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This study of Thoughtfully Adaptive Teaching (TAT) was a replication of earlier research; variations explored the association of middle grade level TAT with reading comprehension with purposefully sampled Board Certified (BC) and non-BC teachers. It utilized data collected through observations of, and interviews with four language arts teachers and pre- and post-observation student measures. Findings demonstrate no association between BC teachers and TAT. There may be a possible association between TAT and reading comprehension growth, warranting further study. Advances in methodology and greater insight into sampling also resulted.

AN EXPLORATION OF THOUGHTFULLY ADAPTIVE TEACHING WITH
PURPOSEFULLY SELECTED MIDDLE GRADES
LANGUAGE ARTS TEACHERS

by

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This effort is dedicated to Lesley for her unwavering support and graceful inspiration

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CHAPTER I

INTRODUCTION

There is agreement on the need to improve teacher education (Cochran-Smith & Zeichner, 2005; Darling-Hammond, 2006). Part of the discussion about the effective preparation of effective teachers includes an emerging consensus on what teachers should know and be able to do (Darling-Hammond & Baratz-Snowden, 2005; Levine, 2006; Wilson, Floden, & Ferrini-Mundy, 2002). Duffy (1998), in *Teaching and the Balancing of Round Stones*, asserts that teaching is an ongoing creative act requiring juggling many variables to create a learning environment serving student needs. This responsive process of juggling students' needs has been identified as a central part of exemplary literacy instruction (Berliner, 1994; Darling-Hammond, 2005; Pressley, 2002; Taylor, Pearson, Clark, & Walpole, 1999). Not enough is known about these in-the-moment instructional changes (Duffy et al., 2008). Thus, we need to know more about how and why teachers make in-the-moment changes in instruction, here called Thoughtfully Adaptive Teaching, (henceforth TAT), and what effects these changes have on students. The present study focused on in-the-moment changes in instruction and was a replication with variations comparing purposefully selected middle grade level language arts National Board Certified (henceforth BC) and non-National Board Certified (henceforth non-BC) teachers' adaptations. It also explores potential associations of those adaptations with student reading comprehension growth.

Background

Effective teaching involves a wide range of decisions during instruction including in-the-moment instructional changes (Clark & Peterson, 1986). Educational researchers theorize that TAT is an instructional interaction where teachers demonstrate reflective, adaptive teaching by changing instruction in response to student needs (Clark & Peterson, 1978; Duffy & Roehler, 1987; Marriage, 1995; Roehler & Duffy, 1991). Researchers assert that TAT is crucial for optimal student learning (Florio-Ruane, Raphael, Highfield, & Berne, 2004; Pressley, Allington, Wharton-McDonald, Block, & Morrow, 2001). Such changes are seen as promoting student engagement, processing, and higher level critical thinking through the restructuring and reconfiguring of knowledge (Darling-Hammond, 2006; Darling-Hammond & Bransford, 2005). As Duffy et al. (2008) put it:

The central idea is promoted by a variety of literacy researchers, such as Pressley (2002), who states that exemplary teachers “take advantage of teachable moments by providing many apt mini-lessons in response to student needs” (p. xiii); and Gambrell, Malloy & Mazzoni (2007), who say an essential ingredient of good teachers is “adaptive knowledge” (i.e., knowing how “to adapt the learning environment, materials, and methods to particular situations and students”) (p. 15, [parentheses in original]).

The theoretical assumption for this study was that changes in instruction, such as when a teacher either provides a response to an unanticipated student contribution or event, or diverges from the lesson plan, are integral to student learning (Duffy et al., 2008; Galda & Guice, 1997). The need to further empirically explore this phenomenon led to the current study as part of the UNCG Thoughtfully Adaptive Teaching Group (henceforth UNCG Group) larger research agenda.

Educational researchers have identified and labeled adaptive teaching in a variety of ways: “teacher decision making” (Clark & Peterson, 1978); “responsive elaboration” (Duffy & Roehler, 1987); “instructional moves” (Marriage, 1995; Roehler & Duffy, 1991); “prepared for uncertainties” (Floden & Buchmann, 1993); “cognitive decision making event” (Stough & Palmer, 2003); “adaptive metacognition” (Lin, Schwartz, & Hatano, 2005); “living the question” (Gordon, 2007); “wise improvisation” (Little et al., 2007); “adaptive teaching” (Corno & Snow, 1986); “adaptive expertise,” (Darling-Hammond & Bransford, 2005); “wise teachers” (Arlin, 1999); “presence” (Rodgers & Raider-Roth, 2006); “pedagogical moment” (Vagle, 2006); and “teacher discourse responding to student discourse” (Seymour & Lehrer, 2006). None of the theories were supported by data on actual in-the-moment instructional changes.

To ground theory with data, the UNCG Group has explored TAT, producing findings on types of adaptations and teachers’ rationales for adapting as well as levels of thoughtfulness of adaptations and rationales (Duffy et al., 2008). The studies used convenience samples of teachers at the elementary grade level (Duffy et al., 2008). The number of adaptations found has been far fewer than earlier theoretical statements suggested (Duffy et al., 2008). Likewise, the level of thoughtfulness of adaptations was lower than earlier researchers postulated. Data show that the limited TAT is unplanned, constructed in the moment, and has some level of creativity. The categories developed for the rationales show that the teachers’ rationales at times align with lesson objectives; less frequently rationales align with larger teaching concerns, such as student engagement and motivation, unit objectives, and student connections. Three studies examined the

relationship with task and found some evidence that the openness of the task does connect to the adaptations made (Kear, 2009; Parsons, 2008; Scales, 2009); another found little difference in the knowledge teachers utilized when engaged in TAT (Davis, 2009).

Rationale

This study's rationale was to advance the UNCG Group's research agenda by addressing issues concerning (a) purposeful sampling, (b) the nature of TAT beyond the elementary grade level, and (c) the association of teacher adaptations with student outcomes. The teacher adaptations identified to date are limited in quantity and level of thoughtfulness compared to the earlier theoretical assertions about its prevalence which implies that perhaps the studies looked at less adaptive teachers from convenience samples instead of purposefully selected, high potential teachers (Duffy et al., 2008). Also, there are no middle grade level data or data associating teacher adaptations with student outcomes because earlier research did not explore TAT beyond the elementary grade level to see if it differed elsewhere, nor did it attempt to gather evidence on a student outcome to substantiate the claim that TAT positively impacts student learning (Duffy et al., 2008).

The Problem

The study explored the teaching of purposefully selected middle grade level language arts BC and non-BC teachers to address issues from earlier findings. The study compared the student reading comprehension growth in the classes of two BC and two non-BC teachers to explore potential associations of teacher adaptations with student

reading comprehension growth. Reading comprehension growth was selected as the student outcome to explore due to its importance in language arts instruction. The research questions for this study were:

1. Was there a difference between two BC and two non-BC middle grade level language arts teachers in the types and numbers of adaptations and rationales, the levels of thoughtfulness, and teacher adaptation scores?
2. Was there a difference in the number of adaptations made to improve comprehension between the BC and non-BC teachers?
3. Was there a difference in student reading comprehension growth between the classes of BC and non-BC teachers?
4. Is there an association between teacher adaptations and student reading comprehension growth?

Significance

This replication with variations is significant because it sought to address important issues from earlier findings because earlier studies (a) used a convenience sample of teachers; (b) were conducted solely at the elementary grade level; and (c) did not explore possible association between teacher adaptations and reading comprehension growth (G. G. Duffy, personal communication, 2009; Duffy et al., 2008). Thus, this study sought to support and strengthen the TAT paradigm with findings addressing these issues. Future studies may be able to utilize the findings to improve research design based on the three issues the current study addressed: (a) procedures to sample high potential teachers who adapt more, and with higher levels of thoughtfulness; (b) teacher

adaptations beyond elementary grade level in middle grade level classrooms; and (c) associating teacher adaptations with a student outcome, specifically reading comprehension growth (Duffy et al., 2008).

Definitions

This section describes the ten definitions this study used: TAT, adaptations, rationales, thoughtfulness, BC and non-BC teacher, reading comprehension, student summary score, reading comprehension growth, adaptation score, and adaptation related to reading comprehension.

Thoughtfully Adaptive Teaching

For purposes of this study, the following definitional statement of *Thoughtfully Adaptive Teaching* (TAT) was used:

This study defines Thoughtfully Adaptive Teaching as “a form of executive control in which teachers modify professional information and/or practices in order to meet the needs of particular students or particular instructional situations within the framework of the lesson plan. (Duffy et al., 2008, p. 5)

The UNCG Group examined data from elementary grade level teachers in light of the above definitional statement, and by applying Grounded Theory, generated the codes for adaptations, rationales, and ratings of the level of thoughtfulness of adaptations and rationales this study used (Duffy et al., 2008; Glaser & Strauss, 1967).

Adaptation

This study used the following definitional statement of *adaptation*:

It will identify teacher actions as adaptations if during the course of an observed lesson a teacher either provided a response to an unanticipated student

contribution or event, or diverged from the lesson plan, or made a public statement of a change; we will note it as a thoughtful adaptation if the teacher is making a non-routine, proactive decision (i.e., it is not something we see the teacher do in other observations) that requires thought and is invented on the spot in order to make instruction suitable for the goal the teacher is pursuing. We code a teacher action as an adaptation only if it met three criteria: (1) it was non-routine, proactive, thoughtful, and invented; (2) it included a change in the professional knowledge or the professional practices the teacher was using; and (3) it was done to anticipate the needs of students or instructional situations. (Duffy et al., 2008, p. 5)

As determined in earlier studies (Duffy et al., 2008), adaptations are coded into the following categories: (a) modifies lesson objective; (b) changes the means by which the lesson objective is achieved through elaborating or through changing strategy, task, activity, or through changing assignment or materials, or through changing routines or procedures; (c) invents examples, metaphors, analogies or verbal or physical illustrations; (d) inserts mini-lesson; (e) suggests different perspectives to students; (f) omits a planned activity or assignment; and (g) changes the planned order of instruction (Duffy et al., 2008).

Rationale

For purposes of this study, the *rationale* was defined as the answer the teacher provided when asked about an adaptation: “Why did you do ___?” (Duffy et al., 2008).

As determined in earlier studies (Duffy et al., 2008), rationales are coded into the following categories: (a) because the objective was not met, (b) to challenge or elaborate, (c) to teach a specific strategy or skill, (d) to help students make connections, (e) using knowledge of students or of classroom dynamics to alter instruction, (f) to check student

understanding, (g) anticipation of upcoming difficulty, (h) to manage time, and (i) to promote student engagement.

Levels of Thoughtfulness

For purposes of this study *level of thoughtfulness* was defined as the rating of adaptations and rationales for the level of thoughtfulness by the coding group, which used a previously developed rubric to consider (a) the context of the adaptation and (b) the teacher's explanation of the rationale. The thoughtfulness codes (see Appendix A) are (a) considerably thoughtful, (b) thoughtful, and (c) minimally thoughtful (Duffy et al., 2008).

Board Certified and Non-Board Certified Teacher

For purposes of this study, a *Board Certified (BC) teacher* was a teacher who has National Board Certification, and a *non-Board Certified (non-BC) teacher* was a teacher who does not. Board Certification was selected as a marker of high potential teachers to explore the construction of purposeful samples because it was less subjective, compared to such markers as principal recommendations, and non-judgmental towards teachers, unlike student standardized test results, which were not available.

Reading Comprehension

For purposes of this study, *reading comprehension* means how well a student summarizes a text, as expressed by the *student summary score*.

Student Summary Score

For purposes of this study, the *student summary score* is the score a student receives on a score sheet for the summary the student provided for one of the texts used in the pre-observation and post-observation measures of reading comprehension.

Reading Comprehension Growth

For purposes of this study, *reading comprehension growth* was the difference between the pre-observation *student summary score* and post-observation *student summary score*, expressed as the *student growth score*, which could be positive, zero, or negative, indicating respectively, growth, no change, or a decrease in reading comprehension. The *class growth score* results when the student growth scores for a class are summed. It too could also be positive, zero, or negative, indicating respectively, growth, no change, or a decrease in reading comprehension overall for the class.

Adaptation Score

The technique of quantizing (i.e., converting qualitative data into quantitative data), a common procedure in mixed-methods studies (Leech & Onwuegbuzie, 2008, 2009; Onwuegbuzie & Leech, 2007; Onwuegbuzie & Teddlie, 2003) was used to compute the *adaptation score* by giving points for each coded and rated adaptation as follows: (a) a minimally thoughtful adaptation received one point, (b) a thoughtful adaptation received two points, and (c) a considerably thoughtful adaptation received three points. The teachers' points for adaptations were summed separately to create their individual adaptation scores. The teachers' adaptation scores were then compared with the quantitative class reading comprehension growth score. For the purposes of this exploratory study, using the level of thoughtfulness of the adaptation seemed the logical approach to produce a quantitative metric with which adaptations, including level of thoughtfulness, could be compared with reading comprehension growth, which was already in a quantitative metric. Explicit in the conversion is that the metric created from

teacher adaptation data is a comparative scale, not an absolute scale and thus shows *relative* differences, not absolute ones concerning teacher adaptations (Johnson & Onwuegbuzie, 2004; Onwuegbuzie & Teddlie, 2003).

Adaptation Related to Reading Comprehension

Adaptation related to reading comprehension is defined as an adaptation that seeks to (a) improve student knowledge of syntax or vocabulary or (b) help students make life to text connections. For purposes of this exploratory study, the researcher established the above definition after reviewing the types of adaptations that the teachers made. The ones that related specifically to reading comprehension were in the two above categories. He used his judgment as an experienced language arts teacher to determine whether an adaptation sought to improve reading comprehension in either of the above two ways.

Conclusion

This study explored TAT at the middle grade level with purposefully sampled language arts teachers as it also explored associations of teacher adaptations with reading comprehension growth. It sought to further existing research which provided the overall framework and basic definitions (Duffy et al., 2008). Prior findings have provided some insight into TAT but which also raised issues concerning the teacher samples used, grade level studied, and the lack of exploration of potential associations of teacher adaptations with reading comprehension growth (G. G. Duffy, personal communication, 2009; Duffy et al., 2008). Thus, this study sought to address those issues by answering: Is there a difference between middle grade level BC teachers and non-BC teachers that would

inform future sampling? Do middle grade level language arts teachers present a different picture of TAT than elementary grade level teachers have? Is it possible to associate teacher adaptations with student reading comprehension growth? Answers to these questions may provide future studies with (a) insight on the impact of purposeful sampling, (b) a fuller picture of TAT, and (c) insight into the association of teacher adaptations with reading comprehension growth. These issues are addressed in Chapter V.

What follows are Chapter II, a review of pertinent literature, Chapter III, a fuller explanation of the methodology of the study, Chapter IV, a report of the findings, and Chapter V, a discussion of those findings.

CHAPTER II

THEORETICAL PERSPECTIVE

This chapter reviews research on teachers changing instruction in response to in-the-moment classroom needs. The review indicates further research on Thoughtfully Adaptive Teaching (TAT) is warranted. The chapter also describes this study's student outcome measure. First the study's rationale is presented to better understand the following review.

Rationale

The rationale for the current study was the assertion that exemplary teaching involves teachers changing instruction in response to student needs so optimal student learning occurs (Florio-Ruane et al., 2004; Pressley et al., 2001). The current study investigated a purposeful sample of middle grade level language arts teachers to substantiate this claim. The UNCG Group's research findings show TAT as unplanned, constructed in the moment, and with some level of creativity. The rationale for the adaptation sometimes aligns with a lesson objective, less frequently with larger teaching concerns, such as student engagement and motivation, unit objectives, and student connections. To date, TAT has only been studied with convenience samples of teachers at the elementary grade level. These findings have raised issues concerning the samples used, the level of instruction investigated, and the lack of exploration of potential associations between teacher adaptations and student performance outcomes.

The current study addressed the issues from earlier findings by using a replication with variations designed to (a) extend findings on teachers changing instruction using a purposeful sample of Board Certified (BC) and non-Board Certified (non-BC) teachers, (b) investigate beyond the elementary grade level, and (c) explore if teacher adaptations can be associated with student reading comprehension growth (Duffy et al., 2008).

The review will show that although TAT has been noted and labeled by earlier researchers, until recently there has not been systematic exploration. The next section describes the theoretical background.

Background to Thoughtfully Adaptive Teaching

The following section reviews research on the phenomenon of TAT, conceptualized as the teacher changing instruction by adapting creatively to meet in-the-moment classroom needs. The review gives the labels and explanations of TAT, and then looks at the research done by the UNCG Group (Davis, 2009; Duffy et al., 2008; Duffy et al., 2006; Parsons, 2008).

Changing instruction in response to unforeseen events stemming from teaching's nature of uncertainty, ambiguity, and challenges has been recognized for decades (Stark, 1922). While there was a working presumption that TAT is a significant, beneficial event (Duffy et al., 2008), earlier researchers have neither investigated the actual adaptations, nor have they explored any impact these adaptations might have on student outcomes. We assume that teachers make in-the-moment instructional changes; why, when, how and where during instruction has remained unclear (Davis, 2009; Duffy et al., 2006, 2008; Parsons, 2008). Exemplary teachers are described in the literature as highly

responsive to classroom needs (Berliner, 1994; McDonald, Pressley, & Hampston, 1998; Taylor et al., 1999), with assertions that TAT is one way exemplary teachers respond to in-the-moment classroom needs:

The central idea is promoted by a variety of literacy researchers, such as Pressley (2002), who states that exemplary teachers “take advantage of teachable moments by providing many apt mini-lessons in response to student needs.” (Duffy et al., 2008, p. xiii)

There is scant empirical data to support this central idea. In the literature there are numerous labels for TAT arising from researchers noting it while focused on other aspects of teaching.

Terms for Thoughtfully Adaptive Teaching

This section reviews the various terms applied to TAT arising from researchers noting, and then labeling it while investigating other aspects of teaching. It is important to understand that although while TAT has been noted and described, it has not been systematically investigated. The creation of these terms in order to label the observed classroom event of in-the-moment change in instruction has often been the extent of the findings. However, the number of terms is indicative of past researchers noting that something was occurring in-the-moment. As the following demonstrates, the idea of TAT has been accepted without supporting data and it has been thought to exist across all grade levels and subjects. Even though no number of adaptations per unit of instructional time has ever been offered beyond researchers asserting that there is a certain level occurring, reading between the lines one gets the impression TAT happens frequently at all grade levels and at a high level of thoughtfulness (Duffy et al., 2008; Pressley, 2002).

Thus, the question of frequency and level of thoughtfulness remains unanswered in the literature.

Various terms have been used for teacher actions that respond in a creative, adaptive manner to unplanned classroom events. A common term is “the teachable moment.” Others include “adaptive teaching” (Corno & Snow, 1986; Glaser, 1977, Wang, 1992), “adaptive expertise” (Darling-Hammond & Bransford, 2005), “wise teachers” (Arlin, 1999), “presence” (Rodgers & Raider-Roth, 2006), “pedagogical moment” (Vagle, 2006); “teacher discourse responding to student discourse” (Seymour & Lehrer, 2006); “teacher decision making” (Clark & Peterson, 1978); “responsive elaboration” (Duffy & Roehler, 1987); “instructional moves” (Marriage, 1995; Roehler & Duffy, 1991); “prepared for uncertainties” (Floden & Buchmann, 1993); “cognitive decision making event” (Stough & Palmer, 2003); “adaptive metacognition” (Lin et al., 2005); “living the question” (Gordon, 2007); and “wise improvisation” (Little et al., 2007). Little beyond labeling the event and asserting its importance occurs in the above literature because the actual event is not examined. However, some researchers have moved beyond labeling TAT. The next section explores theories explaining the teacher’s part in TAT.

Explanations for Thoughtfully Adaptive Teaching

Some researchers took a further step and offered theories as to what is occurring for the teacher when making in-the-moment changes in instruction. These theories include (a) reflection on “felt difficulty” (Dewey, 1933, p. 34), (b) an example of “flair, genius, and unspecifiable virtuosity” (Delamont, 1995, p. 253), (c) decision making, (d)

information processing, (e) metacognitive event, (f) self-regulated learning, and (g) thinking about teaching. As in many areas, Dewey offered the first useful perspective.

Dewey (1933), who drew on the ideas of earlier educators such as the Buddha, Plato, Aristotle, Lao Tzu, and Confucius, is seen as the foundational thinker on the use of reflection to change instruction in order to respond to classroom needs (Houston, 1988). Dewey (1933) noted that a teacher's reflective process often stemmed from the teacher perceiving a student's "felt difficulty" during instruction. This may lead to further examination of the problem, which may then in turn develop into a change in instruction by the teacher (Dewey, 1933). The change in instruction thus emerges from the teacher reflecting amid the indeterminate, changing nature of the classroom and the various needs that students present during instruction. In this model, the teacher changing instruction to meet classroom needs is one outcome of teacher reflection, although this reflective process is never explained. From Dewey (1938) onward, educational theory has asserted that teachers are reflective, and that as part of this reflective process they are thoughtfully adaptive in their teaching. Schon (1983) greatly advanced the discussion on teacher reflection by providing the paradigms of "reflection in action" and "reflection on action."

Delamont (1995) argued that teachers change instruction to meet in-the-moment classroom needs using both "technicality" and "indeterminacy." Indeterminacy here refers to the "hidden curriculum" of the job performance, which includes the tacit, implicit, unexamined facets of any job. "All jobs involve rules of thumb and 'judgment calls' that leave space for flair, genius, and unspecifiable virtuosities" (Delamont, 1995, p. 274). Exactly how this "flair, genius, and unspecifiable virtuosities" manifest in

classrooms by teachers as they change instruction was left unexplained. Delamont (1995) implies that for good teachers this happens frequently, but offers no actual numbers.

Researchers have studied teacher decision-making; as part of this research TAT has been seen as a decision outcome. Clark and Peterson (1986) described three aspects of teacher cognition: (a) teacher planning, (b) teacher interactive thoughts and decision making, and (c) teacher theories and beliefs. They found that “the finer details of classroom teaching are unpredictable and therefore not planned” (p. 267). Clark and Peterson (1986) argued that teachers made decisions while responding to unplanned moments. They saw “interactive decision making” as how teachers responded to in-the-moment classroom needs due to classroom ambiguity and unpredictability. They noted there is little to answer the question “What constitutes effective interactive decision making by a teacher?” (p. 278). This question was unanswered due to the lack of empirical evidence of instructional changes resulting from interactive decision-making and it remains an important question, because

the estimated number of interactive decisions made by teachers ranged from .5 to .7 per minute. The results of these studies are consistent in showing that, on average, *teachers make one interactive decision every 2 minutes*. [emphasis in the original] (Clark & Peterson, 1986, p. 274)

While not always leading to a significant change in lesson plans (Clark & Peterson, 1986), this frequency of interactive decision-making does imply many opportunities to change instruction. The current study is part of an effort to map what these changes look like and to explore what associations there might be with student reading comprehension growth.

Borko and Shavelson (1990), in a review of “decision making research,” argue that “teachers are professionals who make reasonable judgments and decisions in a complex, uncertain environment” (p. 312), but also note the lack of empirical data on teachers changing instruction in the moment. Feldon (2007) used the information-processing (IP) model of cognition to explain TAT as decision making where the teacher calls upon prior knowledge to skillfully adapt when and where necessary. Duffy, Miller, Parsons, and Meloth (in press) describe TAT as a metacognitive event, which is more than just a processing event but is also an active conscious use of knowledge. Corno (2008) and Randi (2004) took the view that teachers changing instruction in the moment is an example of self regulated learning on the part of teachers, who are autonomous actors engaged in the pedagogical actions of monitoring, directing, and regulating their behavior as well as student behavior to obtain the desired outcomes in the classroom. In this view, teachers’ adaptations emerge from teacher autonomy as they find ways of achieving the desired classroom results. Similarly, Baker (2005) saw teacher thinking about teaching (teacher metacognition) due to unplanned changes in instruction to meet classroom needs as central to instruction. While theoretical explanations advanced the discussion, the emphasis of these researchers was on explaining teacher process and is thus limited because the adaptations and rationales occurring as teachers change instruction were not described empirically. Further, it is implied and assumed the change in instruction impacts student outcomes, but this remains uninvestigated.

The many and various terms used to label the event of in-the-moment change of instruction demonstrate that TAT occurs and is seen as important. Empirical evidence

was lacking until the first systematic exploration of actual adaptations and rationales and the level of thoughtfulness of each by the UNCG Group (Duffy et al., 2006, 2008). There has been no investigation of potential TAT differences due to grade level or teacher expertise. Empirical research findings on TAT by one researcher and the UNCG Group are described next.

Research on Thoughtfully Adaptive Teaching

To date, only the UNCG Group and Romano (2006) have provided empirical data on TAT demonstrating teacher adaptations. Romano (2006) conceptualized teachers responding to classroom needs during “bumpy moments” which were events in which decision-making and reflection came together:

the following examples were provided for the teachers: (1) an instructional dilemma which occurred when the range of student behaviors and abilities made it difficult for all students to complete what was considered to be a fairly simple assignment; (2) an instance in which a parent helper did not come in to class, forcing the teacher to reconsider how the day’s activities might be affected; (3) a leaking roof which caused disruption in the classroom; and (4) a problem in teaching that directly resulted from the teacher not being prepared for the day’s events. Consistent with the definition of a “bumpy moment” set forth earlier, all examples described teaching incidents that required the teacher to engage in reflection to make an immediate decision about how to respond to a particular problem in practice. (p. 974)

Romano (2006) investigated the teaching practices of four participants who had three to twenty-eight years teaching experience, and taught grades One, Three, and Four. The participants were instructed in the construct of “bumpy moments” and how to recognize these bumpy moments during teaching. They were asked to observe their own teaching once every two weeks for one time period of two and one-half hours in length. The four

teachers self-recorded bumpy moments in their teaching. Romano (2006) conducted interviews with the teachers once every two week segment. The study was conducted over a twelve-week span which gave six two week long segments, and thus included six observation periods and six interviews.

The teachers' resulting 19 bumpy moments were analyzed by Romano (2006) into categories of "management" which included behavioral issues and had 13 occurrences, "not prepared" which had 4 occurrences, and "time management" which had 2 occurrences. Of the 4 in the "not prepared" category, 2 were student questions and confusion and were the only bumpy moments that potentially would have been coded as adaptations under the categories established by the UNCG Group (Duffy et al., 2008).

The empirical results of Romano (2006) did not substantiate earlier researchers' claims about the nature of TAT. Based on Romano's emphasis on challenges to be dealt with, rather than opportunities to adapt productively, these teachers perceived bumpy moments negatively and not as something that arose from or related to student learning needs in the moment, even when due to student questions or confusion: "Their collective explanation of such moments suggests that these teachers feel many of these moments could have been avoided and/or could be corrected with appropriate teacher action" (p. 974). Teachers thought that due to lack of foresight and prior reflection they had not adequately planned the lesson and that is why bumpy moments occurred. The teachers saw distractions, not opportunities, emerging from the ambiguity and unpredictability inherent in teaching. Given the definition with which Romano began (above), this seems logical. Only in the first example: "an instructional dilemma which occurred when the

range of student behaviors and abilities made it difficult for all students to complete what was considered to be a fairly simple assignment” (Romano, 2006, p. 975) is there the possibility to positively impact student outcomes. The rest are indeed difficulties to be avoided if possible.

The findings of the UNCG Group differ from those of Romano (2006) in several important ways. First, categories of adaptations and rationales, and the ratings of their level of thoughtfulness were developed. These categories and ratings were developed from the data using Grounded Theory (Glaser & Strauss, 1967), unlike the definition of bumpy moments, which was an a priori construct. Second, the attitude of the teachers towards bumpy moments was the central finding of Romano (2006), attitudes which may have been influenced by the nature of the a priori construct and defining examples. The UNCG Group sought to understand the nature of the adaptations and rationales, which give insight into teacher thinking showing that teachers adapt due to student learning and classroom needs as these needs occur. These needs do not arise due to a lack of teacher planning or pre-lesson reflection as asserted by Romano (2006) but from student difficulties in learning. Romano (2006) is the other systematic empirical study of TAT found in a review of the literature besides those by the UNCG Group.

UNCG TAT Research Group Findings

This section describes the UNCG Group findings and discusses needed additional research. The UNCG Group under the direction of Dr. G. G. Duffy has sought to empirically demonstrate in-the-moment changes of instruction (Davis, 2009; Duffy et al., 2006, 2008; Parsons, 2008). The theoretical assumptions guiding these studies were (a)

that adaptations are integral to student learning (Galda & Guice, 1997), and (b) that these adaptations come during the course of a lesson where a teacher either provides a response to an unanticipated student contribution or event or diverges from the lesson plan (Duffy et al., 2008). The first studies of this program were conducted in 2005-06 (Duffy et al., 2006) with the research question: “Can we identify teacher adaptations during literacy instruction?” What emerged were (a) the definition of TAT noted below in Chapter III, (b) the development of a way to identify and confirm teacher adaptations, and (c) the beginning of the process of creating categories for adaptations. This series of studies began with *a priori* categories where adaptations were conceptualized as (a) attempting to reengage students in a task, (b) addressing pragmatic concerns, such as time or material difficulties (e.g. the overhead projector bulb has quit working), or (c) assisting students in understanding instruction (Duffy et al., 2006). The adaptation and the rationale were conflated with one another, and were not seen as separate aspects of in-the-moment changes of instruction. These studies did not produce the number of adaptations earlier works had suggested existed.

When confronted with the first studies’ data, the above categories were recognized as insufficient. Further, the need to separate the adaptation from the rationale was recognized, since the two were separate events: the adaptation was what occurred in the classroom; the rationale was why the teacher made the adaptation. A coding group comprised of the author and four other members of the UNCG Group developed new categories for both adaptations and rationales. Extensive analysis of the data

accompanied by vigorous debate using Grounded Theory (Glaser & Strauss, 1967) produced the categories for adaptations and rationales.

Table 2.1

The Seven Types of Adaptations (Duffy et al., 2008)

Adaptations
1 - Modifies lesson objective
2 - Changes means by which objectives are met (e.g. materials, strategy, activity, assignment, procedures or routines)
3 - Invents examples, analogy or metaphor
4 - Inserts a mini lesson
5 - Suggests a different perspective to students
6 - Omits/inserts activity or assignment
7 - Changes planned order of instruction

Table 2.2

The Ten Types of Rationales that Teachers Offer (Duffy et al., 2008)

Rationales for Adaptations
A - Objective not met
B - Challenge/Elaborate
C - To teach a specific strategy or skill
D - To help students make connections
E - Uses knowledge of student(s) or classroom dynamics to alter instruction
G - Checking student understanding
H - Anticipation of upcoming difficulty
I - To manage behavior
J - To manage time
K - To promote student engagement

The coding group then developed a rubric to distinguish the levels of thoughtfulness of adaptations and rationales using Grounded Theory (Glaser & Strauss, 1967). The three categories are based on the level of metacognitive processing the adaptation required and expressed by the teacher when explaining the rationale for

adaptation. The rubric produces three ratings of thoughtfulness: considerably thoughtful, thoughtful, and minimally thoughtful (Duffy et al., 2008) (see Appendix A). The considerably thoughtful level shows exemplary creative use of professional knowledge or practice associated with the larger goal of literacy growth. The thoughtful level rating was given to adaptations and rationales tied to the specific lesson objective or goal, but not reaching the considerably thoughtful level. Finally, the minimally thoughtful level rating was given to adaptations and rationales requiring little thought that were fragmented or unclear, used incorrect professional knowledge or practice, or did not contribute usefully to lesson objectives. Later studies utilized these categories and ratings to analyze TAT data. The following table from Duffy et al. (2006) expressed the second group of findings:

Table 2.3

Table from Duffy et al. (2008)

ADAPTATIONS	#	Quality Ratings		
		Considerable	Medium	Minimal
Modifies lesson objective	0	0	0	0
Changes means by which objectives are met (e.g., materials, strategy, activity, assignment, procedures or routines)	15	3	7	5
Invents examples, analogy, or metaphor	20	0	6	14
Inserts mini-lesson	5	2	3	0
Suggests different perspective to students	1	0	1	0
Omits planned activity or assignment	1	0	0	1
Changes planned order of instruction	0	0	0	0
Totals	42	5	17	20

The above demonstrates that adaptations did not rise to the higher levels of thoughtfulness earlier researchers had suggested, nor was there a wide range of adaptations (Berliner, 1994; McDonald et al., 1998; Taylor et al., 1999). Teachers seem to be adapting in certain ways consistently, with generally low to medium levels of thoughtfulness. This led to further investigation to see if a better understanding might emerge by examining the task in which students were engaged while teachers adapted.

Three studies looked at the relationship with between task and adaptations. These studies sought to discover if there were associations between the tasks in which students were engaged and teacher adaptations. The studies found some evidence that the openness of the task does connect to the adaptations made (Kear, 2009; Parsons, 2008; Scales, 2009). Beginning with findings showing more open tasks produce better student outcomes (Parsons, 2008), one of the studies found that there was some association between openness of task and the adaptations teachers made: the more open the task, the greater the frequency of adaptation, and higher level of thoughtfulness (Parsons, 2008). The other studies did not find the same associations quite possibly because they did not find the same level of open tasks used in the classrooms studied (Kear, 2009; Scales, 2009). These findings on task and adaptations added to the earlier findings by suggesting an indirect association between adaptations and student outcomes. The syllogism was this: Better outcomes are associated with more open tasks. Open tasks seem to be associated with more adaptations. Thus, better outcomes may be associated with more adaptations. The implication was that adaptations, as part of more open tasks for students, lead to better student outcomes.

These studies used convenience samples, were conducted at the elementary level, and did not explore the association of teacher adaptations and student outcomes (Kear, 2009; Parsons, 2008; Scales, 2009). They did confirm the earlier categories of adaptations and rationales and ratings of levels of thoughtfulness. They found TAT occurring at about the same rate, and same general level of thoughtfulness as the earlier studies, and raised the suggestion that there might be a way to more closely associate TAT and a student outcome (Kear, 2009; Parsons, 2008; Scales, 2009). Thus, while advancing the UNCG Group research agenda, they did not find TAT at the levels suggested by earlier researchers, nor did they make tentative association of TAT and a student outcome.

Another study explored whether or not the knowledge used by teachers differed as they adapt (Davis, 2009), which found little connection between the knowledge teachers utilized to make adaptations and the adaptations made. Davis (2009) used these categories of teachers' knowledge: content; learners and learning; general pedagogy; curriculum; context; and self. Davis found no significant difference between the two teachers since both teachers primarily utilized "knowledge of learners and learning" with "knowledge of general pedagogy" a distant second. Both teachers also used closed tasks, rather than the open ones found in Parsons (2008). Davis (2009) added to the earlier studies by finding adaptations at about the same rate, and at a slightly lower level of thoughtfulness than other studies. The two teachers Davis studied both enacted most of their adaptations in a few categories. This study did not find the frequency of adaptations or level of thoughtfulness the literature suggested (Davis, 2009; Duffy et al., 2008). This

study was also conducted at the elementary level, had a small sample of two teachers and did not explore associations of teacher adaptations and student outcomes.

Although the UNCG Group has developed categories of adaptations and rationales for adaptations, and ratings of the level of thoughtfulness, the number of adaptations and the level of thoughtfulness across all of these studies were below expectations based on assertions in the literature using convenience samples at the elementary grade level (see above) (Duffy et al., 2008). A predominance of minimally thoughtful adaptations and rationales has been observed in the 347 occurrences recorded in classrooms (Duffy et al., 2008). Associating TAT with student outcomes has also been problematic (Duffy et al., 2008). Specifically, none of these studies looked at reading comprehension growth in association with teacher adaptations. The importance of reading comprehension growth, while often discussed, was not investigated (Parsons, Davis, Scales, Williams, & Kear, in press).

Three Issues from Prior Findings

Given what has been found to date, there are three issues to address in order to extend the findings: First, would the use of a purposeful sample that included more expert content teachers produce different results than the convenience samples have? Second, is TAT different in grades beyond the elementary grade level? Third, is it possible to explore associations of teacher adaptations and a student outcome, specifically reading comprehension growth, which is essential to literacy instruction (Hock & Mellard, 2005)? Based on these issues, this study attempted to extend TAT studies as follows.

The first issue emerging from earlier studies is that the teacher participant samples were convenience samples (Duffy et al., 2008). The education, experience, and further certification and licensure of these teachers were not controlled. While the teaching experience ranged from pre-service teacher to 31 years, many, but not all, of the teachers in the earlier convenience samples could be considered novice teachers as opposed to more experienced teachers. The range of licenses held range from none to multiple. It is known that one teacher in an earlier studies (Davis, 2009) was BC but was not purposefully sampled *as* a BC teacher to compare with non-BC teachers. This earlier BC teacher did not show high levels of adaptation and had almost all closed tasks, which accords with earlier studies (Kear, 2009; Scales, 2009). Other factors in addition to task openness, such as content area specialization and grade level, might influence the impact of Board Certification on adaptations.

The teachers studied taught in the same district. All except Davis (2009) were in low performing, high poverty schools. Instruction in these schools perhaps was influenced by these factors. The nature of instruction in low performing schools may be influenced by the threat of accountability sanctions stemming from No Child Left Behind (NCLB) regulations. Instruction may be more test-driven and aimed at basic skills, those purportedly needed to pass the standardized tests. Higher performing schools that do not have the same immediate accountability pressures may practice different instruction. The current study purposefully selected a high performing school that was not a high poverty one in the same district as the earlier studies (see Chapter I above).

The role of expertise on teacher adaptations is unclear. Do more expert teachers, such as those teaching long enough to attain National Board Certified Teacher status, have a greater ability to respond in the moment due to less cognitive load and thus are able to adapt more? Or do the levels of automaticity these teachers have in their teaching keep them from noting places where adaptations would be advantageous (Feldon, 2007)? In Davis (2009) one teacher had 31 years of experience teaching, and the other had 20 years of experience teaching. Both of these teachers for the most part had minimally thoughtful adaptations in just a few of the adaptation categories. The current study used a sample of purposefully selected BC and non-BC teachers to explore whether or not high quality BC teachers make different adaptations compared to the non-BC teachers and compared to the teachers in the earlier convenience samples.

A second issue is that prior studies were conducted with elementary grade level teachers. Is TAT different at different grade levels? Specifically, do teachers at the middle grade level adapt differently from those at the elementary grade level due to the changes students experience during the middle grades? Students experience many changes during these years in physical, emotional and cognitive domains (Eccles, Midgley, & Adler, 1984). These changes include a decline in academic achievement orientation motivation, which is pronounced as children enter the middle grade level (Eccles et al., 1984). The impact these changes, in particular student motivation, and hence participation, have on teacher TAT may be explored by changing the grade levels to see if TAT differs at the middle grade level from the elementary grade level.

The third issue is that of exploring potential associations of teacher adaptations with student outcomes, in particular with reading comprehension growth, which is the *sine qua non* of literacy instruction. The current study compared student reading comprehension growth in the two BC teachers' and two non-BC teachers' classes to explore potential associations between teacher sample, teacher adaptations, and student reading comprehension growth.

Earlier studies focused on establishing the viability of the TAT construct by developing the framework for studying TAT. The intent of the UNCG Group's larger research agenda has always been to explore associations between adaptations and student outcomes, especially reading comprehension. This study is the first to take advantage of the advances created by the earlier studies to investigate student reading comprehension growth. What follows is a discussion of the theoretical support for using student summaries as the measure used to explore reading comprehension growth.

Student Outcome Measure

The current study used reading comprehension growth to explore the claim that TAT enhances student learning. In order for these assertions to be taken seriously, some association must be made between teacher adaptations and student outcomes. More frequent and higher quality adaptations in conjunction with more reading comprehension growth would suggest such an association and would offer support for the assertions that teacher adaptations are important to student learning (Darling-Hammond, 2006; Darling-Hammond & Bransford, 2005). Thus, reading comprehension growth could be measured as a way to explore potential associations with adaptations. Student data from the EOG

and benchmark tests were unavailable to the investigator due to privacy concerns so some form of in-class measure of reading comprehension was needed. The following discusses several ways to measure reading comprehension and then discusses why summarization.

Options to Measure Reading Comprehension

This study could have chosen from among several measures of reading comprehension: (a) having the student read directions, then follow those directions; (b) the “read and answer” method, where the student reads a passage then answers questions based on the passage; (c) “retelling” which is where the student retells the passage; (d) the “Cloze method” where the student fills in blanks in a text with appropriate words; (e) multiple choice, fill in blank, and matching tests; and (f) “summarization” where the student summarizes a passage of text. The investigator chose summarization to explore associations between adaptations and reading comprehension growth for the following reasons.

First, summarization was taught by all four participant teachers as a regular aspect of instruction in the four classes observed. Summarization is included on the state’s standard course of study for middle grade level language arts because “research suggests that instruction and practice in summarizing not only improves students’ ability to summarize text but also their overall comprehension of text content” (Duke & Pearson, 2002, p. 221). Since the teachers were familiar with the method, extensive training in the protocol for the current study was unnecessary. Summarizations were also less intrusive to administer under the investigator’s supervision than other measures because they took little time away from instruction. Teacher ease of administration was important because

of the time constraints they worked under due to “benchmark-testing” which takes a considerable amount of their time. Adding more requirements to their schedules was not feasible, warranted, or possible.

Second, summarization was chosen because students were familiar with it, thus no extra education was required. It was a method students could do independently as a whole class activity that was closest to actual reading strategies taught in the classrooms, and was thus less intrusive to administer than other measures. Measures that cannot be done independently as a whole class activity include (a) the “read and answer” method, where the student reads a passage then answers questions asked by the teacher based on the passage and (b) “retelling” which is where the student retells the passage. One that the student could do independently is having the student read directions, and then follow those directions. This was problematic in terms of intrusiveness to the classroom because of student behavior issues and the investigator’s ability to measure student product.

Third, and most importantly, summarization was chosen because it produces a good measure of reading comprehension (Cohen, 1992, 1994; Perin, 2002; Perin, Keselman, & Monopoli, 2003; Reynolds & Perin, 2009; Rogevich & Perin, 2008; Winograd, 1984). This is seen further in the cognitive requirements that summarizations have

the ability to summarize information requires readers to sift through larger units of text, differentiate important from unimportant ideas, and then synthesize those ideas and create a new coherent text that stands for, by substantive criteria, the original. This sounds difficult, and the research demonstrates that, in fact, it is. (Dole, Duffy, Roehler, & Pearson, 1991, p. 244)

Both the “Cloze method” where the student fills in blanks in a text with appropriate words, and multiple choice, fill in blank, and matching tests do not provide as authentic a measure of reading comprehension as summarization does (Farr & Carey, 1986; Harris & Sipay, 1990; Shanahan & Kamil, 1984).

Summarization was thus chosen as the measure of reading comprehension because it was one assessment strategy students could do independently from among the reading strategies taught and that produces an authentic measure of reading comprehension. The next section describes the research questions.

Research Questions

The findings on TAT may be expanded by using a replication with variations: (a) the teacher participants were purposefully sampled in order to see if BC and non-BC teachers differ; (b) it was conducted at the middle grade level; and (c) it explored if teacher adaptations might be associated with reading comprehension growth. The four research questions were designed to address these three issues:

1. Was there a difference between BC and non-BC middle grade level language arts teachers in the types and numbers of adaptations and rationales, the levels of thoughtfulness, and teacher adaptation scores?
2. Was there a difference in the number of adaptations made to improve comprehension between BC and non-BC teachers?
3. Was there a difference in student reading comprehension growth between the classes of BC and non-BC teachers?

4. Is there an association between teacher adaptations and student reading comprehension growth?

What follows is the conclusion to this chapter.

Conclusion

This chapter reviewed research on TAT, which has been much discussed, but seldom studied. Many researchers have labeled the event of teachers' in-the-moment changing of instruction. The UNCG Group has produced findings for the first systematic picture of TAT, which raise issues concerning teacher participant sampling, the grade level studied, and association of adaptations and student outcomes. This study investigated these issues using a replication with variations. It examined how, in what ways, and for what reasons a purposeful sample of middle grade level teachers changed instruction (Duffy et al., 2008) while also exploring potential associations between teacher adaptations and student reading comprehension growth. The next chapter details the methods this study used.

CHAPTER III

METHODOLOGY

This chapter presents the methods of this study: participants, site, text selection procedures, and the data collection and analysis procedures. The definitions used were presented in Chapter I above. There is first a discussion of the rationale.

The rationale for the current study is the assertion that effective teaching includes the teacher deciding to make in-the-moment instructional changes in response to student needs (Florio-Ruane et al., 2004; Pressley et al., 2001). The current study explored this claim as part of the larger research agenda of the UNCG Group using a replication with variations designed to (a) compare a purposeful sample of Board Certified (BC) and non-Board Certified (non-BC) teachers; (b) extend the findings to the middle grades; and (c) explore the association of teacher adaptations with student reading comprehension growth. The next section describes the participants of the study.

Participants

This section describes the teacher and student participants for this study.

Teachers

The investigator asked the principal to recommend BC and non-BC language arts teachers in order to select a purposeful sample of teacher participants, two BC, two non-BC. The reasons for this sampling are described in Chapter I above. The principal recommended four teachers: Amy, Demetria, Hilda, and Victoria, all of whom agreed to

participate as volunteers without compensation. Two of the teachers, Amy and Hilda, teach sixth grade, with one teacher each from seventh grade, Victoria, and eighth grade, Demetria; all teachers had five or more years experience teaching in the middle grades; all taught language arts exclusively because the school has teachers focus their teaching in one content area. The two BC teachers, Hilda and Victoria, both had graduate work beyond initial teacher education, as well as several teaching licenses in addition to their initial ones. The two non-BC teachers, Amy and Demetria, did not have graduate work beyond initial teacher education or more than one license each.

Students

Standardized testing data in the form of results on the State End of Grade tests for students could not be shared with the investigator for purposes of this study due to privacy rules. With this restriction, the investigator asked the principal and the teachers to recommend classes with students of comparable levels of achievement. Using principal recommendations, each teacher then suggested a general level class based on those recommendations. The four classes selected for this study from the teachers' suggestions were all in the general category without a high level of students with either AIG (academically/intellectually gifted) or IEP (Individualized Educational Plan- denotes Special Education status) designations. The principal and teachers assured the investigator that the students in the four classes were a mix of ability levels. According to the principal and the respective teachers of those classes, the students in these classes received scores of Two, Three and Four on the prior year's End of Grade (EOG) test, which produces four scores, One, Two, Three, and Four. Three and Four are considered

at grade level and above grade level, respectively, One and Two are considered below grade level and not passing. Thus, all classes had both higher and lower performing students. Class size ranged from 21 to 24. Each class lost and gained members over the course of the study. Classes were a mix of ethnicities and genders as shown on the following Table 3.1, which presents the first day of observation census for each class.

Table 3.1

Student Population Census First Day of Observation

	Male	Female	White	African American	Hispanic	Asian	Multiracial	Total
Amy	14	10	10	10	3	1	0	24
Demetria	10	13	7	8	5	0	3	23
Hilda	10	11	4	9	3	3	1	21
Victoria	9	14	7	8	4	2	2	23
Total	43	48	28	35	15	6	6	91

None of the students were currently receiving assistance as an English Language Learner. The teachers reported that they suspected, but did not know for certain, that several students were in homes where English was not the first language, nor the one used the most at home. In talking with the students and listening to them, no difficulty in spoken English was noted. The teachers reported that students did not have difficulty based on home language issues, and that the students' differences in summarization most likely stemmed from past instruction, or the lack thereof in summarization.

Site

This section describes the site of the study. It first describes the school where the study was conducted. It then discusses the classrooms in which the study occurred.

School

The study was conducted at a southern urban middle school that had slightly over 700 students and that was economically, racially, ethnically and linguistically diverse. The school was selected because (a) it was familiar to the investigator, due to his having supervised university teacher candidates at this school; (b) it was neither a school with extreme high poverty in the student population, nor very wealthy, as 53% of the student population in the last reporting year (2008-9) was eligible for free or reduced price meals; (c) it had a ethnically diverse student population, with no group in the majority: Whites comprise 36%, African-Americans 34%, Hispanics 15%, Asian/Pacific Islanders 6%, and multi-racial 8% of the school population; (d) it was a stable school with turnover among teachers at 15% the year before the study, which was a little higher than the district average of 14%; (e) the principal, who had been at the school eight years, was willing for the investigator to conduct research there; and (f) it was a high performing school, with student performance in the most recent year available at or above both district and state averages for all three middle grades on state language arts End of Grade (EOG) tests (NC Report Card, 2009) as seen in Table 3.2, and the school had met 37 out of 37 of its AYP goals, which is an impressive feat.

Table 3.2***Language Arts EOG Scores Percent Passing***

	Grade Six	Grade Seven	Grade Eight
School	73.9	65.8	71.3
District	70.6	65.8	63.4
State	71.0	65.0	66.6

Classrooms

This section will first discuss the similarities between the classrooms where the study occurred. It will then describe some of the differences the investigator noticed in these classrooms.

The classrooms where this study occurred are similar in many ways. They were all about the same size with 21 to 24 students, had windows that opened to the outside along one wall, had one door in, black board, and at least one computer station for students to use. All had class libraries where students could get books to read. The teachers had computers with projectors and ELMOs to project work onto screens. There were televisions that all the four teachers used at various times during the study. Every classroom had student work displayed.

All the teachers displayed good to excellent time management skills, which is not surprising given the levels of experience they all have (see above Participants Section). All the teachers did the school mandated Daily Grammar Practice (DGP), where a sentence is given without punctuation, incorrect grammar, etc and students are then expected to copy it down then correct it. All had weekly vocabulary tests. They all had

periods of Silent Sustained Reading (SSR). All had group work, seat work, and worksheets.

The usual order of instruction in all four classes was similar as well. All but BC Teacher Hilda started the class period with the DGP. This often took 15 to 20 minutes of the 80 minute class period. It would be on the board or projected on the screen as a “bellringer” for students to start as they were coming into class. Teachers varied in the amount of time they would give students to complete the DGP before beginning whole class instruction on the DGP. BC Teacher Hilda would have students read first in SSR then begin the DGP work. She would give students no more than five minutes to copy it down in notes, and then correct it, then spend no more than ten minutes on discussing it as a whole class activity. Her time on the DGP was at the low end of the teachers. Non-BC Teacher Demetria would have the DGP up on the board, give student 10 to 15 minutes to do it at the start of class, and then spend at least 5 minutes on it, often longer. The other teachers had a similar approach, with students starting the DGP as they came into class, then spending whole class time going over the answer. BC Teacher Victoria and non-BC Teacher Amy usually gave students five to ten minutes, and then spent five to ten minutes going over it.

After the DGP, all teachers would have the students do various projects. These might include worksheets on a story previously read, writing persuasively, preparing for upcoming vocabulary tests by going over the words and meanings of the words, and some whole class round robin reading. Videos were often employed, particularly by non-BC Teacher Amy, to present material on grammar and comprehension concepts, such as

point of view and character development. There was no whole class teacher reading of texts observed during the observation period of ten classes over five to six weeks. The only activity approximating a teacher read aloud was when non-BC Teacher Demetria played a tape of a text being read for the students to follow along. Classes would often end with students copying down, and then starting that night's homework.

There were several differences in what the teachers did in their respective classrooms. The first difference is that only one teacher, BC Teacher Hilda, had students sitting in groups. The other three teachers had students sitting in rows. Occasionally, these three teachers would have students form ad hoc groups to do projects. BC Teacher Hilda consistently used group work in her class.

Another difference is that the students in each class were asked to take responsibility for the classroom at different levels. Students in BC Teacher Hilda's classroom were asked to be the most responsible. They were asked to clean the room before exiting the class. They went to the board to do work for the class; they handed out and took up materials, workbooks, journals, and texts.

The second most responsible class was non-BC Teacher Demetria. In her class students collected and handed out journals, and texts, but not student work. They were not called to clean as much as students in BC Teacher Hilda's classroom. They were given less opportunity to go to the board to do work. Demetria for example, would usually do the corrections to DGP while Hilda would almost always have student come to the board to make corrections.

BC Teacher Victoria and non-BC Teacher Amy had the least classroom involvement by students. They would have students distribute and take up journals, but not texts or student work. Students in these classes did not go to the board to make corrections during DGP. Often, these teachers would have students make suggestions as to the correct answers to the DGP, then they would supply the correct answer, while Demetria and Hilda often had students provide an answer, then have the class discuss if that answer was correct or not.

Another difference between the teachers was that length and consistency of SSR varied widely. BC Teacher Hilda was the most consistent, with students having at least ten minutes at the start of class every day that was observed. BC Teacher Victoria sometimes had students read for longer periods, but was inconsistent in how often this occurred. Some days there would be SSR, other days there was none. The average was about one day in three had SSR in BC Teacher Victoria's class. The investigator asked about this and was told that it depended on the day and what else she wanted to do. Non-BC Teachers Amy and Demetria had less SSR time, and less often than the other two teachers. None of the teachers conference during the SSR time with students.

Another significant difference between the teachers is the amount of group projects that occurred. BC Teacher Hilda had the most, with student presentation of the projects on several observed days. None of the other teachers had group projects. Non-BC Teacher Demetria had her students do a reading of a play in group. The other two teachers had no group projects observed during the investigation period.

There were similarities and differences between the teachers in how they constructed their classrooms and used time there. The next section discusses the data collection procedures.

Data Collection Procedures

The investigator used established observation and interview protocols developed in prior TAT studies to collect data on teacher adaptations (Duffy et al., 2008). Student summaries were used to collect data on student reading comprehension growth. The next section describes the teacher data collection procedures.

Teacher Data

The investigator observed and interviewed the four teachers ten times each. For each teacher, one class period was selected to observe, based upon the recommendations noted above. Each teacher was thus observed teaching the same general group of students during each observation. Teacher interviews were as soon as possible after each observation, usually during planning periods or at the end of the school day. The next section gives the teacher data collection schedule.

Schedule. The teacher data collection schedule began in October 2009 and was as follows:

For Amy, Demetria, and Victoria: October 19 and 30; November 2, 9, 13, 16, 23, 30, 2009;

For Amy and Victoria: December 4, 2009;

For Demetria and Hilda: December 7, 2009;

For Hilda: December 2, 9, 10, 11, 15, 17, 2009; January 6, 11, 2010.

Amy and Victoria had 29 instructional days between the first and last observation days, inclusive. Demetria had 30 days between the first and last observation days, inclusive. Hilda had 24 days between the first and last observation days, inclusive. This difference in elapsed instructional time between the start and end of observations was due to a slightly different observation schedule because Teacher Hilda had a student teacher during most of the other teachers' observation period. This placed Teacher Hilda's observation period three weeks later in the school year. This difference in time elapsed and time of the school year is discussed further in the limitations section below. The next section describes the procedures used to collect teacher data.

Procedures for teacher data collection. The procedures were as follows:

1. The investigator sat in the back of the classroom observing teaching for a complete class period, roughly 80 minutes in length, and identifying the following as potential TAT events: (a) an attempt to scaffold student learning; (b) the teacher providing a response to an unanticipated student contribution; (c) a divergence from the lesson plan; or (d) a public statement of a change of plan during the lesson (Duffy et al., 2008) and noting them in the observation protocol (See Appendix C).
2. The investigator interviewed the teacher as soon as possible after the observation to confirm or deny potential adaptations (See Appendix D). The interview was taped and later transcribed. The following are the steps of the interview process:

- a. The first question ascertained if a potential adaptation had occurred “When I saw you doing _____ during the lesson, was that a spontaneous change, something you had not planned?”(Duffy et al., 2008).
- b. If the answer to the first question (Step “a” above) was “no,” the investigator proceeded to the next potential TAT event of that observation, if any. If there were no further potential TAT events to ask about, the next step was “e” below.
- c. If the answer to the first question (Step “a” above) was “yes,” the investigator asked the question ascertaining the rationale for that adaptation: “Why did you make that change?” (Duffy et al., 2008).
- d. If there was another potential TAT event to ask the teacher about, then the investigator followed from Step “a” (above) until all potential TAT events were addressed. When there were no further potential TAT events to ask about, the next step was “e” below.
- e. Once the interview was completed, the investigator thanked the teacher for participating.

The next section describes the student data collections.

Student Data

This section describes the timing and procedures used to collect student data.

There were two student data collection points for each class: a pre-observation collection and a post-observation collection. The pre-observation collection occurred the week

before teacher observations began. The post-observation collection was conducted the week after teacher observations ended.

Schedule. The student data collection schedule began October, 2009 as follows:
Classrooms of Amy, Demetria, and Victoria pre-observation collections: Week of October 13;
Classroom of Hilda pre-observation collection: Week of November 30;
Classrooms of Amy, Demetria, and Victoria post-observation collections: Week of December 7;
Classroom of Hilda post-observation collection: Week of January 18, 2010.

The class of Teacher Hilda had a different collection schedule because she had a student teacher almost until the end of the observation period for the other teachers. The classes of Teachers Amy and Victoria had 29 instructional days between the first and last observation days, inclusive. The class of Teacher Demetria had 30 days between the first and last observation days, inclusive. The class of Teacher Hilda had 24 days between the first and last observation days, inclusive. This is further discussed in the limitations section below. The next section describes the text selection procedure used for the texts that students summarized.

Text selection procedure. First, because summarization is a legitimate way to measure comprehension as established in Chapter Two above, it was chosen as the method of measuring student reading comprehension (Dole et al., 1991). Two texts were chosen to use for the student summarizations, one each for the pre- and post-observation

summaries. The procedure of selecting the two texts (see Appendices E and F) was as follows:

1. The investigator solicited suggestions from the teachers for a student comprehension measure. One of the teachers, Hilda, suggested summarization.
2. The investigator shared this idea with the other teachers, who all concurred in its use.
3. The investigator, with the assistance of the dissertation advisor, established the format for this summarization procedure.
4. The investigator shared using summarization to measure reading comprehension with the teachers to: a) confirm that it aligned with what they taught and that it could be done given the time constraints under which the teachers were working in their classes; and b) ask for texts that might be used with the procedure.
5. One teacher, Demetria, suggested the compilation *How the Spider Became Bald: Folktales and Legends from West Africa* (Addo, 1993) as a source of texts, which was shared with all the teachers.
6. Based on feedback on the texts from all the teachers, the investigator used the following criteria for text selection: (a) difficulty level suitable for all three grade levels; (b) not more than four pages, so that it could be read quickly; and (c) considered as meeting each grade's state standards.

7. Two texts from the compilation *How the Spider Became Bald: Folktales and Legends from West Africa* (Addo, 1993), “How the spider became the main hero of folktales” and “Greediness doesn’t pay,” were selected by the investigator as texts based on the three criteria (# 6 above).
8. The investigator then shared the two texts with the teachers; each stated the texts were suitable for the students, met requirements for their respective grades’ curricula, and that the two texts were of equal difficulty. The investigator also verified this using the Fry Readability Scale estimation, which was used due to the ease of use of the scale and the widespread use it has in education (Fry, 1977, 2002). To calculate the reading grade level using the Fry formula (1977), the investigator selected from the text three 100-word passages from three different sections (beginning, middle, and end). The number of syllables and sentences in the 100-word passages are tallied and totaled separately. Next, the average number of syllables and sentences for each of the three passages is calculated. Lastly, the average number of syllables per 100 words and the average number of sentences per 100 words are plotted on The Fry Readability Graph to estimate readability expressed as grade level.

Following is a section on the student data collection procedures.

Student data collection procedures. The teachers were taught how to administer the student summarization procedure for the collection of student data (see Appendix H).

Table 3.3***Fry Readability Scale for Texts***

Text		Sample 1	Sample 2	Sample 3	Total	Average	Level
#1	Sentence	6	8	8.1	22.1	7.36	Sixth Grade
	Syllables	144	129	120	393.0	131	
#2	Sentence	5	5	10	20.0	6.67	Sixth Grade
	Syllables	139	111	141	391.0	130	
Both	Sentences				42.1	7.02	Sixth Grade
	Syllables				784.0	131	

Summarization was a technique all teachers were familiar with since they had been teaching it. The investigator oversaw the administration by providing all materials and the script to be used and by discussing the administration both before and after to ensure that the teachers held to the procedures. All students present on the days of each of the student data collections participated in their respective classrooms with their teachers. However, not all students were present on both days. Only those that were present both days and who produced a pre- and post-observation summary were included in the sample for each teacher's classroom. The following are the student data collection procedures used for both the pre-observation and post-observation collections:

1. The teacher stated "You have been learning reading strategies. You are now going to read a folklore text. After reading it, you will summarize the text."

The investigator asked the teachers to use this script so that the same procedures were followed in each class so that the collections would be done in the same manner in each classroom. Because of the instructional demands

on the teachers, it was not possible for the investigator to do all of the collections, and the investigator wanted the collections to be done within a certain time frame relative to the observation period at a time that worked for the teachers.

2. Students were given the text to read, and then read it.
3. After reading the text each student was asked to write a summary of it.

The next section describes the data analysis procedures used in this study.

Data Analysis Procedures

Teacher data and student data were each analyzed separately. The results of those analyses were then combined to explore possible associations between teacher adaptations and student reading comprehension growth. The four research questions were answered as follows.

Research Question One

This section describes the procedures for coding teacher data on adaptations and rationales, and rating the level of thoughtfulness to answer Research Question One: *Was there a difference between BC and non-BC middle grade level language arts teachers in the types and numbers of adaptations and rationales, the levels of thoughtfulness, and teacher adaptation scores?*

Teacher data analysis followed the procedures of the UNCG Group described above in Chapter II using adaptation and rationale codes and thoughtfulness ratings (Table 2.1, Table 2.2, and Appendix A, respectively) (Duffy et al., 2008). This was done with two thoughtfully adaptive research team members and required unanimous

agreement to code adaptations and rationales and rate level of thoughtfulness. The research group used the investigator's field notes, which were comprised of observation and lesson plan notes, and the transcripts of the teacher interviews to provide the data with which to determine if an event was an adaptation, and if it was an adaptation, into which category it should be coded. Then the rationale was coded using the observation and lesson plan notes, and the transcripts of the teacher interviews. Both adaptation and rationale were then rated for level of thoughtfulness using the observation and lesson plan notes, and the transcripts of the teacher interviews. Research Question One was answered by coding the types of adaptations and rationales, rating level of thoughtfulness of adaptations and rationales, then counting the number of adaptations and rationales for each teacher (Duffy et al., 2008). Once adaptations had been coded, each teacher's adaptation score was computed as follows: (a) a minimally thoughtful adaptation received one point; (b) a thoughtful adaptation received two points; and (c) a considerably thoughtful adaptation received three points. The points for each teacher were then summed, which produced the teacher adaptation score for each teacher. The BC and non-BC teachers were then compared in terms of the numbers, types, and levels of thoughtfulness of adaptations and rationales, and adaptation scores. The next section describes the exploration of teacher adaptations concerning reading comprehension.

Research Question Two

The data on adaptations were analyzed to answer Research Question Two: *Was there a difference in the number of adaptations made to improve comprehension between BC and non-BC teachers?*

Using the definition of *adaptation related to reading comprehension* specified in Chapter One, such adaptations were counted for each teacher. This produced a measure of “x” adaptations specifically related to reading comprehension out of total “N” adaptations. The next section describes the procedures used for the student data analysis.

Research Question Three

Student data analysis followed the following steps to answer Research Question Three: *Was there a difference in student reading comprehension growth between the classes of BC and non-BC teachers?*

Measure used. This study used pre-observation and post-observation student summaries to measure reading comprehension growth. A method was needed to score the pre-observation and post-observation student summaries of the two texts.

Score sheets. The investigator developed score sheets (Appendix B) to score the student summaries in conjunction with the teacher participants using “idea units” based on the model developed by previous researchers (Perin, 2002; Perin et al., 2003; Reynolds & Perin, 2009; Rogevich & Perin, 2008). This procedure first involved determining the most important ideas (the idea units) of the texts to be summarized (Perin, 2002; Perin et al., 2003; Reynolds & Perin, 2009; Rogevich & Perin, 2008). The procedure used by these investigators:

The main ideas were gleaned from the source text collaboratively by a panel consisting of the first author of the current study and two graduate students who were familiar with literacy acquisition processes. The first author trained the graduate students to identify the main ideas in the text, and then the author and each graduate student worked independently to list the main ideas from each passage. Finally, they met to compare their lists and resolve differences. The main

ideas resulting from this panel activity were then listed on score sheets. (Reynolds & Perin, 2009, p. 277)

This study modified this procedure by having the teachers glean the idea units for the source texts, rather than the investigator doing so. The steps were:

1. Each of the four teacher participants provided the idea units gleaned from each of the two texts used. Since these teachers were educated in teaching summarization, no training was needed. The investigator had the teachers do it so that the score sheet would reflect what they thought was important to include in a summary of each text since the students would be doing their summaries based on how these teachers had taught them. This is slightly different than the above procedure, but the investigator wanted score sheets that reflected the ways the teachers actually taught. Since the teachers would be emphasizing certain things in summarization, it seemed logical for the students to be assessed in light of that teacher emphasis;
2. The investigator collated the idea units the teachers supplied for each text into a score sheet consisting of idea units to use for the scoring of the student summaries for each text (Perin, 2002; Perin et al., 2003; Reynolds & Perin, 2009; Rogevich & Perin, 2008). All idea units that the teacher participants supplied for a text were included in the score sheet for that text. The score sheet was thus a composite of the idea units composed into an ideal summary;

3. The investigator reviewed the score sheets with the teachers to assure that they accurately reflected the teachers' idea of what a model summary should include.

The post-observation score minus the pre-observation score produced a measure of reading comprehension growth. If a class had higher scores after observation than before, this indicated that reading comprehension growth occurred during the observation period. If a teacher displayed more adaptations than other teachers *and* that teacher's class showed more reading comprehension growth than other teachers, it would suggest that an association may exist between teacher adaptations and student reading comprehension growth. The summaries were scored as follows:

1. The investigator used the score sheets (see Appendix B) to score each student's summaries of the two texts, which produced a *student summary score* for each.
2. Then, the student growth score was computed, as was the class growth score. For each student who completed both, the pre-observation student summary score was subtracted from the post-observation student summary score which gave the *student growth score*, which could be positive, zero, or negative, indicating respectively, growth, no change, or a decrease in reading comprehension.
3. Summing the *student growth scores* from each class produced the *class growth score*, which also could be positive, zero, or negative, indicating

respectively, growth, no change, or a decrease in overall class reading comprehension.

4. After scoring and computation, the BC and non-BC teachers' class growth scores were compared to see if there was a difference.

The next section describes the comparison of teacher adaptations and student reading comprehension.

Research Question Four

The teacher data and the student data were combined in order to explore potential relationships between teacher adaptations and reading comprehension growth to answer Research Question Four: *Is there an association between teacher adaptations and student reading comprehension growth?*

The scores of the adaptation score and student reading comprehension growth score relative to the other were compared to explore possible associations. If a class had higher scores on summarization for the post-observation collection than on the pre-observation collection, this indicated that reading comprehension growth occurred. If a teacher had a higher teacher adaptation score *and* that teacher's class showed higher reading comprehension growth, it suggests that an association may exist between teacher adaptations and student reading comprehension growth.

The next section describes the efforts towards trustworthiness of this study.

Trustworthiness

The issue of trustworthiness was dealt with through adopting the four constructs of *credibility, transferability, dependability, and confirmability* framework of Guba

(1981) as elaborated by Maxwell (1996), Miles and Huberman (1994), and Toma (2006).

Next there is a discussion on credibility.

Credibility

For purposes of this study, *credibility*, or how well the researcher accurately represents the phenomena studied, was ensured through a triangulation of teacher adaptations with observations by the investigator, review of the teachers' lesson plans, and interviews with the teachers to confirm or deny the adaptations. This provided three levels of scrutiny:

1. The investigator during observation had to consider that a change in instruction rose to the level of an adaptation based on instructional context and lesson plans (Duffy et al., 2008).
2. Every change in instruction noted by the investigator had to be verified by the participant teacher (member check) as an adaptation meeting the definition for this study (Duffy et al., 2008).
3. There was group coding of adaptations and rationales, and rating of the level of thoughtfulness of the adaptations and rationales which required unanimous agreement for each code and rating (Duffy et al., 2008). This was a confirmation that a change in instruction observed, and then teacher verified, did indeed meet the requirements of the overall UNCG Group rubric for adaptations (Duffy et al., 2008). This group coding utilized the group experience in research and coding to strengthen the credibility of the findings. The two other members of the coding team for this study had successfully

completed their dissertations on TAT, and had coded seven and four other TAT studies, respectively. One of them was part of the group that developed the codes for adaptations and rationales, and ratings of level of thoughtfulness, as was the investigator, who had previously coded six TAT studies.

The data for the rationales were collected during the teacher interviews and from the observations. As with the adaptations, members of the research team had to agree on all codes on rationales (Duffy et al., 2008). This coding of the data by the research team served to ensure that the data was coded accurately and represented the raw data.

Interviews were audiotaped by the investigator, and then transcribed by a third party, and were used in conjunction with field observation notes during the group coding and rating procedures.

The student data was scored using score sheets constructed upon “idea units” (Perin, 2002; Perin et al., 2003; Reynolds & Perin, 2009; Rogevich & Perin, 2008) the participant teachers provided. The investigator collated these idea units to form the score sheet. These score sheets were then reviewed by the teachers for accuracy (member checking). The investigator’s stance towards any particular reading of the two texts was not involved. Thus, the student summaries were scored by what their teachers saw as important, not what the investigator might have thought was important. Next there is a discussion on Transferability.

Transferability

For purposes of this study, *transferability* refers to the degree findings from this study are useful in understanding similar contexts with different participants and settings.

First, transferability was increased by studying four teachers over at least a 24-day span of instructional time. Transferability was increased through the design of the study where the adaptations were considered several times, as noted above. Transferability in this study was also bolstered through its inclusion within the larger framework provided by the findings from the multiple case studies of the UNCG Group. The current study is the tenth study in this collaborative effort on understanding TAT, and is the investigator's second study. It is also the sixth study in which the investigator has participated in coding the raw data into categories and ratings. The increase in understanding of TAT by multiple teachers in multiple cases permits the UNCG Group to collaboratively interpret how this information might transfer to various situations. The student data were collected through a procedure suggested by the teacher participants, and scored using procedures established by earlier researchers (Perin, 2002; Perin et al., 2003; Reynolds & Perin, 2009; Rogevich & Perin, 2008). As Borko, Liston, and Whitcomb (2007) and Toma (2006) argue, the researcher's responsibility lies in providing the "thick" descriptions that support the findings, while the readers' responsibility lies in assessing how these particular findings might apply in their own settings, where these "thick" descriptions give a context that permits others to assess any similarity between the current study's findings and their own contexts. Next there is a discussion on Dependability.

Dependability

For purposes of this study *dependability*, or how stable and consistent the research findings may be, was achieved for the teacher data by (a) utilizing established observation and interview protocols (see Appendices C and D) for adaptations, rationales, and levels

of thoughtfulness (Table 2.1, Table 2.2, and Appendix A, respectively); (b) clear research questions; (c) a theoretical framework grounded in past TAT research addressing pertinent issues from that research; (d) describing the multiple ways in which the data were scrutinized; (e) collecting multiple cases; (f) collecting the same data from those multiple cases; and (g) through having all adaptations and rationales coded, and levels of thoughtfulness rated by the research team, which required unanimous agreement for codes and ratings. Dependability for student data was assured by using an established procedure (Perin, 2002; Perin et al., 2003; Reynolds & Perin, 2009; Rogevich & Perin, 2008) to score student summaries by the investigator and a research associate. A discussion on confirmability follows.

Confirmability

For purposes of this study, *confirmability*, or how well the study is replicable by other researchers, was addressed by the use of the procedures and protocols established in prior studies by the UNCG Group. This provided the teacher data collection and analysis procedures for answering the research questions within an established theoretical framework. Any bias in the observation and interviewing process was limited by using these protocols. The member checking with the participant teachers of the potential adaptation limited the bias as well. Likewise, the coding of the data as a team limited bias due to the requirement of unanimous consent on any adaptation code or thoughtfulness rating. Confirmability for student data was likewise assured though using an established method (Perin, 2002; Perin et al., 2003; Reynolds, & Perin, 2009; Rogevich & Perin, 2008) to score student summaries, and by providing a clear description of all procedures

used for the current study. Thus, the investigator's bias was limited, and due to the clear description of the study's definitions, procedures, and methods, it can easily be replicated.

Table 3.4

Research Crosswalk

	Observations: Note adaptations Qualitative notes	Post lesson interviews of adaptations and rationales	Pre-observation & post-observation student summaries	Lesson Plans
The number and type of adaptations and rationales and the quality of adaptations and rationales	X Identify adaptations	X Categorize adaptations/ rate quality Categorize rationales/rate quality Compare Teachers		X Review lesson plans to what actually happens to identify adaptations
Student reading comprehension			X Score and compare scores of pre-observation and post-observation summaries	

The next section discusses the assumptions this study made.

Assumptions

The study makes the assumption that teachers' reports of the rationales accurately reflected the individual teacher's level of thoughtfulness concerning that rationale. The next section describes the limitations of this study.

Limitations

The following five limitations affected this study.

The first limitation involved the length of time the teachers were observed, which at ten classes over at least 24 instructional days may not have been enough time, both in-class and over instructional days, to adequately observe the TAT. Observations occurred only once or twice a week, and potentially may have missed some significant aspects of lessons where TAT may have been more likely to occur than on observed days.

The second limitation was that the observation period over 24 to 30 instructional days may not have been long enough to observe student reading comprehension growth. Students may not have learned enough new reading comprehension strategies in this time to show a change in summarization ability. Teachers Amy and Victoria had 29 instructional days between the first and last observation days, inclusive. Teacher Demetria had 30 days between the first and last observation days, inclusive. Teacher Hilda had 24 days between the first and last observation days, inclusive. Also, Teacher Hilda was observed three weeks later in the school year than the other teachers.

The third limitation was that the study was conducted across all three middle grades in order to purposefully sample BC and non-BC teachers. There were not enough BC teachers at this school, nor were the grade levels large enough so that any one grade had two BC teachers and two non-BC teachers. The students at the different grade levels may have been at different developmental levels. Also, differences in prior summarization instruction in earlier years for students in grades seven and eight may have made a difference in their ability to summarize. Grade seven students had one more year of instruction than grade six, and grade eight had two years more instruction in

summarization. The quality of summarization instruction in prior years may also have varied greatly, as seen in the findings for this study.

The fourth limitation is in deciding which adaptations related directly to reading comprehension. This limitation occurred due to the exploratory nature of this study. Further, the teachers were not questioned directly about whether the adaptation was directly tied to reading comprehension. Thus, the investigator made a judgment call on these adaptations using his experience as a language arts instructor.

The fifth limitation was that while the texts used to measure reading comprehension was at the sixth grade level, it may have been too difficult for some of the sixth, seventh and eighth grade students who participated in the study since it may have been at frustration level for some students. Therefore, since some students were not included due to not providing a summary either during the pre- or post observation collection of student data, which may have affected the findings because students that were not included may have had reading comprehension growth that was not measured. The next section gives the conclusion to this chapter.

Conclusion

This chapter presented the methods of this study: site, participants, data collection procedures, including text selection, and data analysis procedures. This study was conducted to further explore TAT, particularly the differences between purposefully sampled middle grades language arts BC and non-BC teachers, and the association of teacher adaptations and reading comprehension growth. The next chapter presents the findings.

CHAPTER IV

FINDINGS

This chapter presents the findings of this study. There is first a review of the rationale. This study's rationale is based on the assertion that exemplary teaching involves the teacher changing instruction in response to student needs so that optimal student learning occurs (Florio-Ruane et al., 2004; Pressley et al., 2001). The study was designed to (a) compare a purposeful sample of Board Certified (BC) and non-Board Certified (non-BC) teachers; (b) explore Thoughtfully Adaptive Teaching (TAT) at the middle grade level; and (c) explore the association of teacher adaptations with student reading comprehension growth. The following research questions were designed to address some of the issues arising from earlier findings of the UNCG Thoughtfully Adaptive Teaching Research Group (UNCG Group). First, there is a discussion of the teacher tables.

Orientation to Teacher Tables

The tables for each teacher below present the coded and rated adaptations and rationales. Across the top horizontally are letters designating the rationales; on the left side vertically are numbers designating the adaptations. In some cells there is a designator "X Y/Z" where "X" is the number of adaptations (row) with that rationale (column); the level of thoughtfulness: for the adaptation is "Y," and for the rationale is "Z." For example, in Table 4.1, in cell 7.I (row "7" column "I") there is the designation "1 M/M"

which means there was one adaptation in category “7” that had a rationale in category “1” with the adaptation rated as minimally thoughtful (“M”) with the rationale rated as minimally thoughtful (“M”) (The tables for adaptations, rationales, and levels of thoughtfulness are in Table 2.1, Table 2.2 and Appendix A, respectively).

Research Question One

This section answers the first Research Question: *Was there a difference between BC and non-BC middle grade level language arts teachers in the types and numbers of adaptations and rationales, the levels of thoughtfulness, and teacher adaptation scores?*

Non-BC Teachers

Non-BC teacher Amy. Across ten observations, non-BC Teacher Amy had one adaptation. She decided to have students continue to work on an individual assignment while she finished grading a spelling test; then she began reading to them when she had finished grading. She made that change because some of the students were not finished with the assignment, and she wanted it done by the end of the day, so she decided to read to them while they worked. This adaptation was in category seven, “Changes the planned order of instruction” and was rated minimally thoughtful. The rationale for the adaptation was “To manage time” and was rated minimally thoughtful. Based on this, non-BC Teacher Amy had an adaptation score of 1. See Table 4.1 for Non-BC teacher Amy’s types and numbers of adaptations and rationales, levels of thoughtfulness, and teacher adaptation score.

Table 4.1

Non-BC Teacher Amy's Types and Numbers of Adaptations and Rationales, Levels of Thoughtfulness, and Teacher Adaptation Score

	A	B	C	D	E	G	H	I	J	K	None	Total
1												
2												
3												
4												
5												
6												
7								1 M/M				1
Total								1				1
Adaptation score								1				1

Non-BC Teacher Demetria. Across ten observations, non-BC Teacher Demetria had nine adaptations in category three, “Invents examples, analogy or metaphor.” All adaptations were rated as minimally thoughtful. An example of this adaptation is a discussion about pomegranates where Demetria had brought the fruit in to show students. She began talking about how it ripened, and how she had not known about the fruit until recently. She made this adaptation because the pomegranate was featured in a reading selection the class had earlier, and her students were not familiar with the fruit. While she had planned on showing them the fruit, she had not planned on discussing how it ripened and how that related to the selection they had read. This adaptation provides a good example of the rationale she usually had for adapting. The rationales, except one, were in

the category “To help students make connections.” These were rated as minimally thoughtful. One rationale was in the category “To teach a specific strategy or skill” and was rated as considerably thoughtful. In this case the adaptation was in the same category, but Demetria was discussing holding the door open for other students, and was teaching a specific skill. Based on these adaptations, non-BC Teacher Demetria had an adaptation score of 9. See Table 4.2 for Non-BC teacher Demetria’s types and numbers of adaptations and rationales, levels of thoughtfulness, and teacher adaptation score.

Table 4.2

Non-BC Teacher Demetria’s Types and Numbers of Adaptations and Rationales, Levels of Thoughtfulness, and Teacher Adaptation Score

	A	B	C	D	E	G	H	I	J	K	None	Total
1												
2												
3			1 M/C	8 M/M								9
4												
5												
6												
7												
Total			1	8								9
Adaptation score			1	8								9

Summary. The non-BC teachers had ten adaptations. All were minimally thoughtful. One non-BC teacher had only one adaptation during ten observations. The other had nine adaptations, but of only one kind in the category “Invents examples,

analogy or metaphor” with all but one of the rationales in the category “To help students make connections.” Of the ten rationales, only one was not minimally thoughtful, and it was rated as considerably thoughtful. Non-BC Teacher Amy had an adaptation score of 1; non-BC Teacher Demetria had an adaptation score of 9.

BC Teachers

BC teacher Hilda. Across ten observations, BC Teacher Hilda had eleven adaptations in eight categories. She adapted more and in more categories than any other teacher. There were four adaptations in the category “Invents examples, analogy or metaphor” and all were rated as minimally thoughtful. The rationales for these four adaptations were as follows:

1. One in category “Challenge/elaborate” that was rated as minimally thoughtful;
2. Two in category “To help students make connections” that were rated as minimally thoughtful; and
3. One with no rationale given (because the teacher did not formulate a reply to the question on the rationale).

There were two adaptations in the category “Inserts a mini lesson”:

1. One rated as thoughtful; the rationale was “To teach a specific strategy or skill” and was rated as thoughtful; this adaptation provides a good example of how this teacher often adapted. In this case, a student had made a presentation that Hilda thought was particularly good, with a project product that exceeded her expectations. She used the presentation and product to remind the other students of her expectations concerning the project. She discussed each

element of the presentation and the product in detail to reiterate what student should aim for in their work. She did this because she was not seeing in earlier presentations the level of effort and thought that she had wanted to see in student work. Like other adaptations, this one sought to help students get a better idea of what they needed to do, and was in response to what Hilda perceived as a present student need.

2. One rated as minimally thoughtful; the rationale was “Checking student understanding” and was rated as considerably thoughtful. There was one adaptation in the category “Suggests a different perspective to students” which was rated as thoughtful; the rationale was “Uses knowledge of student(s) or classroom dynamics to alter instruction” and was rated as minimally thoughtful. This adaptation demonstrates how Hilda sometimes adapted to help student meta understanding of classroom (and larger) procedures and expectations. In this adaptation, she talked with the students about why she was pushing the students to be sure that the students had their work correctly in their DGP workbooks, and why, if they did not, they would not do as well on the assignments, and hence in their grades. She said “I bet you thought I was being mean but what I am trying to do is put more on your plate because I want you to do more.” She then discussed how as sixth graders she wanted to release more responsibility to them so that they learned the study skills they were going to need in the higher grades. This combination of immediate concern for student success with the impact of the skills later in school, and in

how she shared this concern with the students showed Hilda's strategic thinking. Her adaptations often were like this in that they were tied to a present perceived student need in the larger context of student learning and her being open with the students about why she was doing something. Of all the teachers, Hilda was the most open about her process as illustrated by this example.

There were three adaptations in the category "Omits/inserts activity or assignment":

1. One rated as minimally thoughtful; the rationale was "To promote student engagement" and was rated as minimally thoughtful;
2. One rated as thoughtful; the rationale was "To teach a specific strategy or skill" and was rated as minimally thoughtful; and
3. One rated as considerably thoughtful; the rationale was "To manage behavior" and was rated as minimally thoughtful. There was one adaptation in the category "Changes planned order of instruction" rated as minimally thoughtful; the rationale was "To manage time" and was rated as minimally thoughtful. Based on this, BC Teacher Hilda had an adaptation score of 16. See Table 4.3 for BC teacher Hilda's types and numbers of adaptations and rationales, levels of thoughtfulness, and teacher adaptation score.

Table 4.3

BC Teacher Hilda's Types and Numbers of Adaptations and Rationales, Levels of Thoughtfulness, and Teacher Adaptation Score

	A	B	C	D	E	G	H	I	J	K	None	Total
1												
2												
3		1 M/T		2 M/M							1 M	4
4			1 T/T			1 M/C						2
5					1 T/M							1
6			1 T/M					1 C/M		1 M/M		3
7									1 M/M			1
Total		1	2	2	1	1		1	1	1		11
Adaptation score		1	4	2	2	1		3	1	1	1	16

BC Teacher Victoria. Across ten observations, BC Teacher Victoria had three adaptations. Two were in the category “Changes the means by which the lesson objective is achieved through elaborating or through changing strategy, task, activity, or through changing assignment or materials; or through changing routines or procedures” which were rated as minimally thoughtful. One of these adaptations had the rationale of “To manage behavior” and was rated as minimally thoughtful; the rationale of the other was “To promote student engagement” and was rated as minimally thoughtful. Teacher Victoria had one adaptation in the category of “Inserts mini-lesson” which was rated as

thoughtful; the rationale was “Because the objective was not met” and was rated as thoughtful. This adaptation came about because in Victoria’s words: “I have to just know the material for DGP and see if whether or not it frustrates them.” Victoria noticed that the material was frustrating the students, and based on her knowledge of the material and her students, adapted by inserting a mini lesson on simple and compound sentences. Like the Demetria and Hilda, Victoria pays attention to her students so that she can respond to them based on their immediate learning needs. Often, when I asked her about a potential event that might have been an adaptation, she would respond that she had noticed earlier classes having difficulty, and came up with a way to address that difficulty, and then used it in the class that was observed for this study. Thus, while in the observed class Victoria did not adapt at a high rate, she was adapting across her classes and then utilizing those adaptations in other classes when the adaptations worked. Based on these above three adaptations, BC Teacher Victoria had an adaptation score of 4. See Table 4.4 for BC teacher Victoria’s types and numbers of adaptations and rationales, levels of thoughtfulness, and teacher adaptation score.

Summary. Together, the BC teachers had fourteen adaptations over a wide range of categories. However, BC Teacher Hilda had 11 adaptations and BC Teacher Victoria had 3 of this total. There were adaptations in six of the seven categories developed in earlier studies (Duffy et al., 2008). Likewise, there were rationales in nine of the ten categories that the earlier studies produced (Duffy et al., 2008). Seven of the adaptations and rationales were rated at the medium and high levels of thoughtfulness. Adaptation scores were 16 and 4.

Table 4.4

BC Teacher Victoria's Types and Numbers of Adaptations and Rationales, Levels of Thoughtfulness, and Teacher Adaptation Score

	A	B	C	D	E	G	H	I	J	K	None	Total
1												
2								1 M/M		1 M/M		2
3												
4	1 T/T											1
5												
6												
7												
Total	1							1		1		3
Adaptation score	2							1		1		4

BC Teachers Compared with Non-BC Teachers

First, the two BC teachers' TAT and scores are described. BC Teacher Hilda had eleven adaptations in five of the seven categories for adaptations. The rationales were in eight of ten categories. She also had seven adaptations rated as minimally thoughtful, three adaptations rated as thoughtful, and one rated as considerably thoughtful. BC Teacher Victoria had three adaptations in two categories: two rated as minimally thoughtful; one rated as thoughtful. Respectively the rationales were rated as minimally thoughtful for two adaptations, and as thoughtful for the third adaptation. The adaptation score for BC Teacher Hilda was 16, while BC Teacher Victoria had a score of 4.

Second, the two non-BC teachers' TAT and scores are described. Non-BC Teacher Amy had one adaptation, rated as minimally thoughtful; the rationale was rated as minimally thoughtful. Non-BC Teacher Demetria had nine adaptations, all in the same category, "Invents examples, metaphors, analogies or verbal or physical illustrations," rated as minimally thoughtful. Eight of these had the same rationale, "To help students make connections" and were rated as minimally thoughtful. One adaptation had a different rationale "To teach a specific strategy or skill" and was rated as considerably thoughtful. The adaptation Score for non-BC Teacher Amy was 1; for non-BC Teacher Demetria it was 9. See Table 4.5 for a comparison of BC and non-BC teacher number of adaptations, adaptation scores, and average adaptation scores.

Table 4.5

BC and Non-BC Teacher Comparison

	Teacher	Number of Adaptations		Adaptation Score	Average Adaptation Score
Non-BC	Amy	1	10	1	5
	Demetria	9		9	
BC	Hilda	11	14	16	10
	Victoria	3		4	

Summary

In comparing the two BC teachers with the two non-BC teachers, the data show *overall* that the BC teachers had more adaptations and in a wider range, with higher levels of thoughtfulness, and a higher adaptation score than the non-BC teachers.

However, *taken separately*, BC Teacher Hilda accounted for most of that pair's

adaptations, had the highest overall adaptation score, and had the most adaptations of all the teachers. Non-BC Teacher Demetria likewise accounted for most of that pair's adaptations and had the second highest adaptation score of all the teachers. Non-BC Teacher Demetria also had more adaptations and a higher adaptation score than the combined totals for Non-BC Teacher Amy, with 1 adaptation and an adaptation score of 1, and BC Teacher Victoria with 3 adaptations and an adaptation score of 4. Between then, Non-BC Teacher Demetria and BC Teacher Hilda had 20 of 24 adaptations found in this study, and 20 of 25 of the adaptation score points.

Research Question Two

This section describes the findings that answer Research Question Two: *Was there a difference in the number of adaptations made to improve comprehension between the BC and non-BC teachers?* The adaptations were counted using the definition above in Chapter I of *adaptations specifically related to reading comprehension* and are displayed in Table 4.6.

Table 4.6

Adaptations Related to Reading Comprehension

	Non-BC Teachers		BC Teachers		Total
	Amy	Demetria	Hilda	Victoria	
Adaptation related to reading comprehension					
Connect learner to text		1	2		3
Syntax		1		2	3
Vocabulary		3	1		4
Total	0	5	3	2	10

Summary

Non-BC Teacher Demetria made the most adaptations specifically related to reading comprehension, with 5 out of her 9 adaptations overall. BC Teacher Hilda made the second most adaptations specifically related to reading comprehension with 3 out of her 11 adaptations overall. BC Teacher Victoria made 2 adaptations specifically related to reading comprehension out of 3 adaptations overall. Non-BC Teacher Amy made no adaptations specifically related to reading comprehension out of 1 adaptation overall.

Thus, there is no clear difference *overall* between BC and non-BC teachers as *pairs* concerning the number of adaptations made to improve reading comprehension. There is a difference in that both BC teachers made reading comprehension adaptations while only one of the non-BC teachers made adaptations related to reading comprehension. She had half of all adaptations specifically related to reading comprehension.

Research Question Three

Pre- and post-observation student summaries of two texts were used to answer Research Question Three: *Was there a difference in student reading comprehension growth between the classes of BC and non-BC teachers?*

Non-BC Teachers

Non-BC Teacher Amy's class of eighteen students had an average student summary score of 6.11 on the pre-observation summary and a score of 6.67 on the post-observation summary, giving reading comprehension growth of 0.57.

Non-BC Teacher Demetria's class of twenty had an average student summary score of 9.35 on the pre-observation summary and a score of 11.75 on the post-observation summary, giving reading comprehension growth of 2.4.

BC Teachers

Teacher Hilda's class of sixteen had an average student summary score of 3.94 on the pre-observation summary and a score of 6.19 on the post-observation summary, giving reading comprehension growth of 2.06.

Teacher Victoria's class of seventeen had an average student summary score of 6.35 on the pre-observation summary and a score of 7.06 on the post-observation summary, giving reading comprehension growth of 0.71. See Table 4.7 for class growth scores.

Table 4.7

Class Growth Scores

Class	Class Summary Scores		Class Growth Score
	Pre	Post	
Non-BC Teacher Amy	6.11	6.67	0.57
Non-BC Teacher Demetria	9.35	11.75	2.4
BC Teacher Hilda	3.94	6.19	2.06
BC Teacher Victoria	6.35	7.06	0.71

Summary

There are big differences across all teachers in the pre-observation and post-observation reading comprehension scores. Hilda started at the lowest, 3.94, and ended at 6.19. This produced the largest *percentage gain*. Demetria started with the highest, 9.35,

and had a post-observation score of 11.75, which produced the greatest *numerical* increase. This large range, as seen above, shows that the teachers had very different classes, and that equivalency across teachers did not exist. The most adaptive teachers were either with the lowest or highest groups. One possible reason for having more adaptations with the highest and the lowest groups is that the teachers' scaffolding is different at these levels. Because of these ranges and the small sample size any comparisons between teachers based on means are suspect. All four classes showed gains in reading comprehension as measured in this study. There were marked differences in the range of reading comprehension growth: from 0.57 to 2.4. The BC teachers' and non-BC teachers' class growth scores compared as follows: average reading comprehension growth for BC teachers was 1.39, for non-BC reading comprehension growth was 1.49. See Table 4.8 for a comparison of reading comprehension growth scores.

Table 4.8

Reading Comprehension Growth Compared

	Teacher	Reading Comprehension Growth	
		Class	Average
Non-BC	Amy	0.57	1.49
	Demetria	2.4	
BC	Hilda	2.06	1.39
	Victoria	0.71	

As the above table shows, the non-BC teachers' students did slightly better in growth. However, in both BC and non-BC pairs, most of the reading comprehension

growth is attributable to one teacher of the pair, BC Teacher Hilda and non-BC Teacher Demetria. Non-BC Teacher Demetria's class had the most reading comprehension growth of all the teachers. BC Teacher Hilda had the second most reading comprehension growth. These two teachers were followed at a distance by BC Teacher Victoria who had the third most reading comprehension growth. Non-BC Teacher Amy was lowest reading comprehension growth.

Research Question Four

This level of analysis combined the teacher data and student data to answer Research Question Four: *Is there an association between teacher adaptations and student reading comprehension growth?*

There was a comparison of individual adaptation scores, both overall and related to reading comprehension, and class growth scores, which are shown in Table 4.9 and Table 4.10.

Table 4.9

Teachers Ranked by Adaptation Scores

Teacher	Adaptation Score	Reading Comprehension Growth
BC Hilda	16	2.06
Non-BC Demetria	9	2.4
BC Victoria	4	0.71
Non-BC Amy	1	0.57

Table 4.10***Teachers Ranked by Adaptation Score Related to Reading Comprehension***

Teacher	Adaptation Score Related to Reading comprehension	Reading Comprehension Growth Score
Non-BC Demetria	5	2.4
BC Hilda	3	2.06
BC Victoria	2	0.71
Non-BC Amy	0	0.57

Summary

As the above tables show, there may be a basis for a positive association between a teacher's *overall* number of in-the-moment adaptations and that teacher's students' reading comprehension growth. More adaptations can be seen with non-BC Teacher Demetria and BC Teacher Hilda who made the most adaptations, twenty out of twenty-four, and who also had the most reading comprehension growth. However, at this time there is no basis for assuming an association between teacher adaptations *specifically* related to reading comprehension and reading comprehension growth.

Conclusion

There is no clear difference between the BC and non-BC pairs. One of the BC teachers had most of the adaptations for that pair, and most of the adaptation score, and one of the non-BC teachers likewise had most of the adaptations and adaptation score for that pair. Likewise, there is no clear difference between BC and non-BC teachers concerning the number of adaptations made to improve reading comprehension. It is

important to note that of all the teachers, non-BC Teacher Demetria made the most adaptations specifically related to reading comprehension, with 5 out of the 9 total adaptations specifically related to reading comprehension by all teachers studied.

The non-BC teachers did slightly better in reading comprehension growth. In both BC and non-BC pairs, most of the reading comprehension growth is attributable to one teacher of the pair. However, non-BC Teacher Demetria's class had the most reading comprehension growth of all the teachers; BC Teacher Hilda had the second most reading comprehension growth.

There may be a basis for a positive association of teacher adaptations overall and reading comprehension growth. More adaptations and higher reading comprehension growth can be seen with non-BC Teacher Demetria and BC teacher Hilda. Non-BC Teacher Demetria had the second most adaptations, but the highest adaptation score related to reading comprehension. She also had the most reading comprehension growth. BC Teacher Hilda had the most adaptations, and tied with BC Teacher Victoria for the adaptation score related to reading comprehension. BC Teacher Hilda also had the second most reading comprehension growth. BC Teacher Victoria had the third most adaptations, an equal second in adaptation score relating to reading comprehension, and was third in reading comprehension growth. Non-BC Teacher Amy had the least adaptations with only one, with none related to reading comprehension, and was last in both adaptation score and adaptation score related to reading comprehension, and reading comprehension growth. The next chapter discusses these findings and explores potential implications.

CHAPTER V

DISCUSSION OF FINDINGS

The current study on Thoughtfully Adaptive Teaching (TAT) with middle grade level language arts teachers explored the assertion that exemplary teaching involves teachers responding to student needs by adapting and changing instruction for optimal student learning (Florio-Ruane et al., 2004; Pressley et al., 2001). The study was conducted as part the UNCG Thoughtfully Adaptive Teaching Research Group's (UNCG Group) research agenda, which findings showing TAT as unplanned, constructed in the moment, and with some level of creativity (Duffy et al., 2008). This study was a replication with these variations: (a) compare a purposeful sample of Board Certified (BC) and non-Board Certified (non-BC) teachers; (b) explore TAT at the middle grade level; and (c) explore the association of teacher adaptations with reading comprehension growth.

This chapter has four sections: summary findings, discussion of findings, methodological implications of findings, and suggestions for future research.

Summary of Findings

This section reviews the findings of the study's four research questions:

1. Was there a difference between BC and non-BC middle grade level language arts teachers in the types and numbers of adaptations and rationales, the levels of thoughtfulness, and teacher adaptation scores?

Comparing the two BC teachers with the two non-BC teachers shows *overall* BC teachers had more adaptations in more categories, with higher levels of thoughtfulness, and higher adaptation scores than non-BC teachers. However, most of that is attributable to one teacher, BC Teacher Hilda, who had most of the adaptations for that pair. She also started with the lowest pre-observation score for her class in reading comprehension. In the non-BC pair, non-BC Teacher Demetria likewise had most of the adaptations. She started with the highest pre-observation score in reading comprehension.

2. Was there a difference in the number of adaptations made to improve comprehension between BC and non-BC teachers?

There was no clear difference between BC and non-BC teacher *pairs* in terms of the number of adaptations specifically related to reading comprehension. Half of non-BC Teacher Demetria's adaptations specifically related to reading comprehension with 5 adaptations out of her 9 adaptations overall. Her class started at the highest level of reading comprehension, even though it was a seventh grade class, and had the highest reading comprehension growth. BC Teacher Hilda made the second most with 3 adaptations specifically related to reading comprehension out of 11 adaptations overall. Her class started out the lowest in terms of reading comprehension and had the second most absolute growth, and the highest percentage growth. BC Teacher Victoria, who taught eighth grade, and started out second highest in terms of reading comprehension, made 2 adaptations specifically related to reading comprehension out of 3 adaptations overall. Non-BC Teacher Amy made no adaptations specifically related to reading comprehension, and had the least growth of all the teachers.

3. Was there a difference in student reading comprehension growth between the classes of BC and non-BC teachers?

There was not a difference between the BC and non-BC teachers' class growth scores. All four classes showed reading comprehension growth. Non-BC teachers' classes did slightly better in reading comprehension growth. In both BC and non-BC pairs, most of the reading comprehension growth is attributable to one teacher's class of the pair, BC Teacher Hilda and non-BC Teacher Demetria, who were far above the other two teachers in reading comprehension growth. BC Teacher Hilda and non-BC Teacher Demetria also were highest in adaptation scores, and adaptations. BC Teacher Hilda's class started at the lowest level of reading comprehension; non-BC Teacher Demetria's class started at the highest level of all the classes in terms of reading comprehension. Non-BC Teacher Demetria's class had the most reading comprehension growth of all the teachers. BC Teacher Hilda's class had the second most reading comprehension growth. BC Teacher Victoria's class had the third most reading comprehension growth. Non-BC Teacher Amy' class had the lowest reading comprehension growth.

4. Is there an association between teacher adaptations and student reading comprehension growth?

There may be a basis for a positive association of the *total* number of teacher adaptations overall with student reading comprehension growth. Non-BC Teacher Demetria and BC Teacher Hilda made most of the adaptations overall, with twenty out of twenty-four, had the highest adaptation scores, 9 and 16 respectively, and their classes had the most reading comprehension growth. At this time there is no basis for assuming

an association between teacher adaptations *specifically* relating to reading comprehension and reading comprehension growth.

Discussion of Findings on Issues

This section discusses the findings on the issues that generated the study. The first issue was if TAT is different at the middle grade level.

Middle Grade Level

TAT at the middle grade level occurs about as frequently on average and at about the same level of thoughtfulness as earlier studies discovered at the elementary grade level. The range of adaptations and rationales varied widely between the teachers, which follows earlier findings. There were no new adaptations or rationales developed from this study. Thus, it suggests that TAT occurs beyond the elementary level, but not in any substantially different way. The next section examines the second issue of using BC and non-BC teachers to construct a sample containing high potential teachers.

BC and Non-BC Teachers

The findings do not support using BC as a way of purposefully constructing high potential teacher samples. BC Teacher Hilda and BC Teacher Victoria differed as markedly from each other as non-BC Amy and non- BC Teacher Demetria differed from each other. There were no differences between the BC and non-BC pairs in reading comprehension growth and in adaptations specifically related to reading comprehension growth. Since the BC teachers' classes did not show more reading comprehension growth, this calls into question contentions BC teachers are more effective, which is consistent with recent findings that BC teachers may not be more effective than non-BC

teachers (Clotfelter, Ladd, & Vigdor, 2007a, 2007b, 2007c; Goldhaber & Anthony; 2007; Harris & Sass, 2009). The next section explores the third issue, that of associating teacher adaptations and reading comprehension growth.

Adaptations and Reading Comprehension Growth

Non-BC Teacher Demetria and BC Teacher Hilda have more adaptations and more reading comprehension growth. There is a striking difference in the adaptations non-BC Teacher Demetria and BC Teacher Hilda had compared to the other two teachers: non-BC Teacher Demetria had an adaptation score of 9, and she was working with the class that started at the highest reading comprehension level of all the classes. BC Teacher Hilda had an adaptation score of 16, and she was working with the class that started at the lowest reading comprehension level of all the classes. BC Teacher Victoria had an adaptation score of 4, while non-BC Teacher Amy had an adaptation score of 1. A positive association of teacher adaptations with reading comprehension growth is suggested by the teachers' reading comprehension growth: non-BC Teacher Demetria's class had reading comprehension growth of 2.4 and BC Teacher Hilda's class had a reading comprehension growth of 2.06 while BC Teacher Victoria's class had a reading comprehension growth of 0.71 and non-BC Teacher Amy's class had a reading comprehension growth of 0.57. It is worth noting that non-BC Teacher Amy and BC Teacher Victoria classes started close in reading comprehension, 6.11 and 6.35, had similar reading comprehension growth, .057 and 0.71, and ended close to each other in reading comprehension at 6.67 and 7.06 even though BC Teacher Victoria taught eighth

grade, and non-BC Teacher Amy taught sixth grade. Both of these two teachers described their respective classes as “average” for that grade.

Non-BC Teacher Demetria and BC Teacher Hilda had more adaptations, more reading comprehension growth and higher adaptation scores. This suggests that TAT may be associated with reading comprehension growth. The association between adaptations *specifically* tied to reading comprehension and reading comprehension growth is not supported.

Non-BC Teacher Amy and BC Teacher Hilda had many similarities: teachers and principal stated that the level of students in the two classes observed was roughly equivalent, both taught sixth grade language arts, both teachers were following the same district guidelines in the form of a pacing guide, were using the same text, and employed many of the same pedagogic tools, such as quizzes, reading logs, presentations, etc. BC Teacher Hilda had a class that started off at a much lower level, 3.94, than Non-BC Teacher Amy, 6.11. BC Teacher Hilda’s class ended not far from non-BC Teacher Amy at 6.19 vs. 6.67 and had far more growth 2.06 vs. .057. Thus, they differed markedly in the amount of growth that each achieved over the observation period. A difference in adaptations is one possible reason why BC Teacher Hilda helped students achieve more reading comprehension growth than did non-BC Teacher Amy.

Is the teacher who adapts more also more likely to use other instructional moves that positively impact reading comprehension growth? While the possible association teacher adaptations with reading comprehension growth gives hope that there may be a relationship between TAT and a student outcome, since it supports the earlier theoretical

suggestions, little in the way of causal links has been established. The complexity of classroom instruction makes it difficult to make a more definitive statement about the nature of the relationship between teacher adaptations and reading comprehension growth, but there does seem to be reason to continue the exploration of the hypothesis that teacher adaptations may be associated with reading comprehension growth. The next section describes the implications for methodology from this study.

Implications for Methodology

The findings of the study advanced TAT research methodology. First, it demonstrated that the TAT construct is transferable. It was developed, elaborated, and substantiated in the elementary grades, and has now been used at the middle grade level where it produced similar findings.

Second, the categories of adaptation and rationales held up, with no need for new categories at the new grade levels studied, where a similar range of adaptations and rationales was found. While the ratings levels of thoughtfulness were workable, continued refinement is needed.

Third, the study developed for use in future studies a reading comprehension measure grounded in the literature which is easy to administer. Because it is easy to administer, investigators can use the same texts, scoring sheets, and administration procedures if they are studying similar middle grade level instruction. If they are studying other grades, this study provides a model for developing grade appropriate summarization procedures. The measure enables investigators to compare reading comprehension before

and after observation with matched-pair samples to produce a more reliable look at classroom changes than just comparing classroom aggregate totals.

Fourth, this study, as part of the emerging mixed methods approach to educational research (Onwuegbuzie & Teddlie, 2003), advanced the research agenda of the UNCG Group by developing an adopted procedure to quantitize the qualitative data on TAT so that it can be compared with the quantitative data from the student summaries. This quantitizing procedure may prove useful in future studies. It also is possible to take the quantitizing approach developed in this study and revisit past findings to see if more can be teased out of the data though quantitizing. The earlier data then can be more readily compared within the studies and with other studies.

Earlier studies using the same methods to capture TAT did not get substantive results in terms of what earlier researchers had suggested (see above). Those studies and the current one did find TAT. Is the problem with how we are going about studying TAT or is the actual level of TAT less than the earlier researchers postulated? Given that various researchers in multiple classrooms over all grades One through Eight have found similar levels this is a significant question. Perhaps it is time to step back from the current methodology used and explore if other ways might produce different results. Would two observers, videotaping, consecutive days, of following one teacher continuously produce different results. At present, we are taking “snapshots” of classrooms. Perhaps a video from start to finish of the school day, done for numerous school days would produce different results. Discussed next are suggestions for future research.

Suggestions for Future Research

This section considers future research in light of the findings. First is a consideration of the study's limitations.

Limitations

The limitation that the study was conducted over three grades does not seem a pertinent one due student reading comprehension growth being compared within rather than between classes.

The selection procedure for adaptations specifically related to reading comprehension is an exploratory beginning, which limits the findings and needs to be addressed in future studies by more effectively identifying adaptations specifically related to reading comprehension. A more developed procedure to collect and identify teacher adaptations specifically related to reading comprehension might produce a procedure similar to those developed for recognizing, confirming, and categorizing adaptations.

The findings may have been influenced by the fact that the text may have been at some students' frustration reading level, which is perhaps the most serious limitation of the study's findings and needs to be addressed in any future TAT study concerning reading comprehension. During data analysis, it was noted that several students started the summarization process as shown by marking up the text, but then producing no summaries, and hence were not included in the results. This occurred at every grade level. There may be students in all three grade level classes who find a sixth grade level text too difficult, leading to their faltering participation. Future studies at these grade levels may chose the same text, or identify others that have a lower reading level so all

students can participate. It is worth noting that the general level classes at this school have wide ranges of reading abilities. A teacher reported the mid-year range in her sixth grade general, non-AIG class was from 2.5 to 12.3 grade reading level. This information was offered after other teachers confirmed the texts as appropriate for use in summarization in the grades studied. How to find a suitable appropriately challenging text for a class' ability mix is not just an instructional issue, but one for researchers as well.

The limitation of time spent observing teachers remains unanswered. While a variety in number and level of thoughtfulness of adaptations for the four teachers was observed, it was still less than postulated by earlier researchers (see above Chapter II). Future studies may want to take a more intensive, in depth, longitudinal study of high potential teachers to better present the nature of TAT. In spite of this limitation, and while only one adaptation was collected for non-BC Teacher Amy, and only four adaptations for BC Teacher Victoria, this difference in TAT between four teachers in itself speaks to the fact that teachers adapt differentially. The question is not only, "would more time observing produce more adaptations?" but also "why did some teachers have so many more adaptations than other teachers?"

The limitation concerning the time students had to learn more about doing summarization also does not seem to have been significant. Students demonstrated a range of improvement in summarization, and hence reading comprehension growth. The next section deals with ways to sample high potential teachers.

The last limitation is that of the type of lessons conducted during observations. This limitation may influence the quantity of adaptations and the quality of adaptations and rationales. It may also influence the number of adaptations specifically related to reading comprehension. As Parsons (2008) noted, there does seem to be an association between openness of task and adaptations. Similar associations may also exist between TAT and other types of instruction that is more engaging and authentic.

Sampling

Using BC for sampling high potential teachers did not work; the search continues for a way identifying high potential teacher samples. Findings indicate teachers who adapt to meet student needs do so frequently enough to be readily noticeable. For example, non-BC Teacher Amy had one adaptation in fifteen hours of observation, while non-BC Teacher Demetria had eleven in the same time. Rather than using static markers, such as BC, length of time teaching, and education, investigators would do better making dynamic purposeful sampling based on observations of actual teaching. The overall rate of adaptations per observation period for all the studies to date is about one adaptation per observation, usually an hour to one and one-half hour (Duffy et al., 2008). During preliminary teacher observations the average rate of adaptations could be used as a benchmark for sampling high potential teachers, with a teacher adapting more than that an excellent candidate, one at that level a good candidate, and less than that a poor candidate for inclusion in the study sample. Likewise, a researcher could use dynamic sampling to construct stratified samples of high and low potential teachers.

Future Studies

The reading comprehension measures and mixed methods techniques developed in this study might be used in a quasi-experimental study with a control group. Such a study could advance the theory concerning TAT and might provide ways to improve teacher education. For example, investigators could:

1. Select from among several schools high and low adapting samples;
2. Divide the high and low samples in two parts;
3. One part of the high sample and one part of low sample could receive an intervention designed to promote adapting;
4. The other two parts of the high and low samples would serve as controls.
5. Student reading comprehension growth could then be compared between the samples to study the effect of the intervention.

Better sampling methods, perhaps the dynamic sampling described above, would have to be developed to do this quasi-experimental study. The reading comprehension measure provides a way to explore the impact of interventions on reading comprehension. The mixed methods procedure permits mixing of the qualitative and quantitative data. What follows is the conclusion to this chapter.

Conclusion

Overall, the study's findings advanced the UNCG Group's research agenda by addressing issues raised by earlier studies. BC and non- BC teachers were not found to have notable differences in either adaptations. BC teachers' classes differed markedly from each other in the amount of reading comprehension growth as did the non-BC

teachers' classes differed, thus using BC as a marker for purposeful sampling is not warranted. Middle grade level teachers seem to adapt at a similar frequency and level of thoughtfulness as found earlier. Some teachers' adaptations were more focused on reading comprehension than were other teachers' adaptations. The findings helped refine the TAT methodology. Measures of student reading comprehension growth over the observation period were developed. Ways of mixing quantitative and qualitative data were explored.

The most important way the findings advanced TAT research was with data suggesting that teacher adaptations may be associated with reading comprehension growth. It thereby suggests that researchers should persist in exploring the relationship of TAT to student outcomes. The findings pose several new questions that may aid in better understanding the phenomenon of teachers changing instruction in the moment. These include how to identify high potential teachers and how to more closely associate teacher adaptations with reading comprehension growth.

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Appendix A

Rubric for Rating Thoughtfulness of Adaptations and Rationales

Considerably Thoughtful (must meet both criteria)

- The teacher is showing exemplary or creative use of professional knowledge or practice
- The adaptation or rationale is clearly associated with a larger goal the teacher holds for literacy growth (i.e., the adaptation or rationale is motivated by a desire to develop a deep or broad understanding or a conceptual or attitudinal goal).

Thoughtful

- Must be tied to the specific lesson objective or to a larger goal the teacher wants to develop
- Must not meet any of the criteria for “minimally thoughtful.”

Somewhat Thoughtful (if it meets any of the following criteria)

- The adaptation or rationale requires minimal thought
- The adaptation or rationale does not contribute to the development of either a larger goal or a specific lesson objective.

Appendix B
Student Score Sheets

Text One: Idea Unit	Present?
Long ago	
Folktales about god	
Anansi didn't like this	
Anansi protested	
Given task of taking grain for 1K men	
Reluctantly accepted	
Many challenges	
Used luck	
Used deceit	
Anansi did it	
Corn for rooster	
Rooster for sheep	
Sheep for cow	
Cow for corpse	
Corpse for 1K men	
God kept word	
Stories about Anansi now	
TOTAL:	

Text Two: Idea Unit	Present?
Anansi lived with family in land of tranquility—All shared	
Famine struck	
Anansi found a magic pebble which could produce food	
Anansi kept pebble & food for himself	
People notice Anansi was well fed	
People became suspicious	
Son began to spy on Anansi	
Anansi's son found pebble	
All were fed	
Son could not control pebble, ran out of food	
Anansi looked for another pebble	
Found a magic stick that could whip anyone	
Brought stick home	
Family was beaten	
Family started stick	
Could not control stick	
Anansi saved them	
Anansi learned to help others	
Anansi's family learned not to spy on him	
TOTAL:	

Appendix C
Observation Rubric

Teacher _____ Date _____ Class _____

General Adaptation	Strategy Adaptation	Running Field Notes

Appendix D

Post Lesson Teacher Interview Questions

Teacher:

Date:

Class

6. When I saw you doing____ during the lesson, was that a spontaneous change, something you had not planned? ADAPTATION
7. If yes, why did you make that change? RATIONALES

Observation protocol sheet:

Instance:

Appendix E

Text One

Chapter One of Addo's (1993) *How the Spider Became Bald: Folktales and Legends from West Africa* is entitled "How the Spider Became the Main Hero of Folktales," and recounts the story of Ananse the Spider in his quest to become the central figure in folktales. In it, long ago, folktales were all about God. Anansi didn't like this and protested. Ananse is given a task by God of exchanging grain for a thousand men. Ananse reluctantly accepted. He overcame many challenges using luck, deceit and cunning. He made many trades, such as a corn for a rooster, rooster for a sheep, sheep for a cow, cow for a corpse, corpses for one thousand men, and God kept his word and now Ananse is the main figure in folktales.

Appendix F

Text Two

Chapter Four of Addo's (1993) *How the Spider Became Bald: Folktales and Legends from West Africa* is entitled "Greediness Doesn't Pay," and tells a story about Ananse the spider. Anansi lived with his family in land of tranquility. It was a time and place where all shared whatever they had. Then, famine struck. During this time Ananse found a magic pebble which could produce food. Ananse kept the pebble for himself, along with the food it produced. People noticed that Ananse was not getting thin like everyone else and became suspicious. Ananse's son began to spy on him, and soon discovered the pebble. The son used the pebble to feed many, but he could not control the pebble, which was soon exhausted and could give no more food. Ananse looked for another pebble, but instead found a magic stick that could whip anyone. He brought the stick home, and used it to trick his family. His family discovered how to make the stick work, but could not make it stop, and it beat them until he came home and made the stick stop, thus saving them. Ananse and his family learned lessons about sharing.

Appendix G

North Carolina Standard Course of Study

The following is from The North Carolina standard Course of Study for the Middle grades. They reflect a concern for reading comprehension, and thus reading comprehension strategies. Several of the overarching goals for all three middle grades are:

The ultimate goal of the middle school English Language Arts curriculum is to foster personal, social, and civic literacy.

Students should develop a deep appreciation for literature, understand its personal, cultural, and historical significance, and learn how to analyze its meaning and relevance.

They should develop increasing control of how and when to use strategies before, during, and after their reading.

Particular goals and sub-goals for Sixth grade:

Competency Goal 1: The learner will use language to express individual perspectives drawn from personal or related experience.

1.02 Explore expressive materials that are read, heard, and/or viewed by:
monitoring comprehension for understanding of what is read, heard and/or viewed.

Competency Goal 2: The learner will explore and analyze information from a variety of sources.

2.01 Explore informational materials that are read, heard, and/or viewed by:
monitoring comprehension for understanding of what is read, heard and/or viewed.

Competency Goal 3: The learner will examine the foundation of argument.

3.01 Explore argumentative works that are read, heard, and/or viewed by: monitoring comprehension for understanding what is read, heard, and/or viewed.

Competency Goal 4: The learner will use critical thinking skills and create criteria to evaluate print and non-print materials.

4.01 Determine the purpose of the author or creator by: monitoring comprehension for understanding of what is read, heard and/or viewed.

Competency Goal 5: The learner will respond to various literary genres using interpretive and evaluative processes.

5.01 Increase fluency, comprehension, and insight through a meaningful and comprehensive literacy program by: using effective reading strategies to match type of text.

Sub-goals for comprehension are in five of six goals.

<http://www.ncpublicschools.org/curriculum/languagearts/scos/2004/23grade6>

Particular goals and sub-goals for Seventh Grade:

Competency Goal: 1The learner will use language to express individual perspectives in response to personal, social, cultural, and historical issues.

1.02 Respond to expressive materials that are read, heard, and/or viewed by: monitoring comprehension for understanding of what is read, heard, and/or viewed.

Competency Goal 2: The learner will synthesize and use information from a variety of sources.

2.01 Respond to informational materials that are read, heard, and/or viewed by: monitoring comprehension for understanding of what is read, heard and/or viewed.

Competency Goal 3: The learner will refine the understanding and use of argument.

3.01 Explore and analyze argumentative works that are read, heard and/or viewed by: monitoring comprehension for understanding of what is read, heard and /or viewed.

Competency Goal 4: The learner will refine critical thinking skills and create criteria to evaluate print and non-print materials.

4.01 Analyze the purpose of the author or creator by: monitoring comprehension for understanding of what is read, heard and/or viewed.

Sub-goals for comprehension are in four of six goals

<http://www.ncpublicschools.org/curriculum/languagearts/scos/2004/24grade7>

Particular goals and sub-goals for Eighth Grade

Competency Goal 1: The learner will use language to express individual perspectives through analysis of personal, social, cultural, and historical issues.

1.02 Analyze expressive materials that are read, heard, and/or viewed by: monitoring comprehension for understanding of what is read, heard and/or viewed.

Competency Goal 2: The learner will use and evaluate information from a variety of resources.

2.01 Analyze and evaluate informational materials that are read, heard, and/or viewed by: monitoring comprehension for understanding of what is read, heard and/or viewed.

Competency Goal 3: The learner will continue to refine the understanding and use of argument.

3.01 Explore and evaluate argumentative works that are read, heard and/or viewed by: monitoring comprehension for understanding of what is read, heard and/or viewed.

Competency Goal 4: The learner will continue to refine critical thinking skills and create criteria to evaluate print and non-print materials.

4.01 Analyze the purpose of the author or creator and the impact of that purpose by: monitoring comprehension for understanding of what is read, heard, and/or viewed.

Competency Goal 5: The learner will respond to various literary genres using interpretive and evaluative processes.

5.01 Increase fluency, comprehension, and insight through a meaningful and comprehensive literacy program by: using effective reading strategies to match type of text.

Sub-goals for comprehension are in five of six goals

<http://www.ncpublicschools.org/curriculum/languagearts/scos/2004/25grade8>.

Appendix H

Student Data Collection Instructions

Hi, these are the steps to follow when you have the students do the reading comprehension strategy assessment:

1. The teacher will state “You have been learning reading strategies. You are now going to read a folklore text. After reading it, you will summarize the text and list the reading strategies you used.”
2. Students will be given the text to read, and then will read it.
3. After reading the text each student will be asked to write a summary of the text “please write a summary of the text.”