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Abstract

This study sought to shed light on teachers' thinking as they implemented an educational intervention. Specifically, this study looked at teachers' attitudes and beliefs about teaching and learning, their interpretations of a policy's attributes, and how those views impacted implementation quality. The findings from this study describe how factors related to the implementation of a program interact with teachers' knowledge and philosophies of teaching. This interaction was shown to be related to the success of implementation in these schools. Based on its findings, this study recommends that further investigation into the role of teacher sense-making and its impact on implementation using the framework proposed in this paper. Further efforts should be made to improve the survey for this purpose. The effectiveness of a program is mediated by the quality of implementation, which this research shows is related to perceptions of a program. As schools grapple with implementing programs, principals and other leaders of implementation should pay close attention the factors related to implementation that are described in this paper.

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TEACHER SENSE-MAKING: A CASE-STUDY OF THE IMPLEMENTATION OF THE GIFFIN MODEL

Horatio Blackman

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ABSTRACT

TEACHER SENSE-MAKING: A CASE STUDY OF THE IMPLEMENTATION OF THE GIFFIN MODEL

Horatio Blackman

Laura Desimone

This study sought to shed light on teachers' thinking as they implemented an educational intervention. Specifically, this study looked at teachers' attitudes and beliefs about teaching and learning, their interpretations of a policy's attributes, and how those views impacted implementation quality. The findings from this study describe how factors related to the implementation of a program interact with teachers' knowledge and philosophies of teaching. This interaction was shown to be related to the success of implementation in these schools. Based on its findings, this study recommends that further investigation into the role of teacher sense-making and its impact on implementation using the framework proposed in this paper. Further efforts should be made to improve the survey for this purpose. The effectiveness of a program is mediated by the quality of implementation, which this research shows is related to perceptions of a program. As schools grapple with implementing programs, principals and other leaders of implementation should pay close attention the factors related to implementation that are described in this paper.

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CHAPTER 1: INTRODUCTION

One of the most pressing issues with using reforms to improve student outcomes in education is the “implementation gap”; which is the gap between what a program intends and what actually occurs in schools and classrooms. (Barber, Rodriguez and Artis, 2010). As policy-makers, program designers, administrators, and teachers work to improve student outcomes, a significant barrier that stands in the way of achieving their goal lies in the translation of a program into practice at the classroom level. Through efficacy studies, which establish whether an intervention produces an expected result under ideal conditions, educational researchers have been able to identify programs that have a positive impact on student learning. Effectiveness studies, which measure the impact of a program in real-world conditions, have shown that it is common for educational interventions to have less impact in real world settings. In part, this is due to the gap in implementation (Cordray & Pion, 2006).

A great deal of research has been conducted that looks at issues concerning implementation and has found that several different factors are related to the quality of implementation of educational policies and programs. Some of these factors fall outside of the scope of the intervention, such as the composition of students in the classroom, the resources available to the school and its teachers, and the grade(s) that an intervention targets (Anyon, 1997; Berliner, 2005; Bodily, 1998; Palacios et al., 2014). Other factors however, are directly related to an intervention including, but not limited

to, the attributes of a policy (Dusenbury, et al., 2010; Porter, Floden, Freeman, Schmidt, & Schwille, 1988).

One aspect of implementation that has been given little attention in the literature on implementation is the role of teacher cognition in implementation; the role that the interaction between teachers' knowledge, skills, and philosophies about learning with factors related to implementation have on implementation success. This dissertation shed light on teachers' thinking, exploring the different considerations teachers have as they attempt to understand and implement a new program. The dissertation also evaluated the relationship between a policy's attributes and the quality with which the Giffin Model was implemented.

Statement of the Problem

In earlier waves of education reform, researchers and program designers believed that teachers were "passive acceptors of an innovation, rather than active modifiers of a new idea" (Rogers, 2003, p. 174). This belief largely stemmed from the application of economic theories to the study of education (Cibulka & Nakayama, 2000; Coleman et al., 1966). Through this economic lens, teachers were largely viewed as just another cog in the machine, receiving instructions and carrying out the directive, irrespective of the fact that humans are much more complex entities; interpreting information through a complex cognitive web of knowledge and experiences and situation (Piaget, 1958; Vygotsky, 1978). Because of this belief, studies in the 1960s and early 1970s evaluated the impact of educational interventions without consideration

that implementation might vary and that variation in implementation might influence program outcomes (Berman & McLaughlin, 1974; Coleman et al., 1966; Sykes, Schneider, & Plank, 2009).

Stemming from the landmark report, *A Nation at Risk* (National Commission on Excellence in Education, 1983), policies and programs from the 1980s and 90s, took that perspective and attempted to create “teacher-proof” programs. Schubert, Schubert, Thomas, and Carroll (2002) defined “teacher-proof” materials as, “materials that would achieve goals without distortion by teacher implementation” (p. 149). Rather than looking at and attending to the root causes of variation in implementation, these highly scripted programs gained prominence in k-12 education (McCarthy, 1993).

Designers developed curricula and programs that were based on the premise that most teachers were not equipped with the skills to teach the content in a manner that would lead to improved student outcomes. As a result of this belief, pedagogy and content became highly scripted (Schubert, 1986). Due this shift, research continued to focus on the outcomes of a program. That reform did not however, result in the large improvement in student achievement that was anticipated (Schubert et al., 2002; Soloway, 1996). Additionally, this outcomes-based research lacked a focus on the individual implementer, their situational context, and how these might affect implementation and ultimately, program outcomes. A gradual shift however, would occur.

Over time, research on the effectiveness of educational programs has begun to include data on implementation and in some cases, included those measures as mediators in the analysis of program outcomes. What research has begun to uncover is that several factors impact implementation. These include, but are not limited to principal support for implementation, teacher perceptions of teaching and learning, and the attributes of the reform (Coburn, 2005; Porter, et al., 1988; Spillane, 2000). One goal of my study was to look at these factors to understand and describe their relationship to implementation quality.

Despite the increased focus on implementation, there is a large gap in the body of knowledge on implementation concerning teachers' attitudes, beliefs, and perceptions about an intervention and their relationship to implementation quality (Spillane, 1999; Spillane, Reiser, & Reimer, 2002). The research that does exist suggests that there is a relationship between the level of implementation quality and the alignment of teachers' attitudes and belief with the basic tenets of an intervention (Coburn, 2001; 2005; Mirel, 1994); specifically, the attributes of a policy as defined by Porter and colleagues (1988).

Adapted by Desimone (2002) in a study of comprehensive school reform models, the theory argues that teacher perceptions of five attributes of a policy are related to implementation success. The attributes are specificity, consistency, stability, authority, and power. Specificity is the extent to which a policy's designers deliver detailed information and guidance to teachers. Consistency is the degree to which the reform is

aligned with practices, procedures, and goals of the school. Stability is defined as the extent to which policies, practices, structures, and people remain in place over time. Authority refers to the extent to which a policy is supported by actors or institutions (e.g., state/district leaders, school administrators, teachers). Power is the rewards and sanctions tied to a policy.

Without specifically naming the policy attributes, Spillane and colleagues (2002) argue similarly to Desimone (2002), that implementation success is related to teacher perceptions of the reform. They argue that “a key dimension of the implementation process is whether, and in what ways, implementing agents come to understand their practice” (Spillane et al., 2002, p. 387). The theory states that those “outcomes”, the degree to which they implement the new practices, and the ways in which they proceed to implement them, are affected by their perceptions of the model. These perceptions they argue, are formed by (1) individual cognition which is comprised of a teacher’s prior philosophy about teaching and learning, and (2) situated cognition, or the effect of one’s local context on the development of their perceptions about a program. Messages are derived from actions by their peers, their supervisors, and interpreted through their own views of teaching and learning. Implementation then, is affected by those perceptions, best understood and categorized by the Policy Attributes theory.

Purpose of the Study

The primary purpose of this study is to add to the body of knowledge about the role of teacher cognition in implementation. To date, there is relatively little research

conducted on teachers' thinking as they implement a program compared to other factors related to implementation. Much of the research on implementation still focuses on tangible aspects of a program that relate to implementation as opposed to how those aspects are interpreted by teachers and the role that interpretation plays concerning implementation quality (Coburn, 2004; Spillane, Reiser, & Reimer, 2002). While research in this area indicates that it takes teachers time to successfully implement a program as teachers become familiarized with it, there is not a great deal of data that identifies how their *perceptions* of a program's attributes relate to implementation quality and what attributes of a program teachers consider during implementation (Coburn, 2001; Spillane et al., 2002).

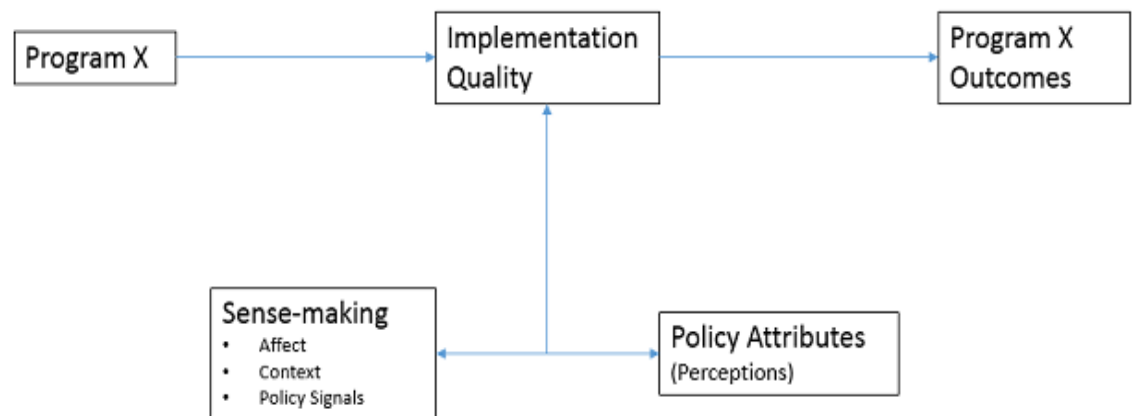
Theoretical Framework

This study sought to shed light on teachers' thinking as they implemented an educational intervention. Specifically, this study looked at teachers' attitudes and beliefs about teaching and learning, their interpretations of a policy's attributes, and how those views impacted implementation quality.

To investigate the role that teachers' thinking had on implementation, I introduced a framework for understanding and evaluating implementation. My framework is a synthesis of two existing theories, the Policy Attributes Theory (PAT; Porter et al., 1998) and Spillane and colleagues' (2002) sense-making theory. My framework, called the Policy Attributes Sense-Making Framework (PASMf), asserts that implementation is guided by teachers' schema; their attitudes and beliefs about

teaching and learning. Those attitudes and beliefs are shaped by teachers' prior experiences (Spillane, 1999). PASMf framework argues that teacher perceptions of a policy's attributes impact implementation quality. Figure 1 below is a visual representation of PASMf.

Figure 1. Policy Attributes Sense-Making Framework



Research Questions and Hypotheses

This dissertation addressed two primary research questions:

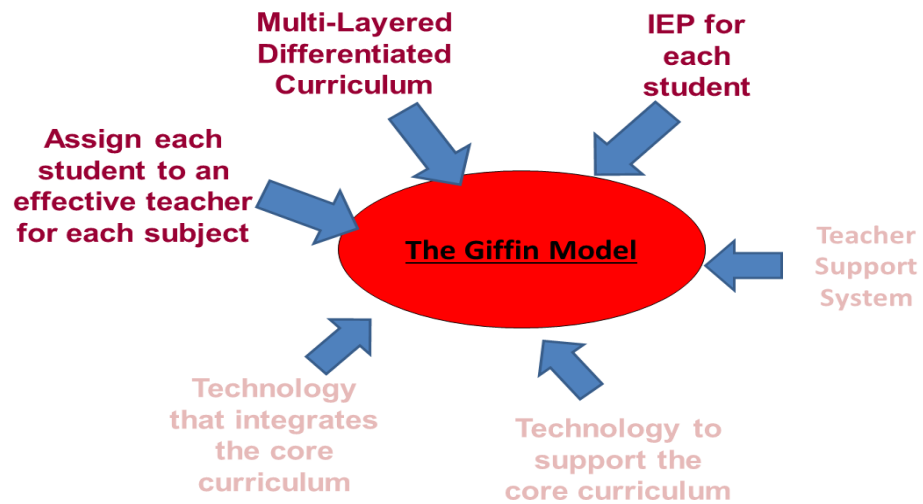
1. To what extent are the policy attributes related to the quality of teacher's implementation of the Giffin model?
2. In what ways and to what extent do contextual factors and teachers' knowledge, skills, and philosophies of teaching relate influence their sense-making of the Giffin Model?

- a. How do teachers' philosophies affect how they perceive the attributes of the Giffin Model? How does that relate to implementation success?
- b. How do teachers interpret the actions of the principal or of their peers and what influence does that have on implementation?
- c. What policy stimuli impacted teacher sense-making and how?

Context

Giffin Model. To shed light on the role of teacher cognition in implementation, this dissertation examined the implementation of the Giffin Model; a segment of a comprehensive school reform model implemented in four elementary/middle schools in a large, urban district in Texas. The Giffin Model is an educational initiative that was designed by former principal Joel Giffin, whose school led all other students in learning growth for ten years in the state of Tennessee as determined by the Tennessee Value-Added Assessment System (TVAAS). There are three main components that drive the Giffin Model, one of which is implemented by the principal and two of which are teacher-directed. Figure 2 depicts the components of the Giffin Model. Shaded components were not central to the model and were not implemented in the pilot year, with the intention to add secondary components in years two and three.

Figure 2. Giffin Model Components



The first, requires principals to assign teachers to homogeneously grouped classrooms based on student achievement and teachers' growth scores from prior years. Teachers are assigned to classrooms based on how effective they are at creating test score growth with(roughly) thirds of the school's population; defined as low, middle, and high achieving students. The best combination of highly effective teachers for each subgroup, based off prior years' test score data, is put in place.

The Giffin Model requires teachers to tailor instruction to the level of student they are teaching; using, material that is at student's current level of understanding, as opposed to teaching grade level material and setting a curricular pace that allows students to be successful in the classroom. The Giffin Model calls this a "multi-layered differentiated curriculum". Instruction is based off students' prior performance as well

as beginning of year, and interim assessments aligned to the Texas Essential Knowledge and Skills (TEKS), the state standards for the state of Texas.

All students are also expected to receive an individualized education/learning plan (IEP) to guide their growth, created and maintained by their teacher. At minimum, each student's learning plan contains data on student progress on quarterly assessments. It also contains information on progress towards goals, which are to be updated as the year goes on. Additional qualitative information that the teacher may choose to add, such as notes about student engagement and attendance are also part of the individualized learning plan. Under the Giffin Model teachers are expected to meet within their grade and subject to discuss student progress and to plan for moving students across the curricular layers. This student movement piece of the Giffin Model is directed by the teachers, with support from the principal.

District context. The school district where this study was situated served 69,716 students in 2014-2015, the year that implementation of the Giffin Model took place. 82.3 percent of the students were classified as economically disadvantaged, being eligible for free-and-reduced-price lunch. 71.4 percent of the students in the district were Hispanic, 24.6 percent African-American, 1.9 percent White and 1.3 percent Asian.

The four schools that implemented the Giffin Model ranged from Grades k-6. Three schools served grades 4-6, and one school served grades 6-8. Demographic data for teachers that implemented the Giffin Model from each of the four schools are

presented in detail in the following section. The four schools began implementing the Giffin Model in the 2014-2015 school year. This case-study took place during that first year of implementation.

Study Population

The population in this study were the teachers tasked with implementing the Giffin Model during the 2014-2015 school year. Teachers were selected to implement the Giffin Model by their principals prior to the 2014-2015 school year. Informal conversations with principals indicated that grades were selected where the principal felt that they had the strongest core of teachers. Principals voluntarily elected to implement the model after being presented with the option at the district’s annual end-of-year conference that occurred in the Summer of 2013. A total of twenty-four teachers across four schools were selected to implement the Giffin Model. All twenty-four teachers were asked to complete the Giffin Model survey. Twenty-three of the twenty-four teachers completed the survey. Table 1 provides demographic detail for Giffin Model teachers.¹

Table 1. Teacher Demographic Characteristics

Name	School	Grade	Subject	Level Taught	Experience
Solange	Holland	4	ELA	Low	4
Rachel	Holland	4	ELA	Middle	6
James	Holland	4	ELA	High	15

¹ Teachers’ names are pseudonyms. Only teachers who were interviewed were given names to help create a narrative. They are bolded in Table 1.

Teacher H1	Holland	4	Math	Low	11
Teacher H2	Holland	4	Math	Middle	3
Teacher H3	Holland	4	Math	High	4
Brian	Ashland	4	Math	Low	4
Jamie	Ashland	4	Math	Middle	3
Jamal	Ashland	4	Math	High	7
Teacher A1	Ashland	4	ELA	Low	5
Teacher A2	Ashland	4	ELA	Middle	5
Teacher A3	Ashland	4	ELA	High	13
Amelia	Trident	6	Math	Low	6
Mr. Franklin	Trident	6	Math	Middle	8
Ms. Paulson	Trident	6	Math	High	4
Teacher T1	Trident	6	ELA	Low	20
Teacher T2	Trident	6	ELA	Middle	14
Teacher T3	Trident	6	ELA	High	4
Teacher T4	Trident	6	ELA	Low	8
Teacher T5	Trident	6	ELA	Middle	7
Teacher T6	Trident	6	ELA	High	9
Teacher J1	John Jacobs	4	ELA	Low	4
Teacher J2	John Jacobs	4	ELA	Middle	3
Teacher J3	John Jacobs	4	ELA	High	5

Research Design

This study employed a mixed-methods, multiple case-study design. The study was carried out over the 2014-2015 school year. The methods used in this study were a cross-sectional survey of Giffin Model teachers, observations of classroom practice, and semi-structured interviews with the teachers. Implementation was measured through classroom observations as well as through teacher self-reports on the survey. Survey and interview data were used to describe teacher perceptions of the attributes of the Giffin Model. Detailed information on these instruments are presented in Chapter 3.

Study Significance

With more knowledge in the hands of researchers, program designers, and practitioners about teachers' thinking during implementation, the quality of implementation and student outcomes can be improved. For example, with more knowledge at hand about the attributes of a reform that teachers consider as they implement a program, and the influence of teachers' attitudes/beliefs on implementation quality, better programs can be designed. Program designers would have information that would give them insight into how different aspects of a program may be interpreted by teachers, and can craft programs that address those issues, leading to higher average levels of implementation quality.

The study sought to inform program implementers - administrators, external implementers and coaches – greater insight into teachers' thinking as they are faced with understanding and implementing a reform. First, district-level executives were

presented with preliminary findings and recommendations to assist the implementation of the Giffin Model. Second, conclusions from the study, covered in Chapter 5, provide recommendations for implementers of any program that may prove useful for improving implementation. This expanded base of knowledge may assist them during the process of implementation. For example, information could be delivered in such a way that would positively influence teachers' perceptions of a reform, which research indicates is related to implementation quality (Berends et al., 2002; Coburn, 2005). Lastly, because of this increased knowledge, program effectiveness can also be improved as the implementation gap is reduced because of increased understanding of teachers' thinking as they implement education programs.

Structure of the Dissertation

Chapter Two presents a review of the literature on implementation in education. The evolution of the field towards an understanding of the substantial role that implementation plays in program outcomes is also discussed in Chapter 2. Research and theories concerning factors that influence implementation quality, focusing on the policy attributes and the sense-making theories of implementation will also be reviewed. Lastly, the framework for this study is described. Chapter Four covers the methodology employed for this study. Embedded in the chapter are the assumptions, limitations and delimitations of the study. Chapter Four consists of the research findings. The dissertation concludes in Chapter Five, which includes a summary of the study, relevant findings, directions for future research and implications for practice

Summary

The study of the cognitive approach to policy implementation is still in an infantile stage. Research from this body of literature has argued that the way teachers come to understand and carry out policies is influenced by their preexisting knowledge, attitudes and beliefs about teaching and learning (Coburn, 2001; Spillane et al., 2002, Weick, 1995). Additionally, research also indicates that the social context within which teachers work – the actions and beliefs of their peers and their administrators, the policy environment, etc. – influences their understandings and enactment of a policy. This dissertation aims to add to the body of knowledge on implementation by (1) focusing on teacher cognition, (2) determining the relationship between the policy attributes described by Porter et al., (1988) and implementation success, and (3) shedding light on what and how those factors are considered as teachers implement a program.

CHAPTER 2: LITERATURE REVIEW

Introduction

For some time, education has been seen as a way to cure a number of disparate, yet interconnected social ills. In 1964, President Lyndon B. Johnson launched his Great Society initiative that sparked major federal investment into the nation's educational infrastructure. Closing achievement gaps between different racial and socioeconomic groups were seen as the means to eradicate poverty and new programs – such as the Head Start early education program – opened the door to research and evaluation on the effectiveness of educational interventions.

Over time, researchers in the field of education have added to the body of knowledge concerning the effectiveness of different educational programs, policies, school models, teaching practices, etc. Research has also shifted and broadened over time, from focusing on policies enacted by the federal government, for example, to a more recent focus on activities and processes that occur within schools and classrooms. While research on the effectiveness of wide-reaching policies such as No Child Left Behind and Race to the Top is certainly still carried out, many researchers today have expanded their attention to attend to the role that implementation plays concerning a program's effectiveness.

Implementation is an important, if not crucial aspect of the effectiveness of programs/policies that was once overlooked in research (Spillane, Reiser, & Reimer,

2002; Weatherley & Lipsky, 1977). Implementation is a process whereby users enact a program; which generally has a set of actions to be carried out (Elmore & McLaughlin, 1983). Markers, or indicators of that uptake of practices are measured by evaluators and researchers.

In 1977, Weatherley & Lipsky published a study that described the role that “street-level bureaucrats”, those at the ground level, played in implementing a policy. The study, which looked at public service workers across a number of different sectors, including teachers in the education arena, found that program implementation relied upon those tasked with carrying out a program’s directives. As research began to highlight in the late 1970s (and continuing today), implementation has a significant impact on program effectiveness and “is a decidedly complex endeavor, more complex than the policies, programs, procedures, techniques, or technologies that are the subject of the implementation efforts” (Fixsen et al., 2005, p. 2). Due to the complexity inherent in implementation, the study of implementation is also decidedly complex.

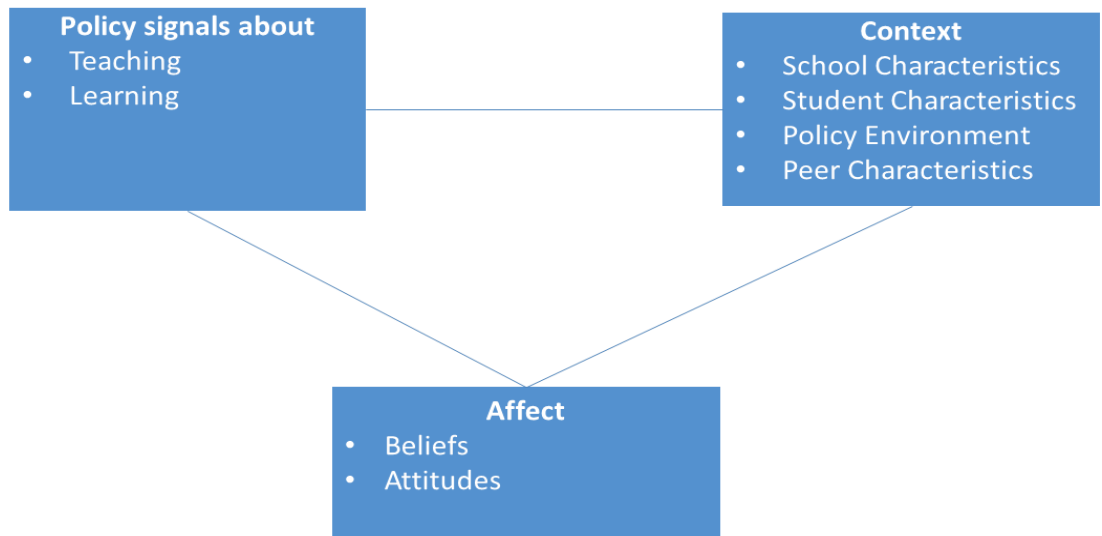
Research on implementation has shown that due to a number of factors, implementation vary dramatically (Berman & McLaughlin, 1978; Coburn, 2001). Several different theories have been put forth that offer potential explanations for the variation in implementation that researchers have found to be the norm. The primary purpose of this study was to put forth a framework for the study of implementation that is itself a synthesis of two existing theories; Porter’s policy attributes theory and Spillane’s sense-

making theory of implementation. In doing so, this study attempted to determine which, if any, of the policy attributes were related to implementation success.

The policy attributes sense-making framework (PASMf) recognizes the relationship between the policy attributes theory and the sense-making framework and the role of cognition in implementation. Briefly, drawn from Spillane et al. (2002), PASMf argues that teacher sense-making consists of three aspects; policy signals, contextual factors, and affect or prior beliefs and attitudes about teaching (see Figure 1 below). These sense-making components, PASMf argues, drive teachers' perceptions of the policy attributes outlined by Porter et al., (1988). Consequently, teachers' perceptions of the policy attributes are associated with the level of implementation of

the program which in turn has a mediating effect on program outcomes.

Figure 1. Sense-Making Components



With a multiplicity of factors known to affect implementation, and the existence of theories that attempt to explain why these factors have the effect that they do, “explorations of the state of the art of implementation as sub-discipline” to the study of educational effectiveness has great importance for the field (Young & Lewis, 2015, p. 4). In Chapter Five, I make an argument for the use of the Policy-Attributes Sense-Making Framework to understand, describe, and ultimately improve implementation quality. Research supporting the framework’s use are also presented in this chapter and in Chapter 5.

First, this paper will discuss different dimensions and definitions used to denote implementation quality. Following this, is an exploration of the evolution of the field of research on the effectiveness of educational programs and policies; from the lack of inclusion of measures of implementation in studies, to the understanding of its importance in measuring program effects and subsequent inclusion in research. Chapter Two presents a summary of the literature that has identified factors that affect implementation as it pertains to teacher cognition and interpretation. The literature review is situated alongside the argument that will be made for the use of the policy-attributes sense-making framework.

Defining Implementation Quality

As time, has progressed, conceptions of implementation quality have evolved. Hulleman & Cordray (2009) state that “the notion of intervention fidelity has been captured under a broad array of labels, such as treatment integrity, adherence, compliance, dose, exposure, quality of delivery, and treatment differentiation” (p. 89). Although the labels have been collapsed and used interchangeably in much of the literature, it is important to differentiate the distinct aspects of implementation represented by each term and the impact each has on program outcomes (Dane & Schneider, 1998; Hulleman & Cordray, 2009; O’Donnell, 2008). The term “quality” is often viewed synonymously with the term “fidelity”. Implementation fidelity is largely understood as the degree to which a program is implemented-as-intended (Cordray & Pion, 2006; Hulleman & Cordray, 2009; Duderden & Witt, 2012; Dane & Schneider,

1998). Sometimes, an educational intervention carries with it a set of specific set of practices that are expected to be carried out, and may come with materials intended to be used by the implementers (e.g., a new curriculum with instructional materials for teachers to use). Viewing a program as a set of practices to be undertaken, implementation quality then is the extent to which those practices are employed by the implementers, measured by a set of markers, or indicators of the uptake of that practice. However, not all programs have clearly delineated practices. Some programs leave processes loosely defined to allow for local adaption of the program (Munter, Wilhelm, & Cordray, 2014). Others may simply lack a coherent theory of action.

Due to the vast number of types of programs, each of which have different areas of focus, goals, and targets, implementation quality has been conceptualized by at least five different terms. (Dane & Schneider, 2008). In their review of 162 primary and early secondary school “behavioral, social, and/or academic maladjustment” programs, Dane & Schneider (2008) found that researchers considered implementation quality in terms adherence, exposure, quality of delivery, responsiveness and program differentiation. The definitions of each are provided below. Program adherence is the extent to which specific program components were delivered or adopted as intended. Exposure is an index that may include any of the following: (a) the number of program sessions delivered to the student; (b) the length of each session; or (c) the frequency with which program techniques/processes/materials were utilized. Quality of delivery is a measure of qualitative aspects of program delivery that are not directly related to the

implementation of prescribed content, such as implementer enthusiasm, leader preparedness, global estimates of session effectiveness, and leader attitudes toward a program. Participant responsiveness is the degree to which participants are engaged with the program. Program differentiation is a manipulation check that is performed to safeguard against the diffusion of treatments, that is, to ensure that the subjects in each experimental condition received only planned interventions.

With the Giffin Model implementation quality is understood as the degree to which teachers carry out practices specified by the Giffin Model. Teachers are expected to create individualized learning plans for each student in their class. First, the learning plans were to describe the goals for each student, denoting scores students are expected to achieve on their quarterly assessments. Second, a complete IEP was supposed describe the specific skills the student should master, which is drawn from the Texas Education Knowledge and Skills (TEKS) standards. Lastly, teachers were supposed to meet as content teams on a frequent basis to discuss student progress and movement. Survey data and artifact review (the latter being conducted during classroom observations) were used to evaluate IEP development and use.

Concerning teaching on-level, self-reports via the survey and classroom observations were used to evaluate program quality. Teachers were asked survey questions probing if and how often they felt they were teaching students at their level, using material that was appropriate for them. Classroom observations, guided by the

TEKS and data on student's prior and current performance were compared to evaluate the degree to which teachers were meeting students at their level of understanding.

Student movement, the third component of the Giffin Model was also evaluated. Self-reports about the frequency of student movement was analyzed alongside student assessment data to determine if teachers were moving students if they consistently performed above 95% on their assessments.

The Importance of Implementation

Prior to the late 1970s, research concerning school effects focused primarily on inputs and outputs. Research from that era focused on identifying the optimal ways to spend federal funds to improve education and eliminate existing gaps in attainment across different racial and socioeconomic groups. The Equality of Educational Opportunity report (Coleman et al., 1966), better known as the Coleman Report, stood as the seminal piece of research from this era that centered on input-output analyses (Gamoran, 2006; Sykes, Schneider, & Plank, 2009). The report, and research that would follow it, looked at a variety of schooling factors (e.g., class size, teacher salary, etc.) to ascertain where best to direct funds. This body of research also assessed the relationship between student achievement – on standardized test scores – and other factors outside of the influence of schools, such as peer characteristics of the student body including socioeconomic status and racial composition. This body of work concluded that factors outside of the control of schools were the primary drivers of student achievement and that school-related factors had little significance. Meta-

analyses of research from that era concluded that the level of funding bore little to no relationship to student achievement (Hanushek, 1986, 1996).

The body of research spawned by the Coleman report, and rooted in human capital theory, viewed implementers (i.e., teachers) as “passive acceptors of an innovation, rather than active modifiers of a new idea” (Rogers, 2003, p. 174). The myriad activities and processes of implementation that occurred in schools were not well understood and therefore not considered instrumental to outcomes. Following that line of thought, it was assumed that (un)successful programs could be identified through a relatively simplistic cause-and-effect lens, whereby the program itself, the input, was looked at as the sole factor in student outcomes. Cibulka & Nakayama (2000) adroitly summarized the research that was tied to the Coleman report, stating that this body of research did not concern itself “with the internal workings of schools, the process through which schools produce desired outcomes, or how their organizational structures might influence the distribution of these outcomes” (p. 40).

More recent analyses of the relationship between school-related factors and student achievement contradict the body of research that did not consider the impact of implementation, finding that factors within the sphere of control of schools did indeed have significant and large impacts on student achievement (Berman & McLaughlin, 1978; Bodily, 1998; Fixsen et al., 2005). These factors are introduced later in this chapter.

While a significant amount of research in education failed to account for variation in implementation around the time of the Coleman report, research in the late 1970s and 1980s began to look at the role implementation had on program effects. The publishing of the RAND Change Agent Study in 1978 would stand as the body of work that redirected the focus of research on program effectiveness (Borman & Hewes, 2002; Sykes, Schneider, & Plank, 2012). The Rand study was a four-year, two phase study that looked at the implementation of 293 new federally funded educational programs (Berman & McLaughlin, 1978). The study sought to illustrate differences between the way in which program implementers delivered the program and the way in which developers designed the program; all with an eye on implementation and its potential effect on program outcomes. Concerning implementation, the RAND study came to two main conclusions:

1. *Implementation dominates outcomes*: In other words, “local choices about how (or whether) to put a policy into practice have more significance for policy outcomes” than policy inputs such as funding or mandates (Elmore & McLaughlin, 1983, p. 12).
2. *Local variability is the rule, not the exception*: Within each of the educational interventions included in the Rand study, implementation varied in different ways and across different settings; each yielding differences in outcomes (Berman & McLaughlin, 1978).

Other studies that were published around the time of the Rand study came to similar conclusions. For example, in a study examining the relationship between implementation and student achievement scores for bilingual education programs, Hess & Buckholdt (1974), found that implementation quality was correlated with student achievement. Leinhardt (1974) came to a parallel finding in a study of an adaptive second grade instructional program; that implementation quality accounted for a portion of the variance in student achievement scores.

Around the time of the Rand study, as some research began to shed light on the importance of implementation in program outcomes, research in education was still slow to begin including measures of implementation. For example, in 1977 Fullan & Pomfret published their review of educational interventions, focusing on implementation fidelity – the extent to which teachers exhibit specific practices laid out by the program – and the failure of educational studies to include measures of implementation. The authors concluded that studies of educational programs and policies needed to include measures of fidelity to better understand the nature of program outcomes. Similarly, in their review of studies in education between 1980 and 1990, across a number of peer-reviewed journals including the *Journal of Applied Behavioral Analysis (JABA)*, Gresham et al. (1993) found that only 16% school-based and child-based behavioral intervention studies provided data on implementation.

Over time researchers began to increase their focus on implementation, recognizing that “implementation [was] a crucial link between the objectives and

outcomes of policies, programs and practices” (Smiley & Evans, 2006, p. 187). In recent years, the emphasis on evaluating implementation and the role it plays regarding program outcomes has grown significantly. For example, in their review of 72 studies published in *JABA* that focused on academic and behavioral practices, Sanetti et al., (2011) found that over half of the studies included data on implementation.

Additionally, many articles in well-regarded journals such as *Education Evaluation and Policy Analysis (EEPA)* and *American Educational Research Journal (AERJ)* include data on implementation or include implementation measures in their results. Studies commissioned, reviewed and rated by the Department of Education’s What Works Clearinghouse require the inclusion of data on implementation (What Works Clearinghouse Procedures and Standards Handbook, 2008).

Understanding the impact that implementation has on program outcomes is of crucial importance when estimating the effectiveness of education interventions (Cordray & Pion, 2006; Song & Herman, 2010). To adequately assess the impact of an intervention, one must account for all factors that might influence program outcomes. While in reality this is difficult, if not impossible, researchers should attempt to account for foreseeable influences. The level of implementation is one such influence.

Failing to account for variation in implementation threatens the validity of claims about outcomes and their causes. Internal validity, the validity of the inference about whether the observed variation between the program and the outcomes of interest represents a causal relationship, is threatened when implementation is not accounted

for (Song & Herman, 2010). This in turn also threatens the external validity, or the generalizability of outcomes of the study (Cordray, 2007). The inclusion of data on implementation in studies of educational effectiveness has become much more commonplace since the publishing of the Coleman Report (1966) and its importance cannot be understated.

The RAND study (Berman & McLaughlin, 1978) showed that variability in implementation quality was the rule and not the exception, impressing upon the field the need to include measures of implementation quality in effectiveness research. Following this study, researchers increased their focus on implementation, recognizing the instrumental role that implementation played between objectives and outcomes.

The study of the effectiveness of policies and programs in education has evolved greatly over the past half-century. Early studies from this time span lacked a focus on implementation, failing to account for the role that implementation might have on program outcomes. These early studies opted for a stricter input-output view of program effectiveness. Studies from the late 1970s and 1980s added to the body of knowledge in education by showing that implementation was an important factor to be considered in program outcomes. This work showed that implementation not only mattered, but that it also varied considerably. The work from that era eventually opened the door for exploration into *why* implementation varies and, subsequently causes a program's outcomes to vary.

Why Implementation Varies

From a research perspective, identifying the factors that cause variation in implementation allows for greater depth of understanding of program outcomes. When researchers measure implementation and/or account for variation in program effects, greater context is given to the findings of the study. From a practical standpoint, an understanding of the factors that affect implementation can lead to improvements in program outcomes by attending to those factors during implementation; by implementing practices that increase implementation quality, and by removing barriers that hinder implementation.

Two findings were reaped from the body of research spawned around the time of the Rand study; that (1) implementation dominated outcomes, and (2) that local variability was the rule, not the exception (Berman & McLaughlin, 1978). More contemporary studies have attempted to uncover what factors are related to variations in implementation. These studies have focused on how people, places, and policies affect implementation, and how variation in implementation impacts program outcomes (Spillane, 1999; Coburn, 2001, 2005; Hall & Hord, 2005).

A significant amount of research on implementation focuses on factors that affect teachers as they implement a program. As the inner-workings of schools have evolved over time, becoming more complex, the importance of teachers in implementation is now seen as tantamount to successful implementation of educational interventions (Berends, Bodily, & Kirby, 2002; Durlak & Dupre, 2008; Spillane et al.,

2002; Weatherley & Lipsky, 1977). Schools are complex organizations, with many different actors operating within the system, and teachers operate as the primary implementers of educational programs and policies. Teachers are also the largest single group of personnel within a school and operate as the final link between the program to be implemented and the students who will be affected by those changes. Following this, the research on implementation largely focuses on teachers, as teachers are considered the primary implementing agents in schools (Weatherley & Lipsky, 1977; Porter, Fusarelli, & Fusarelli, 2015).

A large amount of the body of research that concerns implementation focuses on structural and procedural aspects – e.g., the attributes of a policy and the type of professional development offered, etc. – arguing that these factors influence the extent to which a program is implemented by teachers with quality (Cuban, 1988; Fullan, 1991; Matsumura, Garnier, Correnti, Junker, & Bickel, 2010; Porter et al., 1988). Others focus more on cognitive processes of teachers during implementation (Coburn, 2005; Hall & Hord, 2005; Spillane, et al., 2002). Research from this segment of the implementation literature argues that implementation quality is dependent upon teachers' interpretations of messages sent from the policy, their leaders and peers, and from their own prior experiences (Coburn, 2001; Porter et al., 2015; Spillane, 1999). Factors that influence implementation will be discussed in the context of the PASMf as the framework adequately highlights the key factors found to cause variation in implementation.

First, a review of the two frameworks, PAT and Spillane's sense-making framework will ensue, followed by a discussion of PASMf, the blended framework. The blended framework is used to guide a review of the literature on factors that influence implementation quality. The purpose for embedding the literature review in the context of the PASMf is to illustrate the appropriateness of the use of the framework for understanding and improving implementation. The attributes defined by PAT, and understood through Spillane's sense-making framework, serve as a frame through which prior research on implementation can be understood, future studies can be guided by, and implementation efforts can be improved.

Policy Attributes Theory

The policy attributes theory postulated that successful implementation of an educational program was rooted in five policy attributes (Porter et al., 1988): Specificity is the extent to which a policy's designers deliver detailed information and guidance to teachers. Consistency is the degree to which the reform is aligned with practices, procedures, and goals of the school. Stability is defined as the extent to which policies, practices, structures, and people remain in place over time. Authority refers to the extent to which a policy is supported by actors or institutions (e.g., state/district leaders, school administrators, teachers). Rewards and sanctions tied to the program are considered Power. The policy attributes theory argued that program quality would be higher the more teachers perceived a program to be specific, consistent, stable, authoritative, and powerful (Porter et al., 1988).

The policy attributes theory was an application of rational choice theory used to understand policy implementation in the educational domain. Rational choice theory assumed that actors were rational in their decision-making process (Towler, 2010). The theory, applied to the field of education, argued that teachers, having complete information about a program, would make a rational choice as to what to implement in their schools and classrooms; evaluating its attributes and making decisions as a result of that evaluation (Porter et al., 1988).

Porter's Policy Attributes Theory flows from rational choice theory and ascribes to this line of thought:

1. Actors, having *complete* information about a program will make a rational choice as to what to implement in their schools and classrooms; evaluating its features and making decisions because of that evaluation.
2. Therefore, what matters to policy implementation are the characteristics, the attributes, of the policy.

The five policy attributes represented have been examined by a few researchers in their attempts to understand how these attributes influence implementation (Patterson, Campbell, Johnson, Marx, & Whitener, 2013; Porter, 1994). Applying this top-down, rational choice view of implementation, empirical analyses of different policies highlighted the appropriateness of the policy attributes theory for understanding implementation. The primary means through which these studies

employed the policy attributes theory is through an examination of documents that provided guidelines for implementing a program, and that also provided an outline of the rewards and/or sanctions (i.e., power) associated with program (Phelps et al., 2011; Polikoff, 2012). Document analysis, whereby trained researchers summarize content and assign them to a set of categories was employed and was followed up by interviews and observations of practice to determine the degree to which policy components were adhered to (Phelps, Durham, & Wills, 2011; Polikoff, 2012).

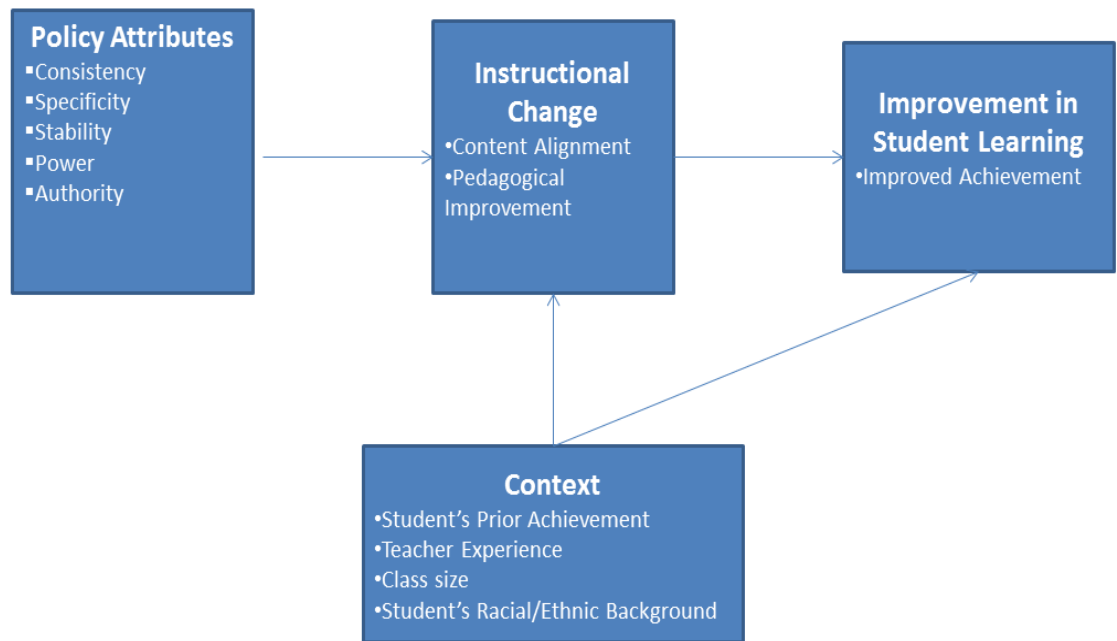
Using the policy attributes theory, Phelps et al. (2011) conducted a study that assessed the degree to which states had successfully implemented their individual learning plan (ILP) policies. The researchers analyzed policy documents as part of a seven-state study focusing on four of the policy attributes; specificity, consistency, power and stability. Each researcher involved in the project independently analyzed the collected set of policy documents, rank-ordering each state along the four attributes. The team then compared their ranks and created a master ranking. This ranking of the seven states fell in line with the subsequent case-study of the four highest ranking states; finding that the states with the highest levels of specificity, consistency, power and stability, exhibited the highest levels of implementation.

Polikoff (2012) investigated the quality of implementation as it related to state policy attributes. Employing both content analyses and the use of survey data from the Surveys of Enacted Curriculum (SEC), Polikoff described how the attributes of different state's policies concerning standards and assessments were associated with

instructional alignment. SEC is a survey used to gather data on teachers' instructional focus, asking them to provide information about time spent covering specific topics (Polikoff, 2012). Polikoff (2012) used content analysis to assess the alignment between teacher-reported instruction – measured by SEC – and state standards and assessment.

Below, Figure 3. depicts the framework for the policy attributes theory, adapted to Polikoff's (2012) study. Polikoff (2012) argued that variation in four policy attributes – specificity, consistency, stability and power – led to variation in alignment of the content delivered with the guidelines set forth in the policy. It was hypothesized that higher levels of the policy attributes would lead to higher implementation quality. Implementation quality was understood as the extent to which content became aligned with instructional practices.

Figure 3. Conceptual Framework for the Policy Attributes Theory



Through his content analysis, Polikoff (2012) noted a large degree of variation on policy attributes across states, including, among other findings, low consistency across the board between standards and assessments. Using the survey data collected from SEC, he estimated two indices of alignment, looking separately at alignment of instruction with standards and with assessments. The indices were calculated by comparing teacher self-reports of instruction with the analyses of state standards and assessment content. Using this method, Polikoff (2012) found that the four policy attributes studied – specificity, consistency, stability and power – predicted the alignment of instruction with state content standards and assessments.

The top-down perspective of implementation that has been applied by Porter (1994), Polikoff (2012) & Phelps et al., (2012) has been shown to be effective at understanding and predicting implementation of educational policies. Using interviews, surveys, and content analyses, researchers have been able to apply the policy attributes theory to their understanding of implementation, finding that these attributes do indeed influence implementation.

Bounded Rationality: The Limitations of Individual Knowledge

In its original convention, the policy attributes theory has been shown to have the capacity to predict implementation (Phelps et al., 2012; Polikoff, 2012; Porter, 1994). However, the theory as it was originally conceived does not account for the role of the individual as an active decision-maker. Rational choice theory, which underlies the policy attributes theory, assumed that individuals have complete knowledge; about a policy, about the choices available to them regarding actions to take concerning that policy, and about the consequences related to a set of actions. Bounded rationality, while still focused on the link between policies and individual decision-making makes a different argument. The theory of bounded rationality arose as

“... [A] critique of comprehensive rationality, and grew from an effort to reconcile the reductionist economic assumptions of rational choice with observed psychological constraints on human decision-making”. (Jones, Boushey, & Workman, 2006, p. 40)

The theory argues that individuals *do not* have complete information. Therefore, an individual's decision-making process is constrained by their own knowledge of aspects (e.g., goals, processes, etc.) related to the policy (Jones, 2003; Simon, 2009).

Studies have shown that individuals lack the requisite information to make a fully rational decision that would optimize their individual decisions concerning implementation (Jones, 2003; Zaller, 1992). Simon (2009) clarified the distinction between rational choice theory and the theory of bounded rationality, arguing that decisions will always be based on an incomplete and, to some degree, inadequate comprehension of the true nature of the problem being faced. Therefore, Simon stated, decision-makers will never succeed in generating all possible alternative solutions for consideration. Additionally, alternatives are always evaluated incompletely because it is impossible to predict accurately all consequences associated with each alternative. Therefore, the ultimate decision regarding which alternative to choose must be based on some criterion other than maximization or optimization because it is impossible to ever determine which alternative is optimal (Simon, 2009).

Desimone (2002) attempted to describe the implementation of CSR models through a different conception of the policy attributes theory than originally put forth by Porter et al. (1988); one that falls in close tandem with the assertions put forth by bounded rationality, and also with Spillane et al.'s (2002) sense-making framework. Where Porter et al. (1988) argued for a strictly rational-choice view of implementation, Desimone linked the policy attributes and implementation to an

individual's *perceptions* of the policy's attributes. Desimone (2002) asserted that instead of a policy's attributes affecting implementation quality, it was the implementers' perceptions of the policy's attributes that moderated implementation. Supporting Desimone's (2002) contention, Weatherley & Lipksy (1977) in their influential study of implementation and the role of public service workers – which included teachers – found that implementation was driven by those individuals' (called "street-level bureaucrats") interpretations of the reform initiative.

Departing from the full-knowledge perspective of rational choice theory, Desimone's (2002) application of the policy attributes theory focuses on the individual's understanding and interpretation of messages signaled by a policy's attributes. Her application of the theory necessitates an acknowledgement that it is unlikely for a person to operate with complete information, therefore leading to the choosing of actions that may not result in the optimal outcome, i.e. a high level of implementation. In this context, rationality is decided by the perceptions that the implementer holds about the policy; what is being asked of them, how it impacts their practice, how it might impact their student's learning, etc. Those perceptions are guided by their own past experiences, attitudes and beliefs (Piaget, 1972). The research on implementation shows that the attributes identified by Porter et al. (1988), as perceived by implementers, do indeed influence implementation quality (Coburn, 2005; Desimone, 2002).

Cognition: Spillane's Sense-Making Framework

While applicable to the study of implementation, the theories of rational choice and bounded rationality (much more so the former than the latter), leave untouched teachers' thinking as they acquire information about and subsequently, implement a program. Recapping, traditional economic models view the role of the individual in implementation as rather limited. It is largely assumed, based on that body of literature, that the individual implementer is passive in the implementation of a program. Factors within the policy are the primary drivers of implementation, and not how the implementer understands and forms ideas about the policy (Coleman, 1990).

To the contrary, cognitive frameworks for understanding implementation attend directly to the individual, arguing that the individual is not only active, but instrumental in the process of implementation (Browning, Halcli, & Webster, 2000; Kisun & Nam, 2008; Spillane et al., 2002). For several decades – dating back to the RAND study – researchers asserted that local variation in implementation was the norm, yet the role of teachers' cognition in this process has not garnered significant attention until much more recently. The cognitive processes that teachers undergo during implementation are a focal point of an emerging segment of the implementation literature.

Understanding implementation through a cognitive lens allows researchers to explore the ways that teachers come to understand a policy as it is implemented, identifying the factors that drive the decisions they make about the policy, and how those decisions affect policy implementation (Spillane et al., 2002; Coburn, 2001, 2005).

Research concerning the role of cognition in implementation has been carried out across a few fields of study, including public policy, political science, and psychology (Weiss, 1989; Yanow, 1996; Weick, 1995). First and foremost, these studies argued that the ideas that implementers form about a program are instrumental to the implementation process. Spillane and colleagues (2002) went on to argue that the formation of these ideas was a complex process, guided by individual's prior experiences.

“Sense-making is not a simple decoding of the policy message; in general, the process of comprehension is an active process of interpretation that draws on the individual's rich knowledge base of understandings, beliefs, and attitudes.”
(Spillane et al., 2002, p. 391)

Specifically, Spillane et al. (2002), argue that sense-making is rooted in three domains, individual cognition, situation or context, and policy signals. The theory of sense-making argues first, that individuals are sense-makers; they develop interpretations about programs based on their prior knowledge, beliefs, and experiences. Sense-making is an “active attempt to bring one's past organization of knowledge and beliefs to bear in the construction of meaning” (Spillane et al., 2002, p. 395). For example, a teacher may have difficulty reconciling her belief that students should not be tracked by prior achievement. When faced with reforming to meet those demands, changing curricular pacing, and using less complex text, a teacher's thoughts for example, about the validity of this approach may only lead to superficial changes

(i.e., low program quality). Or, a teacher may see the program as being consistent with their philosophy about teaching and learning. This, the literature suggests, has a positive effect on implementation (Smith et al., 1997).

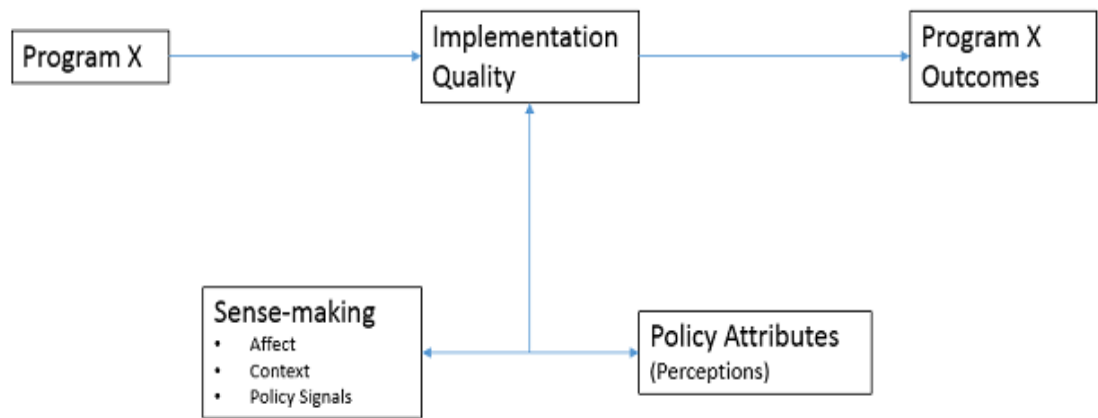
Second, the theory asserts that situation, the context in which the reform is taking place, has an influence on implementing agents' sense-making. Spillane and his colleagues (2002) argue the implementing agent is also a social sense-maker and that all sense-making is "embedded in social contexts" (p.404). The attitudes and beliefs of peers and administrators, and the quantity and quality of support they receive during implementation influences program quality. Peer attitudes consistent with the program can positively impact individual teacher's perceptions of the model and in action, impact their efforts to implement the model as intended (Datnow, 2000)

The third domain asserts that sense-making also consists of policy signals or the role the development of "representations of ideas about changing practice" (Spillane et al., 389) have on perceptions of the program and how those influence implementation. Programs, through their design send signal to teachers about teaching and learning. In engaging with a new reform, teachers are confronted with expectations that often require them to change their practice. These expectations may or may not fit with teacher's worldviews, be clear enough to encourage adoption or adaptation of the practice, or be perceived to have a chance at success given the stability of the current environment. Implementation and therefore program quality, may be influenced by those policy signals (Berends, et al., 2002)

Policy Attributes Sense-Making Framework

The contention made by the Policy Attributes Sense-Making Framework – that policy interpretation is guided by the individual implementer, the local context and policy signals – complements Desimone’s (2002) application of the policy attributes theory. The theory (Desimone, 2002), which focused on teacher perceptions and the relationship of those perceptions to implementation, meshes with Spillane’s sense-making framework in that both argue for viewing implementation through the ways in which teachers interpret messages sent from a policy. The Policy Attributes Theory serves as a frame through which we can categorize important factors shown to affect implementation, and the sense-making framework gives insight into how those factors can and do affect implementation. Therefore, it serves the field of research on implementation to have a framework that attends to the role of cognition in implementation, while also having a way to organize factors that influence the implementation of any given program. My framework, the policy attributes sense-making framework (PASMf), fills that need. In this paper, I argued that teachers’ perceptions about a program are the outcomes of an individual making-sense of the information they receive. Sense-making, as Spillane et al. (2002) argue, consists of three aspects – affect, context, and policy signals – that drive teacher perceptions. In turn, these perceptions moderate implementation quality which in turn mediates program effects. The logic model depicted in Figure 4 describes the framework and its role in implementation.

Figure 4. Policy Attributes Sense-Making Framework



Spillane et al. (2002) argued that implementation was situated within individuals' cognition, guided by their past experiences, attitudes, and beliefs concerning teaching and learning. The sense-making framework contends that when teachers are asked to implement a new policy, they rely on their existing knowledge structures, or schema, that guide how they will interpret the policy, as the "fundamental nature of cognition is that new information is always interpreted in light of what is already understood" (Spillane et al., 2002, p. 49). Desimone's (2002) application of the policy attributes theory does not explicitly state that a teacher's schema guides implementation. Still, her version of the theory is grounded in the literature that indicates that teachers' *perceptions* of a policy's attributes are associated with implementation quality (Desimone, 2002). The perceptions that teachers form about a policy's attributes are influenced by their knowledge, attitudes/beliefs, contextual factors, and the policy's signals (Coburn, 2005; Porter et al., 2015; Spillane et al., 2002).

Spillane, in putting forth his framework, made similar arguments concerning implementation and the role of teacher perceptions. Teachers' perceptions of a policy are, in effect, moderated by their knowledge of the policy, its alternatives, potential outcomes, and their attitudes and beliefs about teaching and learning (Spillane et al., 2002). Said differently, the factors drive teacher perceptions of a policy and are associated with the implementation quality. Through this path from the role that prior experiences have in shaping a teacher's schema, to their development of attitudes and beliefs about teaching and learning, a teacher's perceptions about a program influence implementation quality which in turn, mediates program effects.

The following sections review the literature on cognitive factors that affect implementation. First, will be a section discussing the role of attitudes and beliefs on implementation followed by sections that cover each of the five policy attributes. The review of factors that influence implementation is organized in this manner to show the appropriateness of the PASMf for understanding, describing and guiding implementation.

Teacher Schema: Knowledge, Attitudes, and Beliefs. One of the central arguments put forth by Spillane et al. (2002) is that the behaviors of an implementer are underscored by their cognition. Behaviors concerning implementation are influenced by a person's schema, or worldview. A person's worldview is constructed through experience, through the knowledge they have gained, and shapes their attitudes and beliefs (Piaget, 1972). The sense-making framework also asserts that policy messages

are not “inert, static ideas that are transmitted unaltered in local actors’ minds to be accepted, rejected, or modified...” (Spillane et al., 2002, p. 392). Instead, the framework argues that agents frame the policy messages within their own schema. Cognitive research on comprehension supports the claims made by the framework. This body of research indicates that new information is always interpreted based on prior knowledge and experience (Greeno, Collins, & Resnick, 1996; Piaget, 1972). In the case of teachers implementing a new program, the policy messages they receive are interpreted considering what they already know and believe. Their schemas act as a lens through which they see a program; how it might change their behaviors, how it will affect their student’s learning, etc. In summation, schemas:

[G]uide the processing of cognitive and social information, helping to focus information processing and enabling the individual to use past understandings to see patterns...that are used to fill the gaps in what is explicitly said or observed. (Spillane et al., 2002, p. 394)

Research that looked at the role of interpretations of policy on implementation support the claims put forth by the sense-making framework. For example, in a study of the adoption of a new math policy, Hill (2001) found that teachers failed to adequately implement the use of new materials, seeing their current curriculum as sufficient. Hill concluded that their misunderstandings were not a result of a lack of information, nor of insufficient time spent discussing the new policy. Rather, the author, through analysis of interview data concluded that their misunderstandings came as a result of interpreting

the new policy through their own knowledge and past experiences. The adoption of new materials failed, because their interpretations of the policy were heavily influenced by their existing schemas and little was done to re-shape them.

Citing a study on technology implementation, Zhao and colleagues (2002) found that teachers' prior attitudes towards the use of technology in classrooms moderated the implementation of pedagogical practices that employed technology. Teachers who believed that their teaching didn't require technological intervention were less likely to incorporate technology into their teaching. Other studies assessing the influence of prior beliefs about appropriate pedagogical practices support that finding, that prior attitudes/beliefs can have both positive and negative effects on implementation quality (Beck, Czerniak, & Lumpe, 2000; Fang, 1996; Vacc & Bright, 1999).

The literature supports the idea that teachers' attitudes and beliefs about teaching and learning, drawn from past experiences, guide their interpretation of policy messages (Coburn, 2001, 2005; Porter et al., 2015; Spillane, 1999).

Few would argue that beliefs teachers hold influence their perceptions and judgments, which, in turn, affect their behavior in the classroom, or that understanding the belief structures of teachers is essential to improving their teaching practices. (Pajares, 1992, p. 307)

The following sections will illuminate the PASMf through a further review of the literature on implementation.

Specificity. One policy attribute interpreted by teachers as they implement a program is specificity. According to the PAT, the more specific a program/policy is “in terms of materials, information, professional development, guidance and instructions provided, the more likely teachers are to implement it” (Desimone, 2002, p. 440). Findings from CSR implementations studies found that the less teachers perceived a model to have specific guidelines for practice, the lower the level of implementation quality found (Berends et al., 2002; Datnow & Stringfield, 2000; Smith et al., 1997). In her review of the literature on the implementation of CSR models, Desimone (2002) found evidence of perceptions of policy attributes impacting implementation. For example, Smith et al. (1997) conducted a study of the implementation of several CSR models, to determine what factors were associated with quality implementation. Using surveys, and interviews, the researchers found that implementation quality was lower in schools where teachers perceived there to be a lack of specific guidelines for practice. The schools and that exhibited the highest levels of early implementation success had designs that were specific about what was expected of teachers. Materials, professional development and guidance in these high implementation schools were rated as more specific by teachers and therefore easier to implement (Smith et al., 1997).

Captured under specificity, is the role of professional development in implementation efforts. When a new program is implemented, professional development of some form or another often takes place. One goal of professional development is to instruct teachers as to how to effectively carry out the directives set

forth by the new program (Saunders, 2014). PD is also used to foster the knowledge and skills necessary to implement the reform (Darling-Hammond, 2009; Saunders, 2014). The characteristics of PD vary widely across programs as PD varies given the specifics of each program. Several studies have found that PD can help teachers change their practice to match the directives of a new reform (Correnti, 2007; Darling-Hammond et al., 2009; Koehler, 2010; Kisa & Correnti, 2014). For example, studies that have looked at the role of PD in the adoption of standards-based reforms, found that PD was associated with implementation quality (Hamilton et al., 2003; McCaffrey et al., 2001; Supovitz & Turner, 2000).

While the nature of PD varies, research has identified several professional development characteristics that are related to greater uptake of the practices the program specifies. Sustained, as opposed to one-shot, workshop-style PD has been shown to be effective in promoting implementation (Darling-Hammond et al., 2009; Garet et al., 2008; Garret et al., 2011; Kisa & Correnti, 2014). Through sustained professional development, teachers are provided with numerous opportunities to acquire specific information about the reform; how the reform differs from their current practice, what behaviors they are expected to adopt, etc. (Fang, 1996; Putnam & Borko, 2000). Coaching by trained implementers has also been consistently identified as a moderator of implementation (Dusenbury et al., 2010; Loucks-Horsley et al., 1998; Wanless et al., 2013). For example, in a study of the implementation of CSR models Bodily (1998) found that implementation was higher when a model had multiple

training days and provided specific examples of practice. Teachers perceived greater model specificity when they were given more opportunities to engage with the reform. Similarly, in the Smith et al. (1997) study, implementation was greater when teachers perceived the training and materials to be more specific, as opposed to abstract.

The literature on implementation indicates that higher levels of implementation are positively associated with teacher perceptions that a model has specific guidelines for practice (Bodily, 1998; Berends et al., 2002; Smith et al., 1997). The policy attributes sense-making framework adds to the body of research on the implementation of programs/policies. In this study, PASMf tested the association between perceptions of specificity and implementation quality. Second, using surveys, interviews and focus groups, my framework clarified how teachers' attitudes/beliefs, contextual factors and the policy signals related to stability shape their perceptions about the specificity of a reform. Research suggests that there is a positive relationship between teachers' perceptions of specificity and implementation quality (Berends et al., 2002). My framework helps shed more light on *why* specificity matters, focusing on teacher sense-making.

With this knowledge at hand, implementation efforts can be greatly improved. First, policies and programs that are chosen should have specific guidelines for practice to improve the likelihood that a program is implemented with success (Desimone, 2009; Ingvarson, Meiers, & Beavis, 2005). Additionally, as information is presented to teachers, efforts should be made to ensure that teachers have a clear understanding of

their expectations. Without knowing and understanding how to carry out the specific duties set forth by a policy, implementation is likely to be met with little success. Additionally, policy-makers should craft reforms that are specific enough to be followed. Those tasked with presenting the information (principals, teacher leaders, consultants, etc.) should also take steps to ensure that PD is tailored specifically to the policy and attends to the practices that teachers must engage in. When implementing a new reform, it is crucial that the policy be clear and concise regarding the goals of the reform and the roles that educators will play under the new reform so that educators can understand what is being asked of them, can fit the reform into their existing schemata, and successfully implement the reform (Berends, 2000; Coburn, 2005; Erlichson, 2005).

Consistency. Consistency with practices currently in place has been shown to impact the implementation of new programs (Datnow, Borman & Stringfield, 2000; Porter et al., 1988; Yonewaza & Stringfield, 2000). Hargreaves (2001) argued that teaching and learning are emotional practices. Therefore, reformation of those practices is also an emotional act, requiring people to change their perspectives, or to at least incorporate new perspectives into their current views of teaching and learning. Additionally, teachers – and indeed all people – construct their own frames of understanding based on their prior experiences (Smith, DiSessa, & Roschelle, 1993). Their schemas exert a strong influence on how they interpret reforms (Dweck, 1999; Piaget, 1972). If teachers perceive a reform to be at odds with their current practices, it is unlikely that teachers will implement faithfully; because of outright rejection or simply

from a lack of understanding about the reform as they try to fit the reform alongside their existing practices.

The extent to which teachers perceive a program to be consistent with what is already present in their school and district affects implementation (Muncey & McQuillan, 1996; Schmidt & Datnow, 2005). Greater perceptions of consistency have been shown to be associated with higher levels of implementation, and vice, versa. Coburn (2003, p. 4) stated that “deep change” – change that goes beyond basic practices and procedures in classroom practice – is affected by teachers’ tendencies to adapt new approaches to old and a greater likelihood to adopt new approaches when they are perceived to be similar to prior practices.

In their study of CSR implementation, Datnow & Stringfield (2000) found that implementation was less successful in schools where the model was misaligned with current practices. Similarly, Graczewski and colleagues (2007) found that resistance to CSR implementation was greater in schools where teachers failed to see the necessity for change. The models were not consistent with current practices, which lowered the quality of implementation.

Implementation studies grounded in sense-making mirror the claims that perceived consistency current practices and policies have an impact on implementation (Coburn, 2001, 2005; Spillane, 2000). For example, Schmidt & Datnow (2005) found that CSR implementation was lower in schools where teachers perceived practices to be

inconsistent with the proposed model. Similarly, Porter et al., (2015) examined factors that impacted the way that Common Core was implemented. They found that resistance to change arose where teachers perceived the model to be asking them to make changes that were vastly inconsistent with current beliefs practices. Implementation research argues that the closer the perceived alignment between a program's practices and teachers' current practices, the greater the likelihood that high levels of implementation quality will result (Graczweski et al., 2007; Schmidt & Datnow, 2005; Spillane, 1999). In short, implementation is influenced by teachers' perceived consistency of the reform with policies and practices that already in place.

Teacher surveys collected in the Smith et al. (1997) study also indicated that at schools where program quality was lower, teachers felt that the information being presented was often inconsistent. This finding was mirrored in the work of Berends, Bodily, & Kirby (2002) which demonstrated that – among other factors – coordination between the district and the New American Schools (NAS) designers influenced implementation. Poor coordination was associated with poor implementation and vice versa. Teachers interpreted the policy messages sent by the two groups differently, finding the messages to be inconsistent. Inconsistent messages about how to implement the program, led to low implementation in several cases. Conversely, a positive association was found between teacher perceptions of consistent messaging and implementation. Berends et al. (2002) also found an association between the number of reforms taking place and the implementation of the CSR model. Teachers cited being

pulled in too many directions to be able to adequately implement the model. Inconsistent messaging from different actors within the system may lead to misperceptions about the reform (Berends et al., 2002; Smith et al., 1997).

PASMF asserts that one of the factors teachers consider and are influenced by as they are tasked with implementing a policy is consistency; consistency with their existing schema, their practices, the school's culture, and the consistency of policy messages. The literature on implementation highlights that consistency in these areas, perceived by implementers, is a driving force in implementation (Mirel, 1994; Smith et al. 1997). PASMF attends to this segment of the research on implementation by arguing that implementation efforts are driven, in part, by teacher's perceptions of reform consistency in the areas listed above.

By addressing the areas where consistency has a moderating effect on implementation, policy-makers and implementers can positively influence implementation. When crafting a new policy, for example, policy-makers should consider the current reforms already in place in their target states, districts, and schools. If the new policy is not consistent with current reforms, significant attention should be given to fostering a situation (e.g., sustained professional development) that affords teachers multiple opportunities to be presented with and internalize the new policy. The research on implementation shows that quality implementation does indeed take multiple years as teachers must incorporate the new reforms into their existing schema,

understanding that new practices may have to replace old ones for program quality to be high (Berman & McLaughlin, 1978; Fixsen et al., 2005).

Stability. A third policy attribute laid out in the policy attributes theory, stability, has also been evaluated in the CSR literature. Researchers have found that perceptions of stability, of the organization, of actors within it, and of programs at the school influence implementation. When teachers perceive there to be a lack of stability, implementation has been found to be low as teachers are less likely to carry out reform directives if they believe the reform to be replaced by another due to the unstable environment (Bodily, 1998; Berends, 2000).

Teachers' perceptions of leadership stability – at the district and school-level – have been shown to impact implementation (Bodily, 1998; Berends, 2000; Berends et al., 2002). Higher perceptions of stable leadership are associated with higher levels of implementation. Conversely, lower perceptions are associated with lower levels of implementation. School leaders play an instrumental role in implementation, contributing to a stable environment by establishing an atmosphere conducive to successful implementation of programs and policies (Phelps, 2008). This is done by implementing quality professional development, creating a shared vision for the school, and supporting teacher's instructional needs through mentoring and coaching (Fullan, 1997; Phelps et al., 2015).

Stable leadership sends a signal to teachers that the goals, practices, and supports associated with current reform efforts will not soon be replaced by another reform, with its own set of goals and practices (Desimone, 2002). For example, in a study of the implementation of the New American Schools (NAS) reform, a CSR model, Bodily (1998) found that implementation was associated with teacher perceptions of stable leadership. In schools where teachers held higher perceptions of leadership stability, higher levels of implementation were found. Similarly, Berends et al., 2002, found that implementation of NAS was higher in districts where district leadership was perceived to be stable.

Across studies that look at teacher perceptions of the stability of school and district leadership and its relationship to implementation of school reforms, the environment that leaders create send signals to teachers that drive their perceptions (Bodily, 1998; Fullan, 1997; Phelps et al., 2015). The stability of the policy environment is intricately related to the stability of leadership. Constantly shifting policies, often introduced by new leaders, weakens the stability of the environment that teachers must implement a program in (Desimone, 2002; Berends et al., 2002). For example, the Berends et al. (2002) study of NAS implementation, the researchers found that teacher perceptions of the stability of the policy environment was associated with implementation in districts where teachers perceived that the reform would likely be replaced by another. The turnover of superintendents and principals during CSR implementation signaled instability of the policy environment, resulting in poor

perceptions of stability which were associated with low implementation (Bodily, 1998; Berends et al., 2002).

Teacher perceptions of stability are higher in an environment that has a shared vision for the district and school, has consistent goals, provides the necessary supports, and is characterized by low turnover. When teachers (and other school staff) are in a stable environment, the belief that policies will remain and are worth investing in becomes realized, thus positively impacting implementation (Desimone, 2002; Phelps, 2008; Porter et al., 2015). Conversely, lower levels of implementation result when, due to the perceived lack of the aforementioned components of stability, teachers believe that a reform is transient in nature.

From a research perspective, my framework increases our understanding of the effects that perceptions of stability have on implementation. PASMf argues that teacher perceptions are driven by actors, context, and policy signals. Stability factors, such as the stability of leadership and the policy environment contribute to teachers' perceptions of stability. The signals that these factors send to teachers are interpreted through their past experiences, beliefs and attitudes pertaining to stability. Research has shown that these perceptions are associated with, and have an influence on implementation (Bodily, 1998; Porter et al., 2015). Viewing implementation through my framework allows us to understand the link between teachers' past experiences and beliefs/attitudes, perceptions of stability and the level of implementation. Illuminating the relationship between those stability factors have on implementation adds to the

existing body of literature on implementation by presenting a clearer connection between those factors.

Implementation efforts can also be improved if state and district leaders, policy-designers and implementers understand the relationship between factors surrounding implementation regarding perceptions of stability. For example, though not always in their control, state, district, and school leaders can make a concerted effort to reduce the frequency with which new reforms are introduced. Additionally, these leaders could work to create a shared vision for their schools, actively promote the value of the reform and provide the necessary supports to teachers, thus signaling that the reform will not soon be replaced by another. Actions such as these would increase teacher perceptions of stability, which has been shown to be associated with the level of implementation (Berends et al., 2002; Phelps, 2008; Phelps et al., 2015).

Authority/Buy-in. Authority is a force of legitimacy derived from the support of school administrators, district and state leaders, as well as teachers themselves. Research indicates that authority is positively associated implementation quality; higher levels of institutional authority are related to higher levels of implementation quality (Berends et al., 2002; Coburn, 2005; Mirel, 1994). In short, if teachers feel that a program has sufficient authority, it is likely to be implemented with greater success than without that authority (Datnow & Stringfield, 2000). As teachers buy into a program they are giving that program to be integrated with or supplant their practice. If teachers perceive the program to be a worthwhile endeavor, they are demonstrating belief in the

program and are thus giving it the authority to operate (Coburn, 2001; 2005). This claim is echoed in the literature regarding teacher buy-in and its impact on implementation (Slavin & Madden, 1999; Berends et al., 2002; Datnow & Stringfield, 2000).

The sense-making framework argues that the human sense-making process occurs in a social context (Spillane et al., 2002; Coburn, 2001, 2005). The framework sees “situation or context [as] not simply a backdrop for implementing agent’s sense-making but [as] a constituting element in that process” (Spillane et al., 2002, p. 389). The actors, whether they are fellow teachers or administrators, influence how messages from a policy are received, internalized, and implemented. Similarly, my framework argues that perceptions of authority – which are often directed at the local level – have an effect on implementation. Research indicates that normative authority, the authority given to a reform by teachers, is associated with implementation (Datnow, 2000; Bodily, 1998; Coburn, 2005). For example, in a study of the implementation of three separate school reform models, implemented in 22 schools across three states, Datnow (2000) found that teacher buy-in was associated with implementation. Using focus groups, semi-structured interviews, and classroom observations conducted across a three-year time span, the researcher found that implementation was higher in schools where teachers perceived the reform to have authority. In this case, perceptions of authority were higher in schools where teachers had input in the decision regarding which model to implement in their schools. High levels of initial teacher buy-in were associated with higher levels of implementation.

Studies of the implementation of other education reforms and programs have also concluded that teacher buy-in moderates the level of implementation. For example, in their study of the adoption of coaching practices, Ketelaar and colleagues (2012) found that teachers who were more invested in the initiative exhibited greater use of the coaching techniques in their classrooms. Studies concerning the adoption of a variety of pre-school initiatives, have also found teacher buy-in to be a significant factor in implementation (Alhassan & Glover, 2014; Durlak & DuPre; 2008; Eisenmann et al., 2008; Hall et al., 2011).

Research indicates that normative authority can be cultivated when teachers have the opportunity to discuss and gain knowledge about a reform (Coburn, 2001, 2005; Spillane et al., 2002). For example, a program has a greater likelihood of being taken-up by teachers if administrators show support for the program; providing time for collaboration, providing material resources, etc. (Kisa & Correnti, 2014; Spillane et al., 2002). Coburn (2005), employing a sense-making framework to a study of the implementation of a reading policy in California, found that normative authority was cultivated when principals carried out those activities. Differences in the level of normative authority were associated with varying levels of implementation. Additionally, the author found that principals had the ability to guide teacher sense-making through their own interpretations of the policy. When administrators actively supported a reform, teachers were signaled that the policy had the authority of their leaders, which led to higher levels of buy-in and of implementation (Coburn, 2005). This

has been shown to be the case in other studies as well (Berends et al., 2002; Coburn, 2001; Penuel, Fishman, Yamaguchi, & Gallagher, L., 2007). Datnow & Stringfield (2000) also found that teacher buy-in was associated with implementation quality. Yonezawa & Stringfield (2000) came to similar conclusions in their own study of CSR implementation; finding that teacher buy-in was a factor associated with the level of implementation.

Coburn (2001) also found that individual teacher buy-in is influenced by peers' beliefs about the necessity and quality of a reform. Using a case-study approach, Coburn (2001), in her study of the implementation of new reading policy in California, found that teachers co-constructed their perceptions about a reform. Teachers cited the influence of peers in shaping their perceptions about the necessity and appropriateness of the reform which in turn moderated their implementation of the new policy. Implementation was higher in cases where peers supported the new policy and was lower in cases where peers were not in support of the reform. The level of support signaled to teachers the importance and appropriateness (or lack thereof) of the reform which shaped their individual perceptions and affected implementation.

The research on the role of professional learning communities in implementation supports claims about the role of buy-in/authority in supporting (or hindering) implementation, especially as it relates to peer influences. According to Burnett (2002), a professional learning community is characterized by:

A school where people are united by a common purpose, shared vision, collective commitments, and specific, measurable goals; where collaborative teams engage in collective inquiry into the big questions of teaching and learning. (p.52)

Professional learning communities are effective for promoting the implementation of programs because change is dependent upon learning, and the professional learning community is a structure and a set of processes that provide the environment in which teachers can learn about, gain experience with, and successfully implement a reform (Hord, 1997; Vescio, Ross, & Adams, 2008). Among other characteristics of professional learning communities, the opportunity for teachers to have a voice in reform efforts increased the uptake of new programs and policies (Hall & Hord, 2005; Hustler et al., 2003).

Authority, derived from support of the district, state leaders, as well as teachers themselves, has also been shown to impact the quality of implementation. In short, if teachers feel that a program has sufficient authority, it is likely to be implemented with greater success than without that authority (Porter et al., 1988; Desimone, 2002; Coburn, 2001). As teachers buy-in to a program they are giving that program the authority to guide and/or be integrated with their practice. If teachers perceive the program to be a worthwhile endeavor, they are demonstrating belief in the program and thus giving it the authority to operate which is associated with implementation quality (Coburn, 2001;2005; Spillane, 1999; Mirel, 1994).

The policy attributes sense-making framework adds to the body of knowledge concerning the role of authority/buy-in on implementation quality. Chapters Four and Five illustrate this. My framework can also be used in a practical manner; to assist implementation efforts. Regarding Research, PSMF allows researchers to test – using surveys and classroom observations – the association between teachers’ perceptions of authority and implementation quality. The framework also illuminates the ways in which teachers make-sense of a policy, and develop perceptions of authority. Through a greater understanding of this process, the quality of implementation can be improved through the design of programs/policies and implementation efforts that attend to teacher sense-making; working to address the factors that influence perceptions buy-in. Summarized adroitly by Spillane et al., (2002):

Social norms and organizational structures are important contexts for implementing agents’ work and for their efforts to make sense of policy.

Individuals draw on...collective knowledge to determine what particular policies mean, in order to decide on a response to policy-makers’ recommendations. (p. 404)

Authority/buy-in play an important role in implementation efforts (Spillane, 1999). Both individual and collective beliefs, attitudes, and practices contribute to buy-in (Coburn, 2005; Mirel, 1994).

Power. Desimone (2002) contends, that perceptions of power – which are often directed at the local level – affect implementation. Recapping, power is operationalized through the rewards and sanctions associated with a reform (Porter et al., 1988). Reforms rooted power, such as NCLB and, to a degree the Race to the Top initiative, aim to provide external motivation through a system of rewards and sanctions. The threat of sanctions, and/or the opportunity for rewards are intended to teachers to implement the policy (Porter et al., 1988; Porter et al., 2015). Research has shown that the teacher perceptions of the four attributes covered previously – specificity, consistency, stability and authority – are positively correlated with implementation, and in some studies, were shown to have a moderating effect on the level of implementation (Smith et al., 1997; Berends, 2000, Berends et al., 2002; Coburn 2005). In short, implementation was higher and was found to increase where teachers’ perceptions of consistency, specificity, stability and authority were higher.

Unlike the specificity, consistency, stability, and authority attributes, teacher perceptions about the power of a reform have been shown to have a detrimental impact on implementation (Porter et al., 1988; Porter et al., 2015). The CSR literature illustrates the role of power concerning implementation; specifically regarding the use of force as opposed to persuasion (i.e., cultivating buy-in) in implementation. In a few studies, the process through which CSR models were chosen varied (Datnow, 2000; Mirel, 1994). Some schools and districts mandated the implementation of a specific model, while others allowed for teachers and administrators to have an opportunity to

select the model to implement in their school. For example, Datnow (2000) found that reforms were more stable in districts where teachers and administrators had the opportunity to learn about and select a model as opposed to having one imposed upon them. Furthermore, implementation was less successful in schools where teachers felt that they were forced to vote for a specific model as opposed to having the autonomy to choose based off of their own professional beliefs. Porter and colleagues' (2015) study of the implementation of the Common Core State Standards (CCSS) also showed that pressure to implement had a detrimental effect on implementation. In their case study analysis of elementary schools implementing the Common Core State Standards, Porter et al. (2015) found that following the state mandated timeline for implementation as opposed to moving at a pace that the teachers felt comfortable with had resulted in a lower level of implementation.

Teachers at schools where they were forced to adhere to the state mandated timeline "felt rushed to take on an extensive amount of new learning in a short period of time" (Porter et al., 2015, p. 129). Teachers felt that the pressure to implement pushed them beyond their capacity as teachers and placed undue pressure on them, which further limited their ability to implement CCSS. The findings from the literature on teacher perceptions of power, while relatively scant compared to research on the other four attributes, is supported by the literature on the personal and psychological capacity of teachers to change practices (Evans, 2001; March, 1991). This body of research has found that "the personal and psychological demands and stressors placed on educators

undergoing the process of educational change” is burdensome (Porter et al., 2015, p. 134). Sanctions related to implementation are one such stressor.

Research on the role of teachers’ perceptions of power as related to implementation has shown that perceptions are associated with implementation (Datnow, 2000; Datnow & Stringfield, 2000; Porter et al., 2015). While the relationship between perceptions of power and its impact needs more exploration, the research that exists indicates that when power can have a detrimental impact on implementation, placing stress on teachers which can in turn limit their capacity to implement a reform (Evans, 2001; March, 1991; Porter et al., 2015). The policy-attributes sense-making framework has utility to fill this gap in the literature.

Teaching, and the reformation of instructional strategies is an emotional and psychological process that challenges teachers’ existing schemata (Schmidt & Datnow, 2005; Spillane 1999). Implementation of a new program is influenced by policy signals, including power (Desimone, 2002; Spillane et al., 2002). Teachers receive and interpret messages derived from the rewards, sanctions and pressures associated with a reform (Evans, 2001; Mirel, 1994). For example, perceptions of the unrealistic nature of rewards and sanctions could signal to teachers that a reform does not deserve significant effort or is simply unrealistic; which could result in resistance to implementation. Viewing this policy attribute through teacher sense-making sheds light as to how teachers think about the power of a reform and how it influences their implementation of the reform. For example, PASMf can be used describe the ways in

which teachers think about a varied set of rewards and sanctions on implementation and how the resulting perceptions moderate implementation. In turn, this information has implications for practice; by developing a deeper understanding of the role that rewards, sanctions and other forms of power have on teacher sense-making. The creation of policy and the creation of situations that fosters high levels of implementation can then be improved based off this body of knowledge.

My framework is useful for both the development of policy and for the implementation of policies. PASMf uses Spillane's sense-making framework as a way through which to view Porter's policy attributes theory. PASMf attends directly to the influence that teachers' perceptions of the five policy attributes – specificity, consistency, stability, authority, and power – have on implementation. Research on teacher cognition, specifically how teacher perceptions impact implementation has shown that implementation is indeed influenced by these perceptions (Porter et al., 2015; Smith et al., 2015; Spillane et al., 2002). PASMf serves as a way through which to understand these perceptions guided by the policy attributes, which represent a way to organize the literature on teacher perceptions and their role in implementation.

Factors external to the Policy Attributes Sense-Making Framework

PASMf attends to an area of research on the implementation of education programs/policies that has not yet received significant attention. However, there are several factors that affect implementation that fall outside of the scope of my framework.

Socio-economic and racial/ethnic status. The socio-economic and racial/ethnic status of the school and district has been shown to affect implementation. Contextual factors are known to influence implementation and socio-economic status and race are two of those factors, with minority and low-SES schools exhibiting lower on average implementation quality (Anyon, 1997; Berliner, 2005; Borman et al., 2000; Payne, 2008). In her book that discussed the difficulties with improving the quality of inner-city schools, Anyon (1997) argued that poverty and race contributed to the failure of reform efforts to improve these schools. Improvements in the economy of these cities, she argued were critical to creating and sustaining reform efforts. Oakes (1987) book on urban school reform supports Anyon's contentions.

Teacher age and years of experience. The impact of teacher age and years of experience on implementation has also been examined extensively. For example, despite the belief that older teachers are less supportive of reform efforts, the literature on effective schools shows no consistent relationship between the age of a teacher and the level of implementation (Purkey & Smith, 1983). More recent research on the association between the age of a teacher and the level of implementation of new technology in teachers' instructional practices also finds that age is unrelated to successful implementation (Baker, Al-Gahtani, & Hubona, 2007; Henry, 2008; McConnell, 2011). Years of experience has also been shown to have little effect on implementation (Gallimore & Ermeling, 2010; Joyce & Showers, 2002).

Grade Level. Research on CSR implementation, and elsewhere, show that grade level is associated with implementation. For example, Bodily's (1998) study of the implementation of the NAS reform model, indicated that implementation took more time in secondary schools as opposed to elementary schools. Smith et al. (1997) also found that secondary schools were slower to implement than elementary schools. Palacios and colleagues (2014) found similar results in their study of CCSS implementation. In their study, school administrators from 67 different school districts reported higher average levels of instructional alignment with CCSS in elementary schools than their secondary school counterparts.

Conclusion

Reviewing PSMF: Research and Practice. In summation, Spillane's sense-making framework for implementation and Desimone's (2002) interpretation of Porter et al.'s (1998) Policy Attributes theory overlap each-other in a way that provides a unique way to conceptualize implementation. Porter et al. (1998) identified a set of policy attributes that have been shown to be related to program quality. My framework draws on Spillane's by arguing first, that perceptions are directed by teachers' existing schemata, which themselves, are constructed by their beliefs/attitudes towards teaching and learning. These perceptions are the result of their making sense of the policy's attributes. I argue that these perceptions are related to implementation success.

The Policy Attributes Sense-Making Framework adds to the body of literature in several ways. First, it is rooted in teacher cognition. I argue that research has placed too little emphasis on understanding the ways in which teachers think about a policy, what messages they find salient, and how those messages influence implementation. The field of research on implementation provides evidence that teacher perceptions do have an impact on implementation (Bodily, 1996; Smith et al., 1997). However, the field can benefit from a deeper exploration into the different aspects that comprise teacher sense-making, how these aspects shape teachers' perceptions about a policy and how those perceptions affect implementation. Greater insight into teachers' thinking as they implement a program represents a significant contribution as implementation ultimately succeeds or fails with teachers (Weatherley & Lipksy, 1977).

My framework also informs implementation efforts. Daft & Weick (1984), commenting on implementation, stated that "almost every...organizational activity or outcome is in some way contingent on interpretation" (p. 293). Implementation is no different. Implementing a program takes considerable time and effort, and research has highlighted that teachers spend a great deal of time and energy just attempting to understand a policy; prior to even being tasked with implementing the policy (Coburn, 2005; Mirel, 1994; Spillane, 1999). My framework can be used by those in charge of leading implementation efforts to ensure that they take stock of and attend to teacher sense-making; by working to foster a situation that, at least, acknowledges teachers' perceptions, and at best, positively influences these perceptions. In doing so,

implementation can be improved. “Ultimately, effective policy implementation is driven by how street-level bureaucrats interpret and respond to reform initiatives” (Porter et al., 2015, p. 116). The framework that I put forth in this paper, the Policy Attributes Sense-Making Framework, serves as way to understand the role of teacher cognition in implementation and subsequently, improve implementation efforts.

CHAPTER 3: METHODOLOGY

My dissertation followed a mixed methods multiple case-study design. This chapter describes the methodology employed in this study. The chapter is organized into five sections: (a) research questions, (b) research design, (c) timeline, (d) sample selection, (e) data collection, and (f) analytic methods.

Research Questions

This study sought to answer two research questions. I applied my framework to the study of the implementation of the Giffin Model. A central component of that framework is the policy attributes. I asserted that the policy attributes may be associated with successful implementation. The first research question asks: To what extent are the policy attributes related to the quality of teacher's implementation of the Giffin model? The second research question focuses on teacher attitudes and beliefs, teacher cognition and how they impact implementation. The second research question asks: In what ways and to what extent do contextual factors and teachers' knowledge, skills, and philosophies of teaching influence their sense-making of the Giffin Model?

Research Design

The structure of this case study featured a mixture of both quantitative and qualitative methods. The research questions necessitated the use of a mixed-methods design. The design also allowed the study to have thick description (Creswell, 2002). To answer the research questions, surveys were administered to all four schools that signed on to implement the Giffin Model. I also conducted interviews with teachers at

Holland Intermediate, Ashland Intermediate, and Trident Academy. Classroom observations were also carried out for each teacher that implemented the Giffin Model. No interviews or observations were conducted for teachers at John Jacobs Intermediate as they were unresponsive to our requests to visit and work with them to implement the Giffin Model. Complete data on the participants will be described more fully in the Sample Selection section below.

The survey and classroom observations provided data that was quantified and used to measure teacher attitudes and beliefs, perceptions of the attributes of the Giffin Model, and implementation success. The interviews were used to delve deeper into teacher thinking to provide significant depth to the study. Extensive quotes were used to illustrate teachers' attitudes and beliefs, perceptions of the Giffin Model, and the role that stimuli in the environment (e.g., principal advocacy for the model) had on program quality. A full description of the data collection and analytic methods will be described in the sections to follow.

Timeline

This study took place during the first year of implementation of the Giffin Model. Work to implement the Giffin Model began in the summer of 2013 and the model was implemented in the 2014-2015 school year. Principals elected to implement the Giffin Model during the district's end of year administrator conference in June 2013. The purpose of the conference was to review successes and challenges from the previous year, as well as to present new program options for principals to adopt at their

schools. Four principals elected to implement the Giffin Model. Following the initial self-selection, two meetings were held leading up to the summer before the Giffin Model was implemented. Principals were introduced to the model at a theoretical and to a lesser degree, procedural level during these first two meetings.

In June 2014, a two-day training session was held with all principals and assistant principals from the four Giffin Schools. Dr. Jameson, the external implementer reviewed all information from the prior sessions and addressed questions that principals had. Following this, Dr. Jameson walked the principals through the process of assigning teachers to classrooms based on multi-year teacher performance data. Students were assigned to their classrooms based on their performance from the prior year. Principals were also instructed how to design an individualized learning plan and the process for student movement so that they could take this information and instruct their teachers as to how to carry out these processes.

The Giffin Model was implemented during the 2014-2015 school year, and the study took place during that time. Dr. Jameson visited each school three times during the school year, and spent half a class period (usually 25 minutes in length) in each classroom that was implementing the model. The final set of classroom observations were used to quantify program quality, which Dr. Jameson evaluated. I attended the final of these visits, which occurred in May, 2015. The survey was administered via Qualtrics™ in May, 2015. Teacher interviews were conducted in May, June, and July of 2015.

The bulk of data analysis took place during the Spring and Summer of 2016. Prior to this, member-checking (i.e., respondent validation; Rubin & Rubin, 2005) with teachers was conducted to confirm that my interpretation of their responses was correct. Member-checking of transcripts took place immediately after transcripts were written. Interviews were coded, and survey and observation data was analyzed in the spring and summer of 2016.

Sample Population

A total of 24 teachers across 4 schools were tasked with implementing the Giffin Model. Six teachers implemented the Giffin Model at Ashland Intermediate, 6 at Holland Intermediate, 9 at Trident Academy, and 3 at John Jacobs Intermediate. Ashland, Holland, and John Jacobs implemented the model in grade four in both English Language Arts (ELA) and Math.² The Giffin Model was implemented in Grade 6 ELA at John Jacobs.

Data Collection

Data collection for this dissertation utilized multiple sources, including surveys, interviews, and classroom observations. Using multiple sources provided for triangulation of data which allowed me to make stronger claims about findings from this study (Creswell, 1998; Olsend, 2004). The data largely converged which provided a strong grounding for analysis.

Survey. The survey questionnaire was web-based and accessed through a unique URL, which was sent to all Giffin Model teachers via e-mail. The use of a web-based survey provided many advantages. First, I was limited in contact with the participants due to the school district not being in my city of residence. Using the web-based survey allowed me to reach each of the participants instantaneously. Second, the responses from the participants were automatically recorded, stored, and available for me to access. Lastly, with the survey being administered and stored online, the database was easily transferred to the SPSS statistical program which was the program used to conduct the quantitative analysis. When participants clicked on the URL, they were provided with an informed consent form that detailed the study, and their right as participants in the study (See Appendix C). Twenty-three of the twenty-four teachers completed the end-of-year survey.

The purpose of the survey was to collect data on (1) teachers' attitudes and beliefs about teaching and learning relevant to the Giffin Model, (2) teachers' perceptions about the attributes of the model, (3) their beliefs about the efficacy of the model, and (4) the degree to which they implemented Giffin Model practices. The survey was created organically but was rooted in literature on comprehensive school reform implementation as well as studies concerning teacher attitudes and beliefs. The survey was also informed by surveys from the National Council of Teachers of Mathematics and from Consortium on Chicago School Research Teacher surveys.

Attitudinal questions were placed on a Likert-type agreement scale (Vagia, 2006). Attitudinal questions focused on teachers' beliefs about the underlying tenets of the Giffin Model and prompted teachers to think about their beliefs at the beginning of the 2014-2015 school year. For example, teachers were asked if they believed that students should be homogeneously grouped by achievement. They were also asked about their belief about moving students across curricular layers throughout the year.

Teachers were also asked questions about their perceptions of attributes of the model. Questions were developed by myself and the implementation team that oversaw the Giffin Model. A series of questions (on a Likert-type agreement scale) were developed for the four policy attributes focused on in this study, specificity, consistency, stability, and authority. Regarding specificity, I asked teachers if and what information they received, and how much knowledge they felt they had about the Giffin Model. Consistency questions focused on teacher perceptions about the model's alignment with current practices in the school and district. Stability was evaluated through questions that asked about student, teacher, and administrator turnover as the stability of programs in their school and district. Lastly, questions about authority probed administrative and peer authority.

Self-reports on implementation were also collected. Teachers were asked to what degree they carried out specific practices outlined by the Giffin Model, including moving students across curricular layers, meeting to discuss student movement, and

using material that met students at their current level of understanding (i.e., using a multi-layered curriculum). The survey can be found in Appendix E.

Interview. Teacher interviews focused on teacher attitudes and beliefs relevant to the Giffin Model, similar to what was asked on the survey. The interviews also probed teacher perceptions of the policy attributes. For example, regarding specificity, teachers were asked what they knew about the Giffin Model, how comfortable they felt implementing the model, and what they were still unsure about. Teachers were also asked to self-report on implementation. Math teachers were interviewed at 2 of the 3 schools that I conducted interviews with. The initial design was to interview ELA teachers at 2 schools and Math teachers at the remaining two to provide a balanced comparison for the study. This however, was not possible due to lack of response from the principal and teachers at John Jacobs.

The decision for self-reporting of the quality of implementation was made by myself, district leadership, and the implementation/evaluation team for given the limited capacity of the evaluation team to be at all sites, for a significant amount of time. I also felt that teachers, being tasked with carrying out most tasks under the Giffin Model represented the ideal candidates to comment on their practices related to the Giffin Model. Previously stated, the Giffin Model was one component of a larger CSR model and the decision was made to not overburden principals with quantifying implementation. Secondly, principals self-selected into the pilot and I believed that they

may have felt that scores are reflective of their own performance. The researcher feared upward biasing of results due to that fact.

Observation Protocol. The observation protocol was developed by Dr. Jameson and myself which was used to quantify implementation. The observation protocol looked at two teacher activities: (1) the degree to which teachers were teaching kids at their current level of understanding, and (2) the presence of individualized learning plans for each student. Regarding the first teacher activity, Dr. Jameson rated teachers on whether the material used was aligned to student achievement on their assessments. Teachers were also rated on the level of active participation by students during the lesson. The literature indicates that active participation is an indicator of appropriate curricular pacing, as students are more likely to be engaged when they can grasp the material (cite). Teachers were also evaluated on their creation of individualized learning plans for each student. Teachers were given a score of 1-4 (with 1 being the lowest and 4 being the highest) depending on the percent of students in their class that had a learning plan.

Analytic Methods

Survey and classroom observation. Analysis was conducted on the survey to ensure reliability and content validity. Chronbach's alpha was used to measure the reliability of each subscale present on the survey; specifically, the four policy attributes. Table 2. shows the alphas for each subscale. Chronbach's alphas ranged from

.78 to .86 indicating good to strong reliability for each of the sub-scales (Vaden-Kiernan, 2002).

Table 2. Overall Subscale Reliability

Subscale	Chronbach's alpha
Consistency	.78
Specificity	.82
Stability	.86
Authority	.77

Content validity refers to the extent to which the survey items adequately address the subject to be studied (Beck & Gable, 2001). The survey was scrutinized by the Giffin Model implementation and evaluation team and was also reviewed by educational professors, one of whom has published a peer-reviewed journal article about the policy attributes theory and another who has conducted extensive research into teacher learning. This refinement process determined the relevance, and appropriateness of the survey for assessing the relationship between policy attributes and implementation quality.

Construct validity assesses the alignment between the survey items and the theoretical concept guiding the study (Smith, 2005). Factor analysis of the survey items was conducted to achieve construct validity. The resulting factor loadings seen in Table 3. depict the correlation between an item and the underlying factor. A factor analysis that yields a simple structure – the desired result – will have factors that have a number

of variables with strong factor loadings. Items that did not load highly onto any factors were removed from the model.

Table 3. Factor Scores

Item	Factor	Factor Score
33	Authority	.90
34	Authority	.88
42	Authority	.93
45	Authority	.88
49	Authority	.77
11	Consistency	.81
12	Consistency	.88
15	Consistency	.85
3	Specificity	.88
4	Specificity	.76
5	Specificity	.91
6	Specificity	.83
19	Specificity	.79
23	Specificity	.93
40	Stability	.87
41	Stability	.83
48	Stability	.89
51	Stability	.84

Correlational analysis was carried out for each policy attribute for each of the 3 schools - Ashland, Holland, and Trident - to establish the relationship between the policy attributes and program quality.

Interview. Data from the qualitative portion of this dissertation was analyzed using Nvivo qualitative coding software. Information from each interview was transcribed, and codes were developed to allow for clean analysis of the data. Six primary codes guided this study, one for each of the four policy attributes, one for attitudes and beliefs, and one for implementation. Sub-codes were also created to separate positive comments from negative ones. I continually revisited my codes to look

for convergent or divergent themes in the data and to uncover any salient themes that presented themselves, such as the principal's influence on the policy attributes.

Within versus across-school comparisons. This study was multiple-site case study. Having multiple sites left me with many avenues to investigate the research questions. To evaluate the relationship between the policy attributes and implementation, I focused my analysis across schools, aggregating data to carry out correlational analysis of self-reports of the policy attributes, and measures of implementation derived from both the survey and observations. Looking across schools also provided insight into how and why program quality varied and how the attributes played a role in that variation. I also dove deeply into each school to provide rich thick description of implementation and the manifestation of perceptions of the policy attributes. This "deep-dive" also allowed me to shed light on teacher cognition, individual and situated.

Summary. This chapter detailed the methods and procedures used to gain insight into the role of perceptions, attitudes and beliefs of teachers as they implemented the Giffin Model. It also described the process I employed to determine the relationship between teacher perceptions of the attributes of the Giffin Model and program quality. The research questions, research design, timeline, sample population, data collection and analytic procedures were presented. Chapter 4 will address the two research questions. A summary and discussion of findings, including conclusions,

implications for practices, and recommendations for future research will comprise

Chapter 5.

CHAPTER 4: RESEARCH FINDINGS AND DISCUSSION

This Chapter reports on findings from the analysis of all data collected, including survey, interview and observational data. Implementation outcomes are presented first, followed by a discussion of the findings on the policy attributes, drawn from the teacher survey. The relationship between the policy attributes and the implementation are also presented. Overall findings are presented as well as findings by school, where applicable. A Case-by-case analysis of implementation is also presented in this chapter, by triangulating findings from the three different data sources. This chapter concludes with a cross-case analysis of findings where the primary emergent themes are discussed.

Implementation

After one year of implementing the Giffin Model, the three schools, middling levels of implementation, which was to be expected given prior research that indicates that high levels of implementation take more than a single year to achieve (Bodily, 1996; Smith et al., 1997). Combining data from the observational rubric as well as teacher self-reports of implementation yielded a scale that had a maximum of 26 points. The three schools averaged approximately 15 out of the 26 possible points. As shown in the table below, Trident had the highest levels of implementation, while Ashland had the lowest.

Table 2. Implementation Results by School

School	Mean	Std. Deviation	Variance
Ashland	11.7500	2.06155	4.250
Holland	16.5000	.83666	.700
Trident	17.8889	2.36878	5.611

With standard deviations ranging from .8 to 2.3, and the means being close, Table 2 indicates that statistically speaking, they are not different from one another. Further investigation using analysis of variance (ANOVA) showed that the means were not statistically significantly different. Table 5 shows the results of the ANOVA test. The ANOVA also showed that mean differences between groups on the overall implementation measure was not significant.

Table 5. ANOVA Results: Overall Implementation Measures

	SS	df	Mean Square	F	Sig.
Between. Groups	105.387	2	52.694	13.790	.000
Within Groups	61.139	16	3.821		
Total	166.526	18			

No significant differences between schools were found when looking at the components in isolation. Though this may indicate that implementation did not vary across the three schools, qualitative data drawn from teacher interviews indicate that this was not the case. Qualitative findings are discussed in the following sections of this chapter. Self-reports of implementation on surveys comprised the bulk of implementation measures. Upward bias in responses may have reduced variation in responses, and possibly, the

questions themselves did not address implementation in a manner that would have adequately evaluated variation in implementation.

Implementation by subject. I also evaluated the difference in implementation across subjects. My analysis found that implementation levels were higher in math than in reading. Mean implementation scores are shown in Table 6.

Table 6. Implementation Scores by Subject

Subject	Mean score	N	Std. Deviation
Math	17.833	9	.885
English Language Arts	14.650	10	.450

Mean differences were found to be significant. ANOVA results are shown in Table 7.

Table 7. ANOVA Results: Math versus ELA

	SS	df	Mean Square	F	Sig.
Between. Groups	.365	1	.365	2.431	.137
Within Groups	2.556	18	.150		
Total	2.921	19			

Policy Attributes

Table 8 presents data on the policy attribute scores for each school. Maximum values for consistency, specificity, stability, and authority were 12, 16, 16, and 20, respectively.

Findings on the policy attributes will be discussed in the following sections

Table 8. Policy Attribute Survey Scores

School	Consistency	Specificity	Stability	Authority
Trident	9.167	12.50	14.50	19.60
Ashland	7.22	9.00	11.20	9.29
Holland	7.5	13.00	13.25	16.50

Policy Attributes and Implementation

One focus of this study was to assess the relationship between the policy attributes and implementation. This was done through correlational analysis between teacher responses from the survey and implementation findings from both the survey and classroom observation protocol. Table 9. below shows the correlations between the policy attributes and implementation as well as among the attributes, themselves.

Table 9. Correlations: Policy Attributes and Implementation

	Consistency	Specificity	Stability	Authority
Implementation	.292	.447*	.703**	.264

*Correlation is significant at the 0.05 level.

**Correlation is significant at the 0.01 level.

The results indicate that among the policy attributes, specificity and stability had significant, positive relationships with implementation. Specificity had a moderate, positive correlation with implementation. Stability had a high, positive correlation with implementation. Higher perceptions of specificity and stability were associated with higher levels of implementation quality.

Case-by-Case Analysis

The previous section of this paper looked at overall findings of implementation of the Giffin Model. Data on implementation from each individual school was presented

as well. The data and subsequent quantitative analyses employed the survey data and the classroom observations conducted by myself and Dr. Jameson. This section will incorporate all three sources of information (survey, interview, and classroom observation), drawing not only on the quantitative data, but also the qualitative data to present a more holistic picture of the implementation of the Giffin Model at each school. Triangulation of the three sources of data served to increase the validity of the research findings (Mathison, 1988). Additionally, the methods complimented themselves by providing both breadth, from the quantitative data, but also depth, from the qualitative data. Each case is presented here in isolation to highlight the unique processes, challenges and successes that Giffin Model teachers experienced at each school. Chapter Four concludes with a synthesis of the findings from each of the schools; addressing the consistency of themes regarding sense-making, the policy attributes, and implementation across schools.

Holland Intermediate Academy

Holland Intermediate Academy served grades 4-6. Six teachers at Holland Intermediate (3 Language Arts, 3 Math) were tasked with implementing the Giffin Model in 2014-2015. Three ELA teachers were interviewed for this study. Table 10 provides data on each teacher that was interviewed.

Table 10. Holland Teacher Characteristics

Name	Grade	Subject	Level Taught	Experience
Solange	4	ELA	Low	4

Rachel	4	ELA	Middle	6
James	4	ELA	High	8

Implementation. Holland Intermediate Academy had a moderate level of success implementing the Giffin Model. Compared to the 2 other schools for which I had complete survey, interview and observation data, Holland ranked 2nd overall regarding their level of implementation. Our observations of classroom activity and teacher self-reports on the survey supported this finding. Interviews with teachers also corroborated much of our findings regarding implementation.

Teachers at Holland were met with some success implementing the multi-layered curriculum. Classroom observations showed that many teachers had taken the steps necessary to tailor instruction to the level of the students in their classroom, while a small number chose to adhere to the grade-level curriculum. Individualized learning plans were only created for the lowest-achieving students. The following sections discuss the implementation of the Giffin Model with respect to each of the policy attributes that guided this study.

Specificity. Analysis of the survey data revealed that the principal at Holland Intermediate took the necessary first steps towards implementing the Giffin Model, which included holding at least a one-day session to introduce the Giffin Model to the teachers prior to the beginning of the school year. Teachers were asked questions about their comfortability implementing the Giffin Model at the beginning of the year, the

information they received, meetings they held to discuss the model, and how those facilitated or hindered implementation. James, the veteran math teacher who taught the high-level math class reported that they held meetings on both of their professional days leading up to the start of the school year.

Our principal sat us down and walked us through the Giffin model on those (professional development) days. I mean we went through A LOT (laughs) but I think we came away with a good understanding of what we were supposed to do under Giffin. (James, 2015)

Additionally, teachers noted that the principal prepared them ahead of time for the meeting by sending them the materials and resources he received at the principal training that occurred at the end of the last school year. Of the six teachers, four felt that they had a deep understanding of the Giffin Model and their expectations as a teacher due to the actions of the principal. Those teachers who did not feel as prepared as others reported that they had not received the information that others reported receiving, yet this was a rarity. “You know, I don’t remember receiving any materials [before the start of school] beyond being directed to that...introductory video”, said Solange, the low-level math teacher who had taught for two years. Solange did recall receiving more information about the model just after the school year began. When prompted about the video, she recalled that the video was just an overview of the model and left her with many questions that she took with her to the professional development meetings that focused on Giffin.

There was just a lot that I was unsure about, obviously before, but I guess still a bit after [the meeting] too. Most of my questions were answered so I felt that I could do what my principal was asking of me, though. (Solange, 2015)

Speaking to the teachers at Holland Intermediate, it appeared that not all teachers felt as comfortable with implementing the Giffin Model as others. All but Solange indicated in their surveys that they had received the necessary information, and that the meetings helped them engage with the Giffin Model and understand their duties. The implementation of the multi-layered curriculum however, was one aspect that seemed to drive teachers' feelings that the model lacked sufficient specificity for them to implement the program as intended. The Giffin Model was designed as a flexible teaching model, where teachers would have latitude to tailor their instruction to the reach students at their level. Students who were significantly behind in math, as was the case for Solange's students, were expected to be taught material at students' current level of knowledge. However, Solange felt that the model, once put into action, was not prescriptive enough.

There was no real guidance for me as to what exactly I should be teaching. I mean, obviously, I know how to scaffold my teaching, but my kids are far behind so it would've been really helpful to have more direction as to what exactly my goals should've been for them. We used assessments to help guide us but at the beginning of the year it took some time...my teaching had to span grade levels. (Solange, 2015)

Despite a few teachers' reports of a lack of specificity about the model, four of the six Holland teachers felt that the model was specific enough for them to implement with quality and the observations supported this. Classroom observations showed that most Holland teachers were teaching students at their level.

Stability. Teachers at Holland rated the stability of their school highly, which had a large positive correlation to implementation across the three schools. Many of the same questions that were asked on the survey were also asked in the interview; including perception of administrator, teacher and student turnover. In structuring the interviews in this manner allowed me to delve into specific stability subtopics, primarily the perceived stability of programs at their school and of the Giffin Model and the stability of members within the organization (i.e., administrators and students).

Program stability, was the one aspect of stability where polarized views existed. Four of the six teachers at Holland however, felt that programs at the school were relatively stable; that programs and policies typically stuck at the school and were not quickly adopted then replaced by another. This feeling of program stability, "definitely made me believe that Giffin was something worth investing in", James said. Solange corroborated that statement stating that the principal at Holland typically took care of bringing in programs that she herself truly believed in.

As I see it, Giffin will be around [next year]. I think programs here tend to stay around...and that's, I think at least a bit because of our principal. She brings in programs and really tries to make them work, so I do too. (James, 2015)

Two teachers felt the opposite however, that program stability wasn't very high. The third teacher who was interviewed, Rachel, the mid-level math teacher, felt that programs would be transient Holland. Much of her belief in the instability of programs however, appeared to be rooted in her feelings that the district, and not the school itself constantly turned in new directions. "[The District] is always trying out new things so I don't really know if it [Giffin] will be here next year", stated Rachel. At her prior teaching position, which she held for 4 years, Rachel said that administration consistently brought in entirely new programs many of which were under the direction of district executives. She felt that this might be the case for the Giffin Model at Holland as well.

Although some teachers felt that program stability was low, the average score on the stability construct at Holland was high compared to the other pilot schools. This was especially the case when asked about the stability of actors within the system, specifically administrators and students. Teachers reported that they expected their administration to stay in-tact, and that this had an impact on their desire to see Giffin succeed. "It wasn't just a 'hey I'm doing this because I want to make a stamp as a new principal'", James said, "our administration has been in-tact for some time and we are doing pretty well, so I trust them".

Consistency. Consistency in the policy attributes literature is conceptualized as the alignment of current school structures and processes with those of the new program (Porter et al., 1988). I also argue that the degree of consistency in actions and beliefs between the actors, the system and the program that is to be implemented, the greater the opportunity for successful implementation.

One of the main tenets of the Giffin model is that teachers should teach the achievement level of student with whom they have proven to be successful at creating learning growth with. Under the Giffin Model, teachers are paired with these students by homogeneous grouping by achievement level and are expected to teach students at their level (as opposed to grade level material). When asked about their school's philosophy and actions in these arenas prior to the implementation of the model, teachers at Holland Intermediate commented that these actions, overall, were reflective of processes that they already had in place. "We were already grouping our students", said Solange, "not to the degree of Giffin but still, we did group". James had similar comments when asked about Giffin's alignment with prior processes.

Yea you know, we were already grouping our students by achievement. I mean we have kids that are very very high, but we also have kids who really struggle academically, so it eases the burden on us to split kids up a bit. (James, 2015)

One area of concern that arose when asked about consistency between current structures and processes and those of the Giffin Model was that it was very time

intensive to implement and run effectively. Teachers at Holland responded in the survey that the Giffin Model, although consistent with many practices already in place at the school, still required a significantly greater time investment than their prior practice. Though the organization of classrooms did not shift a "great deal", said Solange, there were many other activities that comprised the Giffin Model that represented a major departure from prior practice. For example, Rachel stated, "we never moved students [prior to Giffin] to the level that we ended up doing here under Giffin". Indeed, that was one of the more frequent remarks made by teachers at Holland, that student movement was the biggest adjustment that had to make to their practice; from creating a process to test students, meet to discuss progress, move students, and acclimate them to the new classroom and material.

It was really tough...so different [moving kids]; to get them comfortable in the new classroom and then catch-up with where we were at. I hadn't had to do that to this scale before so we really had to work to get it to happen. I think we did an okay job but figuring that all out basically ourselves really took away from my teaching. (Rachel, 2015)

In all, teachers at Holland stated that the Giffin Model wasn't a great departure from many of their current practices. Student movement was the only area that teachers grappled with, from an action-oriented vantage point, but also with their own beliefs about school structures as the following section will highlight.

Authority. Authority is conceptualized as the degree to which teachers and administrators support the implementation of the model (Porter, 1994). Under authority are two areas of focus present in this study, (1) The belief that the model will successfully result in improvements in teaching and learning, and (2) that actors within the system communicate messages through their actions that they are in support of the model. The framework that guided this study argues that implementation is influenced in several ways tied to authority; by teachers' beliefs in the efficacy of the model, perceptions of administrative support for the model, and the signals the policy itself send to them about their value as teachers in the system. Teachers were asked questions that addressed each of those topics.

Teachers at Holland Intermediate responded similarly in both the survey and in interviews stating that they had a slightly positive perception that the Giffin Model would improve teaching and learning. Teachers believed that the Giffin Model could be effective, but did not feel that the model organized schools and classrooms in a way that was a marked improvement over the previous structure. When asked on the survey about their work environment under Giffin, for example, 4 of the 6 of the teachers at Holland Intermediate disagreed or strongly disagreed that the work environment was less conducive to teaching and learning than the structure in place prior to Giffin.

Concerning their perceptions of administrative support, teachers felt that their administration did not support them with implementing the Giffin Model to the degree that they desired. When asked on the survey about administrations vocal support for

the model, 3 of the six teachers felt that administration was not outspoken in their support. This, Rachel said, "made me question how much effort I should really put into all of this". Rachel also responded that she occasionally had difficulty getting material support for their needs as related to Giffin. Teachers cited that they needed more appropriate material to teach to student's level, especially in the low and high math class.

I had kids so far ahead and we're teaching the highest grade in the school so if I needed higher-level material, a lot of times, I had to wait for it. Sometimes it just didn't seem like a priority. (Rachel, 2015)

Contrastingly, five of the six teachers at Holland indicated that they were involved in the decision to implement Giffin at their school and that this had a positive impact on their level of buy-in. Research on implementation suggests that involvement in the decision-making process may be a significant driver in implementation (Berends & Bodily, 1998; Mirel, 1994). When asked about the decision to implement Giffin, Rachel commented, "It was important to me to have some say in the decision...even if I wasn't in full support, it mattered that our principal wanted to hear from us".

Conclusion. Implementation at Holland was met with a moderate level of success; overall and compared to the other Giffin schools. The multi-layered curriculum was implemented in many but not all classrooms. Intervention classes were created but

most failed to provide low-achieving students with the remediation that they needed. Lastly, Individualized learning plans were created for only the lowest-achieving students.

Concerning the Policy Attributes Theory, data from teachers at Holland suggested that, like implementation, perceptions of the attributes of the Giffin Model were very mixed and somewhat polarized. For example, teachers had mixed perceptions of the specificity of the model. Four of the teachers indicated that they had a deep understanding of the model, while two did not share this sentiment. Teachers' perceptions of authority for the model focused on the support of the principal and its impact on the effort they put forth to implement the Giffin Model. Two of the six teachers, including Rachel noted that the principal did not provide much support, vocally or through action, which hindered their efforts to implement Giffin. However, their interaction with their peers mitigated some of this effect.

Ashland Intermediate

Ashland Intermediate serves grades 4-6. The Giffin Model was implemented in both Math and English Language Arts in grade 4 during the 2014-2015 school year. Six teachers in the school operated under the Giffin Model during that year. A three-layer curriculum (i.e., low, middle, high) was implemented in each subject. The principal at Ashland Intermediate was a veteran of over 20 years. He retired prior to the beginning of the year however, and the assistant principal was promoted, placing him in charge of the implementation of the Giffin Model. The three Giffin math teachers were interviewed at Ashland Intermediate: Brian, Jamie, and Jamal. Table 4 provides

information on the three teachers. The following sections are an analysis of the implementation of the Giffin Model at Ashland Intermediate.

Table 4. Ashland Teacher Characteristics

Name	Grade	Subject	Level Taught	Experience
Brian	4	Math	Low	4
Jamie	4	Math	Middle	3
Jamal	4	Math	High	7

Implementation. Implementation of the Giffin Model was least successful at Ashland Intermediate. Analyses of classroom observations, self-reports, and interviews from the end-of-year survey all support the finding that Ashland Intermediate largely failed to implement the Giffin Model. Ashland Intermediate received the lowest scores on the classroom/school observations. This was also the case for the survey data that asked about teachers' implementation of the Giffin Model. Teacher interviews corroborated many of the findings about implementation.

Through our observations, we found that the curricular pacing was not appropriate for in all but two classrooms, particularly among the classrooms serving the low-achievement students. Teacher self-reports supported this finding, with five of the six teachers at Ashland Intermediate reporting that they rarely taught students at their level; instead opting for teaching the district-prescribed curriculum for their grade. Teachers also failed to tailor their intervention classes to address specific student needs.

Three of the six teachers had developed individualized learning plans for more than 50 percent of their students and students rarely if ever, were students moved despite all schools having worked with the district's scheduling coordinator to ensure that movement could occur in an organized fashion. The following sections describe the implementation of the Giffin model through our own observations, as well as through the lens of the teachers at Ashland Intermediate.

Specificity. Teachers at Ashland Intermediate exhibited low levels of implementation of the Giffin Model. They also felt that they had only a surface level understanding of the Giffin Model. Their average score on the specificity scale of the year-end survey ranked lower than both Holland Intermediate and Bolton Academy. Three of the six teachers reported that they were introduced to the Giffin Model prior to the beginning of the school year, and received the information that all Giffin teachers were supposed to receive. When asked on the survey about how much they felt they knew about the Giffin Model four of the six teachers responded that they did not have a deep understanding of the model.

You know, we had meetings at the beginning of the year, and mayyyybe a couple times throughout the year...but I just felt like we missed a lot. I never felt like I could just take it and run with it. (Jamie, 2015)

When asked on the survey about specifics of the Giffin Model, four of the six teachers responded correctly, corroborating their statements about understanding the

model's main components. However, statements like Jamie's were similar across the other two interviews. Jamal and Brian both felt that they had not truly engaged with Giffin in a substantive way that allowed them to successfully implement Giffin. Surface level understanding of the model at the beginning of the school year did not develop into deep understanding that could be translated into practice. "One of the big problems", said Brian, "was that we didn't have much follow through." The teachers commented that the Dr. Jameson would visit the school for a couple days every few months to meet with them and the principal and provide guidance and lay-out next steps. This, they stated, did not translate into practice.

We would meet and discuss after we were observed, but the problem was that we weren't given enough practical...guidance as to where exactly to target our students. I mean I love the autonomy that [Giffin] tried to give us, but when I'm teaching low-kids and they have to take a test at the end of the year, I gotta know how I can teach them both the material they need to catch up and also grade-level. (Brian, 2015)

The confusion about how to structure both individual lessons, and create a curriculum that addressed the needs of their students was also discussed by other teachers, who left comments about this at the end of the survey. Jamal, the high-layer teacher was an outlier in this category. "Giffin was good for me in terms of owning my own teaching", said Jamal, "I got to push my kids as far as they could handle and didn't really have to follow the [scripted] curriculum that's laid out for my grade".

Stability. Teachers felt that organizational stability at Ashland was low. Program stability was something that teachers felt detracted from any programs at their school having success. “It’s a bit like a turn style”, said Jamie, “people and programs keep coming and going”. This “turn-style” of programs kept teachers from fully committing to implementing the Giffin Model (and other programs in previous years). “We just try so many new things”, said Jamal, “let’s just keep one, you know, and go from there. I don’t keep up with a lot of it, because I know it’ll be gone in a year or two.”

The level of frustration was evident when speaking with teachers at Ashland. They felt that their ability to teach effectively was hindered by the lack of program stability. The constant churn of programs into and out of Ashland “directly harms our kids, and there’s not much we can say, so we just close our doors and do what we need to”, said Brian. Through these conversations, it became evident that teachers at Ashland had become accustomed to the transience of programs, which negatively impacted their perception that a new program would result in any meaningful positive outcomes for their students. The Giffin Model was largely seen as just another program that would not become institutionalized.

Consistency. Issues around consistency with the Giffin Model at Ashland appeared to flow in close tandem with specificity problems. Staffs’ beliefs about the misalignment of Giffin with the current organization of the school coinciding with signals they received from both the district and their principal negatively impacted their efforts to implement the Giffin Model with success. Much of the conversations around

consistency centered on teacher's interpretations of different messages they were sent from various administrators regarding instruction. Though an integral component of the Giffin model requires teachers to tailor their instruction to meet the student wherever they are at in their learning, teachers cited receiving mixed-messages from administrators on this topic.

Stated previously, teachers at Ashland understood (at least cursorily) that they were supposed to teach students at their level. This however, was not a consistent message. "I know what the model asked of me, but that wasn't really what I was directed to do", said Brian. "We're testing kids at grade-level and unless someone explicitly tells me that I don't need to worry about that, then I kind of have to teach them that stuff or it'll negatively affect me too" (Brian, 2015). Teachers noted that the math specialist continually pushed them to teach grade-level material despite their knowledge that the Giffin Model required for something different.

I'd have this conversation with [the math specialist] but nothing would really change...and the principal didn't really intervene one way or the other so I eventually defaulted to teaching my kids at grade-level even with there being some kids I would've liked to teach differently. (Jamie, 2015)

As a result of the mixed-messaging, Brian and Jamie (low and middle, respectively) focused most of their instruction on grade-level material.

Ashland's teachers also commented that the Giffin Model represented a strong departure from the previous organizational structure in substantial ways that were not adequately addressed. For example, all teachers that responded to the survey agreed or strongly agreed that the Giffin Model was not aligned with other school initiatives. They were also in general agreement that Giffin would compete with their other duties as teachers. For example, Jamal stated that "Giffin is just such a big departure from what we've done". Teachers seemed overwhelmed by the amount of changes they were expected to make, noting their frustration.

Teachers at Ashland struggled to deeply engage with the Giffin Model. The data suggest that this was due in part, to the lack of consistent messaging from administration. Additionally, teachers cited not having time to understand and engage with the model in substantial ways. Though initial meetings were held, many teachers stated not having sufficient time to meet throughout the year to discuss and make adjustments as they worked to implement Giffin.

Authority. Few teachers at Ashland Intermediate shared beliefs about teaching and learning that the Giffin Model was based on. Survey data indicated that 2 of the 6 teachers believed that students should be taught at their level of understanding, as opposed to being given the grade-level curriculum. Additionally, the same small number of teachers believed that students should change classrooms throughout the year, into different curricular layers.

In conversations with three of the teachers at Ashland Intermediate, authority derived from peers was low. “When we started the year, we talked about Giffin” said Jamal, “but we never really got it rolling, I think, in the way it was meant to” (2015). Teachers noted that they rarely met with each other to discuss the Giffin Model and informal conversations that centered on the model only exacerbated frustrations. For example, Brian stated that “whenever we [teachers] talked about Giffin, it was really about not knowing exactly what it was we needed to do and feeling like we had no direction” (2015). Similar statements were made by Jamie and Jamal, that they became more frustrated with trying to implement the Giffin Model and that buy-in suffered as a result.

Authority derived from the principal was also very low at Ashland Intermediate. The principal who opted to implement the Giffin Model retired just prior to the beginning of the school year. Teachers felt that the turnover weakened institutional authority as the new principal was under significant pressure to just manage a school for the first time, let alone implement a new program.

Our old principal retired after the end of the year, and I just think that transition put a lot on him [the new principal] and to add Giffin on top of that seemed to be a lot. No time to help us, really. (Brian, 2015)

Responses from the teachers at Ashland Intermediate indicated that the lack of attention paid to the Giffin Model by their administration influenced their own focus on

Giffin. Teachers stated that they did not devote nearly as much time working to implement the Giffin Model as they would have because it was not viewed as a priority by their principal or their instructional coaches. “I didn’t feel any push to change what I was doing”, stated Jamal “and I don’t think the other teachers did too” (2015).

Brian also commented that conversations and work around Giffin tailed off during the year. “We just didn’t really talk about it anymore, Said Brian, “I still tried to do some things, but really, I just focused on my kids and less-so on the model”. Teachers at Ashland took their cues from their administration. Without their leadership pushing them to implement the model, and failing to provide the supports the teachers requested, teachers interpreted those actions to mean that Giffin Model was not important. Without authority for the model from administration at Ashland, teachers internalized that the model shouldn’t be a focus for them, either. Thus, teachers gradually turned their attention away from implementing the Giffin Model.

Conclusion. From the outset, implementing the Giffin Model at Ashland Intermediate faced significant barriers. Teachers focused on the fact that they had a new principal during the pilot year for Giffin which contributed to a lack of authority for the model. This transition also negatively impacted their perceptions of organizational stability. Thus, the Giffin Model was implemented poorly at Ashland Intermediate. By the end of the year, teachers felt that they would be better off without Giffin. “There was just too much on our plates without getting what we needed in order to do Giffin”, said Jamie.

Trident Academy

Trident Academy serves grades 4-6. The Giffin Model was implemented in both 6th grade Math and Language Arts. Nine teachers (6 Language Arts, 3 Math) were tasked with implementing the Giffin Model at Trident Academy. A three-layer curriculum was put in place for each subject. Trident's principal had been at the school for 6 years leading up to the 2014-2015 school year; when the Giffin Model program was implemented. The three Math teachers were interviewed. Names and characteristics for the three teachers that were interviewed are presented in Table 12.

Table 12. Trident Academy Teacher Characteristics

Name	Grade	Subject	Level Taught	Experience
Mr. Franklin	6	Math	Low	8
Amelia	6	Math	Middle	6
Ms. Paulson	6	Math	High	4

Implementation. Of the three schools where the Giffin Model was implemented, Trident had the highest levels of implementation compared to the other Giffin School. Overall implementation results, drawn from observations and self-reports show a medium to high level of program quality, overall. Results from the classroom observations indicated that Trident Academy the highest quality of implementation across all facets measured compared to the other pilot schools. Teachers at Trident Academy had implemented a multi-layered curriculum, appropriately designed their intervention classes to focus providing additional time on task for low-learners and had

developed individualized learning plans for most of their students. Self-reports of implementation from both the surveys and interviews suggest that teachers implemented the Giffin Model with a moderate level of quality, overall. Teachers reported using a layered curriculum with achievement appropriate material to a moderate degree. They also reported that they met often to discuss student progress and to move students.

Specificity. Perceptions of the specificity of the Giffin Model were assessed via the survey and the interview. At Trident, teachers reported feeling that they had a solid grasp of the Giffin Model; of its theory of action and of their role as teachers in Giffin. Largely, teachers responded on the survey that they understood how Giffin was intended to function, and had a deep understanding of the Model. All teachers on the survey reported having viewed the Giffin Model introductory videos and had also received information on the model in their professional development sessions before the 2014-2015 school year began.

When asked about their knowledge of the Giffin Model during the interviews, each of the three teachers interviewed at Trident Academy responded that they felt that they understood the Giffin Model and how its different components were designed to improve teaching and learning. “I wouldn’t say that I was ready on Day 1”, said Ms. Paulson, “but we covered all the basics of the model for sure, and I felt pretty comfortable”. This statement reflected many of the responses from the other two teachers. For example, all those interviewed that they understood why, and to a lesser

to degree how, they were to implement a multi-layered curriculum. Each knew that continual re-assessment of students was to guide how they tailored their instruction and that instruction was supposed to meet children at their current level of understanding, despite grade level. “It was pretty straightforward, at least conceptually”, said Amelia, “and once we got into it, working [under Giffin] became clearer.”

One of the common themes among Trident Academy teachers concerning specificity that emerged was the role of their principal.

One thing that I know is that our principal was very...focused, on making sure we understood what she was asking us to do with Giffin. We met constantly just to talk about the theory but also how we put that in to practice. It just made me more comfortable with the changes I had to make. (Amelia, 2015)

Teachers at Trident perceived the model to have a high degree of specificity, overall. None of the teachers, when asked what they were still unclear about concerning the Giffin Model spoke about a substantive issue. Both survey and interview responses suggested that teachers had a deep understanding of the model.

Stability. Perceptions of stability concerning the Giffin Model at Trident Academy were middling. Stability of personnel and of students was rated highly, but teachers at Trident felt that programs at their school did not always stick. This left them with a degree of uncertainty that the Giffin Model would remain in place in Year 2. Teachers perceived personnel turnover at the school to be low. However, the principal at Trident

announced mid-way through the year that she would be retiring which appeared to have a slight negative impact of teachers' perceptions of stability. They also stated that students rarely came into or left the school during the year, which "creates a more stable classroom environment", said Ms. Paulson, the high-level math teacher.

When asked about their feelings that the Giffin Model would remain at Trident Academy for the 2015-2016 school year, teachers had mixed feelings that originated from two different factors; the impending retirement of the principal and their attitudes towards the model itself. Previously stated, the principal at Trident announced her retirement effective at the end of the Giffin pilot year. Teachers' responses to interview questions about their belief that the Giffin Model would be in place for the 2015-2016 school year centered on the retirement of the principal and the uncertainty that caused.

It's hard to tell [if Giffin will remain]. Our principal is retiring at the end of this year so I guess it's really up to the new one and the district. I'm definitely pushing for it and I know the other teachers are but it's not really our decision.

(Mr. Franklin, 2015)

Amelia's comments mirrored Mr. Franklin's. "Having her leave is tough, because stuff always changes with a new principal", said Amelia, "but I hope we can get [Giffin] to stay". It appeared that teachers were in support of the Giffin Model continuing, and believed that they could have some influence. The retirement of the principal however,

left them with mixed feelings about the stability of the system and what the new principal would choose to do in the 2015-2016 school year.

Consistency. Consistency as defined by PAT is focused on the system level. The theory contends that the more consistent a new program is with current practices at a school, the more likely the program is to be implemented with success. In turn, significant departures from current practices could hinder implementation. Teachers were asked several questions on the survey and during the interviews about their beliefs and about how consistent they perceived the Giffin Model to be with their current practices.

As was the case at the other Giffin schools, the model represented a moderate departure from the status quo. Teachers reported that the way their school was structured, and the way that they approached teaching their students (regarding to the curriculum) was different. “We had mostly mixed classes prior to Giffin”, said Amelia, “and rarely if ever moved students”. Mr. Franklin’s comments mirrored Amelia’s:

Giffin was different. There’s really no way around that and we had to change some of our practices if we were going to [implement Giffin] right. My focus changed a bit from teaching the TEKS, to focusing on my students and meeting them closer to where they were at...lots of recap from previous years. (Mr. Franklin, 2015)

Teachers also noted that they were collaborating much more than in previous years and had to re-work their schedules to incorporate time to discuss the progress of their students. Teachers at Trident met bi-weekly to review student work and plan for student movement. They also cited a large increase in informal conversations around student progress as well.

Authority. Perceptions of authority of the Giffin Model were mixed at Trident Academy. When asked questions on the authority derived from the principal, responses indicated that the principal was an ardent supporter of and advocate for the Giffin Model. Teachers were also asked questions that assessed the authority that they and their peers gave to the Giffin Model. Perceptions of authority in this domain were lower than they were for perceptions of authority derived from administration.

The principal at Trident Academy was very supportive, both in voice and in action for the Giffin Model. She was the first principal to sign her school up to adopt the Giffin Model and continued her support throughout the 2014-2015 school year. “She [the principal] was high on Giffin from the very beginning”, stated Amelia, “and she definitely made it known that it was a priority for us”. Teachers commented that the principal was very responsive with their requests for additional materials and guidance on implementing the multi-layered curriculum. The school’s math specialist was also directed to spend additional time in the Giffin classrooms. “Having our math specialist there was fantastic”, said Mr. Franklin, “I had a larger class of low kids than I would’ve preferred but getting more day-to-day assistance and some guidance from my coach

really made a difference”. Teachers also noted that the principal was constantly asking them about how they were progressing with the Giffin Model and joined many of their bi-weekly meetings. “She was just always there and that was a boost for me, knowing she was invested”, said Amelia.

Personal and collegial authority was lower than perceptions of administrative authority at Trident Academy. Though teachers were in general agreement that they wanted to continue teaching under the model, many teachers had misgiving about its efficacy in Year 1. When asked specifically about their teaching under the Giffin Model, responses indicated ambivalence; some teachers believed the model worked while, others were less certain. “There were just a lot of moving parts”, said Ms. Paulson, “and it kinda felt like I was worrying more about organizational stuff than teaching”.

Conversely, Mr. Franklin stated that the Giffin Model provided him with the ability to direct more attention to the kids who needed it the most. “It really just brought the low-kids into focus and I didn’t have to worry about not getting them what they needed since all my kids were pretty low this year” (Mr. Franklin, 2015). Views about the work environment under Giffin were polarized with some feeling strongly that the model created a better learning environment while others strongly disagreed.

Conclusion. Trident Academy implemented the Giffin Model with the highest level of quality. They developed a multi-layered curriculum and did so with greater success than either of the other schools in the study. Lastly, the vast majority of students had individualized learning plans.

Teachers' perceptions of the Giffin Model were assessed through the Policy Attributes Theory. Teachers found the model to be very specific and had moderately high perceptions of the consistency of the model with prior practices at the school. The role of the principal in driving the implementation of the model became especially evident as it was the focus of their responses when teachers were asked about their perceptions of authority and stability. Teachers at Trident stated that their principal took ownership of the Giffin Model and was always on top of their progress with implementing the model. They also cited feeling supported by their principal in their efforts to implement Giffin.

Cross-Case Analysis

Each of the schools that began implementing the Giffin Model in the 2014-2015 school year represented a unique case from which to gain insight into the role of teacher perceptions of the policy attributes. Teachers, having been tasked with implementing the model were met with several factors that drove their perceptions of the attributes of the model. Analysis of the data that teachers provided led to the emergence of two primary themes, (1) the policy attributes specificity and stability bore the strongest relationship to implementation and (2) that the role of the principal in the implementation of the Giffin Model was viewed as instrumental was a recurring theme across all policy attributes. Additional supplementary themes will also be discussed.

Policy Attributes Theory: Specificity and Stability. The Policy Attributes Theory contends that teacher perceptions of the attributes of a program or policy contribute to

implementation quality (Desimone, 2002). The higher a program is in one or all the policy attributes – consistency, specificity, stability, authority, power - the greater the likelihood that it will be implemented successfully. The policy attributes theory as adapted by Desimone (2002) to the study of CSR implementation posits that the policy attributes can be understood through teacher perceptions and that those perceptions bear a relationship to implementation quality. This paper adopted that stance, focusing on teacher cognition at the root of implementation. Spillane and colleagues' (2002) sense-making theory lies at the heart of this, arguing that implementation is dependent upon how and in what ways implementing agents come to understand the reform and their role in the reform.

Findings from the analysis of survey and observational data indicate that among the policy attributes, specificity and stability bore a strong, significant, positive relationship with implementation of the Giffin Model. Higher levels of specificity and stability were associated with higher levels of implementation. Though the survey data indicated that authority was not a significant factor in implementation, interviews with nine Giffin teachers showed that authority was just as instrumental in implementation success as specificity and stability.

Specificity. One of the primary drivers of specificity across the three schools was related to having enough dedicated time to engage with the Giffin Model from a theoretical as well as a practical standpoint. Specificity was high at both Trident Academy and Holland Intermediate and teachers at these schools reflected that they

were given adequate time at the beginning of the year to “wrap our heads” (Solange, 2015) around the Giffin Model. “Having those materials before we even sat down to meet about Giffin was helpful for me because I got to really dissect what all Giffin was about”, Steven (Holland) corroborated. At Trident Academy, similar comments regarding specificity substantiated specificity’s role in implementation success. When asked about what aspects of the Giffin Model they were unclear on, teachers raised no significant issues. “I know what is being asked of us and...there are kinks and little things to work out, but it’s all pretty straightforward”, said Amelia.

Conversely, teachers at Ashland reported having little guidance or feedback on their practice as it related to the Giffin Model. Teachers reported a lack of deep understanding of the Giffin Model, and generally reported not spending a significant amount of time discussing the model before and throughout the school year. Ashland’s teachers recalled spending time on the Giffin Model during professional development days, but commented that the meetings were not very substantive. “I just felt like we missed a lot”, said Jamie. The lack of depth in the meetings where the Giffin Model was the topic appeared to contribute to teachers only having a surface level of understanding of the model. Brian also noted that they were left with many unanswered questions, and that few meetings were held throughout the year to give them an opportunity to share their questions and concerns.

Teachers also commented on the role of the principal regarding model specificity. In this category, principals acted as gatekeepers to information about the

Giffin Model. They attended the principal training sessions over the summer and led the professional development sessions where the Giffin Model was first introduced to teachers. In this role, principals had the ability and the duty to ensure that their teachers developed a deep understanding of the Giffin Model. Their actions as a gatekeeper of knowledge about the model influenced teacher perceptions of specificity. Teachers at Holland and Trident remarked that their principals made it a point to ensure that their teachers understood the Giffin Model and their role as teachers under the model. The constant communication with the principal “made me more comfortable with the changes I had to make”, said Amelia, a teacher at Trident Academy.

Data from the surveys and interviews suggest that perceptions of the specificity of the Giffin Model were instrumental to successful implementation of the Giffin Model. Though this study does not evaluate the causal relationship between specificity and implementation quality, a strong positive correlation between the two variables existed. Additionally, the survey questions that were used to measure specificity largely focused on teachers’ knowledge of and comfort with the model at the beginning of the year, suggesting that specificity may play a role in mediating implementation.

Stability. Stability under Porter et al.’s (1988) theory is concerned with the extent to which programs and people remain constant over time. Research on implementation suggests that programs that are stable and are also part of a stable the organization tend to have higher levels of implementation quality. On the surface, this makes sense. High rates of program and personnel turnover destabilize a system and

negatively impact teacher perceptions of stability. In turn, the perceptions can affect how teachers approach implementing a program. For example, implementation of the New American Schools CSR model was found to be negatively impacted by leadership turnover (Berends et al., 2002).

The stability of principals at each of the schools appeared to exert a strong influence on the implementation of the Giffin Model. The most striking case of this phenomenon was found at Ashland Intermediate. The retirement of the principal at Ashland just prior to the beginning of the Giffin pilot year negatively influenced teacher perceptions of stability. Teachers felt that the change in principal contributed to an environment in which the Giffin Model would struggle to be implemented with success. Teachers at Ashland sensed that the principal was not focused on implementing the Giffin Model in part because he was not involved in the decision to adopt it. They stated that his actions confirmed their beliefs.

He [the principal] just didn't seem to care much about Giffin, and I get it, because it wasn't his pet project, but if we're still being asked to do something and he's not assisting us, I'm going to turn my attention elsewhere. (Jamie, 2015)

The change of principal just prior to the beginning of the school year undoubtedly had a negative influence on teacher perceptions of stability at Ashland. Conversely, teachers at Holland had more stable leadership. The principal at Holland had been at the school for several years and stated that she had no intention of moving elsewhere. Teachers

also believed that the principal was heavily invested in staying at Holland, which influenced their perceptions and actions regarding Giffin. “She’s [the principal] been here and I believe that when she brings something in she’s gonna see it through,” commented Solange. Thus, teachers stated that they were more invested in working to implement the Giffin Model than they might have been otherwise.

Principals also influenced teacher perceptions of stability beyond teacher considerations of leadership stability. When discussing program stability, teachers discussed their principal’s tendencies around program stability. At Holland for example, James commented that the principal brought in programs and kept them around if they proved to be effective. This characteristic of the principal influenced his perception that the Giffin Model would remain at Holland and drove him to work to implement the Giffin Model as intended.

I knew from the outset that [the Giffin Model] was something I should work hard to implement. Our principal does a good job filtering out unnecessary projects and always has his eye on programs that might be successful, so I trusted that.

(James, 2015)

At Ashland Intermediate, the fact that a new principal had been hired and hadn’t personally chosen to adopt the Giffin Model weakened their perceptions of program stability. These feelings were strengthened by the principal’s failure to provide time to discuss the model and provide guidance.

An interesting case regarding stability was the mid-year announcement by Trident Intermediate's principal that they would be retiring at the end of the 2014-2015 school year. This announcement appeared to have an effect on their perceptions of stability but did not however, appear to impact their work regarding implementing the Giffin Model. Teachers at Trident, commented that they were uncertain the model would stay under the new principal, but the uncertainty around this was mitigated by teachers' collective perceptions of the program. Teachers at Trident largely believed that the Giffin Model was an effective program for educating their students. Statements about the collective advocacy for the model to remain the following year indicated that peer support mitigated concerns over personnel stability.

Giffin Model teachers also provided data on their perceptions of program stability and its influence on their perceptions. Views of program stability varied within and across cases but were closely and positively related to implementation. At Holland for example, teachers mostly felt that programs were constant at the school and that Giffin would be no different. This belief James stated, led him to work to implement the Giffin Model. At Ashland, teachers saw program stability being tied directly to the actions of the principal. They felt that his being new, and not having chosen to implement the model, drastically lowered the likelihood that Giffin would remain beyond the 2014-2015 school year. Because of this "I didn't think much about Giffin...would you?" stated Brian.

Specificity and stability were found to correlate highly with implementation success. Responses from teachers who were interviewed showed that these categories were primary factors that teachers attempted to make sense of as they implemented the Giffin Model. The data also suggest that issues and concerns captured under specificity and stability influenced implementation success.

Authority. My framework argues that authority derived from teachers' peers and the principal have a strong impact on implementation. I found that the support of the principal had a strong effect on implementation at Holland and Trident, and when it wasn't there in the case of Ashland, implementation lacked.

Perceptions of authority, which arguably have the closest linkages to the principal, were indeed influenced by the principal at each school – the theory states that a charismatic leader can bring authority to a policy – the theory does in fact identify leadership as a key way to foster authority. For example, the principals at Holland and Trident self-selected into the Giffin Model, and their actions as interpreted by teachers resulted in more positive perceptions of authority. At Ashland however, teachers felt that the new principal was never truly invested in the model; having not selected the model. His inattention to implementing the Giffin Model throughout the year de-legitimized the model in the eyes of teachers who took their cues from the principal. Simply put, teachers at Ashland “didn't feel any push to change” (Jamal, 2015).

Sense-making and the Giffin Model

The Policy-Attributes Sense-Making framework (PASMf) that I put forth to guide this study asserts that the policy attributes serve as a way through which to understand and describe the myriad factors that affect teacher's thinking as they implemented the Giffin Model. The following sections illustrate teacher sense-making, during the implementation of the Giffin Model. Findings from teacher interviews are the focus of this section and are supplemented by survey data. Lastly, this section attends to the second research question which focuses on the extent to which contextual factors and teachers' knowledge, skills, and philosophies of teaching influence their sense-making, and ultimately impacted the implementation of the Giffin Model.

Individual Cognition. No two people, and therefore no two teachers, are alike. The perceptions and feelings that teachers developed about The Giffin Model, and the decisions they made regarding what, how, and to what degree they implemented the model were influenced by their prior beliefs and philosophies about teaching and learning. In the interviews and surveys, I asked teachers about their beliefs and philosophies about teaching specifically in relation to the Giffin Model. I also inquired about how this may have affected their implementation of the Giffin Model. I used responses from the interviews to develop a thick description of individual cognition.

Spillane et al. (2002, p.388) assert that teachers as local implementers "notice and interpret stimuli and... prior knowledge, beliefs, and experiences influence construction of new understandings" that impact how they implement a program. Teachers values and emotions they argue, are always at play when tasked with implementing a program.

Interviews with Giffin Model teachers illustrated this. One theme emerged from my analyses on individual cognition, that teaching philosophies and emotions impacted teachers' views of the model in very significant ways.

The survey asked teachers to state their level of agreement with the tenets of the Giffin Model, including how they felt about homogeneously grouping students, and moving students to different teachers throughout the year. Of the teachers who were interviewed, James (at Holland), Rachel (at Holland), and Mr. Franklin (at Trident) agreed the most that those philosophies could be effective methods for educating children. When asked about this, Mr. Franklin stated that he "always believed" that some students, specifically struggling students, needed to be placed in an environment where they could truly have an opportunity to succeed. This he said could be done by homogeneously grouping students based on achievement, "so long as other structures are in place to really support them". When teachers at Trident Academy first met with their principal to discuss the Giffin Model, Mr. Franklin said that he "got on board" quickly.

[The Giffin Model] was something that I had been looking for, without knowing it I guess, for a while. I saw it as an opportunity to focus on low achieving kids and really provide a space for them to learn and grow, since I could focus all my attention on them. (Mr. Franklin, 2015)

Rachel and James from Holland Intermediate responded similarly, albeit slightly less enthusiastically than Mr. Franklin. Rachel commented that although her philosophy for teaching was in concert with that of the Giffin Model, she had some difficulty with the specifics of the model, which caused some internal conflict. “When [implementation] first began, I was a little hesitant to dive into Giffin, really only because I thought that some kids would get lost in all the student movement that we were to do,” said Rachel. Her concerns were about the children who she believed would struggle being moved to a different class part way through the year, kids who typically had a difficult time adjusting to different circumstances. “I just wanted to make sure that all my kids would be taken care of, and so that was hard to know they might be moving and...it was hard once they did move.” Still, Rachel found herself largely supporting the model at the outset of the year, being optimistic about its ability to be effective at aiding her efforts to create learning growth with her students.

James the teacher of the high achieving students, was also generally positive about the model. To him, the Giffin Model, specifically, the multi-layered curriculum was what he wanted to see his school adopt. He saw the Giffin Model as a tool that could facilitate the development of a learning environment that would allow all students, not just high-achieving ones to truly take ownership over their own learning. “I think that exposure to wide-range of learning abilities can be difficult for different learners sometimes, and the Giffin Model kind of mitigated that”, said James. James went on to discuss how he had seen in many years, low-achieving kids become

frustrated and disengage from learning and high-achieving kids be slowed down and similarly disengaged. His support for grouping and tailoring the material to meet students at their level was rooted in his prior experiences which informed his teaching philosophy

Though many of the Giffin Model teachers at Holland and Ashland Intermediate schools and at Trident Academy professed to have a teaching philosophy that mirrored those of the Giffin Model, a few did not. The opposing beliefs, teachers stated, made it difficult for them to find value in the Giffin Model. Amelia, who taught the low-achieving students at Trident Academy, had a philosophy that did not mesh well with the Giffin Model. She felt that students needed stability, structure, and “role models” to allow for growth.

When we were first introduced to Giffin, I was a bit horrified [laugh] and overwhelmed. It seemed like we were gonna be asked to do alot, and we definitely were. But more importantly, I thought about how it would impact my students. They need a stable environment and opportunities to growth and at first I didn't think the model really provided for that. (Amelia, 2015)

Amelia went on to discuss how she preferred to have students with a wide range of achievement in one classroom, and how she felt that she had been a very successful educator in that environment. Reflecting on her teaching philosophy, Amelia initially felt that the Giffin Model was “not a match for me or our school” which she stated

“definitely affected my initial thoughts about how much I would work to implement Giffin”.

Brian from Ashland was the second teacher whom I interviewed who was most outspoken about his negative perceptions of Giffin Model. “I’ll be honest with you” said Brian, “I really didn’t see this model working. Even from the beginning of the year, I felt that it required so much on our [teachers’] parts just to meet the demands of the model on a consistent basis that it wouldn’t be effective.” Brian went on to mention that he also did not believe that students should be grouped homogeneously, stating that “they need variety to work with others who are ‘higher’ than them to challenge and assist them”. Brian reported that he probably didn’t give the model a true opportunity to succeed, but that his beliefs prevented him from doing so, especially in an environment that he felt was not conducive to implementing a program that required many changes to his practice. This interaction between individual and situated cognition is the focus of the following section.

Situated Cognition. Educational researchers who have applied cognitive theories to the study of implementation argue that cognition “is not simply a backdrop...but a constituting element” (Spillane, 2002, p. 389) in an implementing agent’s sense-making. Said differently, the perceptions that teachers as implementers develop about a program come about not only because of their own teaching philosophy and prior experiences, but the context within which the reform takes place also has an influence.

This study showed that contextual factors might take precedence as teachers make sense of and implement a program.

In the previous section, we discussed two teachers, Amelia from the relatively high implementation school, Trident, and Brian from the low implementation school, Ashland. Both teachers held personal philosophies about teaching and learning that were at odds with the philosophies that grounded the Giffin Model. At Trident, as opposed to Ashland, the principal was viewed as a strong supporter of the Giffin Model. He gave his teachers the impression that he wanted the model to succeed, and provided structures for teachers to adopt and adapt the model. Additionally, the teachers stated that Dr. Jameson, the external implementer, was supremely helpful and responsive to their needs. During my analysis, it became clear that the actions of these individuals had a significant impact on implementation. Amelia mentioned that she, her fellow teachers, and the principal “met constantly” to discuss the successes and challenges they faced in their efforts to implement the model. She also discussed how conversations with Dr. Jameson were “reinvigorating”, because “he made me feel as if the work I was doing to implement [the Giffin Model] was of the utmost importance and that I was the integral piece in this model.” This, Amelia said “was certainly not the case” at her previous school where they attempted a major curriculum change that she had little direct support with.

Although I wasn't a big fan of the model at the start, I had a lot of people helping me and supporting me. My principal, Dr. Jameson, my peers. They were all-in on

Giffin and that was clear, just through hearing them talk about it, but the help I got, too. That was big. (Amelia, 2015)

The situation at Trident Academy contrasted sharply with Brian's experience at Ashland Intermediate. Brian noted that he had little support from his principal and did not feel as if Dr. Jameson provided him with enough direct guidance to implement the model well. The principal at Trident, Brian stated, "was just preoccupied with so many different things, running around trying to put out "fires", so he couldn't really give us [Giffin teachers] the attention and support I felt we needed." Brian noted that he didn't believe the Giffin Model was an effective way to educate kids and "nothing I saw or did really changed my mind". Brian went on to discuss with me the fact that he and his fellow Giffin teachers rarely met to discuss the model and that when they did, it was usually to complain that it was a waste of their time.

Look, my focus is my kids, and if I don't believe something will work AND I get no support to implement it, I'm not going to focus on it. I will continue teaching in ways that I see benefitting my kids, which wasn't aligned with the Giffin Model. (Brian, 2015)

Conclusion. This study shows that teacher sense-making is the result of both individual and situated cognition. Teachers' philosophies about how education should be structured had a clear impact on how they viewed the Giffin Model. In some cases, divergent philosophies negatively impacted implementation and in others they did not.

This relationship appeared to be affected by the context in which teachers were expected to implement the Giffin Model. In the case of Brian at Trident, he did not believe that the model would be effective, and with little peer or administrator support for the reform, his views became solidified. When asked about whether his views of the Giffin Model and his effort to implement would have been positively impacted by the Giffin Model, he responded saying “yea probably, but I know what I believe too, so I’d have to see it working in someone’s classroom and I just didn’t find that to be the case.” Contrastingly, Amelia’s views on the Giffin Model changed because of her environment and although she mentioned that she still believed that the Giffin Model’s philosophies were “at odds” with her own, she “got over that”. Amelia commented that her work environment, specifically peer and administrator support helped her over that “mental hump”.

CHAPTER 5: DISCUSSION, RECOMMENDATIONS AND CONCLUSION

Review of the study

For this study, I proposed a synthesized framework - the Policy Attributes Sense-Making Framework – that was then applied to the study of the implementation of the Giffin Model. Two questions guided this study.

1. To what extent are the policy attributes related to the quality of teacher's implementation of the Giffin model?
2. In what ways and to what extent do contextual factors and teachers' knowledge, skills, and philosophies of teaching influence their sense-making of the Giffin Model?

Multiple-case study design was used to study the implementation of the Giffin Model. A survey was designed, validated, administered and analyzed. Interviews with nine teachers were conducted, and a series of classroom observations were also carried out. Findings from this study indicate that specificity and stability had significant, positive correlations with implementation. Correlations were moderate and high, respectively. Through triangulation of data sources, three themes emerged from the data, (1) That stability, specificity, and authority were primary considerations of teachers, (2) that the principal was central to the implementation of the Giffin Model, and (3) that situated cognition can interact with an individual's own attitudes to yield different outcomes. Teacher perceptions of specificity and stability were not only found to have a significant relationship with implementation success, but interview data also suggested that

teachers' primary concerns also centered on those attributes, as well as authority which was not statistically significantly related to implementation.

Policy attributes and implementation

I found stability, specificity, and authority to be instrumental to implementation success.

Stability and specificity were significantly and positively related to program quality.

Research on implementation indicates that the more stable teachers perceive their environment to be, the more likely a program is to be implemented with a high degree of quality (Bodily, 1998; Muncey and McQuillan, 1998). Stability as a policy attribute focuses on the stability of the policy environment, the pace of the reform and the mobility of students, teachers and principals (Desimone, 2002). I asked teachers several questions, inquiring about each of these factors. What I found was that perceptions of stability were strongly associated with implementation quality. This finding mirrored findings from earlier research; that programs that are perceived to be stable, and that are perceived to be part of a stable environment tend to have more successful implementation (Berends, et al., 2002; Bodily, 1998).

Take as an example the case of Ashland Intermediate. Teachers at Ashland Intermediate had low measures of stability. My correlational analysis of the relationship between implementation quality and perceptions of stability quantified that linkage, showing that stability was strongly associated with implementation success.

Furthermore, interview data supported my conclusion and added depth to my findings.

Teachers at Ashland were faced with administrative turnover and perceived their

environment to be too unstable to support a reform like the Giffin Model, which appeared to negatively impact implementation.

Teachers are also better able to implement a reform when they feel that they have specific actions that understand how to implement (Bodily, 1996; Smith et al., 1997). My framework argues that perceptions of specificity are associated with and may drive implementation. Quantitative findings from this study confirm the former, that specificity has a strong positive correlation with implementation success. Analysis of the qualitative data supported this finding. Teachers at all three schools discussed how the professional development and information they received pertaining to the Giffin Model impacted their understanding of the Giffin Model and practices they were expected to carry out. Teachers at Holland and Trident Academy had high perceptions of specificity, noting that their principals provided them with the support necessary to understand and implement the Giffin Model. This contrasted sharply with what occurred at Trident Academy. Teachers reported that the new principal was not focused on the Giffin Model, and left them with many questions about their practice under the new model. Additionally, teachers reported not having close contact with Dr. Jameson, the external implementer, which contributed to their poor perceptions of specificity.

Stability and specificity were positively correlated with implementation success. Qualitative data supported these findings. This study did not find a statistically significant correlation between perceptions of authority and implementation success. However, qualitative data from this study suggest that institutional authority and

normative authority influenced implementation. The next section will highlight that institutional authority, derived from principal leadership was instrumental in implementing the Giffin Model.

Principal Leadership

The importance of principal leadership during the implementation of the Giffin Model was a major finding of this study. Perceptions of stability, specificity and authority – three of the four policy attributes – were influenced by characteristics and actions of the principals at each school. This study of implementation of the Giffin Model supported many of the findings in the literature on implementation and, principal leadership. Specifically, the importance of the principal in implementing the Giffin Model reflected conclusions drawn from the broader literature. The case studies that comprised this study showed that successful implementation of the Giffin Model was reliant, in part, upon the actions of the principal. In all three cases, the principal was central to implementation and to teacher sense-making during implementation. From providing vocal and technical support, to acting as a gatekeeper of information and a translator of messages, the actions of the principals impacted teachers' perceptions of the model attributes, influencing implementation.

The literature on implementation indicates that the principal is an integral part of any school reform, including comprehensive school reforms such as the Giffin Model (Berends et al., 2002; Fullan, 1991). The Giffin Model asked teachers to make several changes to their practice. The model asked teachers to restructure the way that they

organized their classrooms, to adjust the way they taught their students, and added new practices including evaluating students to determine if they should be moved to a different curricular layer, and subsequently carrying out that movement. In many cases, these changes were a significant departure from prior structures and practices in these cases. Analysis of data from this study indicated that the principal was an important driver of these changes, supporting findings from other studies of implementation that show principal leadership is instrumental in driving change (Berends et al., 2002; Coburn, 2005).

Research on the implementation of comprehensive school reform models has found that principals are essential players in the process of implementation. For example, in their study of professional development and its link to school capacity, Newmann, King, and Youngs (2000) found that school capacity, or the ability of a school to effectively manage change was mediated by the principal. The principal acted as the primary player when it came to facilitating program coherence, providing technical resources, and developing teachers' knowledge and ability to implement reforms. Findings from a series of studies on school restructuring in Memphis City Schools during the 1990s indicated that implementation proceeded more quickly and was more successful in schools where principals exhibited strong leadership (Smith et al., 1997; 1998). This included successful management of teacher time, adequate provision of resources, and providing professional development that was closely aligned with the reform efforts.

In the three cases of Giffin Model implementation, the role of the principal in providing support for the reform was integral to successful implementation. In each of the cases, teachers spoke at length about the role their principal played in the reform efforts; from acting as a gatekeeper of information to providing direct support via moral, technical, and material support for the reform. At Trident and Holland, the principals were strong in this regard, while at Ashland, this was not the case. Teachers at Ashland reported that their principal provided little support for Giffin in either fashion; instead being preoccupied with leading a school for the first time. Thus, the Giffin Model failed to get off the ground at Ashland. At Trident and Holland, implementation fared much better and the principal's role in their relative success was instrumental.

These three cases highlight how principal leadership can impact implementation through direct means. This research contributes to the literature by showing that principals also have indirect influence on implementation by affecting the way that teachers think about a reform. As leaders of their schools, principals can influence teacher perceptions of a reform (Berends, 2000; Coburn, 2001). In her study of collective sense-making for example, Coburn (2001, p. 162) found that principals can shape the sense-making process by influencing "how teachers construct understandings, select some messages in and others out, and negotiate the technical and practical details necessary" to implement a reform successfully. Likewise, Wanless et al., (2005) found that teacher' views of principal support for, and capacity to implement a reform influenced implementation. Actions taken by principals are

interpreted by teachers and affect their views about a program which influence implementation success.

Teachers at the Giffin Model schools constructed certain beliefs about the model that were directly tied to actions of the principal; whether the principal was vocal in their support of the model, how much attention they believed the principal gave to implementing the model, and the volume of support teachers felt they received from their principal to implement Giffin. At Trident for example, Steven's comment that their principal "put them in a good place to succeed" was mirrored by his colleagues. This belief came about because of their principal taking ownership over the model and providing teachers with the support they needed to implement the Giffin Model.

In these cases, sense-making was influenced by the principal. The principal controlled the environment in which sense-making took place; providing adequate time and space in some cases for teachers to develop their capacity to implement the Giffin Model; and in others, failing to create a structure for this to occur in. Teacher reports also showed that messages about the model varied among the principals and influenced teacher sense-making. At Holland, for example the principal communicated the importance of the reform to teachers throughout the school year. This contrasted significantly with what occurred at Ashland where teachers and the principal infrequently discussed the Giffin Model.

Teachers' beliefs about how the model utilized their expertise were also influenced by messages from their principals. This finding falls in line with the research on principals as gatekeepers and translators of information. Principals operate as gatekeepers of information about a reform and can shape interpretations of policy signals (Coburn, 2005; Peled et al., 2007). At Ashland for example, several teachers reported feeling that the Giffin Model did not place value on teachers as experts, which negatively affected their perceptions of the model. Little mention was made of the principal working to reshape this belief. Contrastingly, teachers at Trident stated that their principal continually pushed teachers to take ownership over the model and adapt it to their specific contexts; exhibiting trust in them as professionals. Spillane and colleagues (2002, pp. 42) explained that "to accept reform and become its advocates could cost teachers some loss in positive self-image. Teachers might become advocates...or they might be motivated to discount the reform idea, seeing it as inconsistent with the reality that they know best". Teachers reported feeling more empowered to implement the Model because of the actions of the principal at Trident. Responses during the interviews indicated that this had positive impact on implementation.

Implementation research that focuses on teacher cognition suggests that experiences shape the lens through which teachers view a reform. "From integrated sets of assumptions, expectations, and experience" Vaughn (1996, pp. 62-63) states, "individuals construct a worldview, or frame of reference that shapes their

interpretations of objects and experiences. Everything is perceived, chosen, or rejected on the basis of this framework.” Reflecting the literature, this study supports that argument, but also connects the construction of a teacher’s beliefs about a program to the influence that a principal can have on the development of those perspectives. The level of support for the reform was positively associated with teacher perceptions of the policy attributes - specifically, specificity and stability - which were positively associated with implementation quality. Through qualitative means, authority was also shown to impact implementation quality.

In tandem with the literature on implementation and principal leadership, this study suggests that principals are a mediating factor, effecting perceptions of the attributes of a reform. Principal actions surrounding the Giffin Model ultimately impacted implementation of the Giffin Model, in part through their influence on teacher sense-making. Messages were mediated through their actions and teachers’ drive and capacity to implement were also impacted. Positive messaging was associated with positive perceptions of the Giffin Model, which was related to more successful implementation.

Human sense-making during implementation is a multi-faceted process and is influenced by all actors, including principals. When teachers are asked to change their behavior, they must unpack the messages and signals of policy, many of which are directed by the principal. Those messages are interpreted through teachers’ worldview about teaching and learning. The principal is uniquely situated to influence teacher

sense-making by managing the interaction between those views and the program. This study points to successful management of that interaction having a positive effect on implementation success.

If the literature on implementation is to continue evolving, it must continue to unpack the “how” and “why” a program gets implemented with success. To do so, research must consider the factors that affect teacher sense-making as they are faced with implementing a new program. This study attempted to apply a synthesized framework to accomplish this task; one that joins the Policy Attributes theory to Spillane’s theory of sense-making. The Policy Attributes Sense-Making framework argues that teacher cognition is an integral component in implementation. The factors that teachers consider as they implement a program are associated with the level of success they have implementing the program. This framework correspondingly argues that the wide range of factors considered by teachers is adequately and efficiently captured by the policy attributes, specificity, consistency, stability, authority (and power).

Applied to a study of the implementation of the Giffin Model in three schools, my framework provided insight into the factors teachers considered while implementing the Giffin Model. The survey developed for the framework found that specificity and stability were positively associated with implementation success. Teacher interviews corroborated the results from the survey and added layers of depth to those findings, which highlighted that authority also played a significant role in implementation. The

data highlighted the importance of the principal in implementation and perhaps more importantly, my framework provided a way to systematically assess the cognitive factors that affect implementation through teacher sense-making.

In developing their theory on sense-making, Spillane et al., (2002, pp. 419) stated “All policies involve sense-making on the part of those who attempt to implement them... [and some] involve tremendous changes” in teacher schemas. Sense-making involves both individual and situated cognition. This study suggests that while individual cognition is important, situated cognition, the influence of contextual factors such as principal and peer support for example, can affect what and how implementers approach a reform. Coburn (2005), Porter et al. (2015) and others have found similar results; that context matters in ways that affect what and how teachers engage with a reform which in turn can influence program quality.

The Policy Attributes Sense-Making framework study directly attended to teacher cognition, using the policy attributes to systematically analyze what and how teachers consider, and are affected by as they implement a new program. The findings highlight the significance of the principal in implementation of the Giffin Model and suggests that model specificity, stability and authority influence implementation quality.

Recommendations for Practice

Though more research should be conducted, the findings from this study have implications for the field of education as well. First, those tasked with overseeing implementation, such as principals and external implementers should consider teacher

perceptions of policy attributes as they work to implement a program. This study and the literature on implementation suggest that the perceptions of attributes are related to implementation success (Berends, 2000; Smith et al., 1997; Spillane, 1999).

Therefore, I suggest that implementers take into consideration factors related to each of the attributes that may influence teacher perceptions of the program, prior to, and during implementation. This is especially the case with factors related to specificity and stability. Specificity and stability were shown to be significantly related to implementation quality in this study, and is supported by findings from the literature.

Those charged with leading implementation should consider the policy attributes and consider prioritizing specificity and stability in their work. They should take steps to ensure that they are (1) specific in their explanations of the program as well as the expectations they have for teachers regarding their specific tasks and (2) work to provide a stable environment during program implementation. For example, principals can increase perceptions of specificity by holding regular meetings to discuss the program, during which they can allow teachers to voice their concerns, frustrations, successes and challenges. Responding to these issues, following up with support to remedy those problems and sharing the successes can lead to greater perceptions of model specificity as teachers become more comfortable with their new roles. Principals can also take steps to ensure that the model is being implemented in the most stable environment possible. Though principals may not have the final say in what and how many programs and initiatives are brought to the school in one school year, they should

work to not overburden their teachers with many reforms in one year as the quality of implementation of any one program may be hampered by efforts to implement another. Poor program adoption leads to low effectiveness and is also a logical precursor to discontinuation.

Finally, external implementers must also be cognizant of the policy attributes and how their actions may influence teacher perceptions of the policy attributes. Additionally, they must consider the role of the principal in implementing the program. External implementers should work with principals to ensure that they are both cognizant of their actions and how those actions are perceived and internalized by teachers.

Recommendations for Future Research

I believe that the strongest contribution this study has made to the field of study of implementation and teacher cognition is the application of my framework to the study of the implementation of a program, the Giffin Model. In applying the framework to this study, I was able capture the essence of factors that teachers considered as they implemented the Giffin Model. Additionally, the framework, and the survey instrument that was developed indicates that at least some of the policy attributes bear a significant relationship with implementation success. Prior research suggested that this relationship existed, but few, if any to date had created a way to measure to measure teacher perceptions of policy attributes.

Moving forward from this study, knowledge on the relationship between implementation quality and teacher cognition must continue to grow. Using the framework put forth in this study, measures of teacher perceptions can continue to be improved and used, not only for correlational analysis, but also to predict the quality of implementation. This study falls short in that regard, carrying out only correlational analysis, but has opened the door for future studies to assess the relationship between implementation quality and teacher cognition.

I also suggest that future research on implementation continue to use the policy attributes to frame the study of implementation, especially regarding teacher cognition. “Ultimately, effective policy implementation is driven by how street-level bureaucrats interpret and respond to reform initiatives” (Porter et al., 2015, p. 116). This study showed that the policy attributes can represent a comprehensive set of categories which allow us to understand factors that teachers consider as they engage with a new reform. These should be explored further, to build on the knowledge base concerning teacher cognition and implementation.

Conclusion

Over past 15 years, the study of implementation in education has grown dramatically. Researchers have come to understand that implementation is crucial in maximizing the effectiveness of a program. The role of teachers as active participants in implementation has replaced the view that teachers are simply automatons who accurately translate a program into practice. Early waves of research assumed that

implementers automatically understood a program's intended messages and therefore could implement a program simply as a matter of choice. More recent research on implementation focuses on teachers and their thinking as they seek to implement a program; seeing them not as automatic implementers operating with complete knowledge, but as active thinkers in the process of implementation.

This study took that perspective and applied it to the study of the implementation of a school reform model, The Giffin Model. A framework which joined the Policy Attributes theory and the sense-making theory of implementation was used to study teacher cognition during implementation and its relationship to implementation success of the Giffin Model. The study found that two policy attributes, specificity and stability, were positively correlated with program quality.

Research on comprehensive school reform implementation suggests that attributes of and actions carried out by the principal affect teachers' perceptions of a program, which in turn impact implementation success (Berends et al., 2002; Smith et al., 1998). Findings from this study largely support this. Specificity, stability, and authority had a strong effect on implementation. Additionally, the principal influenced teacher perceptions across each of those three attributes. Though the survey data did not indicate that authority was significantly related to implementation, interviews with the nine teachers highlighted the importance of authority in implementation success.

Nearly all teachers that were interviewed made comments about the principal when asked questions pertaining to each of the policy attributes. Teachers commented on the role of the principal in lending authority to the model, discussed the role of the principal in influencing their perceptions of model specificity, commented on the principal's role in influencing program consistency within the school and mentioned stability having its genesis with the principal. As Jamal at Ashland said, "I take my cues from my principal".

Appendix A: Interview Guide

Implementation

1. Can you describe your thoughts and feelings when you first heard that you'd be teaching under a new school model – The Giffin Model – this year?
2. How was the Giffin Model presented to you?
 - a. Did you feel that afterwards, you had a clear understanding of the Giffin Model (Of your role as a teacher under it)?
 - b. What remained unclear?
3. This past year, how did you balance the competing interests of working with students' knowledge level and grade-level?
 - i. To what extent did you interact with co-workers concerning this process?
 - ii. To what degree were there factors that influenced how you balanced those interests?

Prior Attitudes and Beliefs

Interviewer: I want to ask about your beliefs about the Giffin Model at the beginning of the school year:

Take yourself back to the beginning of the school year; you have all these meetings and professional development sessions – Try to remember how you felt about The Giffin Model. Was your initial reaction positive? Was it negative?

4. Were there aspects of the Giffin Model that you agreed with?
 - a. Were there some that you did not?
 - i. Why (In what ways does the Giffin Model fit/diverge from your views of teaching and learning)?
5. What questions and concerns, if any, did you have about the Giffin Model?
 - a. Were you able to discuss these questions/concerns with anyone at your school?
 - i. Can you tell me about this/these meeting(s)?
 1. If they don't mention their colleagues:
 - a. What did your fellow teachers think about the Giffin Model?
 - b. Would you say that as a group your views were similar?
6. In what ways does the model fit with your practice as a teacher?

- a. To what extent does the model differ from your practice as a teacher?

Policy Attributes Theory

Authority

1. To what extent did you receive professional development concerning the Giffin Model?
 - i. If not addressed in the answer, ask:
 1. How consistent?
 2. How helpful were these sessions to you?
2. To what degree were your principal(s) invested in the Giffin Model?
 - a. What gave you this impression? Can you give an example?
3. Were there other administrators that you dealt with concerning the Giffin Model?
 - a. What was their role?
 - b. How did they respond to different aspects of the model?
4. How would you describe the overall professional culture at your school?
 - a. For example, are staff members highly committed with a sense of shared values and responsibility, or do you feel like you work mostly in isolation? Is the environment supportive or highly structured?

Consistency

5. To what extent is the Giffin Model consistent with your schools':
 - a. Culture?
 - b. Other reform efforts?
 - c. Goals?
6. What about your district? To what degree is the Giffin Model consistent with your district's:
 - a. Culture?
 - b. Other reform efforts?
 - c. Goals?

Specificity

See implementation Question 2

7. To what extent was there anything related to the Giffin Model that you did not initially know about but that you do now know?

Stability

8. To what degree do you feel that the Giffin Model will remain at your school in the coming year(s)?
 - a. What leads you to this belief?
If they respond that they believe it will:
 - b. Do you feel that if your school administration changed, the model would continue to operate at your school?
9. Do programs at your school stay in place or are programs constantly replaced by newer ones?
10. Can you describe the rate of teacher and administrative turnover at your school?

Potential Change in beliefs

11. Would you say that your thoughts and feelings towards the Giffin model have changed this year?
 - a. Why/why not?
 - b. In what ways?
 - c. What led you to change (or retain) these thoughts and beliefs?
12. If there's anything that you could change, what about the Giffin Model would you like to change?
13. What about the way that the program was implemented in your school? If you could go back what would you like to see done differently?
14. Would you like to continue teaching under this model?
15. Would you like to see the model expand to your whole school?
 - a. To other schools?
16. Is there anything else pertaining to the Giffin Model that you'd like me to know about?

Appendix B: Giffin Model Survey

Please respond to the following statements.

	Yes	No
Prior to the beginning of the 2014-2015 school year, were you informed that your school would be piloting a school reform model called "The Giffin Model"?	<input type="checkbox"/>	<input type="checkbox"/>
Prior to the beginning of the 2014-2015 school year, were you informed that you would be teaching under this new model?	<input type="checkbox"/>	<input type="checkbox"/>
Were you given information at the beginning of the 2014-2015 school year about the specific aspects of the Giffin Model?	<input type="checkbox"/>	<input type="checkbox"/>
Was a formal meeting held at the beginning of the 2014-2015 year where your school administrators discussed with you the Giffin Model?	<input type="checkbox"/>	<input type="checkbox"/>
Have you had any formal meetings with your school administrators to discuss the Giffin Model?	<input type="checkbox"/>	<input type="checkbox"/>
Were you ever directed to the Giffin Model introductory video(s)?	<input type="checkbox"/>	<input type="checkbox"/>

I was given information about the Giffin Model:

- Verbally
- In written form
- Both

Did you watch the introductory videos?

- Yes
- No

How many formal meetings have you had with your school administrators to discuss the Giffin Model?

- 1
- 2
- 3-5
- 5+

How many meetings, **formal or informal**, have you had with your school administrators where you discussed the Giffin Model?

- None
- 1
- 2-3
- 4-6
- 6+

Please respond to each of the statements below.

	Yes	No
I was assigned to my classroom based on my student growth percentile (SGP) from the prior year(s).	<input type="checkbox"/>	<input type="checkbox"/>
This school year, my co-workers and I had a plan in place that we used to discuss student progress.	<input type="checkbox"/>	<input type="checkbox"/>
This school year, my co-workers and I had a plan in place that we used to discuss student movement across curricular layers within the subject that I taught.	<input type="checkbox"/>	<input type="checkbox"/>

Please respond to each of the statements below.

	Not At All	Rarely	A moderate amount	Very Often
Over the course of this school year I spent time teaching students at their current level of knowledge as opposed to teaching (exclusively) the grade-level material.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My co-workers and I met to discuss individual students' progress over the course of this school year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students moved in and out of my classroom throughout the year due to their achievement on classroom-based assessments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate your level of agreement with the following statement.

	Disagree Strongly	Disagree	Agree	Agree Strongly
Overall, I feel that I have a deep understanding of the school reform model - the Giffin Model - that I have been teaching under this year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The school reform model (i.e., The Giffin Model) that I taught under this school year is designed with the following underlying beliefs:

	Disagree Strongly	Disagree	Agree	Agree Strongly
Teachers should teach the achievement-group of students they are most successful with.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teachers should teach the subjects they are most successful with.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some students need additional resources & interventions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students need change throughout the school year and as a result, the school should change to meet each child's needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please respond to each of the statements below.	Yes	No
The Giffin Model is designed to have students taught at their current level of knowledge regardless of their grade-level.	<input type="checkbox"/>	<input type="checkbox"/>
The Giffin Model uses different curricular layers to teach students with different achievement	<input type="checkbox"/>	<input type="checkbox"/>
Under the Giffin Model, teachers should be assigned to classrooms based on their SGP from previous years	<input type="checkbox"/>	<input type="checkbox"/>
Based on their achievement, students can move across the curricular layers during the school-year	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate your level of agreement with the following statement. I believe that:

	Disagree Strongly	Disagree	Agree	Agree Strongly
Teachers should teach the achievement-group of students (e.g., low achieving vs. high achieving) that they are most successful with.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teachers should teach the subjects they are most successful at creating test score growth with.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some students need additional resources & interventions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching children at their current level of knowledge is a more	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

effective way to teach than teaching them grade-level material.				
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Please indicate your level of agreement with each of the following statements.

	Disagree Strongly	Disagree	Agree	Agree Strongly
I believe that the Giffin Model is an effective model for educating students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Giffin Model is a better way to organize schools than the methods my school previously employed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Giffin Model conflicts with other reforms currently taking place at my school or in the district	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Throughout the course of the year, did you feel supported regarding aspects of your work directly related to the Giffin Model?

- Never
- Rarely
- Sometimes
- Often
- All of the Time

One element of the Giffin Model is that students are taught at their current level of knowledge as opposed to at grade level. Did you ever request materials or funds for materials from your administrator (e.g., principal or assistant principal) in order to teach your students at their current level of understanding?

- Yes
- No

Were you given the resources you requested?

- Yes
- No
- Some of them

Please respond to each of the statements below.

	Not at all	Very little	A moderate Amount	To a great extent
My school administrators are vocal in their support for the Giffin Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My school administrators are invested in the Giffin Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate your level of agreement with each of the following statements.

	Disagree Strongly	Disagree	Agree	Agree Strongly
The Giffin Model believes that teachers are instrumental in the success of students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Giffin Model made it easier for me to teach my students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Giffin Model improved my effectiveness as a teacher.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Compared to prior years, under the Giffin Model pilot, I found my work environment to be:

	Disagree Strongly	Disagree	Agree	Agree Strongly
Less Stressful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More conducive to teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More conducive to learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate your level of agreement with each of the following statements.

	Disagree Strongly	Disagree	Agree	Agree Strongly
I feel that the Giffin Model effectively uses my talents as a teacher.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Under the Giffin Model, I feel more satisfied as a teacher than in previous years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Under the Giffin Model, I collaborated more with my co-workers than in previous years .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would like to continue teaching under the Giffin Model for the 2015-2016 school year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If there is any more information you'd like to provide, please do so in the box below.

	Disagree Strongly	Disagree	Agree	Agree Strongly
Less Stressful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More conducive to teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More conducive to learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This year, I met with parents to discuss their child's educational progress

- Never
- Rarely
- Sometimes
- Often
- All of the Time

Please respond to the following statements.

	Yes	No
Prior to the beginning of the 2014-2015 school year, were you informed that your school would be piloting a school reform model called "The Giffin Model"?	<input type="checkbox"/>	<input type="checkbox"/>
Prior to the beginning of the 2014-2015 school year, were you informed that you would be teaching under this new model?	<input type="checkbox"/>	<input type="checkbox"/>
Were you given information at the beginning of the 2014-2015 school year about the specific aspects of the Giffin Model?	<input type="checkbox"/>	<input type="checkbox"/>
Was a formal meeting held at the beginning of the 2014-2015 year where your school administrators discussed with you the Giffin Model?	<input type="checkbox"/>	<input type="checkbox"/>
Have you had any formal meetings with your school administrators to discuss the Giffin Model?	<input type="checkbox"/>	<input type="checkbox"/>
Were you ever directed to the Giffin Model introductory video(s)?	<input type="checkbox"/>	<input type="checkbox"/>

Appendix C: Consent Form

You are being invited to participate in a research study titled “The Evaluation of The Giffin Model: Teacher Sense-making, Perceptions and Experiences during Implementation”. You were selected to participate in this study because your school is currently implementing the Giffin Model.

Purpose: The purpose of this research study, and of the interview, is to gather information on teachers’ perceptions of, and experiences with, The Giffin Model. If you agree take part in this study, we will conduct an interview with you. The interview will ask you about your experiences this past year pertaining to your teaching under the Giffin Model. You will also be asked about your perceptions of the model. The interview will take about 30 minutes to complete. With your permission, we would also like to tape-record the interview.

Risks and Benefits: You may not directly benefit from this research; however, we hope that your participation in this study will provide valuable information that can be used to improve the quality of implementation of educational programs; specifically the Giffin Model.

We believe there are no known risks associated with this research study; however, as with any online related activity the risk of a breach of confidentiality is always possible. To the best of our ability your answers in this study will remain confidential. We will minimize any risks by assigning participants identification numbers and by maintaining a separate list of numbers and the corresponding names. After the conclusion of the study, the key code linking the participant ID numbers to their names will be destroyed. Any sensitive hard-copy data will be kept in a locked file cabinet throughout the study. Electronic data will be kept on a password-protected server at the University of Pennsylvania. Only the Principal Investigator and trained personnel working on the study will have access to these files. Additionally, no individual names will appear in any publication. Under no condition will data be released in a manner that can be linked directly to any individual teachers or schools. *None of the data collected will be used to evaluate your performance in any way.*

Taking part is voluntary: Taking part in this study is *completely voluntary*. You may choose not to answer any questions that you do not want to answer. If you decide to take part in the study, you are free to withdraw at any time.

If you have any questions: If you have questions about this project or if you have a research-related problem, you may contact the research, *Horatio Blackman via e-mail (horatiob@gse.upenn.edu) or by phone (518-396-6436)*. If you have any questions concerning your rights as a research subject, you may contact the University of Pennsylvania at 215-898-2614.

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study

Your Signature: _____
Date

Your name (printed): _____

In Addition to agreeing to participate, I also consent to having the interview tape-recorded.

Your Signature: _____
Date

Appendix D_ IRB Documentation

University of Pennsylvania
Office of Regulatory Affairs
3624 Market St., Suite 301 S
Philadelphia, PA 19104-6006
Ph: 215-573-2540/ Fax: 215-573-9438
INSTITUTIONAL REVIEW BOARD
(Federalwide Assurance # 00004028)

12-May-2015

Laura M Desimone
Attn: Horatio Blackman
horatiob@gse.upenn.edu
lauramd@gse.upenn.edu

PRINCIPAL INVESTIGATOR : Laura M Desimone
TITLE : Evaluation of the Giffin Model
SPONSORING AGENCY : No Sponsor Number
PROTOCOL # : 822448
REVIEW BOARD : IRB #8

Dear Dr. Desimone:

The above-referenced research proposal was reviewed by the Institutional Review Board (IRB) on 11-May-2015. It has been determined that the proposal meets eligibility criteria for IRB review exemption authorized by 45 CFR 46.101, category 2.

This does not necessarily constitute authorization to initiate the conduct of a human subject research study. You are responsible for assuring other relevant committee approvals.

Consistent with the federal regulations, ongoing oversight of this proposal is not required. No continuing reviews will be required for this proposal. The proposal can proceed as approved by the IRB. This decision will not affect any funding of your proposal.

Please Note: The IRB must be kept apprised of any and all changes in the research that may have an impact on the IRB review mechanism needed for a specific proposal. You are required to notify the IRB if any changes are proposed in the study that might alter its IRB exempt status or HIPAA compliance status. New procedures that may have an impact on the risk-to-benefit ratio cannot be initiated until Committee approval has been given.

If your study is funded by an external agency, please retain this letter as documentation of the IRB's determination regarding your proposal.

Please Note: You are responsible for assuring and maintaining other relevant committee approvals.

If you have any questions about the information in this letter, please contact the IRB administrative staff. Contact information is available at our website: <http://www.upenn.edu/IRB/directory>.

Thank you for your cooperation.

Sincerely,

David
Heagerty

Digitally signed by David Heagerty
DN: cn=David Heagerty, o=IRB,
ou=ORA,
email=heagerty@upenn.edu, c=US
Reason: I attest to the accuracy
and integrity of this document
Date: 2015.05.12 13:50:40 -0400

IRB Administrator

Appendix E: Model Fit Data Tables

Model Fit Indices	
χ^2	135.777 p<.000
RMSEA	.08
TLI	.788
GFI	.71
CMIN/df	1.579
CFI	.97
IFI (Bollen's)	.95

Pattern Matrix

Item	Consistency	Specificity	Stability	Authority
33				.897
34				.886
42				.912
45				.881
49				.812
11	.933			
12	.616			
15	.559			
3		.689		
4		.556		
5		.624		
6		.702		
19		.413		
23		.887		
40			.539	
41			.772	
48			.585	
51			.460	

Rotation Method: Oblimin with Kaiser Normalization

Factor Loadings

Item	Factor	Factor Score
33	Authority	.90
34	Authority	.88
42	Authority	.93
45	Authority	.88
49	Authority	.77
11	Consistency	.81
12	Consistency	.88
15	Consistency	.85
3	Specificity	.88
4	Specificity	.76
5	Specificity	.91
6	Specificity	.83
19	Specificity	.79
23	Specificity	.93
40	Stability	.87
41	Stability	.83
48	Stability	.89
51	Stability	.84

Latent Variable Covariances

Construct 1	Construct 2	Covariance
Authority	Specificity	.48
Authority	Consistency	.32
Authority	Stability	.21
Specificity	Consistency	.63
Specificity	Stability	.27
Stability	Consistency	.35

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