. Teachers were selected from three provinces Indonesia to complete a questionnaire and participate in a semistructured interview. A total of 501 questionnaires were completed for a response rate of 98%. In addition, a total for 35 teachers from the three provinces participated in a semistructured

interview. Descriptive statistics were used to analyzed data from the questionnaire about the degree of alignment between the national curriculum standards and classroom instruction. Mixed multilevel regression analysis explored the possible relationships between teacher characteristics and the degree to which they taught the standards in the classroom. NVivo was used to analyze the narrative data from the semistructured interviews. The findings of this research are presented in the next chapter.

Chapter 5

Findings

This chapter is reports the findings on the two key research questions: to what extent does classroom instruction align with the national curriculum standards, and is there a relationship between teacher characteristics and the degree of alignment between classroom instruction and national curriculum standards? In this chapter, the findings of the study are reported without drawing conclusions from the results. Chapter 6 discusses and draws conclusions based on the study's findings.

Participants

The participants of this study were teachers from three western provinces of Indonesia: Lampung; Jakarta, the capital; and East Java. These participants taught at least one of the four nationally assessed subjects in both public and private junior secondary schools: Indonesian, English, science, and mathematics. Based on the sampling process described in Chapter 4, 501 teachers from 27 schools participated. Nearly all of the teachers who taught the four subjects in grades seven through nine from the selected schools participated in the survey, producing a response rate for the study of 98% with the following response rates for each province: Lampung, 98%; Jakarta, 97%; and East Java, 99%. Of the 501 teachers who participated in the survey, 35 participated in a follow-up interviews done to gain additional perspectives for informing the analysis of the survey data.

Of the 501 participating teachers, East Java contributed the highest number of teachers (40.1%), followed by Jakarta (31%) and Lampung (28.74%). Within these three provinces, there were a large number of schools for 2008–2009: East Java has the largest number of schools (6,088), followed by Lampung (1,706 schools) and Jakarta (1,236 schools). Seventh-grade teachers were the largest group of teachers participating in the survey, followed by ninth grade

and eighth grade. Of the four subjects, the sample indicates a fairly even distribution of teachers in the four subject areas. Math teachers represented the largest group (n = 136, 27.1%), followed by English teachers (126, 25.9%), Indonesian teachers (124, 24.7%), and science teachers (115, 23%).

Research Question One

The first research question asked to what extent classroom instruction aligns with the national curriculum standards. As outlined in Chapter 4, the alignment of classroom instruction and the national curriculum standards is measured by (a) the extent of topic coverage, (b) level of teacher difficulty in teaching a topic, and (c) level of student difficulty in learning the topic. The following section presents the findings regarding the alignment of classroom instruction and the national curriculum standards, organized by these three breadth-of-instruction variables.

Topic coverage. The first measure of alignment between curriculum instruction and the national standards is the breadth-of-instruction variable of topic coverage. Topic coverage is specified as the average number of national standard topics taught in the subject area as reported by the participating teachers. Table 4 presents the average topic coverage for each province by subject and grade level.

Table 4
Average Topic Coverage by Province, Subject, and Grade

		Grade 7			Grade 8			Grade 9			**Average**
		Mean	SD	N	Mean	SD	N	Mean	SD	N	**Mean**
Lampung	I	99.6	1.6	14	98.0	4.3	9	98.9	2.4	11	**98.8**
	E	99.0	4.4	18	100	0.0	9	96.7	11.0	11	**98.6**
	S	98.1	5.3	12	97.4	5.8	11	99.1	1.9	11	**98.2**
	M	98.7	2.8	14	96.5	11.2	10	99.2	1.9	14	**98.1**
	Total	98.8	3.5	58	98.0	5.3	39	98.5	4.3	47	**98.4**
Jakarta	I	95.2	9.7	14	99.3	2.4	11	100	0.0	16	**98.1**
	E	89.5	0.0	10	100	0.0	10	94.8	12.1	14	**96.5**
	S	99.1	1.9	15	100	0.0	11	91.4	9.7	15	**99.7**
	M	91.7	14.9	23	99.7	1.4	17	96.6	4.4	14	**98.5**
	Total	92.5	12.6	81	98.2	3.6	61	59.7	6.6	59	**98.2**
East Java	I	100	0.0	21	99.5	1.9	17	100	0.0	16	**99.8**
	E	91.7	18.0	21	96.9	7.1	13	94.8	12.1	14	**94.5**
	S	86.6	17.4	16	96.6	3.9	14	91.4	9.7	15	**91.6**
	M	91.7	14.9	23	99.7	1.4	17	96.6	4.4	14	**96.0**
	Total	92.5	12.6	81	98.2	3.6	61	95.7	6.6	6.1	**95.5**
Grand Total		**95.64**	**7.96**	**205**	**98.43**	**3.77**	**143**	**98.04**	**3.73**	**153**	**97.37**

Note. N = 501. I = Indonesian, E = English, S = Science, and M = Mathematics

Overall, the average topic coverage is 97.37% (n=501, sd=5.15), with all topics being covered at a high rate. Table 3 shows the highest topic coverage was Indonesian (98.49%), followed by mathematics (97.54%), English (96.51%), and science (96.49%). In terms of the provinces, East Java showed the lowest topic or curriculum coverage for all four subjects, with

science having the lowest coverage percentage. Of the three grade levels, the eighth grade had the highest rate of coverage of topics required by the national curriculum standards, followed by ninth grade and seventh grade.

As can be seen from Table 5, several teachers for each subject taught less than what was required by the national curriculum standards (the requirement is to teach 100% of the topics). Among the grades, seventh grade is the only grade level with any teachers who taught 70% or less of the required topics across the subjects during 2008–2009. Across the curriculum subjects, science and math show that the highest number of teachers who taught less than all curriculum topics were in ninth grade, science in eighth grade, and English and math for seventh grade.

Interviews with the teachers who taught all topics revealed some reasons why all of the topics were taught. One teacher said that she does so "because I want my students to receive a great learning experience from me" (Case 3). Two cases indicated that the guideline from the government helped the teacher cover all the topics (Case 5, Case 4) and four cases suggested that content knowledge was the factor that enabled the teacher to teach all of the topics (Case 6, Case 13, Case 14, and Case 16). Four cases indicated that the number of years teaching also influenced the ability of the teacher to cover all the topics (Case 2, Case 7, Case 11, Case 13). The national assessment also motivated one teacher to predict the questions: "To make students pass the national exams, I predicted the questions and teach them. So although most students come from low SES, they can pass the exams" (Case 8).

Table 5
Range of Percentage of Topic Coverage for Each Subject and Grade

		Number of teachers by subject and the coverage percentage for each grade and subject					
Grade	Range	Indonesian	English	Science	Math	**Total**	**% per grade**
7	Up to 70%	1	5	2	2	**10**	**4.88**
	71%–89 %	1	6	7	4	**18**	**8.78**
	90%–99%	4	6	4	12	**26**	**12.68**
	100%	43	41	30	37	**151**	**73.66**
	Total number of teachers	49	58	43	55	**205**	
	% grade 7	23.90	28.29	20.98	26.83	**100**	**100**
8	71%–89%	1	2	2	2	**7**	**4.90**
	90%–99%	4	1	7	2	**14**	**9.79**
	100%	32	29	27	34	**122**	**85.31**
	Total number of teachers	37	32	36	38	**143**	
	% grade 8	25.87	22.38	25.17	26.57	**100**	**100**
9	71%–89%	0	3	4	3	**10**	**6.54**
	90%–99%	2	1	9	6	**18**	**11.76**
	100%	36	32	23	34	**125**	**81.70**
	Total number of teacher	38	36	36	43	**153**	
	% grade 9	24.84	23.53	23.53	28.10	**100**	**100**

Unfortunately, among those who taught less than 100%, only two teachers participated in the follow-up interviews. Both of these teachers explained that their time allocations were not adequate to cover all topics (Case 30 and Case 32). These two teachers taught math for eighth grade and seventh grade and were unable to teach two topics: one-variable linear equations and the Pythagorean Theorem. Other interview data did not provide any explanations or reasons why teachers did not teach all of the required topics.

In terms of the topics covered, the findings show a relatively high percentage of curriculum coverage (Figure 3a). However, although the percentage of topics not covered is

relatively small, it is necessary to disaggregate the data in order to provide information about any patterns in the topics not taught. These patterns will be discussed in Chapter 6.

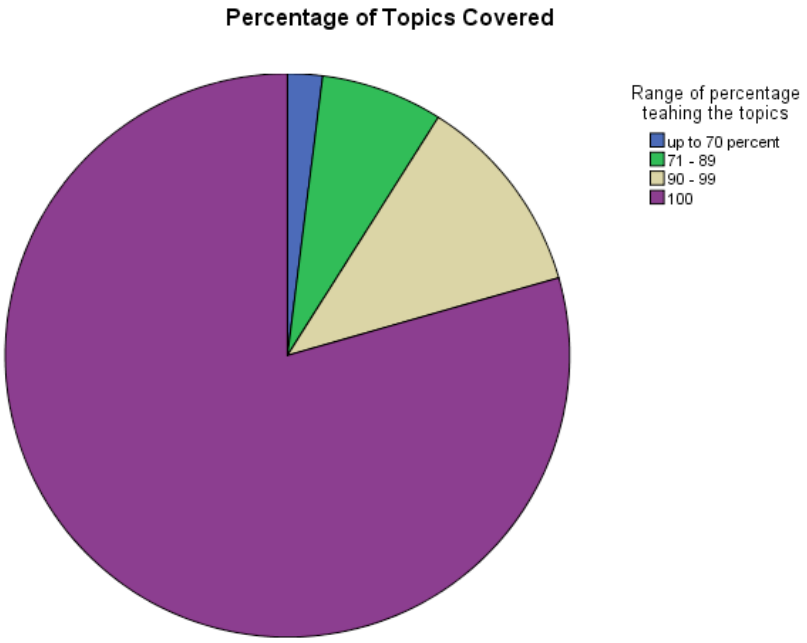


Figure 3a. Percentage of Topics Coverage

Level of teacher difficulty. The second measure of alignment is the instruction variable of the level of teacher difficulty in teaching a topic. The level of teacher difficulty is measured by teachers rating their level of difficulty in teaching the topics outlined in the national curriculum standards using a Likert 4-point scale: 1 (very easy), 2 (easy), 3 (difficult), and 4 (very difficult). This section presents the findings of the study in which the teachers rated themselves on the level of their difficulty in teaching topics required by the standards (see Table 6).

Table 6
Mean Rating of the Level of Teacher Difficulty by Province, Subject, and Grade

		Grade 7			Grade 8			Grade 9			**Average**
		Mean	SD	N	Mean	SD	N	Mean	SD	N	**Mean**
Lampung	I	2.1	0.3	14	2.3	0.5	9	2.3	0.5	11	**2.20**
	E	2.1	0.7	18	2.3	0.8	9	3.2	0.4	11	**2.21**
	S	2.8	0.7	12	2.2	0.4	11	2.4	0.5	11	**2.47**
	M	2.4	0.6	14	2.1	0.3	10	2.3	0.7	14	**2.28**
	Total	2.3	0.6	58	2.2	0.5	39	2.3	0.6	47	**2.29**
Jakarta	I	2.5	0.5	14	2.4	0.5	11	2.5	0.7	11	**2.47**
	E	2.5	0.6	19	2.4	0.5	10	2.4	0.5	11	**2.45**
	S	2.6	0.5	15	2.4	0.5	11	2.7	0.5	10	**2.61**
	M	2.2	0.4	18	2.8	0.6	11	2.0	0.3	15	**2.27**
	Total	2.4	0.5	66	2.5	0.5	43	2.3	0.5	47	**2.45**
East Java	I	2.4	0.5	21	2.3	0.6	17	2.2	0.6	16	**2.31**
	E	2.2	0.5	21	2.5	0.6	13	2.3	0.5	14	**2.31**
	S	2.6	0.5	16	2.4	0.5	14	2.6	0.5	15	**2.53**
	M	2.6	0.6	23	2.0	0.6	17	2.4	0.5	14	**2.33**
	Total	2.4	0.5	81	2.3	0.6	61	2.4	0.5	59	**2.37**
Grand Total		**2.40**	**0.57**	**205**	**2.33**	**0.57**	**143**	**2.36**	**057**	**153**	**2.37**

Note. n = 501. I = Indonesian, E = English, S = Science, and M = Mathematics.
The Likert-scale for the level of teacher difficulty is 1 (very easy), 2 (easy), 3 (difficult), and 4 (very difficult).

Overall, the mean rating of teacher difficulty level is 2.37, indicating that teachers reported that the topics were easy to teach. Theses ratings were consistent across province, subject, and grade level. The score ranges from 2.20 for Indonesian (Lampung) to 2.61 for Science (Jakarta).

As can be seen from Figure 3b, the mean ratings of teacher difficulty level were dominated by ratings between 2.0 and 2.99, indicating that teachers felt that it was easy to teach the topics. However, the mean ratings of teachers who perceived that topics were difficult to teach also showed a moderate ratings level, which indicates that there are some teachers who have difficulty teaching some topics. Although the mean teacher ratings were high, further disaggregation of the data facilitated identification of which specific topics were difficult for teachers to teach (see later section of Patterns).

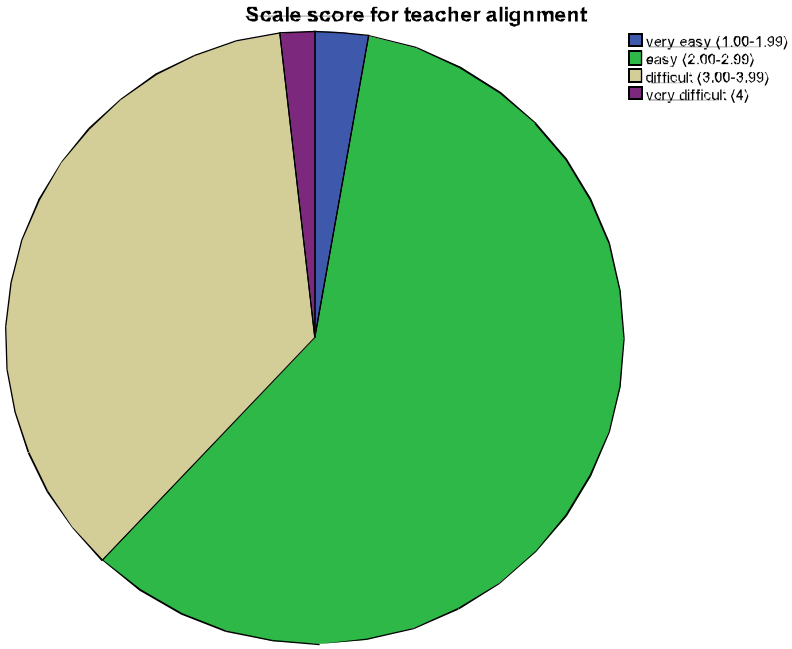


Figure 3b. Mean Rating of the Level of Teacher Difficulty

Level of student difficulty. The third measure of alignment is the instruction variable of level of difficulty for students. Level of student difficulty was measured by the teachers rating how difficult it was for their students to understand the topics taught as required by the national curriculum standards using the Likert scale. The mean ratings are presented in Table 7.

Table 7
Mean Rating of the Level of Student Difficulty by Province, Subject, and Grade

		Grade 7			Grade 8			Grade 9			**Average**
		Mean	SD	N	Mean	SD	N	Mean	SD	N	**Mean**
Lampung	I	2.8	0.5	14	3.1	0.3	9	3.2	0.4	11	**3.01**
	E	2.7	0.5	18	2.9	0.6	9	3.0	0.6	11	**2.84**
	S	3.1	0.7	12	3.0	0.4	11	3.1	0.3	11	**3.02**
	M	3.1	0.3	14	3.0	0.5	10	3.2	0.4	14	**3.04**
	Total	2.9	0.5	58	3.0	0.5	39	3.1	0.4	47	**3.01**
Jakarta	I	2.8	0.4	14	3.0	0.0	11	3.1	0.4	11	**2.97**
	E	3.3	0.5	19	3.1	0.7	10	2.9	0.7	11	**3.15**
	S	3.1	0.3	15	3.0	0.0	11	3.2	0.4	10	**3.11**
	M	3.0	0.5	18	3.0	0.4	11	2.8	0.4	15	**2.93**
	Total	3.1	0.4	66	3.0	0.4	43	3.0	0.5	47	**3.04**
East Java	I	3.0	0.7	21	3.0	0.0	17	3.0	0.3	16	**3.00**
	E	3.1	0.4	21	3.3	0.5	13	3.1	0.3	14	**3.15**
	S	3.1	0.4	16	3.1	0.5	14	3.3	0.5	15	**3.07**
	M	3.0	0.4	23	3.1	0.5	17	3.1	0.5	14	**3.05**
	Total	3.1	0.4	81	3.1	0.4	61	3.1	0.4	59	**3.06**
Grand Total		**3.01**	**0.47**	**205**	**3.05**	**0.46**	**143**	**3.07**	**0.46**	**153**	3.04

Note. N = 501. I = Indonesian, E = English, S = Science, and M = Mathematics
The Likert-scale for the level of student difficulty is 1 (very easy), 2 (easy), 3 (difficult), and 4 (very difficult).

In contrast to the level of teacher difficulty, the overall rating of student learning difficulty was 3.04, which indicated that teachers perceived their students as having difficulty in understanding the topics. This finding is consistent across province, subject, and grade. The Lampung province shows the lowest mean rating in English (2.84), while Jakarta has the highest mean rating in English (3.15) and science (3.11). In addition, East Java ties the highest mean rating in English (3.15).

With an overall mean rating of 3.0, the data show that almost all topics are a challenge for students to understand, according to the teachers (Figure 3c). A closer examination of the topics is necessary to provide more detailed information about topics with low scores and topics that are difficult for students to understand. The next section further disaggregates the findings regarding the three measures of alignment by examining data patterns in more detail.

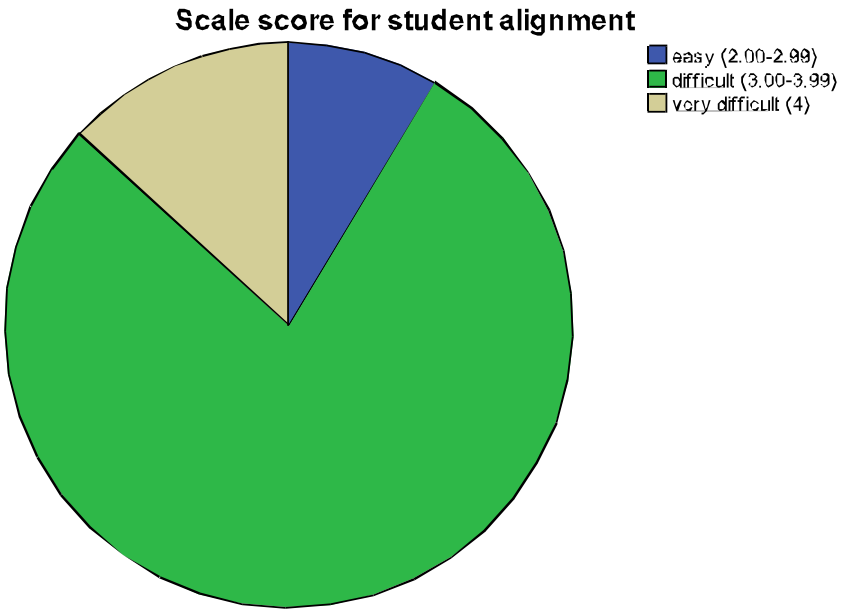
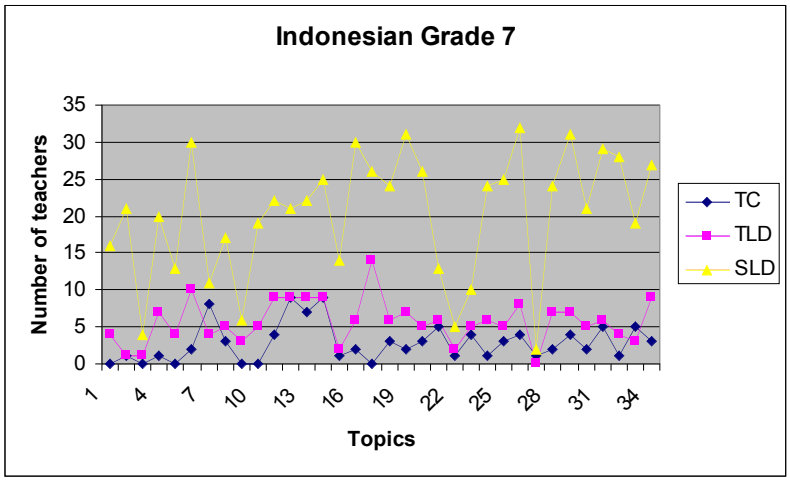
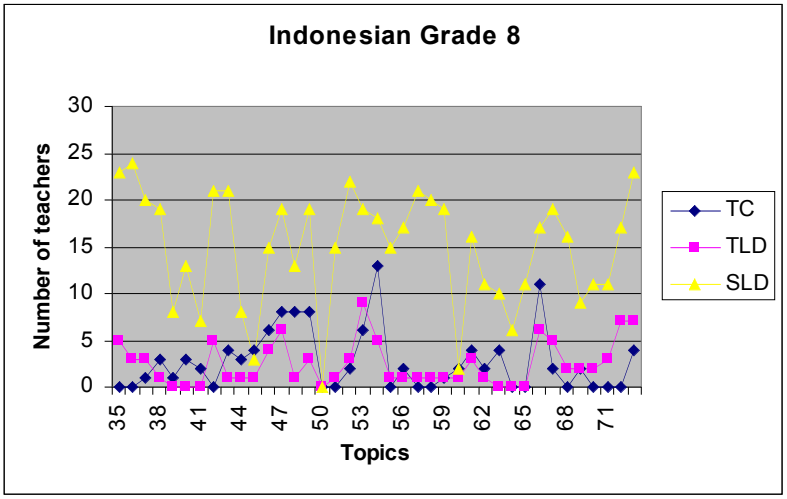


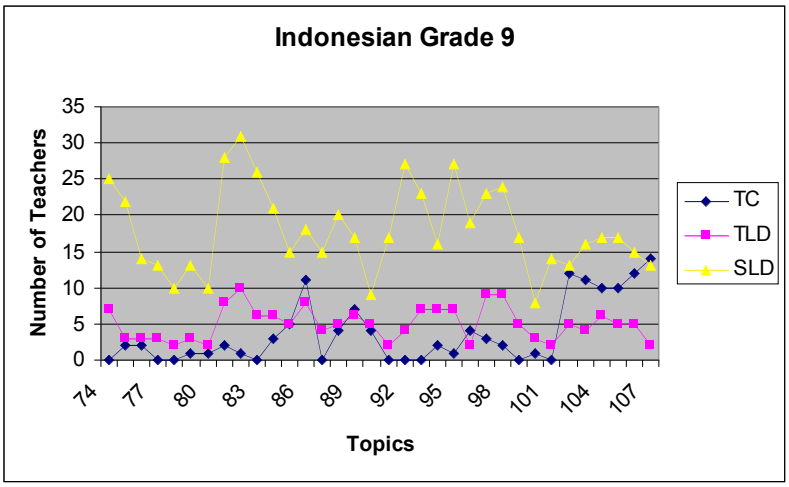
Figure 3c. Mean Rating of the Level of Student Difficulty

Patterns within measures of alignment. Figures 4a, 4b, 4c, and 4d compare the teachers' responses to three measures of instruction for each subject by topic number. Each figure represents one school year with a first and second semester. The lines in each graph in these figures indicate the number of teachers (a) not covering each topic, (b) having difficulty teaching the topic, and (c) indicating that students have difficulty learning the topic. Overall, across all the figures, a similar pattern emerged: the lowest number of teachers did not teach the topics, a greater number of teachers indicating difficulty teaching the topics, and the highest number of teachers indicting student difficulty in learning the topics.

Examining this data by subject reveals several interesting patterns. First, the subject of Indonesian demonstrated a high level of student difficulty, although student difficulty appears to decrease in the higher grades. Second, the subject of English most clearly demonstrated low teacher difficulty yet high student difficulty. Teacher difficulty also decreased in the higher grades. Third, while all grades did not cover all science topics during the school year, the numbers were not high. The subject of science showed a high level of teacher difficulty at the end of the first semester in the seventh grade and at the end of the eighth and ninth grades. It also demonstrated a high level of student difficulty, especially at the end of second semester in each grade. Finally, the subject of mathematics showed a very high number of topics not covered in the ninth grade at the end of second semester. It also demonstrated a tendency of having a high level of student difficulty to learn the topics taught at the end of each semester across grades.

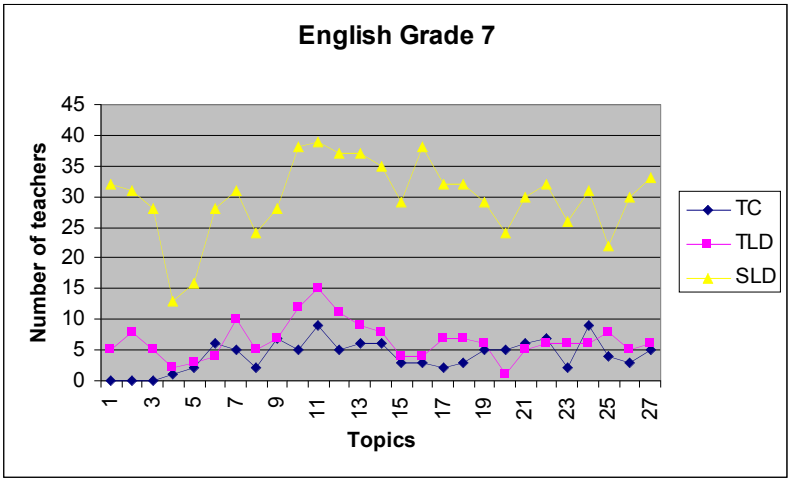


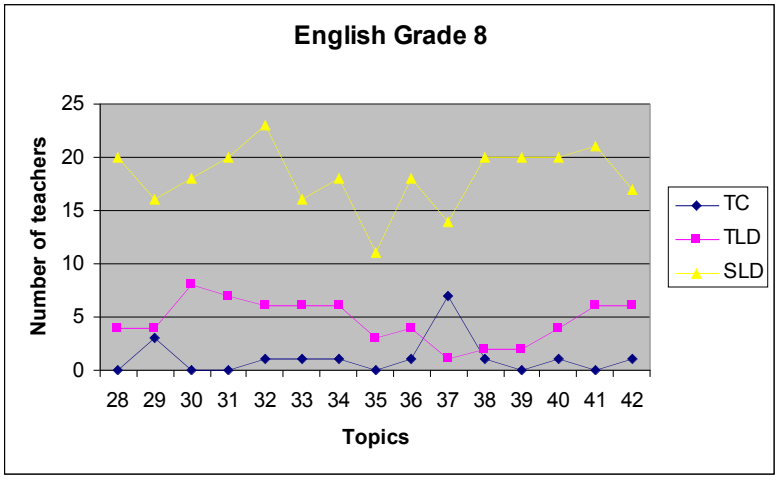


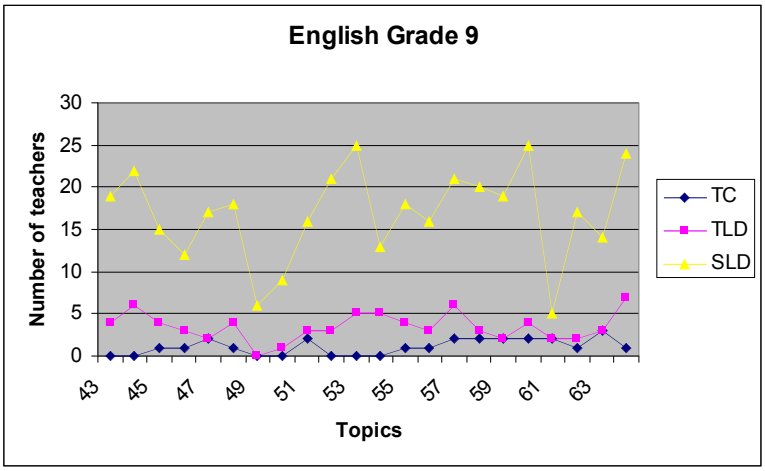


TC= topics not covered, TLD= level of teacher difficulty, SLD= level of student difficulty

Figure 4a. A Comparison of Instruction Measures in Subject of Indonesian

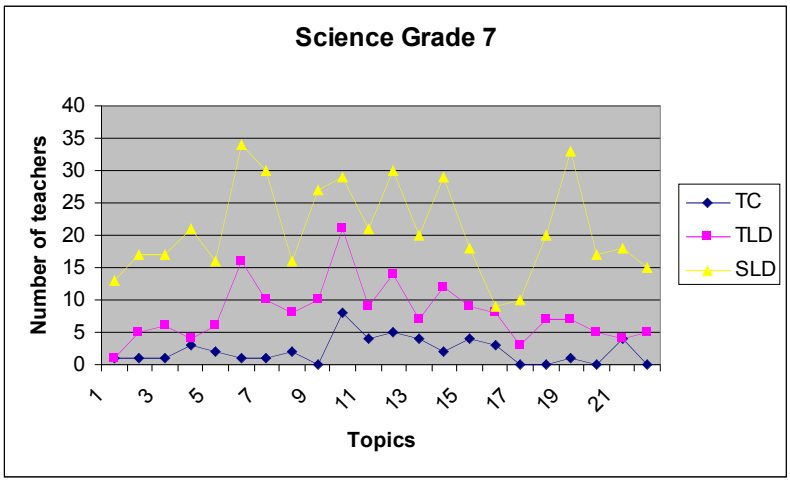


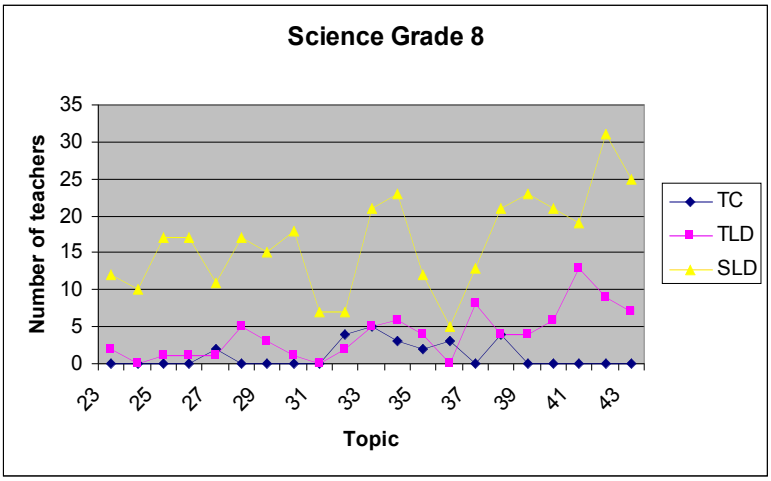


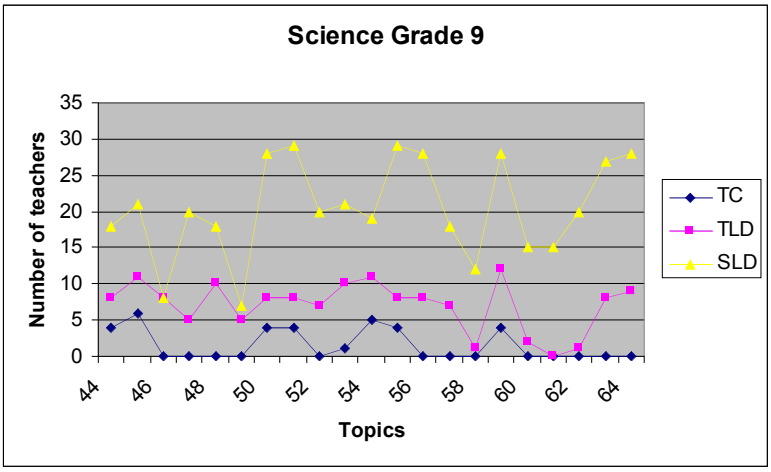


TC= topics not covered, TLD= level of teacher difficulty, SLD= level of student difficulty

Figure 4b. A Comparison of Instruction Measures in Subject of English

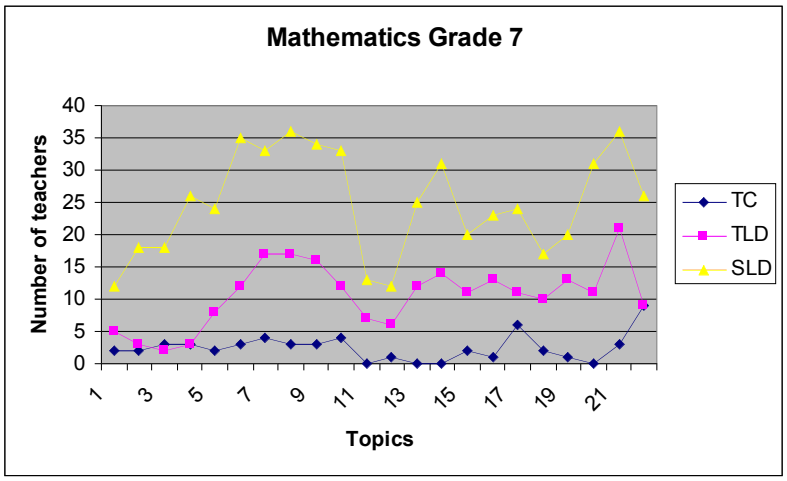


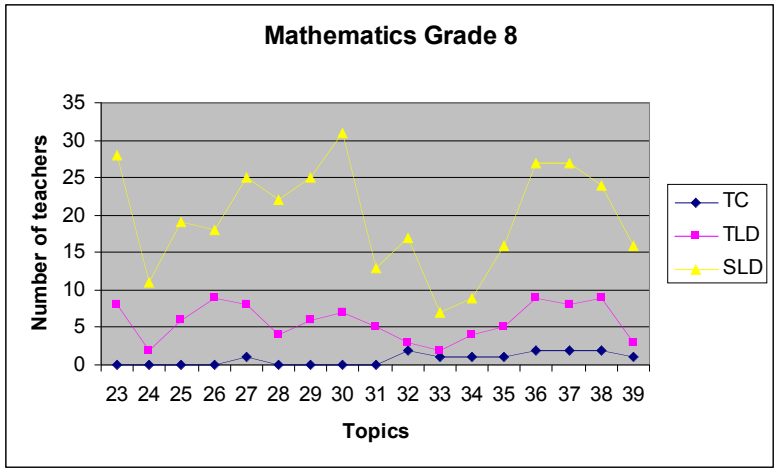


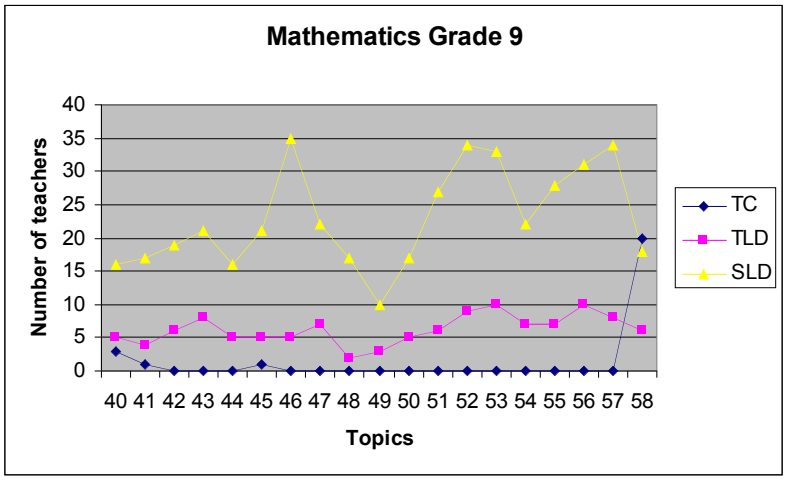


TC= topics not covered, TLD= level of teacher difficulty, SLD= level of student difficulty

Figure 4c. A Comparison of Instruction Measures in Subject of Science







TC= topics not covered, TLD= level of teacher difficulty, SLD= level of student difficulty

Figure 4d. A Comparison of Instruction Measures in Subject of Math

These figures also show interesting patterns in topics not covered across the four main subjects. The subject of Indonesian shows the highest number of topics not covered by teachers across grades, followed by English in grade seven. In contrast, science and math have the lowest number of topics required by the national curriculum not covered. However, the figure for ninth-grade mathematics is concerning because it indicates that many teachers skip that particular topic in their classroom instruction.

The high number of teachers who felt that the students had difficulty understanding certain topics also raises concern. Fortunately, the teachers' interview data helped clarify the reasons for student difficulty in understanding. Knowing that a large number of teachers felt that their students had difficulty understanding the subjects, we analyzed the interview data in order to provide some explanation for these problems. A teacher of Indonesian spoke about the inability of students to understand, explaining that "they don't really study hard" (Case 3). Another Indonesian teacher said that "it's hard for students to express their thinking in the correct structure" (Case 5).

English teachers gave different reasons, highlighting low student vocabulary and low student confidence in practicing a second language. One English teacher explained that "speaking skills depend very much on the vocabulary. Students have very poor English vocabulary. Their home environment gives no assistance, and it is not possible to have everything given by school. The home environment should provide help, too" (Case 6). Other English teachers indicated that "many students have no confidence to speak up. They need a lot of practice" (Case 4). Other explanations indicated that while English is the only second language taught, many students come from the middle class and rarely communicate in English at home, makeing it even harder for teachers to teach and for students to gain a good understanding of English (Cases 11 and 20).

Science and math teachers gave other reasons for student difficulty, highlighting either teaching strategies or student backgrounds. Regarding teaching strategies, two math teachers said that the teaching approach may not be suitable since a teacher often teaches abstractly instead of connecting topics to real-life experience (Case 33 and Case 35). Regarding student difficulty, one science teacher explained that "students who enroll in this school are those who were rejected by other schools. This school is usually the last choice, so the learning motivation, basic knowledge, and parent support are low" (Case 33).

In general, a vast majority of teachers taught 100% of the topics outlined in the national curriculum standards. Most teachers thought that the subjects were not difficult to teach. However, in contrast, most teachers indicated that students had a difficult time understanding all of the topics within the four main subjects. These findings indicate that a great gap exists between the teachers' ability to teach and students' ability to understand the subjects.

Research Question Two

The second research question asked whether there is a relationship between teacher characteristics and the degree of alignment between national curriculum standards and classroom instruction. I will first discuss teacher demographics to describe teacher characteristics across grade, subject, and province. Then I will discuss the mixed multilevel regressions that were used to assess the relationship between teacher characteristics and alignment using the following breadth-of-instruction variables: extent of topic coverage, level of teacher difficulty, and level of student difficulty.

Teacher demographics. As Table 7a shows, the numbers of male and female teachers are similar at the junior secondary school level in Indonesia. This gender equality may mediate between the primary school and the senior secondary school levels in which there is more disparity; there are more female teachers in primary and more male teachers in senior secondary

(Indonesian Center for School Statistics, 2010). Overall, the number of public teachers participating in the survey (78.04%) was greater than the number of private teachers (21.96%). However, in East Java, the number of private teachers was higher than in the other two provinces. Unfortunately, only two private teachers participated in the study due to conflicting schedules.

Table 8a also shows that a high percentage of teachers (12%) had college majors that were not aligned with the subjects they were teaching. Unfortunately, this figure could be even higher than reported since those who did not provide information about their major in college (26.3%) may also be among this group. One of the government requirements for certifying teachers for junior secondary school is that the teacher must have at least a three-year degree. The vast majority of teachers (85.03%) had a bachelor's degree, which is higher than the government requirement, and, on average, the education levels of teachers were high. However, the highest level of education for some teachers was only senior high school, with Jakarta having the highest percentage of these teachers (3.87%).

Table 8a

Teacher Demographic by Subject and Province: gender, work status, and college major

		Gender		Work Status		College Major					
		M	**F**	**Public**	**Private**	**I**	**E**	**S**	**M**	**Other**	**Miss**
1	I	12	22	29	6	17	1	0	0	8	8
	E	12	26	25	11	5	19	0	0	2	12
	S	13	22	30	4	1	0	14	0	9	10
	M	19	19	32	6	0	0	2	26	4	7
	T	56	89	117	28	23	20	16	26	23	37
	%	38.6	61.4	80.7	19.3	15.9	13.8	11.0	17.9	15.9	25.5
2	I	15	21	36	0	20	0	0	0	2	14
	E	23	16	39	1	8	15	0	1	5	11
	S	15	21	36	0	0	0	22	0	0	14
	M	25	19	43	1	0	0	0	27	2	13
	T	78	77	153	2	28	15	22	28	10	52
	%	50.3	49.7	98.7	1.3	18.1	9.7	14.2	18.1	6.4	33.5
3	I	31	23	34	20	30	0	0	0	7	17
	E	32	16	21	27	3	24	0	0	12	9
	S	31	15	34	12	0	0	37	1	2	5
	M	35	18	33	21	0	0	1	35	6	13
	T	129	72	121	80	33	24	38	36	27	43
	%	64.2	35.8	60.2	39.8	16.4	19.9	18.9	17.9	13.4	21.4
GT		**263**	**238**	**391**	**110**	**84**	**59**	**76**	**90**	**60**	**132**
%GT		**52.5**	**47.5**	**78.0**	**22.0**	**16.8**	**11.8**	**15.2**	**18.0**	**12.0**	**26.3**

Note. 1=Lampung Province, 2=Capital of Jakarta, 3= East Java Province. M=male, F=female. I=Indonesian, E=English, S=Science, M=Math, Miss=missing. GT=grand total number of teacher, %=Percentage of grand total number of teacher.

Teacher experience, measured as years teaching the subject, indicates that the participants either had relatively little experience (one to five years of teaching) or much experience (11 or more years). Table 7b shows more teachers are either new teachers with relatively less experience or old teachers with more experience. The number of teachers whose years of teaching experience was in the middle range (six to ten years teaching the subject) were fewer across all levels of education and, in many cases, across the subject and province.

A minimum level of education for teachers is required for certification. The minimum level of education for junior secondary school teacher is a four-year college degree, and some

schools allowed teachers with only a three-year college diploma. Table 8b shows that a majority teachers had a bachelor's degree as required by the government, and some even had a master's degree or higher. Surprisingly, there were a few teachers with only a senior high school education who taught in specific schools, such as low-performance schools. Although the number of these teachers was low, the effect may be significant in terms of student learning.

Table 8b

Teacher Demographic by Subject and Province: years of teaching and level of education.

		Years of Teaching the Subject			Level of Education				
		1 to 5	**6 to 10**	**11 or more**	**<SHC**	**SHC**	**Dipl**	**Ba**	**M/H**
1	I	7	10	18	0	0	6	28	0
	E	12	7	20	0	0	2	33	4
	S	17	10	7	0	3	6	25	0
	M	19	2	17	0	1	4	32	1
	T	55	29	61	0	4	18	118	5
	%	37.9	20.0	42.1	0	2.8	12.4	81.4	3.4
2	I	19	4	13	0	1	3	32	0
	E	21	7	13	0	2	5	33	0
	S	3	9	25	0	0	3	25	9
	M	24	5	14	0	3	3	37	0
	T	67	25	63	0	6	14	126	9
	%	43.2	16.1	40.6	0	3.9	9.0	81.3	5.8
3	I	19	13	22	0	0	2	52	0
	E	20	7	18	0	0	3	46	0
	S	29	5	11	0	0	1	34	10
	M	19	9	26	0	0	3	49	0
	T	89	34	78	0	0	9	182	10
	%	44.3	16.9	38.8	0	000	4.5	90.5	5.0
GT		**211**	**88**	**202**	**0**	**10**	**41**	**426**	**24**
% GD		**42.1**	**17.6**	**40.3**	**0**	**2.0**	**8.2**	**85.0**	**4.8**

Note. 1=Lampung Province, 2=Capital of Jakarta, 3= East Java Province. I=Indonesian, E=English, S=Science, M=Math. SHS=senior high school, Dipl=diploma, Ba=bachelor, M/H=master or higher degree. GT=grand total number of teacher, %GD=Percentage of grand total number of teacher.

Professional development is a crucial aspect in a teacher's career. A majority of teachers in this study (55.89%) had adequate professional development in terms of the national

curriculum standards (see Table 8c). However, a number of teachers had less than adequate (36.53%) or no professional development (4.2%) in this area. Because the country has used the standards-based system for the last five years, having a good number of teachers without adequate knowledge about the standards (40.73%) is discouraging from a policy implementation viewpoint.

Table 8c

Teacher Demographic by Subject and Province: professional development

		Professional Development 1				Professional Development 2			
		NT	NAT	AT	VAT	NT	NAT	AT	VAT
1	I	0	4	29	1	3	26	6	0
	E	5	19	11	3	4	26	5	2
	S	3	7	24	0	3	25	5	0
	M	0	14	22	2	2	33	3	0
	T	9	44	86	6	14	110	19	2
	%	6.2	30.3	59.3	4.1	9.7	75.9	13.1	1.4
2	I	1	11	23	1	1	29	6	0
	E	7	23	6	4	6	29	2	3
	S	0	16	20	0	2	32	2	0
	M	1	9	32	2	3	34	7	0
	T	9	58	81	7	12	123	17	3
	%	5.8	37.4	52.3	4.5	7.7	79.3	10.1	1.9
3	I	1	11	42	0	1	48	5	0
	E	2	28	17	1	4	41	3	0
	S	0	19	26	0	2	41	2	0
	M	0	80	114	4	5	45	5	0
	T	3	81	113	4	12	174	18	0
	%	1.5	40.3	59.2	1.1	6.0	36.6	7.5	000
GT		**21**	**183**	**280**	**17**	**38**	**407**	**51**	**5**
% GD		**4.2**	**36.5**	**55.9**	**3.4**	**7.6**	**81.2**	**10.2**	**1.0**

Note. 1=Lampung Province, 2=Capital of Jakarta, 3= East Java Province. I=Indonesian, E=English, S=Science, M=Math. T=total number of teacher, %=Percentage of total number of teacher. NT= No training, NAT=Not adequate training, AT=Adequate training, VAT=Very adequate training. GT=grand total number of teacher, %GD=Percentage of grand total number of teacher.

In Table 8c, professional development 1 focused on the standards conceptually while professional development 2 addressed the practical aspects of aligning classroom instruction

with the standards. As can be seen from Table 7c, there are low levels of professional development regarding knowledge of the standards, which is discouraging. However, the lack of professional development providing knowledge and skills of how to align classroom instruction with the standards presents a much greater problem because only 11.2% of teachers received adequate or very adequate training in professional development 2. This lack of knowledge about the standards and how to align them in classroom practice may lead to failure in implementing the new standards-based policy.

Predicting relationships between teacher characteristics and alignment. To answer research question two, statistical analysis of maximum likelihood and a mixed model regression were used to examine associations between teacher characteristics and the three alignment measures of instruction: extent of topic coverage and the levels of teacher and student difficulty. As specified in Chapter 4, maximum likelihood is used to estimate the parameter to maximize the likelihood function, and because teachers are nested within schools that are taken as clusters, mixed model regression is used to adjust for potential cluster effects due to possible school effects on the teacher responses. Therefore, mixed multilevel regression is used to consider teachers across grades and subjects in all the schools. This helps to take into account the multilevel random effect.

***Topic coverage and teacher characteristics*.** In the analysis of the association between teacher characteristics and topic coverage alignment (see Table 9), the mean percentage of topic coverage does not differ significantly between male and female teachers, although male teachers tend to have a higher percentage of coverage than female teachers. Similarly, no significant difference exists between government and nongovernment teachers. Having a college major specific to a subject correlated with higher topic coverage than not having a subject-related major.

Table 9

Predicting the Extent of Topic Coverage from Teacher Characteristics

Predictors	Percentage of Topics Taught $R^2 = .038$	
	β	t
Indonesian	1.0745	.993
English	-1.5893	-1.354
Science	-1.3888	-1.248
Gender	.5359	.683
Work status	.8225	.839
Major	.2711	.314
Years Experience	.5175	2.301*
Education Level	1.0129	.926
Professional development 1	.9111	1.029
Professional development 2	.5693	.585

Note. *p < .05; **p < .01; ***p < .001

Math is reference subject as single categorical variables; gender (0 = female, 1 = male —reference); work status (0 = nongovernment, 1 = government —reference,); major (0 = has no major, 1 = has subject-specific major —reference). β = coefficient, t = t-value

Among the predictors, only years of experience in teaching topics was a significant predictor ($F_{1,460} = 5.29$, $p < 05$; $R^2 = .039$). The subjects of Indonesian, English, science, and math are single categorical variables (with math as the reference variable). A single categorical variable consists of only one category. Table 10 shows that there are no significant differences in the extent of topic coverage between subjects based on the data of teachers' reports. However,

compared to math, Indonesian is higher in teacher reports about the percentage of topic coverage, whereas English and science have lower coverage than math. The total model accounted for only 3.9% of the variance of topic coverage explained by teacher characteristics.

Table 10

Predicting Teacher Level of Difficulty in Teaching from Teacher Characteristics

Predictors	**Level of Teacher Difficulty**	
	R^2 = .515	
	β	**t**
Indonesian	.0637	1.797
English	-.1121	-2.919**
Science	.1625	4.461***
Gender	-0.3241	-1.280
Work status	.0692	2.239*
Major	.1112	3.972***
Years Experience	.01432	1.957*
Education Level	-.3353	-9.408***
Professional development 1	-.2965	-10.280***
Professional development 2	-.0475	-1.494

Note. *p < .05; **p < .01; ***p < .001

Math is reference subject as single categorical variables; gender (0 = female, 1 = male —reference); work status (0 = nongovernment, 1 = government —reference,); major (0 = has no major, 1 = has major teaching the subject —reference). β = coefficient, t = t-value

This finding suggests that the more years a teacher has spent in teaching the subject, the greater coverage of the national curriculum standard. For the educational level and both

professional development tracks, the positive relationships were not significant. Thus, only years of experience significantly predicts alignment in terms of extent of coverage.

Level of teacher difficulty and teacher characteristics. The analysis of the association between teacher characteristics and the level of teacher difficulty is found in Table 9. Working status was a significant predictor ($F_{1,476} = 5.01$, $p < 05$; $R^2 = .515$), with government school teachers reporting lower mean ratings, indicating a higher level of difficulty in teaching the topics than nongovernment teachers. Teachers with subject-related college majors also had a significantly higher mean rating, indicating a lower level of difficulty than teachers that did not major in the subject being taught ($F_{1,476} = 15.78$, $p < 001$; $R^2 = .515$). Gender was not a significant predictor, although male teachers have lower mean ratings than female teachers, indicating that male teachers had a higher level of difficulty than female teachers.

Years of experience in teaching the subject was a significant predictor ($F_{1,476} = 3.83$, $p < 05$; $R^2 = .515$). Teachers with more years of teaching reported having more difficulty than those teachers with fewer years of experience. Educational level also demonstrated a significant relationship ($F_{1,476} = 88.51$, $p < 001$; $R^2 = .515$), indicating that teachers with a higher level of education had lower levels of difficulty in teaching. Similarly, professional development on national curriculum standards had a significant relationship ($F_{1,476} = 105.67$, $p < 001$; $R^2 = .515$), indicating that more adequate professional development was related to less difficulty in teaching the subject. In contrast, the positive relationship of both gender and professional development regarding alignment were not significant.

The subjects of Indonesian, English, science, and math are single categorical variables (with math as the reference variable). A single categorical variable consists of only one category. Two significant mean differences were found for level of teacher difficulty. First, teachers had more difficulty teaching math than English ($F_{3,456} = 18.48$, $p < 01$; $R^2 = .515$). Second, teachers

had more difficulty teaching science than math ($F_{3,456} = 18.48$, $p < 001$; $R^2 = .515$). These findings indicate a rank order of teaching difficulty for subjects from English (as the least difficult) to math, Indonesian, and science (the most difficult). This means that English is perceived to be easier to teach than math, Indonesian, and science. The model in Table 10 accounted for 51.5% of the variance of level of teacher difficulty.

In summary, the model accounted for 51.5% of the variance of teacher difficulty level as explained by teacher characteristics. Teacher characteristics did predict alignment in terms of teacher difficulty. Specifically, teachers with the most difficulty worked in government schools, did not have subject-related majors, had more years of teaching experience, lower levels of education and less adequate professional development regarding curriculum standards. In addition, teachers had more difficulty in teaching math than English and they had more difficulty teaching science than math.

Level of student difficulty and teacher characteristics. The analysis of the association between teacher characteristics and level of student difficulty is shown in Table 10. Teacher gender was a significant predictor in this model ($F_{1,476} = 8.37$, $p < 01$; $R^2 = .394$), with male teachers reporting lower levels of student difficulty in understanding the topics. Both work status and subject-related college major were insignificant predictors.

Years of experience was a significant predictor ($F_{1,476} = 4.08$, $p < 05$; $R^2 = .394$), with teachers who had more years teaching reporting greater student difficulty than teachers with less experience or new teachers. Educational level was also a significant predictor ($F_{1,476} = 8.8$, $p < 01$; $R^2 = .394$), indicating that teachers with higher levels of education reported lower student difficulty. Similarly, professional development regarding national curriculum standards was a significant factor ($F_{1,476} = 5.06$, $p < 05$; $R^2 = .394$), indicating that teachers with more adequate professional development in this area reported lower student difficulty. This finding is similar to

that of the professional development regarding alignment of the national curriculum standards and instructional practice ($F_{1,476} = 144.84$, $p < 001$; $R^2 = .394$), which indicated that teachers with more adequate professional development in this area reported lower student difficulty. The total model in Table 11 accounted for 39.4% of the variance of student difficulty levels as explained by teacher characteristics.

Table 11

Predicting Student Level of Difficulty in Understanding from Teacher Characteristics

Predictors	**Level of Student Difficulty**	
	$R^2 = .394$	
	β	**t**
Indonesian	- .2234	- .538
English	.0874	1.942
Science	.0235	. 550
Gender	.0859	2.893**
Work status	.0088	.243
Major	.0166	.503
Years Experience	.0173	2.020*
Education Level	- .1239	- 2.967**
Professional development 1	- .0760	- 2.248*
Professional development 2	- .4482	- 12.035***

Note. *p < .05; **p < .01; ***p < .001.

Math is reference subject as single categorical variables; gender (0 = female, 1 = male —reference); work status (0 = nongovernment, 1 = government —reference,); major (0 = has no major, 1 = has major teaching the subject —reference). β = coefficient, t = t-value.

In terms of the subjects, Indonesian, English, science, and math are single categorical variables (with math as the reference variable). Table 11 shows that there are no significant differences in the extent of the level of student difficulty between subjects, based on the data of teachers' reports. However, compared to math, teachers that reported students had less difficulty understanding Indonesian than math, whereas English and science were more difficult for students to understand than math. Thus, teachers reporting higher levels of student difficulty were male, had more years of experience, lower levels of education, and less adequate professional development regarding both curriculum standards and instructional practice.

Conclusion

The findings of this study addressed the two research questions. The first part of the findings explored the alignment between curriculum standards and classroom instruction. Alignment was assessed by three measures of breadth of instruction: extent of topic coverage, level of difficulty for teachers to teach, and the level of difficulty for students to learn. The findings also presented more specific patterns regarding topics not covered and the levels of teacher and student difficulty.

Although the overall average topic coverage is high (97.37%), there were teachers for each subject who taught less than what was required by the national curriculum standards. Among the grades, only in grade seven were there teachers across all subjects who taught 70% or less of the required topics during 2008–2009. Among the subjects, science and math showed a higher number of teachers who taught less than 100%. The mean rating of level of teacher difficulty was 3.05, indicating that teachers perceived that the topics were easy to teach. This rating was also well represented across grade levels. In contrast, the mean rating of student difficulty was 2.44, indicating students had difficulty understanding the topics. All three alignment measures presented interesting patterns in which Indonesian shows the highest number

of topics not covered by teachers across the grades, followed by seventh-grade English. In contrast, science and math have the most topics covered in the national curriculum topics.

The second part of this chapter presented the maximum likelihood analyses of the associations between teacher characteristics and the alignment measures. In the relationship between teacher characteristics and topic coverage, the only significant predictor was years teaching, suggesting that more years teaching the subject determined the teachers' covering more topics in the national curriculum. In the analysis of the association between teacher characteristics and the level of teacher difficulty, working status, college major, years teaching, educational level, and professional development about the standards, each demonstrated statistically significant positive relationships, with years teaching showing a significant negative relationship. Furthermore, in the association between teacher characteristics and the level of student difficulty, gender, educational level, and professional development showed statistically significant positive relationships, with years teaching demonstrating a significant negative relationship.

Chapter 6

Discussion and Recommendations

This chapter discusses the findings of the study with regard to the two key research questions: (a) to what extent does classroom instruction align with the national curriculum standards and (b) is there a relationship between teacher characteristics and the degree of alignment between classroom instruction and national curriculum standards? The following section addresses each research question. Then conclusions and policy recommendations will be presented.

Alignment of Classroom Instruction with National Curriculum Standards

There are several important issues in the study of alignment that need to be highlighted, including aspects of measuring the alignment, subjects studied, and approach. There was strong claim in the standards-based system that, by aligning standards, classroom instruction, and assessments, students will have rich learning experiences. Most studies, however, are done in the area of standards and assessment, with very few addressing standards and classroom practice or classroom practice and assessment. Of the few research studies on the alignment of the standards and classroom practices, there were three studies that introduced important approaches in measuring the alignment of the curriculum and classroom practice. First, Schmidt and Prawat (2006) provided an explanation about measuring the breadth of coverage of teaching (the amount of overlap between content standards and the number of lessons that teachers devote to the topic in the classroom). Second, Porter (2002) and Gamoran et al. (1997) provided a broader study of alignment by measuring both the breadth (level coverage) and cognitive demand (configuration coverage).

A disproportionate amount of studies on alignment have focused on the subjects of mathematics and science. In addition, approaches for studying alignment vary. Rothman (2003) noted the lack of research on determining alignment and its mathematical criteria formula. He argued that human judgments are involved in all methods that attempt to measure alignment. Porter et al. (2007) supported this idea and urged that there be more done to find accurate tools for measuring and describing the alignment of instruction to content standards and its association to student achievement test scores. Based on this research context, this study focused on the alignment of classroom practices with national standards in order to contribute to the research literature in this field. Specifically, the degree of alignment between national curriculum standards and classroom practice can be measured both by the degree to which the teacher teaches the subjects and the level of difficulty for the teacher to teach and for the student to learn.

Exploring alignments of the topic coverage. As outlined in Chapter Four, aligning classroom instruction with the national standards was measured by topic coverage, level of difficulty for teachers to teach, and level of difficulty for students to understand. Specifically, topic coverage was examined as the average percentage of the national curriculum standards topics taught during the school year 2008–2009. In describing the extent to which the topics in the national curriculum were taught, the majority of the teachers reported that they covered nearly all the required topics. The high level of topic coverage may be an indication of a positive effect of the governments' efforts to provide programs such as professional development in the area of standard and alignments, teacher certification, a minimum education level for teachers, and an increase in salary for teachers. However, these possible effects of government

intervention need to be evaluated with a more solid research methodology such as a quasi-experimental design with the use of control groups.

Although the numbers were few, there were teachers who taught less than 100% of the topics. These percentages are relatively low compared to those who taught all the topics. However, this finding is very important for national policy makers, since it reveals that there are teachers who currently teach less than what is required. In the standards-based system, covering topics in the classroom is very important since students will be tested on these topics in national exams.

The findings suggest several reasons for not teaching all of the topics. Interviews with teachers revealed that there was not enough time. This is very true for schools with religious affiliation because they spend 60% of the time on general subjects and 40% of the time on religious topics. With this time split, it will be very difficult, if not impossible, to teach all of the topics in the national standards. In addition, there are other possibilities that may explain why some teachers did not teach all of the topics. First, with the Education Act No. 20/2003, the government enacted various regulations, most of which support the standards-based system. One of the regulations (Regulation 19/2007) was the standard of school management, which gave schools flexibility in designing a curriculum to accommodate school characteristics and potencies. This gave private schools a great advantage because they can legally insert their own educational philosophy and values into the school curriculum. However, this practice may affect the time allocated for teaching the topics of national standards because some teachers may need to substitute them with the curriculum that represents the vision of the school and its unique characteristics. Second, teachers in small schools and rural areas may teach all of the topics because there is less supervision and monitoring. Third, ninth-grade teachers may not teach all of

the topics because they have to take additional time to prepare their students for the national test. Most teachers of the ninth grade devoted much of their time in the last semester to reviewing the content anticipated on the tests. Unfortunately, no studies have been done in these potential problem areas.

As the educational system in Indonesia implements standards-based reform, the content of curriculum standards should become the main reference point for both classroom instruction and national tests. Because the national tests are designed according to the curriculum standards, skipping topics in the classroom may affect student scores. Although the percentage of teachers teaching less than 70% of the national curriculum is low, the adverse effects can still be great. If topics not taught appear on the national exam, students will be disadvantaged. Again, unfortunately, so far there are no studies that have investigated this problem area.

Another major finding of concern is that the lowest level of topic coverage occurred in grade seven. Teachers in this grade teach students transitioning from primary school, where they have the same teacher for all subjects in smaller classes, to secondary school, which has subject teachers and larger classes. Seventh-grade teachers may skip topics that they think can be taught in eighth grade. Other teachers may just simply think that the exams are still far enough away (at the end of ninth grade) and thus do not feel much pressure to teach all of the topics. Unfortunately, again, studies in these areas have not been conducted to discover why seventh-grade teachers had the lowest percentage of topics covered.

A second disturbing pattern involving alignment is that science and math showed a higher number of teachers who teach less than 100%. It was hard to find any explanation from the interviews with teachers about why this is. Perhaps part of the explanation is that there are fewer math and science teachers than Indonesian and English teachers. With fewer teachers

available, the demands placed on these teachers increase; many math and science teachers teach in multiple schools. With this type of teaching schedule and the time required to travel between schools, math and science teachers may arrive late and have less time to teach. Future studies are needed in this area.

A third problem regarding low topic coverage occurred in East Java. East Java had the lowest curriculum coverage for all four subjects. One of the reasons for this low alignment may be the high population the province in 2005 (37,094,800) in comparison to Jakarta (9,146,200) and Lampung (7,391,100). East Java's higher population affects school size. In addition, East Java also has a higher number of private schools compared to Lampung and Jakarta, which may contribute to the lower percentage of curriculum coverage, since private schools have more flexibility in applying the standards.

In summary, in terms of topics coverage, a vast majority of teachers reported that they are able to cover all topics required by the national curriculum standard. However, there were a small number of teachers who taught less than 100% and several of them even taught less than 70%. Areas of concern include the seventh grade, the math and science curriculum, and the province of East Java. Although the alignment of standards with classroom instruction may be high, the fact that there are topics not covered is a major concern because it may have a great effect on students. This evidence should be taken seriously by educational offices at every level. As education becomes standards-based, skipping topics in the classroom can greatly affect student achievement because tests are developed based on the curriculum standards. Skipping topics in lower grades may also present problems for student learning in higher grades, since they will lack basic knowledge of the curriculum content. Future research should focus on multilevel methods to examine specific reasons why teachers skip curriculum topics across

grades and schools. Specifically, the question of how and why years of teaching experience may affect topic coverage needs to be further examined. This finding also suggests that national policies should focus on helping newer teachers develop successful strategies for more extensive topic coverage.

Exploring alignment of the levels of teacher and student difficulty. In addition to the extent of topic coverage, alignment was assessed in terms of the levels of teacher difficulty to teach and the levels of student difficulty to understand. In general, comparing teachers' self-reports about themselves and their reports on students, teachers rated themselves as having less difficulty than their students with the curriculum topics.

The gap between teachers' and students' mean scale difficulty scores suggests at least two possible explanations. First, there is the possible tendency in measuring a self-report, which may reflect personally, that respondents tend to rate themselves higher. The particular finding in this study is likely consistent with prior research on self-rating assessment, which reveals a potential bias or idiosyncratic behavior (Yu & Murphy, 1993). The idiosyncrasy in self-rating is often manifested in the tendencies to give a higher rating to oneself (Heneman, 1974; Thornton, 1980; Farh & Dobbins, 1989).

Debate exists about the accuracy of self-reported data in obtaining information about an individual personality trait (McDonald, 2008). Similar problems associated with self-reporting have also been acknowledged in measuring children for such constructs as lack of self-awareness and verbal competence (Strein, 1993; Cushman, 2005) and in the disparity of the subjective and objective measures of a phenomenon (Chong et al., 2010). However, McDonald further explained that many studies choose self-reporting methodologies believing that it is one valid way to shed light on the personality traits of an individual. Accordingly, in terms of practicality

and efficiency, administering self-report surveys is considered the best way to collect large amounts of data relatively quickly, and it is relatively inexpensive (McDonald, 2008). The findings of this study are consistent with prior research done by Parke and Lane (2008), which found that teachers' self-reported data on mathematics instruction and assessment dimensions across all grade levels revealed that teachers rate themselves higher than they rate their students. Interview data from the teachers suggests that the self-report data in this study is fairly accurate.

Second, there is the possibility that the true or actual level of student understanding is greater than what the teachers reported. To address the practical implications of this possibility would require the government's involvement by paying special attention to the topics that students find difficult to understand. One potential solution can be taken from the teachers' interviews. In one interview, a teacher revealed that a program where teachers learned from other teachers was very helpful. This government program, called the teaching club, provided an opportunity for teachers to share teaching strategies. However, this program has been discontinued by the government for efficiency reasons. Many of the participating teachers expressed concern about the lack of government support for this program and urged the government to refund the teaching club. By reopening this program, there will be greater opportunity for teachers to meet and share their experiences with colleagues from other schools which might be a potential solution for teachers to better help students understand the subjects.

The findings suggest several reasons why topics are perceived by teachers as being difficult for students to understand. The strongest explanatory factor may stem from the students' background. To solve the problem of student understanding, the government can seek to provide better teachers, better school facilities, and specific programs such as after-school programs or other interventions for students with special need. Future research should examine student

characteristics, including family background, in more detail and examine their relationship with actual student performance.

Although the number of topics difficult to teach is not as high as the number of topics that are difficult to understand, it is important to consider this finding because one criterion of a good teacher is having high levels of content knowledge regarding the subject they teach. Higher levels of content knowledge may also inform relevant teaching strategies. A teacher's difficulty in teaching some topics may result from either insufficient content knowledge or teaching strategies. The low number of teachers that actually reported difficulty suggests that the government is not setting its standards too high. To solve the first problem, professional development focusing on the content of the topics perceived difficult to teach and targeting the specific types of teachers who indicated having teaching difficulty is needed.

Even though the government standards currently would not appear to be too high, the government should continually review the national curriculum standards and be open to the possibility that different types of schools may need to respond to different standards. Specifically, the government should reexamine not only its curriculum standards but to whom they apply. The current disparity between standards for government and private schools creates a potentially critical disparity in educational outcomes. Further research is also needed to collect more data to identify both difficult topics to teach and characteristics of teachers.

In summary, with the scale score above 3, on average teachers reported little difficulty in teaching the national curriculum standards. In contrast, however, the scale score of 2 for students understanding what teachers taught in the classroom indicates that students have difficulty understanding the content of the topics outlined in the national curriculum standards. A clear pattern is that the number of topics difficult for students to understand outweighs the levels

of teacher difficulty to teach. These patterns suggest that problems may exist in the implementation of the standards at the classroom level, the instructional strategies of teachers, the content knowledge of teacher, the level on content knowledge acquired by a student from previous classes, and possibly in teachers instructional and assessment strategies. This indicates a need for teachers to reexamine their teaching so that students can better understand the topics.

Practical implications. Even if socially desirable tendencies are present when teachers expressed their experiences in this study, there is still a great possibility that the low average of students understanding what the teacher teaches in the classroom is indeed accurate. In addressing the practical implications of this possibility, the government should activate the subject matter of the teacher club policy, or what had been called the "*Musyawarah Guru Mata Pelajaran* (MGMP)." This policy would provide an opportunity for teachers to share teaching strategies since teachers will be encouraged to have regular meeting to share their experiences with colleagues from other schools. The other implication for the government would be to continually review the national curriculum standards and be open to the possibility that different types of schools may need to respond to different standards. Specifically, the government should reexamine not only its curriculum standards but to whom it applies. The current disparity between standards for government and private schools or between urban and rural schools creates a potentially critical disparity in educational outcomes.

Alignment and Teacher Characteristics

Research question two asks whether there is a relationship between teacher characteristics and the degree of alignment between classroom instruction and the national curriculum standards. This section discusses the findings regarding the relationships found between teacher characteristics and alignment.

Gender. In terms of numbers, male and female teachers of the four subjects (Indonesian, English, science, and math) at junior secondary level are only slightly different. There are 263 (52.5%) male teachers compared to 238 (47.5%) female teachers. Compared with the gender composition in primary schools, the gender composition in junior secondary school is well-balanced. On the issue of the lower number of male teachers in primary schools, a study conducted in New Zealand by Cushman (2005) claimed that the relative resistance of the schooling system to radical changes in gender roles in society could be an explanation. Despite accepting many educational reforms, the schooling system, according to Cushman, still tends to be characterized by the traditional dominating notions of masculinity being associated with management, with fewer males participating in nurturing behaviors such as teaching younger children. The relatively equal numbers of female and male teachers in this study are consistent with this premise in the context of secondary schools, where less-nurturing behavior is needed or expected and where there are a slightly higher number of male teachers.

Regarding the scale scores, it may be interesting to learn from research by Raymond Lam et al. (2010) on primary school male and female teacher responses about teaching strategy. In this study, male teachers tended to be more authoritarian, more controlling of student learning, and more likely to read aloud while students follow the text. In contrast, female teacher responses suggested that they prefer to teach reading in groups and encourage students to discover by themselves the meaning of new vocabulary. The dramatic shift was pointed out by a female teacher who moved from elementary school to middle school, where she noticed the prevalence of patriarchal heteronormativity (Vavrus, 2009). This, with Lam et al.'s (2010) findings, may explain why male teachers score higher on curriculum coverage, have lower teacher difficulty, and rate students with higher difficulty than female teachers, since junior high

school is a midway point from elementary to senior secondary school. With a higher degree of patience and caring, female teachers may be more concerned with detail, specific student needs, and helping their students more than male teachers. This may explain in part why women teachers cover fewer topics and have a higher teacher difficulty rating but rate students with less difficulty in learning the topics. Additionally, given that many schools are religious, future research may need to examine the role of religion in predicting curriculum alignment and the function of gender in these schools. This is important since Indonesia has the highest Muslim population in the world. Islam is often discredited as a religion in which men are considered superior. With the current Indonesian ethos and the significant influence of equal opportunity movements, including in education, research needs to be encouraged to explore the extent to which gender matters in schools.

Working status. The findings show that government-school teachers reported a lower average score on the level of teacher difficulty, suggesting that private school teachers felt it was easier to teach the topics than the government school teachers did. One of the reasons for this difference may lie in the fact that private schools have more flexibility in hiring teachers compared to the government schools, where, once a teacher is hired, he or she commonly will keep the position. This tendency differs from private school teachers, many of whom keep their jobs only temporarily. With this situation, private schools can find better teachers when a teacher leaves.

Many government-school teachers also teach in private schools due to a government subsidy; these private schools are generally low performance schools. Because of this, a great number of government-school teachers teach in private schools but not vice versa. In Indonesia, the characteristics of private schools differ from other countries in many ways. One of the

differences lies on the school quality—the majority private schools in Indonesia are of lower academic quality. Also, many students go to private schools after failing to enroll in a public school. These circumstances are the primary reasons for the government's providing a subsidy for teaching in private schools. As the findings of this study show, there is a higher mean score for private school teachers on level of teacher difficulty (they find it easier to teach) compared to government school teachers. This finding may suggest that government school teachers are more confident in expressing their difficulty in teaching than are private school teachers who have less job security.

Major in college. Teachers whose major in college was the same as the subject they currently taught show a significantly relationship with the level of teacher difficulty. The higher scores of these teachers, compared to teachers whose college major differed from what they currently teach, indicated that the former felt easier in teaching the standards. This finding is consistent with prior research by Darling-Hammond (2000), which found a significant relationship between teachers having a major in the field they taught and better student achievement in reading and mathematics. A similar finding between college major and student performance was found by Monk and King (1994), which showed a positive relationship between the number of subject-related courses in teachers' backgrounds and subsequent performance gains of their students. Interestingly, Monk and King acknowledge that

> While we lacked direct measures of how much the teachers in our sample actually understood about the subject being taught, our findings are consistent with the general proposition that what teachers know and can do has implications for how much learning takes place within classroom. (p. 36)

Although the findings are consistent with previous research, the literature is still unclear about how pedagogical knowledge contributes to student learning. Further research is needed to investigate whether students learn more from teachers with more pedagogical knowledge in the subjects that they teach.

In summary, teachers who majored in the same subject that they currently taught reported higher alignment in level of teaching difficulty than those who did not. This finding suggests the importance of subject-matter knowledge for teachers in order to best transfer the content to students in the classroom. Unfortunately, the study does not cover the pedagogical knowledge of teachers. As a practical implication, when making hiring decisions, the government needs to highlight not only the educational level of the teacher but also the relevant subject-matter and pedagogical knowledge.

Teaching experience. In terms of the extent of topic coverage, the findings of this study are consistent with previous research conducted to predict self-efficacy from teaching experiences. The greater number of years a teacher has in teaching a subject, the more topics they cover. This is consistent with previous research in predicting self-efficacy (Wolters & Daugherty, 2007) and student achievement (Fetler, 1999, 2001). In investigating the relationship between teachers' self-efficacy and teaching experience using a self-report instrument via the Internet, Wolter and Daugherty (2007) found that some aspects of teachers' self-efficacy regarding individuals' judgments or belief regarding their ability to accomplish critical instructional tasks were greater for those with more teaching experience. Similarly, the findings of this study show that more-experienced teachers cover a greater percentage of curriculum topics. One of the reasons may be that they have obtained more training and experience in teaching effectiveness.

In contrast to topics covered, the findings of this study for both teacher and student levels of difficulty are inconsistent with some previous research with student achievement as the dependent variable. Prior research shows that teaching experience is related to higher test results (Fetler, 2001), and more experienced teachers tend to have higher mathematics achievement (Fetler, 1999). However, the findings of this study show that more years of teaching experience was associated with greater difficulty for teachers to teach and for students to understand. This finding is inconsistent with previous research that found that more experience tends to generate higher self-efficacy (Wolters & Daugherty, 2007). The following paragraph may be able to explain the phenomenon.

In Indonesia, teachers with fewer years of teaching experience generally teach the lower grades. The positive association of the findings suggests that the more years teacher have teaching a subject, the greater the difficulty they report in teaching the subject and the greater difficulty they report for students to understand. Although these findings are inconsistent with previous research, there is a specific condition in Indonesia that may explain these differing results. The standards-based reform in Indonesia comes with high demands for teachers to teach using the KTSP (school-level curriculum implementation) curriculum design and to help students pass the national tests for the last grade of each education level. Confronted with this situation, newer teachers may be more confident in reporting their instructional achievement than the more experienced teachers because most of these newer teachers have education degrees and a major in the subject they teach. If this is true, this study's findings support prior research on professional learning for early career teachers conducted by McCormack et al. (2006). This study showed that, in their early careers, teachers struggled to develop a professional identity and demonstrate their value within the school, which is necessary to build their self-efficacy and self-

confidence. In contrast, teachers with more experience may feel less confident with the new system and its high demands on increasing student achievement. This phenomenon may fit with Luke and McArdle (2009), who proposed a model of teacher professional development in math, since "some experienced teachers are experiencing difficulty engaging with learner diversity, requiring developmental diagnostic skills in math and alternative instructional approach" (p. 239).

Prior research has also confirmed that teacher experience provides only weak evidence of positive influence on student learning (Goldhaber, 2002). Due to the mixed results, further research is needed to explore why teaching experience is an inconsistent predictor regarding alignment. Further research is also needed to examine actual teacher capacity rather than just what is self-reported. Another explanation is likely related to the high number of teachers with college majors not in the subject they teach. Teachers with more experience may have come into the teaching profession at a time when it was perceived as a low-income profession and thus attracted less qualified candidates. As a result, schools accepted those who wanted to be teachers but did not have relevant college majors or even less qualified candidates. These teachers may be those who currently have difficulty in teaching the topics, especially with the heavy demands of the national curriculum standards.

In summary, the alignment measures from this study show that the more years a teacher has with the subject, the more topics that teacher covers. This means that a higher percentage of topics covered is attributed to more experienced teachers. However, this topic coverage pattern is not duplicated with levels of both teacher and student difficulty. This inconsistency with other studies shows the need for further study.

Education level. Wayne and Youngs (2003) acknowledged that the lack of data on the relationship between teachers' degrees or coursework prevented them from determining whether students learn more from teachers with a particular degree. With a data set about teacher education levels, they found mixed results among the research: Some of the results were indeterminate and others were positive or negative. Treating the subjects separately, Wayne and Youngs determined that no conclusion could be drawn for the subjects of history and English. However, for math and science, they found a positive relationship between teacher education levels and student achievement. These mixed results, however, may be partly attributable to the failure to identify whether the teachers were teaching subjects in which they majored.

Partly consistent with Wayne and Youngs's interpretation, this study shows a positive relationship with the topic coverage and negative relationship with both teacher and student levels of difficulty. However, a statistically significant relationship was found between the perceived difficulty of teaching and learning a topic and education level. A higher education level showed a greater ease in teaching a subject and a greater ease in student learning. The other variable, topic coverage, was not significant according to the education level of the teacher. The significant association in predicting alignment based on teacher difficulty is consistent with prior research using student outcomes as the dependent variable by Darling-Hammond (2000) and Goldhaber (2002).

In summary, this study presents significant relationships between teacher education level and the levels of teacher and student difficulty. These relationships suggest that a higher education level helps teachers in teaching and students in understanding. However, it is also important to examine if an additional degree or major is associated with the alignment scores.

Professional development. This study's findings regarding the levels of teacher and student difficulty show that professional development on curriculum standards predicts alignment. However, professional development on how teachers should align their classroom instruction with the standards was not significantly related to topic coverage and teacher difficulty. This one insignificant finding regarding teacher difficulty from professional development can be explained. Professional development is a foundational element in all models of teacher professionalism and quality. However, given the diverse backgrounds of teachers, it is possible that not all teachers benefit equally from professional development (Luke & McArdle, 2009). In other words, to maximize the outcomes, professional development should be specified or customized based on the teacher backgrounds and needs. Further research is needed to examine the impact of professional development on classroom practices as a function of certain educational characteristics.

The findings are consistent, however, with prior research on teacher satisfaction and dissatisfaction with the professional development program. Previous research indicates that teacher satisfaction outweighs dissatisfaction (Mebane, 2000) and that, as a result of professional development, teachers felt more enjoyment in teaching (Pressley et al., 1992). Prior research also suggests that teachers benefit from professional development by making changes in their classroom practice. The significant relationships found in this study are similar to other research showing that teachers with more professional development feel more valued professionally (Hall, 1996) and made changes in classroom practices (Bullough et al., 1997). The findings of this study suggest that the more professional development that teachers have, the easier it is for them to teach and for students to understand.

There was no significant relationship between professional development and the alignment of standards with classroom practice. This is consistent with prior research on the impact of professional development on teacher practice (Buczynski & Hansen, 2010) that identified barriers to implementing the knowledge and skills gained from professional development. Research identifies these obstacles as limited resources, time constraints, mandated curriculum facing, language learning, and classroom management issues (Buczynski & Hansen, 2010). This study's findings confirm one of these explanations regarding the mandated curriculum—the high demand of the standards for teachers to have high alignment may burden teachers accustomed to the old system. However, further research is needed to investigate the impact of professional development on more specific issues of alignment, such as teaching strategies, student assessment, teaching facilities, and student learning.

In summary, the findings of this study show that professional development generally provides positive associations with alignment. Except for professional development regarding how to align classroom instruction and the standards of curriculum, all professional development variables significantly predicted alignment of both teacher and student levels of difficulty. This research provides positive information about the impact of professional development on classroom instruction.

Practical Implications and Policy Recommendations

Based on this study's findings and discussions, the following practical and policy recommendations can be drawn to provide alternatives to the government in designing better policy and practice for school improvement. First, although the percentage of teaching less than 100% of curriculum topics are small, this evidence should be taken seriously by educational authorities at all levels. As the education system applies the standards-based curriculum,

skipping topics from class instruction can greatly affect student achievement because tests are based on the curriculum standards. Future research must focus on the multilevel methods to examine specific reasons for skipping curriculum topics during classroom instruction, which may vary across school levels. An in-depth analysis should be done to investigate why a topic was skipped by teachers on one hand, and why topics were difficult to for teachers to teach and for students to understand on the other hand. Moreover, further investigation should address the great number of topics students find difficult to understand, which would involve teachers, students, and facilities as sources of information.

Second, although in general teachers reported the easiness of teaching the standards with average score of 3 (easy), there are other topics that some teachers felt were difficult to teach. Special attention should be paid to these topics. This problem potentially involves content knowledge of teachers in teaching the topics. There is no better way to solve the problem but to encourage teachers whose major is mismatched with the subject they currently teach to go back to school and increase their knowledge of the content.

The third policy recommendation stems from the findings of the low score of students in understanding the topics, which suggests a problem in the system that requires great concern from the government at all levels. Regarding topics, these should be analyzed using the item response theory to either drop or revise the topics from the standard. Another solution gleaned from interviews with teachers revealed that the teacher club or *Musyawarah Guru Mata Pelajaran* (MGMP), in which teachers learned and shared their experiences from other teachers, had been discontinued. Reactivating and supporting this club will provide an opportunity for teachers to learn from others and maybe find ways of helping students better understand.

Conclusion

The discussions in this chapter addressed the study's two main research questions regarding both the alignment between the national curriculum standards and classroom instruction and the extent to which teacher characteristics predict the degree of this alignment. Regarding alignment, two important issues emerged: first, the low yet important number of teachers who teach less than 100% of the topics required in the standards and, second, the gap between the rating scale scores of the difficulty levels for teachers to teach and for students to understand. These findings generate questions regarding not only topics that teachers skipped, but the topics perceived as difficult for teachers to teach and for students to understand.

Regarding teacher characteristics, the findings of this study are mixed. Different than most research on teacher characteristics that seeks to predict either student achievement or self-efficacy, this study predicted alignment of classroom instruction with the standards. The limited numbers of previous studies in this area have prevented me from finding a clear reference to confirm the consistency of the findings. This why the discussion refers to either student achievement or self-efficacy to confirm the findings of the study. In fact, several teacher characteristics such as college major, professional development, and educational level are consistent with prior research, but other factors such as years of experience may be inconsistent.

In conclusion, this research contributes theoretically in two ways. First, most research in this area focuses on the alignment of standards and assessment, and very few studies have been done in the area of alignment between standards and classroom instruction. Because of the lack of research in the area of curriculum standards and classroom instruction, this study's findings make an important contribution to the current research of standards and assessment. The mediating role of classroom instruction provides a key to success for student achievement and

informs assessment outcomes. It is well known that alignment plays a critical role in the success of standards-based systems. Second, most current research on teacher characteristics examines the association between teacher characteristics (as predictor variables) and either student achievement or self-efficacy (as dependent variables). Predicting alignment as a function of teacher characteristics in this study contributes to the theoretical discussion about teacher characteristics. The results from this study indicate that the alignment of classroom instruction with standards varies as a function of teacher characteristics. Further research is needed to investigate whether higher alignment is associated with higher student achievement.

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Appendix A

OFFICE OF THE DEAN
DAVID O. MCKAY SCHOOL OF EDUCATION
BRIGHAM YOUNG UNIVERSITY
301 MCKB
PROVO, UTAH 84602
(801) 422-3694 / FAX: (801) 422-0200

September 8, 2009

Rumtini SUWARNO
323 MKCB
Provo, UT 84602

Dear Rumtini SUWARNO:

Thank you for your recent correspondence concerning your protocol entitled **"Alignment of Instructional Practices with National Content Standards for Junior Secondary Schools in Indonesia."** The proposal has been assigned the following number: **E09 -051**. The research appears to pose minimal risk to human subjects and meets the Federal guidelines. You will find a date stamped consent form enclosed with this letter. Please use this form when obtaining consent.

You are approved to begin your research. This approval is good until **09/08/2010** (a year from the date it was approved). A few months before this date we will send out a continuing review form. There will only be two reminders. Please fill this form out in a timely manner to ensure that there is not a lapse in your approval.

Please notify Daniela Cisternas, (801) 422-4962, 301 McKay Building, of any changes made in the instruments, consent form, or research process before instigating the alterations, so that we can approve them before the change is implemented.

If you have any questions, please let us know. We wish you well with your research!

Sincerely,

Dr. Scott Ferrin
Chair of IRB Subcommittee

Appendix B.1

DINAS PENDIDIKAN
PROVINSI DAERAH KHUSUS IBUKOTA JAKARTA

SURAT IZIN
NOMOR 5036 /-1.851.68

TENTANG

IZIN PENELITIAN

Dasar : Surat Kepala Bidang Penelitian Kebijakan
Nomor : 2694.4/G2.2/PL/2009 tanggal 31 Juli 2009

MENGIZINKAN :

Kepada :
Nama : **Rumtini Suwarno**

Universitas : *Brigham Young University*, Amerika Serikat

Untuk : Mengadakan penelitian / riset dan pengisian kuesioner bagi guru SMP/MTs Bahasa Indonesia, Bahasa Inggris, IPA dan Matematika dalam rangka penyusunan tugas akhir dengan judul : ***" Alignment of Instructional Practices with National Content Standards for Junior Secondary School in Indonesia"***

Tujuan : SMP Negeri 115, Jl. Tebet Utara III, Jakarta Selatan
SMP Negeri 57, Jl. Halimun 2b, Jakarta Selatan
SMP Negeri 1, Jl. Cikini Raya No.87, Jakarta Pusat
SMP Negeri 18, Jl. Menteng No.3, Jakarta Pusat

Catatan :
1. Pelaksanaan wajib dikonsultasikan dengan Kepala Sekolah
2. Tidak menggangu Kegiatan Belajar Mengajar (KBM)
3. Hasil penelitian untuk kepentingan ilmiah dan bukan untuk dipublikasikan kepada umum.
4. Membuat laporan kepada Suku Dinas Pendidikan Dasar Kota Administrasi Jakarta Selatan, Jakarta Pusat dan Bidang SMP/SMA Dinas Pendidikan Provinsi DKI Jakarta setelah kegiatan selesai

Dikeluarkan di Jakarta
pada tanggal 13 Agustus 2009

WAKIL KEPALA DINAS PENDIDIKAN
PROVINSI DKI JAKARTA

Dr. H. KAMALUDDIN, M.Pd
NIP 130872967

Tembusan
Kepala SMP Yang Bersangkutan

Appendix B.2

PEMERINTAH DAERAH KABUPATEN TANGGAMUS
DINAS PENDIDIKAN PEMUDA DAN OLAHRAGA
Jln. Jenderal Ahmad Yani Nomor 7 Telp./Fax. (0722) 21845 Kode Post 35384
KOTAAGUNG

Kotaagung, 18 Agustus 2009

Nomor : 642 /1310 / 42 / 05 / 2009
Lampiran : -
Perihal : *Ijin Pengumpulan Data Disertai Doktoral*

Kepada Yth.
Kepala Badan Penelitian dan Pengembangan
Pusat Penelitian Kebijakan dan Inovasi Pendidikan
Jl. Jend. Sudirman Senayan Gedung E Lt. A9
Di –
JAKARTA

Menindaklanjuti surat Saudara Nomor : 2694.4/G2.2/PL/2009 tanggal 31 Juli 2009 perihal seperti pada pokok surat diatas, maka kami tidak keberatan Saudara RUMTINI melakukan pengumpulan data dari para Guru SMP/MTs mengenai pembelajaran di atas untuk mata pelajaran Bahasa Indonesia, Bahasa Inggris, Ilmu Pengetahuan Alam dan Matematika dengan sasaran Guru SMP/MTs di Kabupaten Tanggamus yang dipilih secara acak.

Kepada yang bersangkutan pada saat pengumpulan data diharapkan tidak mengganggu proses belajar mengajar.

Demikian atas kerjasamanya diucapkan terima kasih.

An. Kepala Dinas Pendidikan Pemuda
Dan Olahraga Kabupaten Tanggamus
Sekretaris,

Drs. HERI ISWAHYUDI, M.Ag
NIP. 19691101 199702 1 001

Tembusan :

Appendix B.3

PEMERINTAH KABUPATEN PASURUAN
DINAS PENDIDIKAN
Jl. Dr. Wahidin Sudirohusodo No. 59 A Telp. (0343) 421898 Fax. 420969
Pasuruan – Kode POS 67126

Pasuruan, 10 Agustus 2009

Nomor : 421.3/8256 /424.051/2009
Lamp. : -
H a l : Ijin Pengumpulan Data Disertasi Doktoral

Kepada
Yth. : Kepala Baden Penelitian dan Pengembangan
Pusat Penelitian Kebijakan dan Inovasi Pendidikan
Jl. Jendral Sudirman Senayan
Gedung E Lt. A9 Jakarta
di –
JAKARTA

Menindaklanjuti surat Saudara Nomor : 2694.4/G2.2/PL/2009 tanggal 31 Juli 2009 perihal seperti pada pokok surat diatas, maka kami tidak keberatan Saudara RUMTINI melakukan pengumpulan data dari para Guru SMP/MTs mengenai pembelajaran di kelas untuk mata pelajaran Bahasa Indonesia, Bahasa Inggris, Ilmu Pengetahuan Alam dan Matematika dengan sasaran Guru SMP/MTs di Kabupaten Pasuruar yang dipilih secara acak.

Kepada yang bersangkutan pada saat pengumpulan data diharapkan tidak mengganggu proses belajar mengajar.

Demikian atas kerjasamanya disampaikan terima kasih.

Kepala Dinas Pendidikan
Kabupaten Pasuruan

Drs. H. EDIE SASMITO
Pembina Tk. I
NIP. 19560516 197910 1 003

Tembusan :
1. Yth. Sdr. RUMTINI

Appendix B.4

PEMERINTAH KOTA PASURUAN

BADAN KESATUAN BANGSA, POLITIK DAN PERLINDUNGAN MASYARAKAT

Alamat : Jl. Pahlawan No. 28c Telp 0343-424019 Pasuruan

SURAT KETERANGAN
UNTUK MELAKUKAN SURVEI/RISET/PKL
NOMOR ;072/ 646 /423.205/2009

Membaca : Surat Dari Departemen Pendidikan Nasional Badan Penelitian dan Pengembangan Pusat Penelitian Kebijakan dan Inovasi Pendidikan Jl. Jendral Sudirman-Senayan, Jakarta Nomor: 2694.4.4/G2.2/PL/2009 Tgl, 31 Juli 2009 Perihal Permohonan Iiin Penelitian

Mengingat : 1. Instruksi Menteri Dalam Negeri Nomor 3 Tahun 1972
2. Surat Gubernur Kepala Daerah Tingkat I Jawa Timur No.187/1972 Tgl 17 Juli 1972.
dengan ini **diijinkan untuk melakukan** Survei/ Riset/ PKL oleh :

Nama	: RUMTINI, MA
NIP	: 131619976
Program Studi	: S III
Jurusan	: Kepemimpinan
A l a m a t	: Jl.Jendral Sudirman Senayan Gedung E lt 19, Jakarta
Thema Survei/Riset/PKL	:**"ALIGMENT OF INTRUCTIONAL PRACTICES WITH NATIONAL CONTENT STANDARDS FOR JUNIOR SECONDARY SCHOOL IN INDONESIA "**
Tempat Survei/Riset/PKL/	: Smp Negeri se - Kota Pasuruan
Lamanya Survei/Riset/PKL	: dari tanggal 11 Agustus s/d 11 September 2009
Peserta/ Pengikut	: -
Nama Penanggungjawab	: Drs. Mahdiansyah, MA

Dengan ketentuan – ketentuan sebagai berikut :

1. Sebelum melakukan Survei/Riset/PKL, yang bersangkutan diwajibkan melapor/ konsultasi terlebih dahulu dengan Pimpinan Terkait.
2. Tidak diperkenankan menjalankan kegiatan diluar tujuan Survei/Riset/PKL
3. Dilarang mengikut sertakan peserta lain diluar Daftar Peserta/Pengikut yang ada.
4. Mentaati ketentuan – ketentuan yang berlaku di Daerah Hukum setempat dan menjaga tata tertib dan kesopanan serta menghindari pertanyaan-pertanyaan baik lisan maupun tulisan yang dapat menyinggung perasaan, atau menghina Agama, Bangsa, dan Negara dari suatu golongan penduduk.
5. Selesai melakukan Survei/Riset/PKL hendaknya melaporkan hasil pelaksanaan kegiatannya kepada Walikota Pasuruan Cp. Kepala Badan Kesatuan Bangsa dan Linmas untuk bahan/data pengembangan Daerah.
6. Apabila pemegang Surat Keterangan ini tidak dapat memenuhi ketentuan sebagaimana tersebut di atas, maka Surat Keterangan ini akan dicabut dan dinyatakan tidak berlaku lagi.

Demikian agar yang berkepentingan maklum dan pihak yang terkait memberikan bantuan seperlunya guna kelancaran.

Pasuruan,11 Agustus 2009

KEPALA BADAN KESBANG POL DAN LINMAS
KOTA PASURUAN

H. AFFANDI THOHIR, MM
Pembina TK. I
NIP. 19540312 198003 1 024

Tembusan : Disampaikan kepada Yth
1. Walikota Pasuruan (sebagai laporan)
2. DANDIM 0819 Pasuruan
3. KAPOLRESTA Pasuruan
4. Ka. Dinas Pendidikan Kota Pasuruan

Appendix B.5

PEMERINTAH KOTA BANDAR LAMPUNG
DINAS PENDIDIKAN
Jl. Amir Hamzah Gotong Royong Telp. (0721) 253752 Fax. (0721) 254503 Kode Pos 35119
BANDAR LAMPUNG

SURAT PERINTAH TUGAS

Nomor : 421/ 2084 /08/2009

Berdasarkan surat Kepala Badan Penelitian dan Pengembangan Pusat Penelitian Kebijakan dan Inovasi Pendidikan Nomor : 2694.4/G2.2?PL/2009 tanggal 31Juli 2009 Perihal Pengumpulan data disertai doktoral, Kepala Dinas Pendidikan Kota Bandar Lampung menugaskan :

A. Kepada :

No	Nama/NIP	Pangkat/Gol	Tempat Tugas
1	RUMTINI SUWARNO NIP. 131619976	Pembina Tk. I IV/b	Pusat penelitian dan Inovasi Pendidikan, Balitbang Diknas

B. Uraian Tugas
Menulis disertasi tahap akhir studi di Brigham Young University, Amerika Serikat

C. Biaya
Segala akibat yang ditimbulkan dari pelaksanaan tugas ini dibebankan kepada yang bersangkutan

Lain-lain
1. Penerima Perintah Tugas agar mematuhi ketentuan Penyelanggaraan kegiatan
2. Setelah selesai mengikuti kegiatan agar melaporkan hasilnya secara tertulis Kepada kepala Dinas Pendidikan Kota Bandar Lampung Melalui Kabid Pendidikan Dasar.

Demikian surat perintah tugas diberikan untuk dilaksanakan sebagaimana mestinya.

Bandar lampung, 19 Agustus 2009

A.n. Kepala Dinas Pendidikan
Kota Bandar Lampung
Kabid Pendidkan Dasar
U.b Kasi TK/SD/M

Drs. RINALDI JUFRI
NIP. 19600315 198102 1 001

Appendix C

Alignment of Instructional Practices with National Content Standards for Junior Secondary School in Indonesia

Consent to be a Research Subject

Introduction
This research study is being conducted by Rumtini Suwarno, a graduate student in the Department of Educational Leadership and Foundation at Brigham Young University under the direction of Dr. E. Vance Randall. The investigator will investigate the degree of alignment between instructional practices and content standards of education. You were selected to participate in this study either for survey or/and for interview.

Procedures
The investigator will come to your school and invite you to respond survey questions or/and participate in interview. You will be asked to respond questions regarding subject you taught for 2008/09. Your answers will assist the investigator in measuring the alignment between standards and classroom practices. Your responses to the questions will not affect your career development in any way.

Risks/Discomforts
None

Benefits
There are no direct benefits for your participation. However, it is hoped that researchers will learn more about the alignment between content standards and classroom instructional practice in a way that will assist educational officials at district, province, and national level to provide, if necessary, models of teaching methods related to the standards, as well as providing facilities for classroom instruction.

Confidentiality
All information provided will remain confidential and will only be reported as group data with no identifying information. All data, including the transcript and recorded interview will be kept in a locked storage cabinet and only those directly involved with the research will have access to them. After the research is completed, all the survey data and the recorded interviews along with their transcript will be destroyed.

Compensation
There will be no compensation for participating in the survey.

Participation
Participation in this research study is voluntary. You have the right to refuse to participate and your refusal to participate will in no way whatsoever jeopardize your career status, teaching credit or standing with the educational office of any level.

Questions about the Research
If you have questions regarding this study, you may contact Rumtini Suwarno at 61-(801) 422-8144 rumtini@yahoo.com.

Questions about your Rights as Research Participants
If you have questions regarding your rights as a research participant, you may contact Christopher Dromey, PhD, IRB Chair, 801-422-6461, 133 TLRB, Brigham Young University, Provo, UT 84602, Christopher_Dromey@byu.edu or E. Vance Randall, PhD, Dissertation Chair, 801-422-5073, 306F MCKB, Brigham Young University, Provo, UT 84602, Vance_Randall@byu.edu

I have read, understood, and received a copy of the above consent form and desire of my own free will to participate in this study.

Signature:_____ Date:_____

Print Name:_____

Appendix D
Semistructured Interview Questions

1. Did you teach all of the topics in the curriculum during the 2008–2009 school year?
    a. If yes, then ask question #2
    b. If no, then ask the following questions.
        i. Which topics did you not teach?
        ii. Why did you not teach these topics?

2. Were there any topics that you found difficult to teach during the 2008–2009 school year?
    a. If yes, then ask what were the topics and why was it difficult to teach each one.
    b. If no, then go on to question #3.

3. Were they any topics that your students found difficult to understand during the 2008–2009 school year?
    a. If yes, then ask what were the topics and why was it difficult for students to understand them
    b. If no, then go to question #4

4. What can you tell me about the reasons why you were able to teach the topics completely and why the topics were not difficult both for you or the students during the 2008–2009 school year?

5. Did you give the same amount of time or attention to each topic you taught during the 2008–2009 school year?

    a. If yes, then ask why?
    b. If no, then ask which topics received more time or attention than other topics and why?

6. Do you have anything else you would like to share about your experiences in teaching the topics?

Thank you very much for your time. We appreciate your feedback and participation.

Appendix E.1

Appendix 5.1

Teacher Survey

Subject:

Instructions: Please complete the following questions for the 2008-2009 school year

1 School Type:

○ Private ○ Public

2 What grade level(s) did you teach during the 2008-2009 school year? Please mark all that apply.

○ Grade7 ○ Grade 8 ○ Grade 9

3 Gender

○ Male ○ Female

4 What is your education level?

○ Did not complete Senior secondary School

○ Senior Secondary School

○ Diploma: D1-D3

○ Bachelor's degree

○ Master's degree or higher

5 Have you ever had professional development training in aligning your classroom curriculum to the national standards?

If yes, how would you rate that training?

No Professional Development

Not Adequate

Adequate

Very Adequate

○ ○ ○ ○ ○

6 What topic professional development relates to national standards other than mentioned in question number 6

- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- Never have

7 What are the total hours professional development on national standards have you received: _____ hours.

8 What is your major/minor

Please list your major in the following level of education

1. Did not complete senior secondary school: _____
2. Senior Secondary School: _____
3. Diploma 1: _____
4. Diploma 2: _____
5. Diploma 3: _____
6. Bachelor's: _____
7. Master's: _____
8. Doctoral: _____

Please list your minor, if any, in the following level of education

1. Not complete senior secondary school: _____
2. Senior Secondary School: _____
3. Diploma 1: _____
4. Diploma 2: _____
5. Diploma 3: _____
6. Bachelor's: _____

7. Master's: _____
8. Doctoral: _____

9 Are you a _____

- Private teacher
- Government teacher

10 How long have you been teaching?

This school: _____years and _____ months

Previous school: _____ years and _____ months

11 How long have you taught this subject?

This school: _____ years and _____ months

Previous school: _____ years and _____ months

Appendix E.2

Instructions: Please complete the following questions for the 2008–2009 school year
Subject: Indonesian

IF YOU TEACH GRADE 7, COMPLETE QUESTIONS 1-32
IF YOU TEACH GRADE 8, COMPLETE QUESTIONS 33-65
IF YOU TEACH GRADE 9, COMPLETE QUESTIONS 65-93
IF YOU TEACH MORE THAN ONE GRADE, COMPLETE THE QUESTIONS THAT APPLY TO YOU

If you **did not** teach this topic in 2008–2009, put a "0" on the column "Number of Lessons."
If you **did** teach this topic in 2008–2009, provide the number of face-to face class lessons you taught. Then rate the difficulty of the topic from your point-of-view and from your students' point-of-view.
Remember: one lesson is equal to 40 minutes to one hour of teaching and learning.

Topic	**Number of Lessons**	**How difficult is it to teach this topic?**				**How difficult is it for students to learn this topic?**			
		Very Difficult	Difficult	Easy	Very Easy	Very Difficult	Difficult	Easy	Very Easy
1 – Summarize the content of the news									
2 – Rewrite the content of the news									
3 – Tell the most impressive experiences									
4 – Tell a formal message									

5 – Find the meaning of words from the dictionary									
6 – Summarize the content of a passage									
7 – Read text for the ceremonies									
8 – Write personal experiences									
9 – Write a letter									
10 – Write a formal notice									
11 – Find the meaning of the folklore									
12 – Find the meaning of the folklore and relate it to current life									
13 – Tell something as the expression of the mind and feelings									

14 – Tell something with the toolkit									
15 – Retell the story after reading it									
16 – Comment on the story that was just read									
17 – Write a poem									
18 – Write the folklore that was just read									
19 – Listen to an interview									
20 – Summarize the interview that just been listened to.									
21 – Tell about his/her idol									

22 – Speak on the phone									
23 – Find the ideal figure from a biography									
24 – Find themes from a passage that he/she read									
25 – Read a table and diagram									
26 – Narrate an interview									
27 – Write a short message									
28 – Discuss the ways to read poetry									
29 – Find the meaning of a poem that he/she just read									

30 – Discuss the ways to read short stories									
31 – Find the message of a short story and apply it to real life									
32 – Read poetry									
33 – Find the meaning behind poetry									
34 – Write poetry									
35 – Analyze a report									
36 – Conduct an interview									
37 – Report orally on interview results									

38 – Find information from an encyclopedia or telephone book									
39 – Find the directions through the map									
40 – Summarize the content after speed reading a passage									
41 – Write a report									
42 – Write a formal letter									
43 – Write directions									
44 – Review a drama performance									
45 – Evaluate the actors in the drama									

46 – Play a role from a script that he/she wrote									
47 – Identify the script instructively									
48 – Write a synopsis of a novel									
49 – Write one episode of drama									
50 – Find themes from the TV news									
51 – Listen to the news and retell it									
52 – Argue at a discussion forum									
53 – Lead a show or performance									

54 – Find an issue from reading fast									
55 – Find discussion topics through reading									
56 – Read the news									
57 - Summarize a book's content									
58 – Write a poster or slogan									
59 – Identify a character from a novel									
60 – Identify the themes of a novel									
61- Identify the narration of a novel									

62 - Know the main characteristics of a novel									
63 – Write free poetry									
64 – Write poetry with certain characteristics									
65 – Summarize orally the content of a dialog on the TV or radio									
66 – Comment orally on a dialog on the TV or radio									
67 – Recognize a fact and an opinion in the newspaper									
68 – Write an advertisement									
69 – Review a book									

70 – Synthesize a book or essay									
71 – Find the theme of a poem									
72 – Analyze a poem									
73 – Find the theme and character of the person in the story									
74 – Analyze values from a short story									
75 – Summarize the content of a short story									
76 – Write a short story about a personal experience									
77 – Summarize a speech									

78 – Comment on a speech									
79 – Give a speech									
80 – Principles on discussion									
81 – Find an idea from an article									
82 – Modify the graphic or table of an article									
83 – Explain the theme of an article									
84 – Write a short academic article									
85 – Write about the school environment									

86 – Identify the characters from the novel they read									
87 – Identify the narrative of the novel they read									
88 – Write a review of a drama performance									
89 – Critique a drama performed by students									
90 – Identify the culture of the 1920-1930s from the novel									
91 – Compare the characteristics of the novel from the 1920-1930s									
92 – Write a script for a drama based on a short story									
93 – Write a script for drama based on a true story									

Appendix E.3

Instructions: Please complete the following questions for the 2008–2009 school year
Subject: English

IF YOU TEACH GRADE 7, COMPLETE QUESTIONS: 1-21
IF YOU TEACH GRADE 8, COMPLETE QUESTIONS: 22-45
IF YOU TEACH GRADE 9, COMPLETE QUESTIONS: 45-65
IF YOU TEACH MORE THAN ONE GRADE, COMPLETE THE QUESTIONS THAT APPLY TO YOU

If you **did not** teach this topic in 2008–2009, put a "0" on the column "Number of Lessons."
If you **did** teach this topic in 2008–2009, provide the number of face-to face class lessons you taught. Then rate the difficulty of the topic from your point-of-view and from your students' point-of-view.
Remember: one lesson is equal to 40 minutes to one hour of teaching and learning.

Topic	**Number of Lessons**	**How difficult is it to teach this topic?**				**How difficult is for student to learn this topic?**			
		Very Difficult	Difficult	Easy	Very Easy	Very Difficult	Difficult	Easy	Very Easy
1 – Listen to and understand a transactional conversation (to get things done) and interpersonal socialization.									
2 – Listen to and understand a very simple message to interact with close community members.									
3 – Speak and address a simple transactional conversation									
4 – Interact with others by greeting, introducing themselves, commanding, and prohibiting.									

5 – Ask for and give information, say "thank you," apologize, and use other polite expressions.									
6 – Tell the meaning of simple oral messages.									
7 – Express an idea through a simple oral message.									
8 – Read words, phrases, and sentences with expression and intonation.									
9 – Respond to the very short, simple written message									
10 – Write to express a very short, simple idea.									
11 – Write to express very short, simple rhetoric									
12 – Listen to and understand the meaning of a very simple transactional and interpersonal conversation.									
13 – Listen to and understand the meaning of a very short, simple monolog.									

14 – Ask for and give things or facts.									
15 – Speaking to express an asking and giving opinion, to express like or dislike, and asking clarification.									

Appendix E.4

Instructions: Please complete the following questions for the 2008–2009 school year.
Subject: Science

IF YOU TEACH GRADE 7, COMPLETE QUESTIONS: 1-24
IF YOU TEACH GRADE 8, COMPLETE QUESTIONS: 25-48
IF YOU TEACH GRADE 9, COMPLETE QUESTIONS: 48-67
IF YOU TEACH MORE THAN ONE GRADE, COMPLETE THE QUESTIONS THAT APPLY TO YOU

If you **did not** teach this topic in 2008–2009, put a "0" on the column "Number of Lessons."
If you **did** teach this topic in 2008–2009, provide the number of face-to face class lessons you taught. Then rate the difficulty of the topic from your point-of-view and from your students' point-of-view.
Remember: one lesson is equal to 40 minutes to one hour of teaching and learning.

Topic	**Number of Lessons**	**How difficult is it to teach this topic?**				**How difficult is it for students to learn this topic?**			
		Very Difficult	Difficult	Easy	Very Easy	Very Difficult	Difficult	Easy	Very Easy
1 – Base units and unit measurement									
2 – Familiarity with temperature and its measurement									
3 – Simple measurements with measuring devices used in everyday life									
4 – Group acids, bases, and salt solutions based on characteristics									

5 – Perform easy experiments with substances used in everyday life									
6 – Identify chemical elements' names and simple chemical formulae									
7 – Compare the properties of elements, compounds, and mixtures									
8 – Investigate the properties of a substance based on its form and its application in life									
9 – Compare the physical and chemical properties of a substance									
10 – Separate chemical mixtures based on their physical and chemical properties									
11 – Conduct a simple experiment to alter physical and chemical properties									
12 – Identify chemical reactions in simple experiments									

13 – Observe objects systematically to gain information about natural biotic or abiotic indicators									
14 – Analyze experiment data of uniform motion and uniform accelerated motion and their application in everyday life									
15 – Use a microscope and other equipment to observe phenomena of life									
16 – Observe safety procedures in observing natural phenomena									
17 – Identify the characteristics of living organisms									
18 – Classify living organisms based on their characteristics									
19 – Describe life from the cellular level to the organism									
20 – Determine ecosystems and correlation between the components of ecosystems									

21 – Predict the effects of human population density on the environment									
22 – Classify the role of human beings in managing, harming, and polluting the environment									
23 – Analyze the importance of growth and development in organisms									
24 – Describe the developmental phases of human beings									
25 – Health and the human movement system									
26 – Health and the human pollution system									
27 – Health and the human respiratory system									
28 – Health and the human circulation system									

29 – The structure and function of plant tissue									
30 – The process of acquiring nutrition and transforming energy in plants									
31 – The various movements of plants									
32 – Pests and plant diseases									
33 – Atoms, ions, molecules									
34 – The relationship between atoms, ions, molecules, and everyday products									
35 – Use and side effects of chemical substances									
36 – Natural and artificial chemical substances in food packaging									

37 – The nature and influence of addictive and psychotropic substances									
38 – Avoiding addictive substances and psychotropic drugs									
39 – Identifying the types of forces, the sum of forces, and their influence on affected objects									
40 – Applying Newton's Laws in everyday life									
41 – The relation between energy and its transformation; the principles of work and energy in everyday life									
42 – Simple machine experiments and their application in everyday life									
43 – Investigating the pressure of solid, liquid, and gas objects and its application in everyday life									
44 – The concepts of vibration, waves, and the parameter									

45 – The concept of sound in everyday life									
46 – The characteristics of light and the various shapes of mirrors and lenses									
47 – Optical devices and their application in everyday life									
48 – Human health and the excretion system									
49 – The Human reproductive system and its related diseases									
50 – The human coordination system and sense organs and their relation to health issues									
51 – Continuance of life through adaptation, natural selection, and reproduction									
52 – The biological concept of natural inheritance									

53 – The inheritance process and the result of inheritance of traits and its application									
54 – The application of biotechnology on continuing human life through food production									
55 – Electrical charges and the phenomenon of static charge in life									
56 – Analyze dynamic electrical experiments into series and its application in life									
57 – The application of the working principles of elements and electrical currents in everyday life									
58 – The relationship between energy and electrical power and its practical uses in everyday life									
59 – Investigate the phenomenon of magnets and how to create them									
60 – Using magnets on technology products									

61-The electromagnetic induction concept and explaining the working principle of equipment that uses electromagnetic induction									
62 – The characteristics of the Solar System									
63 – Describe the Sun as a star and the Earth as one of its planets									
64 – The circulating motion of the Earth, the Moon, and artificial satellites and its effect of interaction									
65 – The distinctive processes on lithosphere layers and atmosphere in relation to changes of substance and color									
67 – The relationship between the process in lithosphere and atmosphere and the health of the environment									

Appendix E.5

Instructions: Please complete the following questions for the 2008–2009 school year
Subject: Mathematics

IF YOU TEACH GRADE 7, COMPLETE QUESTIONS: 1-20
IF YOU TEACH GRADE 8, COMPLETE QUESTIONS: 21-41
IF YOU TEACH GRADE 9, COMPLETE QUESTIONS: 42-56
IF YOU TEACH MORE THAN ONE GRADE, COMPLETE THE QUESTIONS THAT APPLY TO YOU

If you **did not** teach this topic in 2008–2009, put a "0" on the column "Number of Lessons."
If you **did** teach this topic in 2008–2009, provide the number of face-to face class lessons you taught. Then rate the difficulty of the topic from your point-of-view and from your students' point-of-view.
Remember: one lesson is equal to 40 minutes to one hour of teaching and learning.

Topic	**Number of Lessons**	**How difficult is it to teach this topic?**				**How difficult is it for students to learn this topic?**			
		Very Difficult	Difficult	Easy	Very Easy	Very Difficult	Difficult	Easy	Very Easy
1 – Calculating whole numbers and fractions									
2 – The attributes of whole numbers and fractions									
3 – The structure and elements of algebra									
4 – The forms of algebraic operations									
5 – Linear equations with one variable									
6 – Linear inequalities with one variable									

7 – Construct mathematical models of linear equations and linear inequalities with one variable									
8 – Solve mathematical models of linear equations and linear inequalities with one variable									
9 – Use algebraic concept solve simple social arithmetic problems									
10 – Use proportions to solve math problems									
11 – Understand set notation and how to present it									
12 – The relation between two sets									
13 – Union, intersection, complement, and disjoint on sets									
14 – Present sets on Venn Diagrams									
15 – Use set concept to solve math problems									
16 – The relationship of two lines; size and types of angle									
17 – Draw angles									
18 – Divide angles									

19 – The attributes of a triangle based on its sides and its angles									
20 – The attributes of a rectangular, a square, a trapezoid, a rhomboid, a rhombus, and a kite									
21 – Measure the perimeter and area of a triangle or a rectangular to solve math problems									
22 – Draw a triangle, an altitude, a median, and an angle bisector									
23 – Algebraic operations									
24 – Factorization of algebraic forms									
25 – Understand relation and function									
26 – Determine function value									
27 – Sketch simple algebraic functions on the Cartesian coordinate system									
28 – Determine gradients, equations, and straight lines on graphs									
29 – Equations with two linear variables									
30 – Models of equations with two linear variables									

31 – Models of equation with two linear variables and its interpretation									
32 – Determine the elements and parts of a circle									
33 – Compute the circumference and area of a circle									
34 – The relationship between computing central angles, arcs, and sector areas of a circle in solving math problems									
35 – Calculate the length of intersection of two circles									
36 – Draw the inner circle and outer circle of a triangle									
37 – Identify the characteristics of a cube, a bar, a prism, a pyramid, and their parts and attributes									
38 – Create the structures of a cube, a bar, a prism, and a pyramid									
39 – Calculate the surface area and volume of a cube, a bar, a prism, a pyramid									
40 – Identify plane shapes that are unvarying and congruent									
41 – Identify the attributes of two congruent triangles									
42 – The congruency concept in solving geometry problems									
43 – Identify the elements of a tube, a cone, and a sphere									

44 – Compute the cover area and volume of a tube, a cone, and a sphere									
45 – Problem solving related to a tube, a cone, and a sphere									
46 – Calculate mean, median, and mode on single data and its interpretation									
47 – Present data in a table, column graph, line graph, and pie chart									
48 – Determine the sample space of an experiment									
49 – Determine the probability of a simple event									
50 – Identify characteristics of numbers with powers and root numbers									
51 – Algebraic operations of numbers with the power of whole numbers and root numbers									
52 – Solve simple problems in the form of numbers with powers and root numbers									
53 – Determine the pattern of a simple number row									
54 – Determine the n-term in arithmetic and geometric sequences									
55 – Determine the sum of the first n-term in arithmetic and geometric series									
56 – Solve series and sequence problems									