

A POSTMODERN ANALYSIS OF THE PRACTICE OF USING VALUE-ADDED
MEASURES TO DETERMINE TEACHER EFFECTIVENESS

A Dissertation
By
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Submitted to the Graduate School
at Appalachian State University
in partial fulfillment of the requirements for the degree of
DOCTOR OF EDUCATION

December 2017
Educational Leadership Doctoral Program
Reich College of Education

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Abstract

A POSTMODERN ANALYSIS OF THE PRACTICE OF USING VALUE-ADDED MEASURES TO DETERMINE TEACHER EFFECTIVENESS

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The purpose of this inquiry was to examine how the metanarratives and discourses of scientific management, positivistic science, and managerialism constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as valid educational technology. It also explored how the technology of value-added measures when used to determine teacher effectiveness attempt as a disciplinary mechanism to produce the productive teacher. Using a postmodern analysis and a Foucauldian genealogical analytics to examine the work of William Harold Payne, considered to be one of the earliest school administration scholars; the work of Leonard Ayres, who developed an early measure of educational quality; and Frederick Winslow Taylor's *Principles of Scientific Management*, this study engaged in an analysis of the modern practice of using value-added measures to determine teacher effectiveness through an examination of the past. While the majority of

current research focuses on whether this practice is technically, mathematically, psychometrically, and scientifically sound, this research examined its epistemological and philosophical basis. The practice of employing value-added measures to determine the quality of a teacher's teaching is ultimately constituted and legitimated through the metanarratives and discourses of Comtean positivistic science and scientific management with its business discourses of efficiency management, productivity management, and worker knowledge management along with the ideology of managerialism. In addition, it functions within a panoptic disciplinary schema inherited from the appropriation of scientific management and Comtean positivistic science at the turn of the twentieth century.

Acknowledgments

This dissertation would have not been possible without the help of those on my dissertation committee. I am especially indebted to Dr. Alecia Jackson who introduced me to postmodern-poststructural work and its possibilities to recreate me as both a researcher and as a school leader. Her constant questioning and prodding encouraged me to explore ever deeper into this work. I also owe Dr. Chris Osmond a great deal of gratitude as well for introducing me to Michel Foucault's work specifically, and for his feedback on this work. I also want to thank Dr. Greg McClure for his extensive comments and suggestions throughout this whole process.

On a personal level, I want to thank the members of Hickory Cohort 3 for all of the support and especially thank Dr. Leslie McKesson and Dr. Star Brown for leading the way and showing me it can be done.

Finally, I want to offer an enormous amount of gratitude for my wife, Monique Robinson, whose idea it was for me to pursue this degree, and who put up with many weekends with my sitting for hours on end engaged in reading and writing. I could not have done this without you.

Dedication

This study is dedicated to all the many administrators and teachers who struggle each day to teach in increasingly challenging conditions in the postmodern era.

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Chapter 1: Introduction

Like many who decide to become an administrator, I chose to become one at the urging of colleagues who told me that I would be an excellent principal because of my passion for teaching, learning, and intellectual pursuits. It was in this sense that I reluctantly moved from teaching after sixteen years into that first administrative role. Immediately, I found myself in situations like those described by Gary Anderson in his book *Advocacy Leadership: Toward a Post-Reform Agenda in Education* (2009). In that book, he describes what it's like to find oneself in that first educational leadership role and suddenly discover that many of the things one once believed and the values one once held are suddenly overwhelmed by contradictions. The new educational administrator, especially one who has taught for any length of time, finds herself or himself engaging in trying to “become an administrator and remain one of them,” with “them” being the “teachers” (Anderson, 2009, p. 93). I still saw myself as a teacher and wanted to lead teachers, but I, like Anderson, “found myself doing things” that “I never thought I would do, things that went against my ideals or my emerging” administrative judgment (Anderson, 2009, p. 93). When I began my career as a teacher I was just as Anderson (2009) writes at length:

As is the case with many teachers, I was surprised to find myself doing things in the classroom that I never thought I would do, things that went against my ideals or my emerging professional judgment. As new teachers learn to cope with issues of discipline, classroom management, and the avoidance of controversy, survival becomes an overriding consideration. Cherished values and instructional ideologies often fly out the windows in a utilitarian search for “what works” within the constraints of one’s job. As months and years pass and survival recedes as the main

goal of teaching, many teachers are able to return to their cherished values and develop as reflective professionals. For others, their early coping mechanisms morph into their teaching practices, resulting, at best, in strongly disciplined, but pedagogically and relationally impoverished classrooms. (p. 93)

As a first-year administrator, I once again found myself in the same situation as that of a first-year teacher. I was in a “survivalist mode,” having to ignore my “cherished values” and beliefs about education, and engaged in Anderson’s “utilitarian search for what works.” I was learning the ropes, the ins and outs of the administrator’s job, but always with a faint, nagging thought at the back of the mind, questioning the decisions I was making and the policy actions I was asked to take. Unlike in the classroom, where even with the increasing surveillance and control seeping in, one is still able to enjoy some levels of autonomy and practice according to cherished values and goals, education administration for me has been different. Administration, as it is currently constituted in education, often devalues any autonomy and often demands only managerial obedience and subservience. The longer I have remained in educational administration, the more I have begun to notice I was being asked to engage in processes and actions that, while being justified because they were “research-based” and “good for the students,” did not always seem so to me. Many times, these seemed unjust. For example, placing the children of district personnel in prized classes, subjecting students to an ever-increasing amount of standardized testing, and making decisions about pass-failure of students and the success of teachers on test scores alone seemed somehow problematic. As Anderson (2009) so aptly puts it, “I found my finger constantly in the air, measuring the way the wind was blowing politically,” in an

environment where “publically, everyone wanted policies to be consistently implemented, but privately sought exceptions for their kids or themselves” (p. 94).

It is in this web of contradictions, and from it, that I engage in this critical project. The implementation of the practice of using a statistical measure like value-added measures to determine whether a teacher is effectively doing her or his job seems to me in need of critique, because it is one of those administrative and educational practices where the nagging thought and questions in the back of my mind force me to ask: “Is this really good for education, students, and teachers?” Because of this, I cannot help but to engage in a problematization of this practice, and that is my personal rationale for analyzing this issue. Before engaging the issue of using value-added measures to determine teacher effectiveness, it would perhaps be helpful to briefly describe what value-added measures are; and, how they are used to determine or rank teachers by their effectiveness.

Value-Added Models: What They Are and How They Work

Value-added measures or models, sometimes referred to as VAMs for short, are statistical models that “purportedly estimate the contribution of a teacher to a student’s achievement” (Paige, 2016, p. 2). According to Amrein-Beardsley (2014), VAMS are used by statisticians to:

measure the value added at the teacher or school/district level by either predicting the average student gains expected, then calculating the difference between the average gains made after the fact, with positive differences (usually above one standard deviation from zero) yielding ‘value-added’ and negative differences (usually below one standard deviation from zero, yielding the opposite). Or VAM statisticians

measure value added by mathematically calculating the value a teacher (or school/district) adds to (or detracts from) average student growth scores after the fact, with no use of prediction in the model. (p. 22)

In other words, VAMs attempt to measure the “value-added” to a student’s achievement on standardized test scores in one of two ways. First of all, they use a student’s past performance on standardized tests to create a “prediction” of what a student is expected to score, then the difference between what the student actually scores and her or his predictor score is used to determine how much “value” a teacher has added to, or detracted from, that student’s learning. Secondly, in some VAMs, no predicted scores are used. Instead, statisticians simply calculate the value added or detracted from student growth. In this sense, value-added measures attempt to use statistical modeling to capture how much learning a teacher “adds” or “detracts” from the students she or he has taught during a given year. The value (or detraction) is then usually represented as a rating in some manner. With the EVAAS model used by North Carolina, this value-added or value-detraction is represented by the terms “Did Not Meet Expected Growth,” “Met Expected Growth,” or “Exceeded Expected Growth.” As with any complex statistical models, there are most certainly issues that come with the educational application of such measures.

Issue of Using Value-added Measures to Determine Teacher Effectiveness

The issue of the increasing application of value-added measures to determine teacher effectiveness in public education is problematic because, as education scholar and historian Diane Ravitch (2013) points out, “The problems with value-added assessment are legion” (p. 108). Despite these problems that exist with the measures themselves, the adoption of these statistical models for use in teacher evaluation systems has increased rapidly (Collins &

Amrein-Beardsley, 2014, p. 3). The increased utilization of value-added models to determine teacher effectiveness has also occurred without supporting research that demonstrates that the models used in this manner will work, or are working as intended, and little research has been done to show how the use of such models are impacting public education (Amrein-Beardsley, 2014, p. 3). This continued rapid growth in the application of value-added measures in the high-stakes manner of determining teacher effectiveness, and the dearth of supporting research in that application has made the practice problematic. Nowhere is this rapid growth in the application of value-added measures to determine teacher effectiveness more evident than in the United States, where, as of 2014, forty states and the District of Columbia were using, piloting, or developing some type of teacher evaluation system using either value-added models or student growth measures as a component of teacher evaluation (Collins & Amrein-Beardsley, 2014, p. 1). While student growth measures, another commonly used metric of teacher quality, are different statistical mechanisms than value-added measures, they have many of the same issues as value-added measures and mostly function in the same manner.

In North Carolina, the rapid implementation of the practice of using value-added measures to determine teacher effectiveness was initially due to Obama administration federal education policy outlined under its Race to the Top program and its Elementary and Secondary Education Act waivers (U.S. Department of Education, 2016a; U.S. Department of Education, 2016b). But with the changes in the requirements for using growth to measure teacher effectiveness under the Every Student Succeeds Act (U.S. Department of Education, n.d.), the North Carolina State Board of Education reverted to a policy that only requires administrators to use value-added data as evidence in teacher evaluations (North Carolina

State Board of Education, 2012). This means that principals are now expected to use value-added data in their teacher effectiveness deliberations during the teacher evaluation process. While North Carolina's process for using value-added measures to determine teacher effectiveness has changed, it still places that practice at the center of its teacher evaluation process, still making it problematic. It is this problematic nature of this practice that is at the center of my research project.

Research Questions

As my research will show, there is a growing body of literature examining the technical-methodological-scientific concerns of using value-added measures to determine teacher effectiveness, but there remain many other areas left to be explored. The current research focus seems to be entirely on the statistical models themselves, about whether they are technically, mathematically, psychometrically and scientifically sound. What areas that remain to be explored are whether the application of value-added measures to determine teacher effectiveness are philosophically and epistemologically sound. Are value-added measures a "just" way to measure teachers? Why should we trust statistics and statistical processes with the task of identifying effective and ineffective teachers? If we use value-added measures to determine teacher effectiveness, how do we justify that evidence and the practice? These kinds of questions cannot obviously be answered using conventional quantitative and qualitative methodologies. To this end, I employed a postmodernist critique to examine this practice as still another manifestation of the modernist transformation of the domain of education into a science and as another manifestation of what Michel Foucault (1995) calls disciplinary power.

To engage in this postmodernist critique of the practice of using value-added measures to determine teacher effectiveness, I posed the following research questions:

1. How do the metanarratives and discourses of scientific management, managerialism, positivism, and educational leadership constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as a valid educational technology?
2. As a power/knowledge apparatus, how does the technology of value-added measures when used to determine teacher effectiveness attempt to work as a disciplinary mechanism to produce the “productive teacher?”

Postmodern Analysis of Practice of Using Value-added Measures

In this project of analyzing the practice of using value-added measures to determine teacher effectiveness, I hesitate to place it within the “postmodern,” since as Best and Kellner (1991) point out, “there is no unified postmodern theory” (p. 2) and to place a research project within such a “contested terrain,” as Usher and Edwards (1994) call it, seems to be a futile place to start, but I do so purposefully. It was Lyotard (1984) who wrote, “The object of my study is the condition of knowledge in the most highly developed societies. I have decided to use the word *postmodern* [italics his] to describe that condition” (p. xxiii). Lyotard points out that this term is used to “designate the state of our culture following the transformations which, since the end of the nineteenth century, have altered the game rules for science, literature, and the arts” (p. xxiii). It is my contention those “transformations” and the “alterations of science game rules,” of which Lyotard speaks, and which began at the end of the nineteenth century, are still underway, and are no more evident than in the modernist search for an effective “science” of education and “scientific” educational system. In

addition, my contention is also that this search for an “effective science” of education entails a more recent search for a “scientific” practice that can identify “effective” teaching and “effective” teachers, powered by Taylor’s (1911) principles of scientific management, simply another metanarrative employed in the project of transforming education into a science. It is my contention as well, that the metanarratives of managerialism and neoliberalism that inform the current educational leadership discipline also give power to the practice of using value-added measures to determine teacher effectiveness, thereby creating a power/knowledge apparatus designed to discipline and constitute the “productive teacher.” In my study, I take the postmodern attitude toward these metanarratives and the discipline of educational leadership and analyze the practice of using value-added measures to determine teacher effectiveness as just another continuation of the modernist transformation of education.

Rationale for the Employment of a Postmodernist Stance

In my analysis, I see education as essentially a “modernist tradition” (Usher & Edwards, 1994), and this means it is still actively engaged in trying to remake itself and legitimate its status as a “science” according to the grand narratives and metadiscourses of the Enlightenment and rules of scientificity. This legitimation of the “education sciences” is also primarily, in my view, a project informed by the positivist metanarrative which is also a pillar of the modernist education project. I use a postmodernist stance toward these metanarratives, and I use Lyotard’s (1984) definition where he defines “postmodern” as “incredulity toward metanarratives” (p. xxiv). It is important to note that “incredulity” in this sense is not a rejection of “these grand narratives,” but like Usher (2006), I no longer see them in the same way and “as being all that there is” (p. 280). It is this “incredulity of the

postmodern” that “marks the passing of” my innocent engagement with the totalizing discourse of “the grand narratives informing education sciences” and that allows me to be open to other narrative possibilities. The metanarratives of positivism, principles of scientific management, and managerialism as well as the “scientific” discourse of educational leadership are trying to “write a story or set of rules characterizing” education as “positive knowledge” (Cherryholmes, 1988, p. 9). This does not mean that I simply declare these metanarratives false, and then proceed to argue about that falsity. It means that I acknowledge the “postmodern condition” as described by Lyotard (1984) and assume what St. Pierre (2000) calls “an attitude of suspicion or lack of belief with regard to” (p. 26) these prevailing master narratives that are being used by the modernist tradition to establish an education science. I simply suspend my belief in the power of these grand narratives to establish the rules and validate education knowledge as a “true science” and analyze the underlying pretensions that underpin the practice of using value-added measures to determine teacher effectiveness as a “scientific” practice and critique them.

My rationale for engaging in postmodernist critique has to do with postmodernism’s “capacity for unsettling the customary arrangements of the disciplines and domains that it tangles with” (MaClure, 2006, p. 223). Within this capacity, postmodernism’s “eccentricity is able to pose questions and mobilize issues that are hidden or taken for granted” (p. 223-224). Within the metanarratives and discourses giving justification for the application of value-added measures to determine teacher effectiveness, there are many issues, beliefs, values, and assumptions hidden from view and ignored. These taken-for granted and unquestioned notions can be re-examined and interrogated for their coherence and plausibility through the utilization of postmodern thought (Cherryholmes, 1988). Specifically, with the practice of

using value-added measures to determine teacher effectiveness there are a number of these “seemingly unproblematic assumptions” and rationales that support this practice, and there is no research to date that has sought to examine these as they pertain to value-added measures.

In my current study of the practice of using value-added measures to determine teacher effectiveness, all the current research literature attempts to legitimate the practice of applying value-added measures to determine teacher effectiveness according to the prevailing scientific, positivist metanarratives. This “playing by the game rules” of these grand narratives ignores the possibility that there are other knowledges that have been disqualified, or to use Foucault’s term, “subjugated” (Foucault 1980, p. 81-82). By using these “subjugated knowledges,” these same game rules for using value-added measures in this manner can be critiqued. I take the attitude of the “postmodern” in order to examine the practice from a perspective that questions these game rules to begin with; in a word, I attempt a “postmodern critique” of the practice of using value-added measures to determine teacher effectiveness. Like Gallagher (2003), in her postmodern critique of educational psychology, (p. 46), I use “postmodernism” in the sense of “critique” (p. 46), and assume an “oppositional attitude” toward the practice of using value-added measures to determine teacher effectiveness, and question the scientific master narratives’ “promise of progress, universality and neutrality of scientific methods and knowledge claims” (Usher & Edwards, 1994, p. 10) that underpin this application of value-added measures. Within this postmodernist critique, I will employ Foucault’s concept of disciplinary power, as, what Ball (2013) calls “a set of effective tools for intervening within contemporary discourses of power” (p. 4).

Definitions of Metanarrative

According to Cherryholmes (1988), “Metanarratives are similar to paradigms that guide thought and practice in a discipline or profession” (p. 11). They “guide by rules” and “propose the necessary and sufficient conditions for an educational discourse-practice” to be “true, good, beautiful, efficient, reasonable, or desirable” if the “prescriptions of the metanarrative are executed completely and correctly” (p. 11). Metanarratives, also called “grand narratives,” legitimate science as privileged over other knowledges (Usher & Edwards, 1994). They also are defined as “privileged discourse” that situates, characterizes, and evaluates all other discourses, without the historicity and contingency of first order discourses (Fraser & Nicholson, 1989). Furthermore, metanarratives are “stories” that legitimate discourses and practices (Peters & Burbules, 2004). In my research, I refer to positivism, scientism, managerialism, and Taylorism, or scientific management as metanarratives, or grand narratives, and educational leadership as a discourse, though, as Fraser and Nicholson (1989) and Cherryholmes (1988) point out (p. 87), that “a narrative (or discourse) in one setting can operate as a metanarrative (or grand narrative) in another and vice versa” (p. 13). This means there is need to pay particular attention as to whether each of these function as metanarratives or as discourses.

Metanarratives of Positivism, Scientific Management, and Managerialism

Positivism is a metanarrative, or grand narrative, because it is a “story or set of rules characterizing positive knowledge” (Cherryholmes, 1988, p. 9). St. Pierre (2012) describes positivism’s rules more precisely as:

1. Positivism “rejects metaphysics”

2. Positivism uses methodology to “demarcate scientific reasoning from nonscientific reasoning”
3. Positivism calls for the “use of unambiguous language”
4. Positivism calls for the “use of prescribed, exact, formal methods, preferably mathematical”
5. Positivism calls for the “belief in a unified theory of science that rejects the division between the natural and social sciences”
6. Positivism supports “the idea that the purpose of science is to provide new laws that help make new predictions”
7. Positivism assumes “that observability entails objective, re-producible experiments”
8. Positivism assumes “a belief in incrementalism, the idea that knowledge steadily accumulates”
9. Positivism adheres to “the verifiability principle of meaning, or the idea that only that which can be seen and measured is valuable” (p. 493).

Each of these rules of the positivist grand narrative outline specifically what is and can become scientific “truth,” thereby establishing what Foucault (1980) declares as the “political status of science” making it possible for it to serve specific “ideological functions” (p. 109). It is my postmodernist project that seeks to suspend these “rules of the game” enough to call into question both those rules and critique them and their involvement in the modernist project of transforming education into a “science,” and question the practice of using value-added measures to determine teacher effectiveness as engaging in this “science.”

As I stated earlier, besides the grand narratives of positivism and scientism, the grand narratives of Taylorism, or scientific management, managerialism and the discourse of educational leadership are complicit in this modernist project of transforming education into a “science” of which the application of value added measures to determine teacher effectiveness is a part (Au, 2009, p. 20; Callahan, 1962, p. 23; English, 2003, p. 44; Pollitt, 1993, p. 1). Let me explain for a moment what each of these terms mean. The concept of Taylorism, or otherwise known as the principles of scientific management, was “essentially a system of getting greater productivity from human labor...” (Callahan, 1962, p. 25). English (2003) states that the

...watchwords of scientific management were measurement (with attendant problems of definition and categorization); efficiency (cost reduction); scientific salvation (Horace Mann had earlier blended religion with reform in Massachusetts in which science became the secular altar of public worship); control (from the workers into the hands of trained experts hired by and loyal to top management; rationality (the necessity of work and other standards to be created); quantitative and statistical analyses; and the strenuous search for the one right method to answer every problem. (p. 44-45)

Campbell, Fleming, Newell, and Bennion (1987) state that scientific management was “the opportunity for employers to revise outdated and wasteful industrial practices, and to reduce their dependence on labor” (p. 21). Taylorism, or the principles of scientific management, was the work of “one man, Frederick Taylor, a mechanical engineer whose own experiences in industry led him to standardize the production processes” used in those industries (p. 21).

In his biography of Taylor, Kanigel (1997) defines Taylorism “as the application of scientific methods to the problem of obtaining maximum efficiency in industrial work and the like” (p. 7). Additionally, he says it was Taylor who “bequeathed a clockwork of tasks timed to the hundredth of a minute, of standardized factories, machines, women, and men. He helped instill in us the fierce, unholy obsession with time, order, productivity, and efficiency that marks our age” (p. 21). In other words, it is the grand narratives of scientific management, or discourses depending on its positioning, that focused on making organizations more efficient, usually associated with cost and more productivity by employing measurement and managerial control over processes. It does not take too much of a leap to perhaps begin to see the connection between this pursuit of efficiency and productivity as being related to the pursuit of identifying effective teachers using value-added measures. This is the meaning I apply to Taylorism, or scientific management in my analysis.

Like scientific management’s status, managerialism’s status as a grand narrative or discourse is sometimes referred to as an ideology. According to Pollitt (1993), “Managerialism is a set of beliefs and practices, at the core of which burns the seldom-tested assumption that better management will prove an effective solvent for a wide range of economic and social ills” (p. 1). Pollitt also points out that “managerialism” has also “become a term of abuse. It is hurled at those, who, in the eyes of their critics, pretend that problems which really need new policies or additional resources can be solved merely by more effort or efficiency with the structural and budgetary status quo” (p. 1). Additionally, Pollitt (1993) sees managerialism as “an optimistic, almost romantic creed that suggests that solutions lie within our own hands, and with determined, clear-sighted leadership,

fundamental changes and a new sense of purpose and achievement can be had” (p. 1). More recently, Klikauer (2013) argues that managerialism

combines management knowledge and ideology to establish itself systematically in organisations [*sic*] and society while depriving owners, employees (organisational-economical) [*sic*] and civil society (social-political) of all decision-making powers. Managerialism justifies the application of managerial techniques to all areas of society on the grounds of superior ideology, expert training, and the exclusive possession of managerial knowledge necessary to efficiently run corporations and societies. (p. 2)

For my purposes, managerialism functions as a metanarrative, mainly within the discipline of educational leadership because it has sought to establish “the rules of the game” for what counts as knowledge within that discipline. It also uses those same rules to establish “educational leadership” as a discipline which employs the same rules to discipline disqualified knowledges and practices.

Looking at these definitions, it is obvious that scientific management and managerialism are two metanarratives or discourses that are closely related. This becomes even more clearer in Apple’s (2006) conception of managerialism. He states that “managerialism is not only about altering what the state does and how much power it has. It also offers new and powerful roles for the individuals and groups who occupy positions within the state” (p. 25). Furthermore, he points out that “managerial discourse provides ‘subject positions’ through which people can imagine themselves and their institutions in different ways” which means “one of the key characteristics of managerial discourse is in the positions it offers to managers. They are not passive, but active agents---mobilizers of

change, dynamic entrepreneurs, shapers of their own destinies” (p. 25). In the discipline of educational leadership, managerialism offers school administrators “new and powerful roles” where they can re-imagine the educational enterprise in new ways, including as more of a “business enterprise,” where being able to measure productivity, especially the productivity of the teacher becomes paramount. This certainly would set the stage for the need of a measure that can capture whether teachers are effectively doing their jobs, which is the claim made by those who support the use of value-added measures to determine a teacher’s effectiveness. It is through the exploration of educational leadership’s historical efforts to apply science and scientific management to education, beginning mostly with the work of educational leaders at the end of the 19th century to the beginning of the twentieth century (Au, 2011, p. 26) to today that I take a postmodernist stance and employ the Foucauldian concept of disciplinary power to trace the metanarratives and discourses that legitimate and constitute the practice of using value-added measures to determine teacher effectiveness and to create the subject position of “productive teacher.”

Chapter 2 Methodology and Theory

In this postmodern analysis of the practice of using value-added measures to determine teacher effectiveness, I employ a Foucauldian genealogical analysis and Foucault's concept of disciplinary power to examine these research questions:

1. How do the metanarratives and discourses of scientific management, managerialism, positivism, and educational leadership constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as a valid educational technology.
2. As a power/knowledge apparatus, how does the technology of value-added measures when used to determine teacher effectiveness attempt to work as a disciplinary mechanism to produce the productive teacher?

To engage my research question about the modern constitution and legitimation of the practice of using value-added measures to determine teacher effectiveness as a valid technology by the metanarratives and discourses of scientific management, managerialism, positivism, and educational leadership, I engage in a type Foucauldian genealogical analytics. My goal is to “use historical research to disturb contemporary conceptions” of educational practices (in this case, the specific practice of using value-added measures to determine teacher effectiveness) “and help bring about change” in the present (Garland, 2014, p. 371). In a word, my aim is to disturb the conceptions of the practice of using value-added measures to determine teacher effectiveness by using a historical analysis of the education sciences' pursuit of scientificity by employing major metanarratives of business and industry, such as scientific management, managerialism, and the metanarrative of positivism. It is also through a genealogical historical analysis that I examine how education and educational leadership's

attempt to remake themselves as scientific domains and the infusion of the principles of scientific management and managerialism into that endeavor. As a product of this infusion, I use Foucault's genealogy to trace how the contemporary practice of applying value-added measures to determine teacher effectiveness "emerged out of specific struggles, conflicts, alliances, and exercises of power, many of which are nowadays forgotten" (Garland, 2014, p. 372) and from which the pursuit of a more scientific, objective means to measuring teacher quality has been pursued. This "tracing" will involve, not uncovering "underlying determinative continuities" (Prado, 2000, p. 36), but will show that modern educational practices, like the one considered in my research, are "not the culmination of anything" (p. 37). They are simply the result of a "blind conflict" (p. 37) of forces and metanarratives instead of a product of some "obscure purpose" (p. 37) or progression and evolution.

Employment of Genealogical Analytics and Power/Knowledge

It is my second research question that attempts to capture how the practice of using value-added measures functions to constitute the "productive" teacher. I use genealogical analysis to examine value-added measures as a "power/knowledge apparatus" that arose from the interplay of metanarratives and discourses, and seek to discover how this technology works and attempts to work as a disciplinary mechanism to produce a "productive teacher" and what that employment does to educational systems. By doing this I suggest that this practice is more problematic and dangerous than it otherwise appears (Garland, 2014, p. 372). I wish to show the "historical conditions of existence" (p. 373) out of which the practice of using value-added measures to determine teacher effectiveness emerged.

Claiming to engage in any kind of Foucauldian genealogical analysis immediately becomes problematic, because Foucault never claims that genealogy is a method, at least in

the conventional sense. For example, Mills (2003) states that genealogy is not a distinct methodology, because “Foucault did not develop a fully worked out methodological position” (p. 111), and he even criticized the idea of doing such work. He purposely left it ill-defined to prevent any closure of thought. Tamboukou (1999) reiterates this non-methodological position when she states that while Foucault used the term “genealogy” to describe his work, “he still insisted on not following any certain methodology to do that” (p. 201). This was because he was “against all closed types of methodologies” (p. 202), and he avoided being committed to any description of genealogy as such. Additionally, Oksala (2007) points out that Foucault “never gave a specific or systematic definition of genealogy ... The key features of his genealogy have to be collected from different books, articles, and interviews. It is therefore better understood as a multilayered, critical practice rather than a strict method” (p. 46-47). Finally, Shiner (1982) called Foucault’s genealogy an “anti-method” (p. 386). It is an “anti-method” because it “seeks to free us from the illusion that an apolitical method is possible” (p. 386).

Still, I do employ his genealogical analytics in a fashion like that described by Ball (2013), which involves employing Foucault as “a set of exercises in analysis to address a practical issue” (p. 14) which is the issue of engaging in the practice of using value-added measures to determine teacher effectiveness specifically, and more generally, the constitution of that practice within the continued modernist project of transforming the domain of education into a “science.” In my research project, I use genealogy as a “critical tool” (Tamboukou, 1999, p. 202). As a “critical tool,” as Tamboukou makes clear, “genealogy is concerned with the processes, procedures, and apparatuses by which truth and knowledge are produced, in what Foucault calls the discursive regime of the modern era” (p. 202). Because

genealogy is a critical tool for examining “processes, procedures, and apparatuses of truth,” I employ it specifically to problematize the practice of using value-added measures to determine teacher effectiveness as a part of the modernist search for a “science” of education and search for an “education truth and knowledge” in the modern era. This form of genealogy allows me to examine “the anonymous rules governing discursive practices,” such as the accountability practice as the one under consideration, “along with the network of power relations of which these rules are a part” (Shiner, 1982, p. 388). In addition to engaging in a genealogy, I will analyze the practice of using value-added measures as another application of what Michel Foucault calls “disciplinary power,” which has been at the heart of the modernist project to transform education into a “science.”

Characteristics of Disciplinary Power

Foucault’s (2003a) explication of the term disciplinary power in his collection of lectures entitled *Psychiatric Power* is extensive but is opaque. He does provide two prevailing characteristics of disciplinary power that is of interest to this postmodern analysis of the practice of using value-added measures to determine teacher effectiveness. First, he characterizes disciplinary power as “an exhaustive capture of the individual’s body, actions, time, and behavior (Foucault, 2003a, p. 46). This capture of the individual is accomplished through various mechanisms, such as the art of distributions (Foucault, 1995, p. 141), the control of activity (p. 149), the organization of time (p. 156), and the composition of forces (p. 162). For example, the mechanism of the “art of distributions” is about organizing space to “guarantee the obedience of individuals, better economy of time, and gesture” or movement (p. 148). The “control of activity” is about establishing routines for everyday actions (p. 149); elaboration and delineation of specific acts (p. 151); teaching correct ways

of bodily movement (p. 152); articulation of how the body should manipulate objects (p. 152); and the establishment of effective use of time (p. 154). The mechanism of organizing time involves regulating it by dividing it up into segments (p. 156). Finally, the composition of forces involves making the individual part of the larger “multi-segmentary machine” with others (p. 164), in other words, synchronizing individuals together as part of machinery (p. 164), and providing a “precise system of command” (p. 166). Through all these mechanisms, disciplinary power endeavors to do what Hoffman (2014) says, which is to “meticulously, exhaustively, and continuously control the activities of the body so as to constitute them as bearers of a highly particular relationship between utility and docility, whereby increases in utility correspond to increases in docility and vice versa” (p. 28). My interest in this characteristic of disciplinary power lies in its potential to use the practice of using value-added measures to determine teacher effectiveness to constitute a “docile” and “useful” teacher who can then be subjected to a “science” of education thereby producing a “productive” teacher.

Mechanisms of Continuous Control: Hierarchical Observation

In addition to exhaustively capturing the individual in order to constitute a “docile” and “useful” subject, disciplinary power also involves a “procedure of continuous control” (Foucault 2003a, p. 47). This “continuous control” is achieved through the use of three mechanisms: hierarchical observations, or surveillance (Foucault, 1995, p. 170), normalizing judgments (p. 177), and the examination (p. 184). Smart (2002) points out that:

“...hierarchical observation signifies the connection between visibility and power, and that an apparatus designed for observation signifies the connection between visibility and power, and that an apparatus designed for observation induces effects of

power and that a means of coercion makes those subject to it potentially visible” (p. 85).

In other words, this hierarchical observation, or system of surveillance, achieves a power of continuous control over those who are visible to it, and in it. In *Psychiatric Power*, Foucault (2003a) says this surveillance is achieved in the asylum through supervisors who report everything back to the doctor, and servants who assist the patients and gather and transmit information about them (p. 4-7). Continuous control, then, is achieved through mechanisms of hierarchical control or surveillance. In my postmodern analysis of the practice of using value-added models to determine teacher effectiveness, I wish to examine how value-added measures, or VAMS, are used as evidence of teacher effectiveness in a disciplinary manner as a “procedure of continuous control” over teachers, administrators and the entire educational enterprise.

Within these “procedures of continuous control,” Foucault also describes three mechanisms that are used to maintain this “continuous control” which are also of interest to my postmodern analysis. The first mechanism of continuous control Foucault (2003a) describes is the “mechanism of writing.” According to Foucault, writing can be a mechanism of surveillance and control in that it can permanently “take charge of the individual’s body” (p. 48). It accomplishes this by “ensuring that everything that happens, everything the individual does and says, is graded and recorded, and then transmitted up through the hierarchical levels” (p. 48). This information is then made accessible in order to ensure “omnivisibility” of the individual (p. 48). In this sense, writing can serve as a mechanism of hierarchical observation where documentation (in writing) places an individual under the gaze of others. In my project, I examine as well, how VAMS can serve as a “mechanism of

documentation” that operate within the procedures of continuous control established by regimes of accountability. Historically, education leaders and policymakers have been seeking a mechanism of hierarchical observation as called for under the principles of scientific management. In the practice of using value-added measures to determine teacher effectiveness, they may have found it.

Mechanisms of Continuous Control: Normalizing Judgment

The second mechanism involved in these procedures of control with disciplinary power is “normalizing judgment.” Foucault describes this mechanism in the following manner:

At the heart of all disciplinary systems functions a small penal mechanism. It enjoys a kind of judicial privilege with its own laws, its specific offences, its particular forms of judgment, the disciplines established an ‘infra-penalty;’ they partitioned an area that the laws had left empty; they defined and repressed a mass of behavior that the relative indifference of the great systems of punishment had allowed to escape.

(Foucault, 1995, p. 178)

According to this description, normalizing judgment operates with the judicial privilege of having its own laws regarding correct and incorrect behaviors. It punishes non-conformity, which is what disciplinary power seeks to correct, but it also operates a gratification and rewards system that targets behaviors that are valued (Smart, 2002, p. 86). One effect of this system of normalization is that it is both a “process of training and correction” and a means of “ranking and grading” those who are subject to it (Smart, 2002, p. 86). Smart (2002) makes one final observation about “punishment in a regime of disciplinary

power” and that its objective is “not expiation or repression, but normalization” (p. 86). In other words, the purpose of punishment is not only about correcting behavior, but is also about normalizing behavior, or making it regular and routine. In my postmodern project of analyzing the practice of using value-added measures to determine teacher effectiveness, I examine the operation of normalizing judgment as a mechanism to make the “productive” and “effective” behavior of teachers “regular and routine.” As a mechanism of normalization, this practice ensures teachers engage in “research-based” and “scientific” teaching practices. From the turn of the twentieth century, I analyze how the disciplines of education and educational leadership have sought a mechanism of normalization that has the power to normalize teachers as “scientific” practitioners who only engage in “research-based practices.” The use of value-added measures offers that mechanism of normalization, and is part of the same normalization processes employed in scientific management.

Mechanisms of Continuous Control: The Examination

The final mechanism involved in this procedure of continuous control is the examination. This mechanism combines hierarchical observation or surveillance with normalizing judgment. Foucault (1995) describes examination as “a normalizing gaze, a surveillance that makes it possible to qualify, to classify, and to punish” (p. 84). In other words, the examination is a means to classify and punish those outside the norm and those who are non-conformists. In addition, according to Foucault (1995), “It establishes over individuals a visibility through which one differentiates them and judges them” (p. 184). While judging and differentiating, “The examination is highly ritualized,” in that “it combines the ceremony of power and form of the experiment, the deployment of force, and the establishment of truth, and results in the subjection of those perceived as objects and the

objectification of those who are subjected” (p. 184-185). Ultimately, the examination accomplishes three things. First of all, it facilitates disciplinary power by using observation to objectify subjects. Secondly, it constitutes the individual by using writing to create documentation on that subject. Finally, it uses this documentation to constitute the individual as a case determined by disciplinary power (Hoffman, 2014). In my postmodern analysis of the practice of using value-added measures to determine teacher effectiveness, this practice functions as an “examination” as well, making it possible to discipline the teacher, and administrators, as subjects. It is also part of the educational domain’s quest for a scientific means to evaluate a teacher’s work according to the principles scientific management.

Disciplinary power is clearly a concept captured by Foucault to describe the forms of knowledge and power needed to discipline individuals into the type of subjects most useful to society (Jardine, 2010, p. 24). It accomplishes this by capturing individuals by using mechanisms designed to control their space, their activity, and their time, with the idea of completely holding and controlling the individual at all times. Once disciplinary power has its hold on the individual, it maintains this hold through observation, normalization, and examination. Through my postmodern analysis of the practice of using value-added measures to determine teacher effectiveness, I show how the practice functions as a disciplinary power mechanism to constitute the “productive” teacher which is a goal of scientific management, managerialism, and educational leadership (Taylor, 1911, p. 1).

Textual Sources for This Postmodern Analysis of VAMs

With this postmodern analysis of the practice of using value-added measures to determine teacher effectiveness, I engage in what Foucault terms a type of “relentless erudition” (Foucault 1994a, p. 370), and employ source material taken from the beginnings

of the late nineteenth century and early twentieth century. This period is often described as the beginning of the modernist project to transform education into an education science (Culbertson, 1988, p. 3), and within that project, the beginnings of the application of Taylorism, or the principles of scientific management to education (Campbell, Fleming, Newell, & Bennion, 1987, p. 21; Callahan, 1962, p. 52). For this project, I analyzed sources at the beginning of the modernist project to transform education into a science to trace both the descent and emergence of the idea of “productive” teacher and the search for mechanisms to measure the efficiency and effectiveness of teaching. By “tracing” the “descent” and “emergence” of this idea of the “productive” teacher, I engage in a dissociative analysis (Prado, 2000) where I uncover miscellaneous, discontinuous, and dissociated details that demonstrate that the application of new technologies like value-added measures is not progress, but simply another application of the predominate metanarratives of business and industry in the pursuit of a scientific discipline of education. “Genealogy,” as I use it here attempts to expose through that tracing and analysis, “expert discourses, disciplinary discourses that shape” (Prado, 2000, p. 36) the “productive” teacher and establishes the “regime of truth” that makes value-added measures a power/knowledge apparatus to discipline the “productive” teacher.

In this inquiry, I examined five historical documents, identified by education historian, Callahan (1962), each in their turn viewed as pivotal in the development of the American education system. These six historical documents include:

- *Chapters on School Supervision: A practical treatise on superintendence; grading; arranging courses of study; the preparation and use of grades, records, and reports; examinations for promotion, etc.:* This book was published in 1875 by William

Harold Payne, who while serving as superintendent of schools, was the first educator to “outline his hopes for an educational science...” (Culbertson, 1988, p. 3).

- *Outlines of Educational Doctrine*: This book was published 1882 and in it, Payne continues to outline his hope for an education science and describes the beginnings of that transformation.
- “The Development of the Superintendency”: An address to the National Education Association in 1880 by Charles Adams that typifies the calls for the development of a positivistic education science.
- *Laggards in Our Schools: A Study of Retardation and Elimination in City School Systems (1909)*: Published by Leonard Porter Ayres, an educator and researcher who was a pioneer in engaging in positivistic research and in the establishment of an early measurement of efficacy of schools.
- *The Principles of Scientific Management*: Published by Frederick Winslow Taylor which describes a “system of industrial management” that employs principles of efficiency that can be applied to industry, and that calls for studying work scientifically (Callahan, 1962, p. 65).

My rationale for focusing on the work of Payne has to do with his position as the earliest publisher of a book on school administration (Culbertson, 1988. p.3), and his often-described position as being a “founding pioneer” in the field of educational administration (English, 2003, p. 44). He was concerned with “establishing a science for schools based on the gathering of factual data produced by quantitative measurement” and Comtean positivistic science. I chose Adams’ address to the National Education Association because of its representativeness of the language and discourse that was being used at conventions and

research gatherings during these early years of educational administration's establishment as a field of knowledge. Ayres work represents the beginning of a shift towards a specific employment of "science" to study and solve a problem in education, and an early attempt to devise a measure of school effectiveness based on efficiency. Finally, Taylor's *Principles of Scientific Management* is central to my project's thesis and idea that it is its metanarratives and discourses that are still at work today legitimating practices like the use of value-added measures to determine teacher effectiveness. These works are central to my analysis, but before moving to that analysis, it is important to understand the current field of research on this practice, and its primary positivistic basis.

Chapter 3: Examination and Critique of Current Research on VAMs

The concern about using VAMS to determine teacher effectiveness is expressed quite effectively in a statement by the American Statistical Association, or ASA, in 2014. The ASA thought it prudent enough to issue its own statement about the increasing application of value-added measures to determine teacher effectiveness, that it strongly cautioned educators and policymakers about the practice. Its statement makes clear that because value-added measures are based on test scores, they “do not directly measure potential teacher contributions” (p. 2) to learning. Yet, the application of these measures in this manner, take for granted that a teacher directly causes test results. The ASA statement points out that this logic is faulty. It makes clear that value-added measures measure “correlation, not causation,” and that teacher results may be caused by other factors “not captured in the statistical models” (American Statistical Association, 2014, p. 2). In other words, the practice of using value-added measures to determine teacher effectiveness assumes that teachers cause test results, which directly contradicts this statement by ASA. At the end of its statement, ASA provides support for value-added measures, but only in experiments to improve education (p. 2). Their use otherwise, according to ASA, has “unintended consequences” that reduce teacher quality (p. 2). In spite of the concerns expressed by ASA, the expansion or continuation of using value-added measures to determine teacher effectiveness continues.

This expansion of the application of value-added measures to determine teacher effectiveness was sanctioned under President Barack Obama’s federal education policy. In the Obama administration’s 2010 “Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act” and its signature “Race to the Top” initiative, the

application of value-added measures was indirectly sanctioned. The “Blueprint” (U.S. Department of Education, 2010) explicitly prodded states into adopting teacher and principal evaluation systems that employ standardized test scores to determine teacher effectiveness, when it states, “We are calling on states and districts to develop and implement systems of teacher and principal evaluation and support, and to identify highly effective teachers and principals on the basis of student growth and other factors” (U.S. Department of Education, 2010, p. 4). It is clear from this language that the Obama administration sanctioned and encouraged that test results and student growth be used to determine teacher effectiveness. While not directly calling for the specific application of value-added measures to determine teacher and principal effectiveness, the Obama administration’s demand for “student growth” to be used in determining educator effectiveness” forced states to turn to the only two statistical technologies available for this task: value-added measures and student growth models (U.S. Department of Education, 2010).

As indicated earlier, the rapid and federal-state sanctioned expansion of the application of value-added measures to determine teacher effectiveness is only part of the problem with the practice. Additionally, there are also questions concerning teacher contributions to student learning; questions regarding issues with tests and test construction; questions about the reliability of the application of value-added measures to determine teacher effectiveness; questions about the validity of the application of value-added measures to determine teacher effectiveness; and questions of bias in the application of value-added measures in determining teacher effectiveness.

Technical Concerns for Using VAMS to Determine Teacher Effectiveness

According to Amrein-Beardsley (2014), questions concerning just how much teachers contribute to student learning are numerous: “Teachers operate along with many other school-level factors that also impact student learning and achievement, and these other school factors combine to create authentic effects of teachers” (p. 85). Furthermore, Amrein-Beardsley (2014) states that 80-90 percent of teacher effects can be attributed to student level-factors, such as ability or motivation, and to out-of-school factors, such as poverty or lack of medical care (p. 85). Berliner (2013) agrees and adds concern when he states, “When the variance in student scores on achievement tests are examined along with many potential factors that may have contributed to those test scores, school effects account for about 20 percent of the variation in achievement test scores, and teachers are only part of that constellation of variables associated with ‘school’” (p. 5). Berliner adds that “out-of-school variables account for about 60 percent of the variance” in student achievement measured by test scores (p. 5). Both these researchers capture one major question with the application of value-added measures to determine teacher effectiveness: How much do teachers actually contribute to test results? Value-added measures have to assume that teacher contributions can be isolated and effectively measured, while the evidence presented by Amrein-Beardsley (2014) and Berliner (2013), along with others (Darling-Hammond, Amrein-Beardsley, Haertel, & Rothstein, 2012; Ravitch, 2013) makes it clear that this assumption is still very debatable. Teacher contributions to student learning as measured by standardized tests are not clearly and definitively established, yet the expansion and continuation of the application of value-added measures to determine teacher effectiveness continues.

While the debate about teacher contributions to test results continues, questions about standardized tests and their construction also problematize the application of value-added measures in determining teacher effectiveness. Amrein-Beardsley (2014) argues that tests are inadequate to the task of determining teacher effectiveness, pointing to the random and systematic errors which distort test results (p. 106). While it is possible to reduce some systematic errors in tests, it is impossible to anticipate and reduce random errors, which means that any decisions, such as judging a teacher's effectiveness, are suspect because the integrity of those test results are in question. In other words, systematic and random errors distort the tests results even before the application of value-added measures, making the practice problematic. Other researchers point to the problem of test construction as well. Baker, Barton, Darling-Hammond, Haertel, Ladd, Linn, Ravitch, Rothstein, Shavelson and Shepard (2010) agree with Amrein-Beardsley (2014) and point out that large-scale achievement tests are by nature "very narrow measures of what students have achieved and do not effectively assess students' depth of knowledge and understanding" (p. 108). Standardized tests are inadequate, they say, because they are primarily constructed as multiple-choice tests, which means areas not amenable to that test format are not included, therefore not tested. Baker et al. (2010) also see standardized tests as "narrow measures of what students know and can do" and "they do not evaluate students' communication skills, depth of knowledge and understanding, or critical thinking and performance abilities" (Baker et al., 2010, p. 7). In other words, because tests are often constructed using only multiple-choice questions, they test only a narrow portion of what students learn; therefore, not all of what students learn from teachers is tested. It is Corcoran (2010) who echoes this limitation of standardized testing by writing, "Many skills important to learning are not amenable to

standardized tests” which means they are “underrepresented on these tests” (p. 3). Hout, Elliott, and Frueh (2012) describe this same limitation in test construction: “Any test can measure students’ knowledge for only a subset of the content of a particular subject area” (p. 33). According to these researchers, tests are limited in their ability to test student learning because they, by nature, are limited in their ability to test all that students learn. As these researchers contend, the construction of standardized tests themselves also add to the problematization of using test scores to evaluate teachers. This by extension also problematizes the use of value-added measures to determine teacher effectiveness because inadequate test construction leads to inadequate test results thereby making value-added data questionable.

In addition to concerns about the impact that test construction can have on value-added measures themselves, there are also researchers who question the reliability of using value-added measures to determine teacher effectiveness. Raudenbush and Jean (2012) describe this problem of the reliability of this practice when they point out that the reliability of value-added measures in identifying effective teachers is questionable. They found that for every 1,000 teachers, only 750 teachers would be identified correctly. That leaves a substantial number of teachers, 250, incorrectly identified as effective or ineffective. If teachers cannot be more reliably identified as effective and ineffective than this, then making high-stakes employment decisions, such as teacher effectiveness based on value-added measures is problematic (p. 11).

Schochet and Chiang (2013) also point to another reliability issue with the application of value-added measures to determine teacher quality. “Value-added measures,” they state, “are subject to a considerable degree of random error” (Schochet & Chiang, 2013, p. 166),

when based on the amount of data currently used in educational practice. This means that the typical value-added measurement teacher performance system is going to identify one in four teachers as ineffective who may be actually effective, and one in four teachers will be identified as effective who are actually ineffective (p. 166). According to Schochet and Chiang (2013), value-added model teacher evaluation systems are too unreliable because they are prone to misclassify teachers when it comes to effectiveness and ineffectiveness (p. 166). Other researchers such as Corcoran (2010), Sass (2008), Amrein-Beardsley (2014), Goldhaber and Loeb (2013), and Amrein-Beardsley and Collins (2012) have also pointed out that the application of value-added measures to determine teacher effectiveness is unreliable. If, as these researchers indicate, value-added measures cannot reliably identify effective and ineffective teachers, then there are concerns about this continued and increasingly used practice.

While there are reliability concerns about the practice of using value-added measures to determine teacher effectiveness, there are also validity concerns. Amrein-Beardsley (2014) is quick to point out one major issue with validity when she cites the cardinal principle of psychometrics, which says that for a measure to be valid, it must be reliable (p. 140). In other words, if we try to infer teacher effectiveness from value-added measures, our inference about whether a teacher is effective or ineffective is invalid because the reliability of such a practice is under question and has not been established. Research on the practice of using value-added measures to determine teacher effectiveness is still “stuck on reliability” meaning that any discussion of validity is moot (p. 141). Researchers can only move on to validity studies, she says, after the reliability of the practice of using value-added measures to determine teacher effectiveness is established. Despite this major psychometric hurdle,

researchers have attempted to examine the validity of the practice of using value-added measures to determine teacher effectiveness, and uncovered questions and concerns for the content-related validity of the practice; criterion-related validity of the practice; and construct-related validity of the practice.

When it comes to the content-related validity of the practice of using value-added measures to determine teacher effectiveness, the issue turns once again toward the tests and the test results used to generate this measure. Whether one can use VAMS to infer “teacher effectiveness” from test scores is tied directly to whether the assessments and tests used in the measures adequately assess the content provided by the teacher. As alluded to earlier, researchers Amrein-Beardsley (2014), Berliner (2013), Darling-Hammond, Amrein-Beardsley, Haertel, and Rothstein (2012), Hout, Elliot, and Frueh (2012), Corcoran (2010), and Baker et al. (2012) point to inadequacies in test construction as a concern for the application of value-added measures in determining teacher effectiveness. This same issue regarding test construction also affects the content-validity of those measures. If, as Amrein-Beardsley (2014) indicates, the systematic error and random error cannot be adequately reduced, it is impossible to claim value-added measures can validly measure teacher effectiveness because the content of a teacher’s teaching has not been measured adequately. Likewise, as mentioned earlier, Baker et al. (2010), Corcoran (2010), and Hout et al. (2012) all point out the limited nature of test construction as contributing to inadequate tests incapable of adequately measuring all that students learn. This means, once again, that it is questionable whether value-added measures using these limited tests can adequately account for all of a teacher’s effectiveness because not all that they teach is included in the measure.

In addition to examining the content-related validity of using value-added measures to determine teacher effectiveness, researchers have also been examining the criterion-related validity of the practice. To be a valid criterion for determining teacher effectiveness, value-added ratings of teacher effectiveness must correlate with other measures of teacher effectiveness. In other words, value-added measures of teacher effectiveness must correlate with some other valid measure of effectiveness such as teachers' scores on licensure exams, teacher-observation ratings, and any other independent measures of teacher effectiveness. It was Collins (2014) who examined the question of the criterion-related validity of using VAMs to determine teacher effectiveness, and she failed to find any evidence of criterion-related validity in a district's value-added teacher evaluation system. "More than half of teachers indicated that their observation scores were always higher than their value-added scores" (p. 21). In addition, these teachers indicated that "their observation scores remained consistent from year-to-year, while their value-added scores fluctuated" (p. 21). While Collins acknowledged that this lack of correlation might be due to subjectivity in principal observations, Harris and Sass (2014) suggest another reason. They suggest that principal observation ratings capture different traits not captured in value-added ratings. Principal ratings are "correlated with traditional human capital measures like teacher intelligence, subject knowledge, and teaching skills in both math and reading, but they are also correlated with non-cognitive personality traits like motivation and enthusiasm, the ability to work well with others and interpersonal skills" (p. 199). Harris and Sass conclude that value-added measures are "noisy measures of a teacher's impact on student achievement and may not capture other valuable contributions a teacher makes to a student's long-run success" (p. 199).

Other researchers have found other concerns about the criterion-related validity of using value-added measures to determine teacher effectiveness. Harris, Ingle, and Rutledge (2014) found that the overlap between principal evaluation ratings and value-added ratings are “modest” (p. 89). Hill, Kapitula, and Umland (2011), in a case study, found that teacher value-added ratings and principal ratings did intersect, but there was still a large minority of teachers whose principal ratings and value-added ratings were divergent. Overall, research regarding the criterion-related validity of using value-added measures to determine teacher effectiveness remains scant, due to two factors: the difficulty in developing an accurate, alternative measure of teacher effectiveness, and the difficulty of finding an agreed-upon definition of the complex construct of “teacher effectiveness” (Amrein-Beardsley, 2014, p. 144).

Establishing construct-related validity of the practice of using value-added measures in teacher evaluations is also problematic (Amrein-Beardsley, 2008, p. 67). This is because at the heart of this question is whether current standardized achievement tests used in value-added measures effectively measure the construct of “teacher quality” (p. 67). While many accountability and testing advocates accept the use of standardized test results to make valid inferences about student knowledge and teacher quality, such assumptions are far from being established truth (Amrein-Beardsley, 2014). In other words, it has not been established and agreed upon that test results definitively, by themselves, that a teacher is effective. One researcher Kupermintz (2003) has considered the construct-validity of the Tennessee Value-Added Assessment System, or TVAAS, which was later modified to become the Educator Value-Added Assessment System, or EVAAS, now one of the most commonly used value-added models today, and the model employed by the state of North Carolina. Kupermintz

points out that this value-added model fails to provide evidence of its construct definition of teacher effectiveness. It simply defines “teacher effectiveness” as “differences in student learning outcomes” without providing any support of this construct definition (p. 289).

“Before gains in student test scores can be interpreted as a measure of teacher effectiveness, real evidence must be offered” (p. 297), Kupermintz states.

The final technical concern being researched regarding the application of value-added measures to determine teacher effectiveness is bias. In value-added measures, teachers’ ratings are said to be biased when the students they instruct affect their ratings (Amrein-Beardsley, 2014). For example, teachers who teach gifted students may have a difficult time demonstrating value-added because of the “ceiling effect” which means the students they are instructing are already at the top of the achievement curve where room for growth is difficult if not impossible (p. 157). The same thing may occur with teachers of the lowest achieving students who experience the “floor effect” where their students are so far below the norm it is more difficult for them to show growth (p. 157). Not only have several other researchers found this same evidence of bias caused by the types of students taught in teacher value-added ratings (See McCaffrey & Buzick, 2014; Newton, Darling-Hammond, Haertel, & Thomas, 2010), others have also found other factors that bias value-added ratings of teacher effectiveness. Berliner (2014) adds “inside-the-classroom” variables such as relationships between teacher and students as a biasing factor (p. 2). In addition, Berliner says teacher turnover rate, books in school library, availability of after school programs, and availability of support personnel such as school nurses and counselors also bias teacher value-added ratings. These biasing variables he calls “lurking, unexamined exogenous variables” that are not accounted for in value-added measures (p. 4). Finally, Paufler and Amrein-Beardsley

(2014) found that the non-random assignment of students to classrooms also biases teacher value added ratings. In the end, biased value-added determinations of teacher effectiveness can hardly be used justly to evaluate teachers.

Current Status of VAM Research

As is made clear by this literature, research on the application of value-added measures to determine teacher effectiveness has mainly focused on the technical and methodological concerns and issues of the practice. Amrein-Beardsley (2014) says, “The use of VAMs (Value-added Models) has faced harsh criticism from educators and education scholars, and nearly all (i.e., approximately 95 %) of value-added researchers are academically protesting the misuse of VAMs” (p. 207). Whether that percentage captures the truth or not, it is clear from the research there are many unsettled technological and methodological issues with using value-added measures to determine teacher effectiveness. Corcoran (2010) says that “Research on value-added remains in its infancy,” but he is hopeful that these methods “will continue to improve over time” (p. 8). Baker et al. (2010) are not as optimistic. They point out that “There is simply no shortcut to the identification and removal of ineffective teachers” (p. 20), which is the core objective of value-added proponents and researchers. They wish to employ the tools of science and mathematics to root out ineffective teachers and replace them. Because of this objective, current research has almost exclusively focused on the mathematical and scientific-technological aspects of value-added measures and their use to determine teacher effectiveness. While there have been some studies utilizing Foucauldian theory to examine standardized testing and accountability practices, such as Graham and Neu’s (2004) study of standardized testing as an instrument of governmentality and Gunzenhauser’s (2006) application of Foucault’s concept of the

disciplinary examination to analyze high stakes accountability in general, there have been very limited philosophical or epistemological investigations into this practice to date, or inquiries into why VAMs are able to tell the truth regarding teachers' performances.

Personal Situatedness in This Postmodern Project

The issue of the practice of using value-added measures to determine teacher effectiveness has gotten more personal to me with recent changes in state educational policy that changed how value-added measures are used. As I mentioned earlier, under the Obama Administration's Race to the Top initiative (U.S. Department of Education, 2016b) and the Blueprint for Reform (U.S. Department of Education, 2010), North Carolina employed value-added measures in order to generate a teacher-effectiveness rating that was automatically populated in a teacher's evaluation instrument. That rating was determined outside of the principal's judgment, which meant the burden of its just or unjust use in this manner was placed on an impersonal statistical process. Under current North Carolina administrative policy and expectations, the principal is expected to use value-added ratings as "evidence" when rating teachers with the North Carolina teacher evaluation instrument. Using value-added data in this manner is considered to be common-sense measures of effectiveness and principals like myself are expected to use it unquestioningly. Now, I am expected as a principal to "privilege" this data in my own deliberations in teacher evaluations. My own failure to use this data can be a reflection of my own effectiveness as a principal and part of my own evaluation. This makes the practice of using value-added measures to determine teacher effectiveness part of the entire accountability mechanism requiring me to use "scientific" data in rating my teachers, and it also makes this investigation and inquiry into the use of value-added measures to determine teacher

effectiveness even more personal than ever, because the weight of using such a controversial mechanism becomes even more personally problematic.

Because most of the current research focuses on technical and methodological concerns of the practice of using value-added measures to determine teacher effectiveness, there has been little questioning of its philosophical, moral, ethical and epistemological basis. As an administrator who is tasked with employing value-added measures in this manner, there are enough of these technical and methodological concerns to give me pause in their consideration in evaluating teachers. More important to me in many ways are the philosophical and rational justifications for their use. In an effort to examine these philosophical and epistemological concerns, I now move to my postmodern analysis of the practice of using value-added measures to determine teacher effectiveness and explore these two research questions:

1. How do the metanarratives and discourses of scientific management, managerialism, positivism, and educational leadership constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as a valid educational technology?
2. As a power/knowledge apparatus, how does the technology of value-added measures when used to determine teacher effectiveness attempt to work as a disciplinary mechanism to produce the “productive teacher?”

Chapter 4: Educational Administration's Modernist Project of Teaching

I begin this postmodern analysis of the practice of using value-added measures to determine teacher effectiveness by engaging the history of scientific management and the history of the establishment of educational administration as a discipline and discourse and the quest for an “education science.” My rationale for doing so is because the modernist project of transforming education into an “education science” is intimately intertwined with the establishment of educational administration as both a discipline and discourse (English, 2003, p. 24). In other words, educational administration as a field could have never developed without the modernist transformation of education, especially teaching in particular. Teaching has to be legible, standardized and a project of scientificity in order for it to exist. This has implications for the later practice of using value-added measures to determine teacher effectiveness. English (2003) points to this “rationalization of education” when he writes, “the founding pioneers in educational administration were infatuated with establishing a science for schools based on the gathering of factual data produced by quantitative measurement” (p. 44). Because of this infatuation with the establishment of a science for education, it is my contention that metanarratives and discourses of scientific management, managerialism and positivism are part of the constitution and legitimation of modern education practices such as the use of value-added measures to determine teacher effectiveness. In addition, it is these that underpin the idea that qualitative data and experience are unimportant, and that quantitative data and “objectivity” are somehow superior. This same inclination to value the quantitative over the qualitative in a more “rationalized teaching” becomes important much later when value-added measures are applied to teacher evaluation. In this chapter, I explore this modernist, rationalist

transformation of education by engaging in the earliest history of the field of education administration and the call for an education science to examine the following research question:

How do the metanarratives and discourses of scientific management, managerialism, positivism, and educational administration constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as a valid educational technology?

To explore this research question, I specifically examine two major works of William Harold Payne, who is considered to have been one of the earliest pioneers in education administration scholarship (Culbertson, 1988, p. 4). The two works by Payne which are of interest in this inquiry are *Chapters on Supervision*, published in 1875 and his *Outlines of Educational Doctrine* published in 1882. His first book, *Chapters on Supervision*, carefully lays out his early argument for both the field of educational administration and for an education science, and is considered by some to be the first textbook on education administration published (Culbertson, 1988, p. 3). *Outlines of Educational Doctrine* (1882) published almost fifteen years later continues his argument for an education science, and for the establishment of education administration as a scholarly discipline. Both of these inform and provide a view of the earliest arguments the founders of educational administration used to argue for their discipline's existence.

Payne: The Early Educational Pioneer and Call for Education Modernization

The earliest pioneer in educational administration is said to have been William Harold Payne, who wrote the first book on school administration in 1875 entitled *Chapters on School Supervision: A Practical Treatise on Superintendence; Grading; Arranging Courses*

of Study; the Preparation and Use of Blanks, Records, and Reports; Examinations for Promotion, Etc. Payne wrote this book at a time when there were no departments of educational administration at colleges and universities. In fact, Payne later moved to the University of Michigan and headed up the first university department of education in the United States, and in 1881-1882 he started the first course designed to train principals and superintendents (Culbertson, 1988, p. 4). His work is important for my inquiry into the practice of using value-added measures to determine teacher effectiveness because Payne began the call for the disciplining of teaching and education into a science, which are so important for understanding the legitimation of the practice of using value-added measures to determine teacher effectiveness (Culbertson, 1988, p. 3). In addition to disciplining the field and practice of teaching and education, his work also called for the establishment of some of the earliest applications of a disciplinary panoptic mechanism in an education system, all based on modernist metanarratives that both inform the discipline and discourse of educational administration and the current professional “scientific” discipline of teaching.

In its employment of a panoptic mechanism, Payne’s education system called for the utilization of a very specific program that would subject the teacher to an “efficient exercise of power” through the utilization of the functional characteristics of the Panopticon, as envisioned by English philosopher and social reformer Jeremy Bentham (Smart, 2002, p. 88). According to Foucault (2003a), Bentham envisioned his Panopticon as an institutional model for “prisons, hospitals, schools, workshops, and orphanages” (p. 73-74). It is a “mechanism, or schema” that functions as an “intensifier of power” within these institutions, providing them with “the greatest intensity, best distribution, and accuracy” of that power (Foucault, 2003a, p. 74). It does this by “pinning the body down in space” so that it might keep that

body within the “inspector’s gaze” (Foucault, 2003a, p. 75). Additionally, it does this as well with “strict spatial partitioning” where “each individual is fixed in his place,” such as in an enclosed cell, and then each individual is subject to an unseen and centralized observer (Foucault, 1995, p. 195). Next, this central observation is placed where all the individuals in their partitioned spaces can be observed. This central observation is constructed so that the individuals in the cells cannot tell whether there is an observer present or not, hence they “never know whether they are under surveillance or not” (Foucault, 1995, p. 201). It is this placement, within the unseen gaze of an observer that Foucault (1995) describes specifically Bentham’s panoptical prison:

...at the periphery, an annular building; at the centre [sic], a tower; this tower is pierced with wide windows that open onto the inner side of the ring; the peripheric building is divided into cells, each of which extends the whole width of the building; they have two windows, one on the inside, corresponding to the windows of the tower; the other, on the outside, allows light to cross the cell from one end to the other. All that is needed, then, is to place a supervisor in a central tower and shut up in each cell a madman, a patient, a condemned man, a worker or a schoolboy. By the effect of the backlighting, one can observe from the tower, standing precisely against the light, the small captive shadows in the cells of the periphery. They are like so many cages, so many theatres, in which each actor is alone, perfectly individualized and constantly visible. The panoptic mechanism arranges spatial unities that make it possible to see constantly and to recognize immediately. (p. 200)

It is this arrangement of space, according to Foucault (1980) that provides a “system of surveillance” that has

no need for arms, physical violence, material constraints. Just a gaze, a gaze which each individual under its weight will end by interiorising [sic] to the point that he is his own overseer, each individual thus exercising surveillance over, and against himself. A superb formula: power exercised continuously and for what turns out to be a minimal cost (Foucault, 1980, p. 155).

In other words, inmates in this system do not need actual supervisors to constrain or direct their activities. They will internalize the idea that they might be under surveillance and act accordingly. It is these aspects of panoptic mechanisms that we see Payne begin to call for in his system of supervising teachers.

In addition to the employment of panoptic mechanisms, Payne's ideas for disciplining the field of teaching that currently inform the discipline of educational administration and education are steeped in the modernist metanarratives of the time. One of these modernist metanarratives that informed Payne's work was the concern with the structured nature of social phenomena, or the idea that one only had to uncover the structures of teaching and learning and apply them universally to establish an education science (Malpas, 2003). In addition to this modernist structural metanarrative, Payne was also guided the modernist metanarrative of emancipation, or "faith in the progress of science" (Malpas, 2003, p. 10). His call for the establishment of a science of education betrays an endless faith in this science, and his call for uncovering the principles of teaching point to a structuralist belief that such principles exist. Both the introduction of panoptic mechanisms and the influence of these modernist metanarratives lay the foundation that gave impetus for the "fathers of educational administration" to appropriate the principles of scientific management and Taylorism, which I discuss at length later, as a program for establishing the field of

educational administration and for the subordination of the teacher as well as the modernist transformation of teaching into an education science.

Payne (1875) begins his book *Chapters on School Supervision* lamenting that the “teaching profession does not have a professional literature like other professions such as the law, medicine, or theology” (p. v). He states that teaching lacked any attempts to “collate the great facts in each art, and deduce from them certain first principles which may serve to prepare the way for a more rational practice” (p. vi). In other words, teaching, as a discipline, did not yet exist. It did not have established “first principles” available to discipline practice, and practitioners had no principles of guidance. Payne was, in a sense, pointing out that the modernist project to transform the act of teaching into a science had not yet begun. In a word, Payne was calling for a modernist, structuralist approach to teaching where guiding, universal principles disciplined both thinking and practice. He was calling for the “rationalization of teaching” where the act of instructing students is reduced to universal principles that can be applied by a profession. This rationalization of the teaching process contributes enormously later to the application of value-added measures to teaching by the field of educational administration. For instance, in order for teaching as an act to be reduced to a quantitative measure, it has to be rationalized and operationalized to that which is measurable and quantifiable. Value-added measures produce a numerical growth measure that is said to represent the quantity of learning a student has gained, or lost, in a given year. It also represents the quantity of effort a teacher has exerted to effect that learning. Teaching is rationalized as simply “effects” in this growth measure.

Besides Payne’s (1875) opening lament regarding the lack of “professional literature,” lack of first principles, and lack of a teaching discipline, he also describes the

modernization of education systems into rudimentary disciplinary and panoptic systems, where modern disciplinary power could train and “make” teachers into professionals who apply scientific principles to practice, and who can become the “object and instrument” of the exercise of disciplinary power themselves (Foucault, 1995, p. 170). In fact, what Payne proposes is the installation of the simple instruments of disciplinary power known as “hierarchical observation, normalizing judgement, and the examination” (Foucault, 1995, p. 170).

In his argument for hierarchical observation, Payne (1875) advocates the beginning of the installation of disciplinary power by calling for the installation of a hierarchical observation system with the superintendent at the head (p. 17). His call for a superintendent makes the argument for the “necessity of superintendence” as one who will “direct the school system.” Furthermore, he states that the “school system requires one responsible head” who is responsible for “the arrangement of the course of study, the examination and clarification of pupils, their discipline and correction, the oversight of teachers, and the compilation of records” (p. 17). With his call for a “responsible head” he is calling for the establishment of a hierarchy, and for a division of labor that distributes the work of the teacher, making it more controllable. The labor of the teacher is divided by grades (p. 17). Students are assigned to “teachers who have a peculiar fitness for giving instruction to them,” and are “classified by age and attainments” into a “graded-school” (p. 17). In those grades, teachers are held responsible for their “part” in the “extended system of instruction,” and the single “responsible head” is accountable for the “general result of all” (p. 17). He actually bases these on a “law which prevails in other industries” where distinct classifications between the head and the worker are clear, as are the responsibilities. It seems that Payne is seeking to

install the industrial disciplinary system on to the educational establishment. He places the superintendence in a position of dominance where “he” has the “authority to keep all subordinates in their proper places, and at their assigned tasks” (p. 17).¹ In order to exercise this authority over students and teachers, the superintendence must now be in control of “the course of study, the examination and classification of students, discipline and correction of students, oversight of teachers, and the establishment of records” (p. 17). With these powers, the institutional head, the superintendent, now has the ability to supervise, shape, and discipline the system into a “modern institution” based on universal scientific principles.

As a part of the project of establishing the school as a modern disciplinary institution, Payne (1875) also calls for the “rationalization of teaching” which means reducing it to universal principles or laws that can be broadly applied. For example, he writes: “...There is empirical knowledge and scientific knowledge---a knowledge of processes merely, and a profounder knowledge of the laws which underlie these processes” (p. 18). With that statement, Payne clearly privileges “scientific knowledge” which legitimates the “laws which underlie” the processes of teaching” over “empirical knowledge,” or knowledge based upon experience. His argument goes further to point out the inferiority of this empirical knowledge because it is “useless in times of derangement---under abnormal circumstances” (p. 18). Scientific knowledge, on the other hand is a “higher form of knowledge” that is “able to penetrate to the causes of disturbance” and may restore the normal situation of affairs.” In other words, this “scientific knowledge” can uncover “causes.” The value then of scientific knowledge lies in its “previsions,” which is the term Payne uses, which is to say, the value of “scientific knowledge” lies in its “predictive powers.” Payne’s work then, does establish a

¹ Payne uses the masculine pronouns to refer to the administrator, and the feminine pronouns to refer to the teacher throughout *Chapters on Supervision*.

sort of binary opposition between what Scott (2012) calls “vernacular knowledge” and an “official knowledge,” where the vernacular knowledge is the experiential knowledge of the teacher, and where the official knowledge is that knowledge sanctioned by the experts of education science (2012, p. 30-36). In the end, it is the official knowledge which has the greatest value in Payne’s system of education.

Payne continues his call for the rationalization of teaching through the privileging of scientific knowledge and de-privileging of empiricist or traditional knowledge through a professionalization of teaching. He states that the other professions have preparatory training designed to steep practitioners in the “scientific principles which underlie the arts in question” (p. 18). These professions also engage in a “constant reference to these laws” when applied to practice, and if that which is “abnormal” occurs, “rational methods” are engaged to “discover the causes” (p. 18-19). In this sense, the delineation of the abnormal leads to the use of the new disciplinary system to label and normalize that which is so determined. In teaching though, Payne points out that “tradition and imitation” are still the dominant means of training and practice. He states that teaching is a “mechanical employment,” and that there’s little hope for improvement “to any considerable extent,” because there are not any “principles of teaching” nor an “ideal scheme” of what teaching is. According to Payne, the “improvement” of teaching lies first in its construction in “thought” based on scientific principles (p. 19). It is here that Payne is calling for a reduction or simplification of teaching to a scientific discipline and practice so that it, and the teacher, can be governed by a disciplinary system with the superintendent and school administration in control. Under this disciplinary governing, according to Foucault (2003b), the educational administrator’s adoption of the official, sanctified “scientific knowledge,” means that that knowledge and its

discourses are able to “subjugate” the vernacular and experiential knowledge of the teacher to “a scientifically-based practice of teaching” (p. 7). This subjugation of the teacher’s vernacular and experiential knowledge renders it “inferior,” “unqualified,” and “below the required level of erudition or scientificity,” (p. 7) and elevates the newly-formed scientific education science. As the possessor and expert in this newly-minted, scientific knowledge, the administrator becomes the expert or dispenser of the “official, scientific knowledge” whereby she or he is now authorized to exercise power over the teacher. In a word, the teacher is now properly subordinated to the administrator.

Once this “ideal teaching practice” has been delineated based on “scientific principles,” then improvements can be made and directed by the administrator. In fact, as Payne makes clear, “Superintendence requires, in addition to practical skill, scientific prevision derived from a profounder knowledge of the science of education” (p. 19). In other words, educational supervision requires some practical skill, but it also requires a knowledge of teaching practice based in an “education science.” This means that in order for the educational supervisor to effectively direct and improve teaching, the act of teaching must be rationalized and reduced to “universal scientific principles” which form the basis of an “education science.” Much later, this same need to “rationalize teaching” and reduce it to “measurable scientific principles” fuels the move to engage the practice of using value-added measures to determine teacher effectiveness. This means that as an education leader, I have no choice but view teaching in a simplified-check-list manner and not in the nuanced manner in which it really exists. Value-added teacher evaluation systems are dependent upon a reductionist, simplified view of teaching in order to make teaching legible, hence both controllable and correctable by educational administrators. To be controlled and correctable

by school administrators, knowledge about the performance of teachers must be generated, and administrators must be in control of this knowledge-generating process, and this is the function that value-added measures serves. It is used to judge teacher performance. In other words, VAMs must be established as a “truth” concerning teachers. Through VAMS, the teacher becomes an “object of knowledge” and a “new body” of knowledge is accumulated about her or his performance (Foucault, 1980, p. 51). Armed with this new knowledge, the administrator can effectively speak the “truth” about a teacher’s practice, thereby judging her or him. This judgement places the teacher under the control of the administrator and her or his experts, and also makes the teacher’s practice correctable as well. The teacher, in effect, becomes both the object of the administrator’s control, and subject to her or his correction.

After making the argument for the need to rationalize and reduce teaching to “scientific principles” for supervision purposes, Payne then makes the argument for an education science. In a section of his book *Chapters on School Supervision* aptly entitled “Reign of Law,” Payne (1875) makes the classic, modernist argument of applying the laws of natural, physical sciences to what he terms “social and mental phenomena” (p. 19). He writes:

Formerly, physical phenomena alone were thought subject to the laws of cause and effect, while vast domains of nature were relegated to the caprices of chance; but now, social phenomena and mental phenomena, the organization of society and the creations of intelligence are admitted to be under the reign of law. (p. 19)

In other words, the laws of social and mental phenomena, even society’s organizations, can now be uncovered through the application of the same scientific methods applied in the physical sciences. In saying this, Payne expresses the classic modernist hope that science and

modern thought will be able to “extend the domain” of these laws and science (p. 20). The predictive ability of this science will uncover the laws of “cause and effect” and “open up the way for studied improvement” of education. It is here that Payne expresses clearly the Enlightenment modernist metanarrative of emancipation so described by Lyotard (1984) that promises scientific progress (p. 32).

This promise of progress and emancipation through the sciences in the metanarrative of emancipation described by Lyotard, “presents knowledge as being valuable because it is the basis of human freedom” (Malpas, 2003, p. 26). Its promise is emancipatory in the sense that humanity is freed from “dogma, mysticism, exploitation, and suffering,” and scientific knowledge now offers itself as the “answer to the problems facing society” (Malpas, 2003, p. 27). In Payne’s view, the same science applied to the physical world can free the field of education from the limitations of its past reliance on the “non-scientific” approach to teaching and education. This, in his view, represents progress in education practice and in the field of educational administration. Extended to the modern employment of value-added measures in determining teacher effectiveness, this same belief that VAMs represent progress from the older and less adequate reliance on subjective judgments of teacher quality by administrators, proves that the spirit of Payne’s pursuit of an education science legitimated by the metanarrative of emancipatory progress is still very much alive.

While it is clear that the modernist metanarrative of emancipation underlies Payne’s (1875) optimistic hope for an education science’s ability to uncover the universal laws of teaching, in a section that follows entitled “The Science of Education,” he continues his argument for its establishment, and at the same time he implies the need for the subjugation of teaching knowledge not arrived at through scientific means. He states that “there has

dawned the idea that education is not merely an imitative art, but that, in fact, it rests on an ascertainable basis of law, and that its processes may be perfected by bringing them into harmony with nature” (p. 20). With this, he acknowledges that this conception of teaching governed by scientific laws and principles has been “slowly gaining ground.” It is implied in this statement that Payne is very much aware of the process which Foucault described as a “historical knowledge of struggle” whereby a “specialized domain of scholarship,” in this case, an education science, is emerging, and the “unqualified” knowledge of the teacher is being subjugated (Foucault, 2003b, p. 8). Payne (1875) is describing the processes by which teaching methods that are still mostly “empirical,” and still mostly considered teaching “an art without principles or a handicraft exercised from convenience or from necessity” (p. 20), are now being disqualified by a new “erudition” of education science (Foucault, 2003b, p. 8). This newly, emerging scientifically-oriented discipline of teaching is gaining ground and, in Payne’s words, is still an untamed “art” and “handicraft” not guided by scientifically-based principles, but guided by doing what is most convenient, necessary, or traditional. In an optimistic assessment, Payne says that “Education is waiting to be ennobled,” suggesting that transforming education and teaching into science will somehow elevate them (p. 20). Left behind are the historical, vernacular knowledges of teachers. Once teaching is elevated, he writes, “coming generations” of teachers “should be trained by the skill of teachers who are able to adapt means to desired ends, through a knowledge of the laws which underlie the unfoldings of human intelligence.”

Furthermore, this elevation to a science will mean that “the great army of teachers” in the future will “follow prescribed methods” and “be led by those who are master workmen, versed both in the theory and practice of teaching” (p. 20). It is at this point that a “regime of

truth” about teaching will be established. In Foucauldian terms, this new, “ennobled, scientific field of education” will enable the school administrator and educator to determine “the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts as true” (Foucault, 1980, p. 131). What all this means is that once an education science is established, the administrator and the teacher will be governed by a “regime of educational truth” that will determine the rules for what is true and false, which techniques are legitimate for determining educational truth, and who gets to say what that truth is.

Payne’s call for the “ennobling of teaching as a science” thus begins the call for the modernist transformation of teaching and its subjection to disciplinary measures. With this modernist transformation and subjection, it will be able to take its place among the other professions, and it will be even be possible to establish “facilities for the cultivation of this new science” whose purpose is to apply its “truths to the current practice of teaching” (p. 21). Thus, there will be those entrusted with the task of establishing the “truth” of teaching, and these individuals will be administrators and education scientists. Furthermore, the superintendents of schools can become “apostles for this new gospel and preach its truths to those who depend on them for guidance” (p. 21). Interestingly, by assigning the role of “apostle” for this modern science of teaching, Payne perhaps foretells one of the future roles that the field of educational administration has fervently engaged in since its birth: that of disciplining the discipline of education, which involves deciding which “discourses are accepted;” “which mechanisms and instances enable one to distinguish true and false

statements;” the “techniques and procedures accorded value in the acquisition of truth;” and finally, determining “the status of those who are charged with saying what counts as true” (Foucault, 1980, p. 131). In a word, the discourse of school administration can become the disciplinarian in charge of the discipline of the education and teaching science.

Later, it is this disciplining function of educational administration that plays a role in the legitimation of value-added measures as a measure of teacher effectiveness. It is school administrators and their experts who get to determine the “truth” of value-added measures, and who get to validate their value as a technique and procedure for acquiring “truth” because, in the education system called for by Payne, it is the superintendent (or school administrator) who has the “truth.” It is by this means and legitimation that value-added measures become the means by which administrators can discipline both teachers into normal professionals who teach in “scientifically” prescribed ways and be governed and supervised by administrators, who may or may not be experts in teaching themselves.

Modernist Arguments for a Hierarchy in Education Systems

In the next section of his chapter entitled “The Nature and Value of the Superintendence,” Payne (1875) includes an article from *Popular Science Monthly* itself entitled “The Science of Education” that details a paper presented by W. Grey in the Section of Economic Science of the British Association (p. 21-22). He quotes the article verbatim. That article describes Grey as lamenting about the same issues regarding education as those expressed by Payne. “There is no adequate or general conception of what education is,” it states. In addition, it outlines the current confusion regarding the field of education, and that it is “time that this confusion should be replaced by a scientific conception of the process” (p. 21). Like Payne, Grey calls for a disciplining of the discipline of education in order make it

more scientific. Furthermore, he expresses the same modernist faith in the Enlightenment's emancipatory nature of science when he calls for a scientific conception of education that “should result in the most valuable of all products---human beings developed to the full extent of their natural capacity” (p. 21). In other words, his scientific conception of education would lead to progress and the freedom of individuals, which remains true to the modernist metanarrative of emancipation.

Grey's article continues by calling for teachers, who “like practical navigators,” would be “furnished with the principles of a science they have not had to discover themselves, and with charts to guide their general course” (p. 21-22). The knowledge he calls for, like that called for by Payne, privileges scientific, positivist methods, and subjugates the knowledge that teachers have obtained through their experience. According to Grey, this scientific knowledge is also the equivalent of the same knowledge used to guide “the improvement of breeds of cattle and crops.” When Grey asks why this same knowledge is not employed to “improve our human crop,” he reduces the ends of education to the same ends as agriculture, which is production of a specific kind of student “crop.” With a bit of irony, it is this same attachment to education as a production function, that convinces William Sanders to employ his EVAAS value-added model which was first developed for agricultural uses over a hundred years later, designed to determine the productivity of schools, teachers, and administrators. Sanders' EVAAS model was designed “to model genetic and reproductive trends among livestock” (Amrein-Beardsley, 2014, p. 56). This historical and contemporary concern, along with both Payne and Grey's call for an education science, suggests a tenacious, modernist belief in the universal application of scientific principles,

whether natural sciences; social sciences; and even agricultural sciences, to education and teaching.

Next, Payne (1875) moves back to his arguments regarding the need for school supervision by a “responsible head.” He argues that resistance to having this supervision is specifically based on the fact that “teaching is not generally regarded as an art and having processes of its own, requiring skill of a special kind, and needing special preparation for its duties” (p. 22). In other words, because teaching is viewed as not requiring any kind of specialized knowledge, and the need for supervision of teachers is viewed as superfluous. But, in order to establish a modernist disciplinary school system, the establishment of hierarchical supervision is necessary. It is in his arguments for a supervising hierarchy here that Payne begins his legitimation argument for the field of school administration. Inherent in this argument is the need for the subjugation of teachers to the expertise of the administrator, and Payne completes his argument for the need of supervision by making the case that the:

“complicated structure of a graded system of instruction requires a constant oversight by one responsible head. This head must be able to direct the movements of the whole system, and vested with sufficient authority to enforce, if necessary, a compliance with his decisions” (p. 23).

Inherent in this statement is the idea that the administrator is a chief decision-maker who is invested with the power to enforce those decisions, while the teacher is subordinate.

Furthermore, he points back to the “law of the division of labor” which requires the development of a professional teacher.” Ultimately the necessity for the supervision by an educational administrator lies with the development of a professional teacher who operates within a discipline of education science.

In a nutshell, what Payne is really calling for is a disciplinary system which will install systems of supervision where the superintendent exists at the top of the hierarchy. The superintendent's task is to use the new modernist discipline of "education science" as the means to discipline professional teachers. As a discipline, education science can function as a "technique for making teachers more useful" (Foucault, 1995, p. 211). Now teachers can be more useful to the school administrator in carrying out her or his decisions and fit into the hierarchical educational machine whose purpose is to educate children. Without the modernist science of education and teaching, the disciplinary system, as Payne suggests, will not work. In the remainder of the book *Chapters on Supervision*, Payne outlines his system of supervision and disciplinary system in much more detail. In chapter two, Payne outlines the powers and duties of the superintendents (p. 27) and establishes the legitimated power of the head of the hierarchy. In the rest of the book, he delineates the time schedule, the distribution of students into grades, teacher selection through examination, methods for disciplining teachers, and the establishment of a record system that would install a series of apparatuses of disciplinary power to assist the superintendent in the supervision and surveillance of the schools. But for this disciplinary system of supervision to work, teaching still must be rationalized and reduced to a science, which he makes clear in the very first chapter.

The significance of Payne's work, *Chapters on Supervision*, to my research question regarding how the modernist metanarratives of scientific management, managerialism, positivism and educational leadership constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as a valid educational technology lie in

his call for an education science and for the establishment of a field of educational leadership with hierarchical control over the schools.

His call for an education science is a manifestation of the classical positivist thinking of philosopher Auguste Comte. Like Comte, in his work *The Positive Philosophy*, Payne's thinking is clearly influenced by the positive philosophical view that knowledge passes through successive theoretical states that progressively lead to a positive state for that knowledge. These three states described by Comte (1988) in 1853, which makes his work almost contemporary with Payne's, include "the theological or fictitious state," "the metaphysical or abstract state," and "the scientific or positive state." Without getting into great detail about these individual states, it is important know that for Comte, these states of knowledges are progressive and that the last state is the "definitive" or final and most desired state (p. 2). Payne, while not specifically referring to Comte's specific states of knowledge, clearly sees the state of educational knowledge in his day as being inferior, and that its progression to the "scientific" state as most desirable. In that state, according to Comte, "the human mind "recognizes the impossibility of obtaining absolute truth, gives up the search for hidden causes of the universe and a knowledge of final causes of phenomena" (p. 2). In the scientific state of knowledge, the human mind "endeavors to discover, by a well-combined use of reasoning and observation, the actual laws of phenomena---that is to say, their invariable relations of succession and likeness" (Comte, 1988, p. 2). In other words, the "scientific state," of which Payne yearns for in education, employs reasoning and observation to uncover the "natural laws" of teaching and of education. This Comtean influence considers "all phenomena as subject to invariable natural laws" and that the natural goal of inquiry is to discover these laws and even reduce them to a "least possible number" (Comte, 1988, p. 8).

Payne wants to establish an education science that focuses its inquiry on discovering these “natural laws” of education and apply them universally to education systems. Today, that is still a predominant goal of education research and inquiry.

For the purposes of my inquiry and research question, it is clear that Payne’s Comtean influences continue to survive in modern day education science and practice. Value-added measures are a direct manifestation of the Comtean beliefs and positivistic scientific assumptions about teaching. For example, inherent within the application of value-added measures to determine teacher effectiveness are the “scientific assumptions” concerning teacher effects and influence, and that they are a measurable quantity. It was Porter (1995) in his book *Trust in Numbers* that so adequately captured this affinity for this quantification when he refers the “resonance of the positivist mania for quantification” (p. 20). This mania for quantification, and the incessant desire to measure ultimately grows from the psychometric measurement of student learning to the measurement of teaching with VAMs. It is Payne who first verbalizes the desire for an education science subject to discoverable Comtean universal laws, and once this desire is planted and cultivated within the field of educational leadership, it leads to appropriation of scientific management by the founders of the field of educational administration, and in this appropriation, the disciplinary system of scientific management is woven into the fabric of education science and educational leadership. In addition, the ideology of managerialism, which I discuss later, colonized the field. In the next section, it becomes clear that the installation of the kind of hierarchy called for by Payne comes with a whole program of disciplinary mechanisms in order to discipline both the teacher and the teaching discipline.

Payne's Description of Relationship Between Teacher and Administrator

In *Chapters on Supervision*, Payne (1875) introduces, as well, more about the “subordination of teachers to the superintendent” (p. 69). This has interesting implications for my analysis of using value-added measures for determining teacher effectiveness and teacher supervision are compared. Payne begins by arguing for the subordination of teachers to the superintendent by stating that “Unity and harmony can be maintained only by carrying into effect the general plans and necessary orders which proceed from a recognized authority” (p. 69). With this, Payne insists on the establishment of a hierarchical education system. This hierarchical system is akin to that described by Foucault (2003a) which was established in the asylum. Like the doctor in the asylum, sovereign power is not the only power being exercised. It is not really possessed by the doctor. This system of power in the asylum operates through a “multiplicity, a dispersion, a system of differences and hierarchies” and a “tactical arrangement in which different individuals occupy a definite place and ensure a number of precise functions” (p. 6). In Payne's system, like the asylum described by Foucault, the superintendent does not only exercise or possess sovereign power over the school or school system. The power within educational organizations operate through a “dispersion or relays” or individuals. In the asylum, the “medical gaze” is dispersed throughout by other individuals such as supervisors and staff lower on the hierarchy. Payne would see the superintendent in the same position, where an “administrative gaze” would be dispersed throughout the school or school system through all manner of educators who occupy positions below the superintendent. At the bottom, the disciplinary power would function continuously making teachers into useful subjects. According to Payne, this type of authority is necessary in order to prevent “factions” within the school, and it is needed to

ensure that there will be “hearty cooperation and cheerful compliance with what is required” (p. 69).

But, interestingly, with this recognition of authority, Payne (1875) takes great care to point out that this installation of a hierarchy like that which Foucault describes at the head of the asylum, does not mean “that differences of opinion are not to be tolerated” (p. 70). Teachers, Payne points out, are not expected to “echo all the opinions of their superior.” In fact, he says that “Independent thought is compatible with the most hearty loyalty, and is a trait of character to be respected and cherished,” and that “where there is healthy intellectual activity, there will be differences of opinion; but these need not interfere with the duty of obedience” (p. 70). So, in Payne’s view, this authority cannot be intolerant of teacher opinions that run contrary to that of the administration, but it still should expect obedience. In this education system, administrators should accept that difference of opinion as part of “healthy intellectual activity.” But how, in the modern era, does one establish a hierarchical system where there is clear recognition of the authority of the head, and yet give deference to the opinions and the ideas of the subordinate? The answer to this question lies in the Foucauldian, panoptic, disciplinary mechanisms described earlier. In a sense, what Payne is arguing against here is what Foucault (2003a) called the unquestioned application of sovereign power within the administrator-teacher relationship. Under sovereign power, supervisory power would be exercised in such a way that only “obedience and submission” would be demanded from the subject-teacher (p. 22). It would be difficult for the administrator under this type of power to demonstrate deference for the teacher’s position and at the same time exercise authority. As mentioned earlier, the Foucauldian panoptic gaze would function well here. In this modernist schema, the educational administrator creates a

“panoptic machine,” a machine in which all subordinates are caught (Foucault, 1980, p. 156). Within this “panoptic machine,” an “anonymous, nameless, and faceless power, where the silence of regulation takes over,” sovereign power is no longer necessary (Foucault, 2003a, p. 21). In other words, Payne’s hierarchical supervision of teachers would require the establishment of a supervisory gaze to which teachers are subjected, which allows educational administrators the ability to deal with “a multiplicity of individuals,” in this case all teachers on staff, and “impose” particular forms of behavior on them, and have them supervise themselves according to these impositions (Foucault, 1995, p. 205). It is this panoptic machine that makes it possible for educational administration to exercise authority over teachers without resorting to the power of a sovereign. Teachers can be coerced to follow authority’s wishes through a power that surrounds them, and a power from within themselves that supervises their behavior.

In the next section, entitled “The Independence of Teachers,” Payne further delineates the relation between the “superintendent” and the teacher. He states, “Teachers are to be held responsible for the quality of their instruction and discipline, and should be allowed to follow their own methods so far as is consistent with general requirements” (p. 70). In other words, according to Payne, teachers are held accountable for the “quality” of their teaching and the “discipline” of their classrooms, and they have the freedom to choose their methods as long as they meet the “general requirements.” The use of the term “general requirements” means that the teacher’s methods must be supervised. It is clear that in Payne’s description teachers enjoy a freedom that places them in control of their classrooms. The superintendent stands outside the classroom and does not try to directly control what happens within. Payne says that the teacher decides such things as “the seating of pupils;” “special means for securing

order in the room;” and “other items of similar character” that “should be entrusted to the teacher’s judgment” (p. 70). Furthermore, he says the “teacher should be mistress of the situation” and “only under extraordinary circumstances has the superintendent a right to make direct interference” (p. 70). In this relationship between teacher and administrator, the administrator appears to employ a “hands-off” approach to what happens within the classroom. He only intervenes in “extraordinary circumstances.” Payne argues that “Good teachers will do more work, and of better quality, if confidence is reposed in their judgement and discretion. The superintendent is duty bound to offer suggestions and advice when they are known to be needed, but in many cases, it is best to go no further” (p. 70). In other words, administration should be “confident in the teachers’ judgement and discretion” because they will be more productive and produce more high-quality work. Administrators are encouraged by Payne to practice a mostly “hands-off” method when working with teachers. The superintendent is at liberty to offer suggestions to the teacher, but only when these are thought to be needed. Payne argues that “where there is no violation of established principles, it is well to allow considerable latitude of judgment, and to wait for results before making direct interference” (p. 71). While it may appear that Payne’s system of supervision of teachers grants extreme liberty to teachers, it still needed to subordinate and control teachers. To do that and at the same time give the appearance of liberty and professional trust, it needed a new kind of power, a kind of power that seeks to control teachers without appearing to control them.

The problem Payne struggled with was how to provide professional independence for the teacher, which he described as necessary, and at the same time place that teacher in a subordinate position under the superintendent. To do that, he turned to devices that embodied

what Foucault (1995) called disciplinary power and political technologies of the body (p. 138). This disciplinary power and political technologies of the body that were embedded in Payne's strategies were steeped in what Ransom (1997) called "opportunities for exercising power" that began in the sixteenth century (p. 28). But as Foucault (1995) points out, these "disciplines became general formulas of domination" and where the human body is made "more obedient as it becomes more useful..." (p. 137-138). In other words, these new opportunities for power were aimed at individuals and directed at making them, not only more skillful, but also more useful and obedient. Payne's proposed evaluation system, in principle, was a disciplinary system that, not only put the teacher in a place of subjection and subordination, but also provided, for the first time, administrators with an apparatus for shaping teachers' subjectivities. In a section entitled "Form of superintendent's record," Payne (1875) writes:

A superintendent will form a just estimate of a teacher's ability by directing his attention systematically to a few points of chief importance. Ability to keep order, power of holding attention, knowledge of the subject, skill imparting instruction, are qualifications which should enter as elements into the superintendent's judgment of a teacher's worth. It is a good plan to make a record of each teacher's ability in these particulars. (p. 72)

Payne's "superintendent's record" becomes a teacher evaluation system, and it accomplishes several things while implementing a disciplinary power and mechanism that allows the superintendent to "make individual teachers." It employs Foucault's (1995) "simple instruments of disciplinary power" known as "hierarchical observation, normalizing judgment," and combines them into a procedure of "examination" (p. 170). Interestingly, and

keenly important to my analysis of the practice of using value-added measures to determine teacher effectiveness, all evaluation systems, including our current teacher evaluation systems utilize these same simple instruments of disciplinary power to produce or make individual teachers.

In utilizing Foucault's simple instrument of hierarchical observation, Payne's proposed system of teacher evaluation places the superintendent in a hierarchical position of judgment and observation of the teacher. By default, when the administrator under Payne's system is asked to "estimate the worth of the teacher," he is to utilize his hierarchical position of judgment, to form a "just estimate" of the teacher's ability through the observation of specific norms. These norms are obviously of value to the superintendent and his position of authority of the school or system. The administrator, for example, must rely on the teacher in order to "keep order" so that the operations of the school might be smooth. The other three norms are of importance to the actual teaching act. For teachers to be effective, they must be able to engage students (hold their attention), know the subject matter taught, and have a level of teaching skill so that they can impart that subject matter to students. With this simple teacher evaluation system proposal, Payne effectively establishes a hierarchical observation apparatus that is capable of "coercing by means of observation" and that can "induce the effects of power" and employ a "means of coercion" to "make those on whom" it is applied "clearly visible" (Foucault, 1995, p. 171). Before this hierarchical observation apparatus, the teacher was not supervised, which Payne (1875) earlier described as a necessary function of the administrator (p. 69). Now, the teacher is placed under "the perpetual gaze" of the administrator where, for the first time, she or he is placed in a position of "continuous control" through surveillance (Foucault, 2003a, p. 47).

In theory, this disciplinary apparatus would “make it possible to see everything constantly” because the superintendent has been elevated to the head where he can be “the perfect eye that nothing would escape” (Foucault, 1995, p. 173). Now the superintendent, has for the first time, the ability to utilize “an inspecting gaze, a gaze which each individual under its weight will end by interiorising [sic] to the point that he is his own overseer, each individual thus exercising this surveillance over, and against himself” (Foucault, 1980, p. 155). In other words, the superintendent can now “exercise continuous power” at a minimal cost, and at the same time without the expense of appearing to intrude upon the teacher’s professional independence, and take on the task of making themselves effective teachers. The teacher in effect becomes “perpetually supervised” (Foucault, 1995, p. 177).

But the issue with Payne’s (1875) system of evaluation is that there is not a “continual gaze” into the classroom. If the gaze were continual, then the superintendent would have to be observing, or have the appearance of doing so at all times, which means he would have to be in all the teacher’s classrooms at all times, which is obviously physically impossible. In order for Payne’s evaluation system to work as a disciplinary system, the superintendent, or administrator is required to visit classrooms multiple times, and at unexpected times. This would provide to some degree a semblance of a perpetual gaze, because the teacher would never know when the administrator would walk into the classroom. This principle of unexpected observation is still utilized today, and provides the same power of hierarchized surveillance as it would have under Payne’s system. Today, administrators utilize “unannounced observations” purposefully to create this effect. This undoubtedly introduces an imperfection in the “educational gaze” of the administrator within the hierarchical observation disciplinary apparatus. In reality, the teacher is still under an

intermittent gaze, which fails to provide the same holding power that the perpetual gaze would. This is a historical problem for the application of the disciplinary apparatus of hierarchical observation to teachers. Many years later, principals still struggle with the balance of carrying out the administrative duties of the position, and making sure their presence is felt in the classroom often, in order to establish a perpetual gaze. With the rise of accountability systems and the use of standardized test results and value-added measures, for the first time, administrators were provided with a mechanism of a “more-continual” surveillance into classrooms that allowed for a form of surveillance without the exclusive reliance on physical classroom observations.

Payne’s evaluation system not only employs the disciplinary apparatus of hierarchical observation, it also utilizes a system of records and Foucault’s second simple instrument of disciplinary power, a normalizing judgment. The system of record keeping assists with what Foucault (2003a) calls “omnivisibility” of the subject, which he says is a “major characteristic of discipline” (p. 48). “It is a good plan to make a record of each teacher’s ability in these particulars,” Payne (1875, p. 72) writes, and he calls for a record that captures a rating of the teacher against the norms he proposed earlier. This record of observations becomes part of the effort to make the teacher’s work visible. Then Payne discusses what Foucault calls the “normalizing judgment of teachers” which involves employing “after a succession of visits,” a numerical rating system to judge that teacher against the norms described earlier. An “average of all the marks” is devised and “will represent the superintendent’s estimate of each teacher’s ability,” (Payne, 1875, p. 72). In other words, after a series of observations and average of the rating in all these norms of observations, the teacher is judged against established norms. The superintendent, or administrator, is

“assessing” the “acts” of teaching with precision” and “judges individuals ‘in truth”

(Foucault, 1995, p. 181). Payne’s evaluation system normalizes teachers according to the norms or standards used. Payne (1875) says his system has three advantages:

- 1) It gives system and exactness to the work of supervision. A school is visited with the express purpose of testing the teacher’s efficiency in certain material points;
- 2) In case teachers know what excellencies are expected, or from what data an estimate of their success will be formed, they, too, will have a definite purpose in the performance of their work;
- 3) Whenever it is necessary to inform the Board of a teacher’s qualifications, a trustworthy statement can be made. (p. 72)

These advantages described by Payne are in effect the same advantages of a disciplinary system. For example, disciplinary systems sort and rank, so that teachers may be properly supervised and corrected if need be, as described in his first advantage. Punishment, though he does not use the word, can be administered when the teacher is “nonconforming” (Foucault, 1995, p. 179) and fails to rise to the norms. Additionally, if “teachers know what excellencies are expected” they can use these to discipline their own practice so that it measures to the norms. Finally, this system can provide “trustworthy statements to the Board” about a “teacher’s qualifications,” providing a “true knowledge” of that teacher’s practice.

In Payne’s system of evaluation, there is what Foucault (1995) calls “a small penal mechanism” which he says is “at the heart of all disciplinary systems” (p. 177). This “infra-penalty” that defines what happens when teachers fail to meet these norms, or act in non-conformist ways (Smart, 2002, p. 86) is a simple “reprimand” (Payne, 1875, p. 72). When the

first steps of non-conformity and failure to meet the norms occurs, “assistance to teachers should be rendered” and when they “make radical mistakes which will compromise” their “success” (p. 72). In these circumstances of reprimand, the teacher should be provided “a full and frank statement of the fact” and “such helps...given as the case seems to demand” (p. 72). In other words, when a teacher under Payne’s evaluation system does not meet the established norms, a clear reprimand is given, and “the superintendent” who according to Payne, “ought to be a teacher of teachers” and “competent to detect the probable causes of failure” should be able to “suggest means which may avert disaster” (Payne, 1875, p. 72).

The use of normalizing judgment is very much a part of modern teacher evaluation systems as well. For example, in the North Carolina Educator Evaluation System, or NCEES, teachers are judged against 5 major standards, with a varying number of indicators under each of these standards. Teachers are rated as “Developing,” “Proficient,” “Accomplished,” or “Distinguished” for each indicator and standard. The understanding is that anything below a “Proficient” level is unsatisfactory. Teachers rated as “Developing” on any standard or indicator “are rendered assistance” in the manner described by Payne, and, in my district, may be disciplined by both a subjection to “experts” and by not receiving a district bonus.

Finally, Payne’s teacher evaluation system employs a disciplinary “examination.” According to Foucault (1995), an examination combines the techniques of hierarchical observation and normalizing judgment and establishes a normalizing gaze or a surveillance which can be used to rank, classify, and subject to merit or punishment (Foucault, 1995, p. 184). It is through the examination’s combination of demonstrated power, its application of force, and its establishment of truth” that a subject is made (Foucault, 1995). Through this “mechanism of examination, individuals are located in a field of visibility, subjected to a

mechanism of objectification, and thereby to the exercise of disciplinary power” (Smart, 2002, p. 87). Ultimately, they are “differentially encoded in written reports” (in this case, Payne’s own “superintendent’s register”), and rendered as “individual cases” (P. 87). In other words, Payne’s evaluation system functions as an examination system that classifies and ranks teachers as effective and ineffective and subjects them to a reprimand or reward designed to correct them so that they are normalized. This evaluation system in the end functions as a disciplinary mechanism that also functions to subordinate teachers to the superintendent.

Looking at the current North Carolina Educator Evaluation System, it, like Payne’s evaluation system, also functions as a disciplinary mechanism of examination. As a principal, I am expected to judge teachers at least 2 or 3 times a year through intermediate observations, ultimately culminating in a “summative” evaluation designed to capture the performance of those teachers for the entire year. While my district uses the rhetoric that NCEES is a growth observation model providing feedback to teachers on their teaching practices, in practice it is a simple disciplinary mechanism of examination. As in any disciplinary examination, teachers are judged against standards, and deemed “developing,” which is really an “ineffective” rating, and then subjected to remedial measures and possible loss of status and bonus supplements. The teacher is now effectively individualized.

Formation of the Teaching Profession and an Education Discipline

Later, Payne (1882) continues to make the case for an education science. In *Outlines of Educational Doctrine*, he points out that “Teaching has become a lay occupation” and that “it is not yet a profession” (p. 4). He reiterates once again the characteristics of professional labor, and points out that “professional knowledge must be scientific rather than empirical”

(p. 5). He says the “peculiar knowledge” or method knowledge that teachers have is not scientific and was obtained from the teachers who were their teachers while they were students. A few years after his lament that teaching lacked professional status in 1875, now in 1882 he states that there is evidence of the “formation of the teaching profession” (p. 5). He says there has been an “increase in normal schools, the better organization of institutes, the establishment of chairs of education in universities, essays formulating a body of educational doctrine, and the introduction of questions in the theory and practice of teaching into examinations for a license” (p. 5). In other words, the beginning of the establishment of professional structures in the universities were in place that would accelerate the establishment of an education science as a discipline, and that would continue with the modernist project of transforming and rationalizing of teaching. Once this modernist education science is established, a discipline would be in place whereby educational supervision could then begin the work of constituting a “profession of teaching” according to that science.

Call for a Scholarly Discipline of Education Science

In a period that Culbertson (1988) calls “The Science of School Management,” which is a period he says is roughly from 1901-1925, the rationalization of teaching and the modernist transformation of education into a science becomes a parallel objective with the development of a science of educational administration. There were shrill calls for the assistance of universities in this modernist transformation project. One of these shrill voices was Charles Adams, son and grandson of U.S. Presidents (Culbertson, 1988, p. 7). Adams (1880) delivered a harsh message to the National Educational Association that sternly pointed a finger to what he considered a central problem of educational progress: the school

superintendency had not evolved with the times and had not become “scientific” and universities were to blame (p. 64). In order for this evolution to occur, Adams saw the need for the superintendent’s role to evolve from what he termed a “mechanical” stage of sorts, where the schools were operated and teaching was done by what he termed “mechanical methods,” where children were perceived as “automatons,” “India-rubber bags,” and “raw materials” (p. 67). In this system, children moved through “in step and exactly alike, where they received the “same mental nutriment in equal quantities and at fixt [sic] times” (p. 67). Education, Adams stated was a “motion that must be gone through with” with the end result being that children seen “as raw material,” were “emptied at the end of the primaries and marched out at the grammar grades” (p. 67). In other words, the education system was a machine that impersonally and without any scientific knowledge simply pushed students through the system. Its methodology was mechanical, and the way it taught students and operated as a whole was machinelike without any scientific rationale. Adams stated (1880) “...education being reduced to little more than a mechanical process of cramming, with periodical nerv [sic] trials to ascertain the degree of retention” made the “average child” feel toward his school, and the requirements put on him, like a “lerner [sic] dog or monkey is supposed to feel toward his taskmaster” (p. 68). In other words, because the schools lacked any education science, the school was a large mechanical machine, that without thoughtfulness, effectively turned out students in a mechanical fashion.

A remedy to this entirely mechanical system of education and superintendency was occurring, according to Adams. Education systems had begun to move into a new direction (Adams, 1880, p. 69). It was moving away from its mechanical approach to teaching and education. Scientific or inductive study was being used to study the “operation of the child’s

mind” instead of the past intense focus on a mechanistic approach to educating (p. 69). This, according to Adams, involved studying the “natural processes of growth and assimilation.” For Adams, the superintendent of the future would “reject the mechanistic approach of schooling,” “the tradition,” and the “military methods” of operation, and become “Baconian” in his philosophy, and turn to science (p. 69). Under this new view, the child would be seen as a “living growing thing,” governed, of course, by scientific laws, not as a plastic mass. The child was an organism that assimilated and was not a raw material to be shaped. The business of the superintendent would become “to study these processes of assimilation.” As Adams (1880) so aptly puts this new approach, the superintendent “sits humbly down, a grown man, at Nature’s kne [sic] and patiently cons the alfabet [sic] of her methods” (p. 70). In other words, Adams called for the introduction of the inductive scientific method into both the education science and the practice of the superintendent which meant changing the work fundamentally and would involve scientific knowledge not mechanical knowledge.

For Adams (1880), an obstacle to the evolution of the superintendency into a scientific field was the fact that the “highest institutions of learning” did not recognize “the development of the human mind in masses” as a scientific study (p. 70). He states that universities had medical schools to study anatomy. They had dental schools to study teeth, but they still believed that “anyone who is not a fool...can train the child’s mind” (p. 70). These universities also study agriculture, mining, and even divinity, but they assume that “any callow youth, fresh from his graduate cours [sic] and with the ink hardly dry on his degree, is quite competent to train the” child. He adds, because of this assumption “we thus turn over our child to those whom we would never dream of entrusting with our potato patch” (p. 71). In other words, Adams blamed the universities for being an obstacle in the

evolution of the superintendency and the lack of transformation of education into a scientific field because they were unwilling to see the education science as a valid field of study to be included in academia. What Adams desired, was the establishment of a discipline of education science that would establish the kind of “scholarly knowledge” that would serve as a means to “discipline” the field of education and establish the means by which invalid knowledges would be disqualified (Foucault, 2003b, p. 8). In addition, Adams wanted to establish within the discipline of education those who have authority to speak “authoritatively” within this new field (p. 10). It is no wonder that Adams’ accusations and observations came during a period when the interest in incorporating the “new education sciences” in higher education was growing (Culbertson, 1988, p 6.). His was a call for the establishment of a scholarship within the field of education.

The significance of Adams’ thought to my inquiry regarding the practice of using value-added measures to determine teacher effectiveness lies in his call to enlist universities in the modernist project of transforming education, teaching, and education administration into sciences. It is ultimately necessary for higher education to establish the scholarship that supports education science, but for this to happen, the education system must operate according to scientific principles. When he uses the term “mechanical” to describe the education system, he uses it to describe an education system that just functioned as a machine. It educated, but was failing in that task because it was simply a machine carrying out a task without any scientific justification for what it was doing. In other words, it was operating without scientific basis. Interestingly though, later it was education leaders’ application of Taylor’s principles of scientific management which created a mechanical education system once again, but this time, it was said to operate according to “scientific

principles,” or so it claimed. This need to operate schools in a scientific manner based on scientific principles was once again the privileging of a Comtean, positivistic approach to education over the traditional education that existed at this time. At the heart of what Adams wanted for education was the application of positivistic ideas of science. It is this need to employ Comtean positivism’s scientificity and objectivity which is also at the heart of the employment of value-added measures in determining teacher quality many years later. Value-added measures provide the appearance of being scientific and objective through its reliance on statistics and numbers, which adheres to the positivistic attraction to measurement.

Summary and Conclusions

It was the combination of Payne’s work and those voices like that of Charles Adams that in some ways set the stage for the eventual acceptance and appropriation of scientific management for the purposes of establishing an education science and the field of education administration. Payne’s yearning for a science of education, establishment of a teaching profession, an education system that employed mechanisms of disciplinary power, combined with those views like those of Charles Adams who saw education’s answers in Comtean positivistic science, setting the stage for the eventual appropriation of scientific management by educational administrators at the turn of the twentieth century. These early education pioneers were calling for the elements that would be the eventual legitimating discourses and metanarratives for the application of using value-added measures to determine teacher effectiveness.

Chapter 5: Birth of Scientific Management and Its Transformation of Education

At the beginning of the twentieth century, the prelude to the births of the field of education and educational leadership and the eventual appropriation of scientific management by educational leaders lie, as I outlined previously in the work of Payne, and in the calls for education reforms like that of Charles Adams. It was at this time that the search in earnest for an “education science,” constituted from Comtean scientific discourses, intensified. With these beginnings in mind, this chapter continues to focus on the research question:

How do the metanarratives and discourses of scientific management, managerialism, positivism, and educational administration constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as a valid educational technology?

It was at the turn of the century, as will soon become apparent, that scientific management and its business management discourses, infused with managerialism, began to be appropriated by business and industry and by all manner of public sector organizations, including public education.

After the turn of the century, the infatuation with establishing an education science and a science of school administration was “given a new impetus with the work of Frederick Winslow Taylor and the nation-wide publicity surrounding his work” called “scientific management” (English, 2003, p. 44). Taylorism, or scientific management, is especially important to my postmodern inquiry into the practice of using value-added measures to determine teacher effectiveness because my research question implies that it functions as a metanarrative that constitutes and legitimates this practice. This means it is important to pay

close attention to what exactly Taylorism is, and how newly minted professors of educational administration and other school leaders described and advocated for its application. In many ways, their employment of scientific management was a boost to the legitimacy of the field of educational administration; it also provided the necessary guidelines and a system of disciplinary power to further engage in the modernist transformation of teaching, education, and now, educational administration into a science that had been called for since William Harold Payne. In addition, it was this scientific management that would give the same legitimating power in the field of educational administration to the practice of using value-added measures to determine teacher effectiveness. With scientific management, teacher efficiency and teacher production would become the focus of the entire educational establishment, and some “measure” of these would be needed. Many years later, value-added measures would serve in this capacity.

Before focusing on scientific management specifically, it is important to understand the conditions of American society at the turn of the twentieth century that made its acceptance palatable by educational administrators and educators. According to Callahan (1962), there were two trends in America at that time that made this happen. First of all, there was the “rise of business and industry to a position of prestige and influence” which ultimately brought about what he called a “subsequent saturation of business-industrial values and practices” in society (p. 2). Businessmen, such as Andrew Carnegie, John D. Rockefeller, J. P. Morgan, and Edward H. Harriman were idolized by many in America, and their values and beliefs were elevated along with them. The economic philosophy of the time that enabled them to make their fortunes, unfettered free-enterprise was elevated as well. So much were the values that these wealthy businessmen represented idolized, that, according to

Callahan (1962), future President Calvin Coolidge made a statement that aptly captures this period of American history: “The business of America is business” (p. 2). It is no wonder then that schools would seek to emulate business and its practices in the conduct of educating the children of America. The second condition in American society at the turn of the century that made scientific management so easily accepted was the “Great Reform Crusade” of the Progressive Movement. Callahan (1962) points to the efforts of society to cope with problems, such as

rapid industrialization; the consolidation of industry and wealth; the ruthless exploitation of the country’s natural resources; the corruption and inefficiency in government; the tremendous growth of cities; the flood of immigrants who added to the complexity of social and political problems in the urban areas; and finally, the fear among the middle class that America would react to these problems in an extreme or radical way. (p. 3)

This Great Reform Crusade was powered by what Callahan (1962) calls “muckraking journalists” who created the “widespread enthusiasm and indignation” necessary. The “muckraking” was through the channel of inexpensive magazines such as *McClure’s*, the *Ladies Home Journal*, the *Saturday Evening Post*, and the *American*. These magazines were published by businessmen, not literary men, and they effectively “spread business ideology into the bloodstream of American life” as solutions to all these problems, and they helped the public equate the employment of business practices and methods to address efficiency and productivity as progress and reform (p. 3). Naturally, with the public frenzied with reforming all aspects of government and society, any novel approach to improving and reforming would be acceptable, and so the push to reform schools through the application of business-

industrial methodologies and scientific management made sense. Before the major push to apply scientific management to education, there were others ahead of the game who sought to apply scientific principles and a discourse of efficiency to the schools. One of these was Leonard Ayres.

Leonard Ayres and His Efficiency Index

Just before scientific management and its focus on efficiency and production became the fashion in American education, there was a prescient educator, Leonard Porter Ayres, who “threw an incendiary bomb,” as Callahan (1962) called it, into the literature and study of education with his book *Laggards in Our Schools: A Study of Retardation and Elimination in City School Systems* (p. 15). Ayres’ (1909) work functions as an irruption just before the hold that scientific management took on American culture and educational administration and a fledgling education science. Ayres, though not employing scientific management, did focus on the efficiency of schools and used a “more scientific approach” to do it. He used data and statistics extensively to “study the problem of progress of school children through the grades” and arrive at some remedies as well as conclusions for the practice of the field (p. 2). Ayres’ (1909) research questions were:

- How many of the children in our schools fail to make normal progress from grade to grade and why do they fail?
- How many of the children drop out of school before finishing the elementary course and why do they drop out?
- What are the facts and what are the remedies? (p. 2)

He used data from around the country to study “children who are older than they should be for the grades they are in” (p. 3). Also, these were “children who constituted serious

problems for the teachers. They were misfits in their classes, requiring special attention if they are to do satisfactory work and render more difficult the work with other children” (p. 3). In a sense, Ayres’ (1909) work was a study of the “abnormal” and an attempt to explain their existence as a product of inefficiency in the educational system. These children he called “over-age, or retarded children” (p. 3). Today we would refer to most of these children as at-risk.

What is of relevance to my postmodern inquiry into the practice of using value-added measures to determine teacher effectiveness with Ayres’ work is his use of an inductive scientific approach to explore the problem of “retarded children” and arrive at specific causes and remedies using measures and statistics. In other words, he engaged in what would be seen as a more “scientifically-based inquiry” to arrive at what he saw as a peculiar problem in education while using statistics and at the same time inventing a measure of school efficiency. For the first time, we see something new in the modernist transformation of education into a science: we see the heavy reliance on statistics; the invention of an educational measure to ascertain quality; and a faith and reliance on numbers as necessary for legitimacy.

What made these new practices possible? It was simple: educational administration found itself established as a field of professional training and was finally generating a discourse and discipline for the field. According to Newlon (1934), school administrators for the first three-quarters of the 19th century largely received their professional preparation “in the school of experience” (p. 84). They never studied school administration in a formal setting of a university, and many of these “men had not had so much as a single course in education in connection” with a college or university (p. 85). The first courses in school

administration were offered at the close of the 19th century, and prior to the 20th century there was very little literature printed on the subject. Early literature of this time, what little there was of it, was mainly “descriptions of what the authors regarded as ‘best practices’ coupled” with philosophical treatises concerning the purposes and methods of education. These works were uncritical and were not research oriented (Newlon, 1934, p. 85). But, as Newlon points out, educational administration was “established as a field of professional training” by 1900. Universities began offering courses in administration of schools, courses in training superintendents, and courses in research in school administration, and as Culbertson (1988) points out, major colleges of education began awarding doctorates in educational administration around 1905. Now the institutional structures and educational administration experts were in place to begin the dissemination and application of discourses to education.

Among the new discourse of educational administration being disseminated was an education science grounded in the Comtean, positivistic metanarratives of science. It began to limit qualified knowledges with the field of educational administration, and began to privilege the observable over the experiential. One educational leader and researcher who led the way at the time was Joseph Mayer Rice, whom Culbertson (1988) says served “as an effective diffuser of the Comtean concepts of science into education” (p. 8). Rice, who left his medical practice, “advocated the use of positivistic science” to study education problems and made the claim that “definitive knowledge could only be obtained through positive science.” He was successful in using the “tenets of Comtean science in his research” (p. 8).

As this discourse of educational administration utilizing Comtean positivistic science began to spread, more and more work like that of Ayres began to appear. This work

privileged data derived from statistical methodology, measurement, empowered by a faith and reliance on quantification. This same discourse still qualifies what is educational truth in educational science and educational administration. Marry this positivistic science to the prevailing business discourse of the day that focused on “efficiency,” and it is no wonder that Ayres was searching for a means to measure it.

While Ayres does not quite yet equate “efficiency” with “effectiveness” it does seem implied. Innovatively, he does create an educational measure for efficiency, and he uses the “language of quantity” to objectify “efficiency” (Porter, 1995, p. ix). For Ayres, what Porter (1995) says about mathematics as having “long been almost synonymous with rigor and universality” means he can use quantification as a means to avoid what he called “opinion, conjecture and chance” and provide a stronger appearance of objectivity (p. ix). Now Ayres has a measurement which “means nothing if not precision and objectivity” (Porter, 1995, p. 23). In other words, his new measure of efficiency is an approach that provides both precision and objectivity to determining efficiency. Later, when statisticians and policymakers introduce value-added measures as a means for determining the quality of a teacher, principal, or school, it was touted for its precision and objectivity and avoidance of a reliance on subjective judgments of evaluators.

It is in his chapter entitled “An Index of Efficiency for Public School Systems,” that Ayres (1909) argues for the need of an efficiency measure for schools using the fields of industry and engineering to make his argument. He writes:

The most perfect plant for converting the stored-up energy of coal into power, available for turning machinery in a factory, producing electricity, or driving an ocean liner is far from being ideally efficient. The best type of tubular boiler has a steam-

producing power of about 66 percent of the theoretical energy in the fuel consumed.

The steam engine delivers about 17 percent of the power of the steam. The two together when of the very highest type convert into available power about 11 percent of the theoretical potential energy stored in the fuel. A gas engine makes a better record of about 24 percent of the theoretical efficiency. (Ayres, 1909, p. 175)

Ayres' (1909) point after this description of the different levels of efficiency in these modes of energy production is that industry has "principles" on which these estimates are based and by which its formulas are devised (p. 175). With these principles, engineers are able to form "valuable measures by which results are compared and new methods checked." Not so in education, Ayres points out. In education, standards and measures are not from "science" but come from "conjecture, opinion, and chance" (p. 175). Because of this, Ayres sees the need for "quality measurements" in education that do not depend upon conjecture and opinion. Because as Porter (1995) makes clear, "the reliance on numbers and quantitative manipulation minimizes the need for intimate knowledge and personal trust" (p. ix), and Ayres' suggestion for quality measurements based on principles will lessen the need to rely on conjecture and opinion. With this suggestion, Ayres has made the step toward using the "trust in numbers" as legitimation, which is described completely in Theodore Porter's (1995) book *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. As Porter points out, "the appeal of numbers is especially compelling to bureaucratic officials who lack the mandate of popular election, or divine right" and that this trust in numbers leads to an "objectivity which lends authority to officials who have very little of their own" (p. 8). By so employing numbers in this fashion, Ayres gains authority for both his work and his measure of efficiency.

At the point Ayres writes about his study, education science still has very little authority. The use of data and numbers, while might be right and correct, can't help but lend a level of legitimacy to Ayres project and his results. In the present, it is this same "pursuit of objectivity through a trust in numbers" that serves as legitimation of the practice of using value-added measures to determine teacher effectiveness in our time. With this practice, no longer does the education system have to rely on "opinion and conjecture" when it comes to judging teacher quality. With VAMs there exists an objective measure of "teacher effectiveness." Ultimately, this issue of legitimation means Ayres points to the same deficiency found by Payne and Adams in the state of education at that time: there were no underlying scientific principles behind the "education science." But Ayres takes this science a bit further and uses numbers and statistics. He does this by offering his "index of efficiency for public school systems" as a more scientific means of comparison of the efficiency of schools. What Ayres is actually lamenting here is lack of "scientific truths" in the field of education established by the discourses of Comtean positivist science, and because of this, education science still yet does not have the authority that he would like it to have. Without these "discourses of truth," power cannot be exercised over the educational establishment and over the other discourses and practices of educational administration and teaching (Foucault, 1980, p. 93). In other words, until the establishment of scientific discourse, no power can be exercised over the discipline of education science because there are no rules as to what counts as truth, and no rules about who gets to say what that truth is.

Ayres (1909) describes his "index of efficiency" at length, blended with the language of industry:

1. If we can find out how many children *begin* [italics his] school each year we can compute how many remain to the final elementary grade. Such a factor would show the relation of finished product to the raw material.
2. The number of beginners tells us of the number of children who under conditions of maximum theoretical efficiency should be in each grade. Hence we may readily calculate the size of the school system under ideal conditions and compare it with the actual size. Pursuing our industrial analogy still further, this gives us the relation of the actual plant in size to the theoretical requirements. This we may call the economic factor.
3. Comparing not theoretical but actual size with the actual not theoretical product, we reach an index of efficiency which will express both the educational and economic results in combination and give us a means of rating different school systems on the basis of efficiency. (p. 176)

Interestingly, in step one, Ayres uses the impersonal term “raw material” to refer to students. There is in the application of any measures a need for distance from that which is measured. For example, in discussing value-added results pertaining to teacher performance, the impersonal terms used are “not met,” “met,” and “exceeded growth.” The term “growth” is an impersonal term for test results. Teachers are expected to achieve a “year’s worth of growth” in the conduct of their jobs. Anything less is undesirable. In none of this is mentioned that teaching and learning involves human beings. Teaching is reduced to a measured, impersonal, and industrial process, just like in Ayres’ measure of school efficiency.

Ayres continues to use the impersonal language and discourse of industry in his second step when he refers to the school as a “plant.” Once again, a school is reduced to a production facility in which inputs and outputs are important. Theoretical efficiency of the “plant” occurs when the number of beginners of a grade equals the number leaving the grade at the end of the primary school years. Ayres’ measure is very much in line with what Kula (1986) has to say about measures and metrological systems:

In every metrological system, the measure abstracts just one of the properties measured---be it length, weight, or volume. This enables us to compare various objects in one particular respect, while ignoring all others. The “invention” of measures marks a significant step forward for civilization, testifying to a significant advance in social thinking. (p. 69)

As Kula makes clear, Ayres’ measurement system, like all measurement systems, including value-added measures attempt to extract “one property.” The property he is attempting to extract is “efficiency” but in his case, there is not a physical property that can be observed called “efficiency,” so this measure requires a reduction process whereby he reduces “efficiency” to simply the number of students who fail to make it through primary school in the allotted time. But because his concept of “efficiency” is constructed and not readily observable, there is room for dissonance and argument about whether what he is measuring is really “efficiency.” With value-added measures, there is the same issue. According to what Kula says, VAMs attempt to measure “growth” in test score performance. Test score performance is seen as valuable and a proxy for student learning in this measurement system. Measuring test score performance growth is then seen to represent learning, and therefore acceptable in the system as a value. But like Ayres’ measure of

efficiency, “growth” in achievement that uses test scores is also up for debate as to whether these results are important or even a true measure of what students learn. Both measures, the index of efficiency developed by Ayres and VAMs are designed for “comparing various objects in one particular respect” as indicated by Kula (1986): Ayres’ measure is to compare schools according to his definition of efficiency, and VAMs are for the comparison of teachers using policymakers’ and school administrators’ definition of “growth.”

Ayres’ view of the school as a “plant” or a place of manufacturing or production is also a key indicator of the thinking behind the practice of using value-added measures to determine teacher effectiveness. The school under VAMs becomes, in one sense, a manufacturing plant, and teaching becomes a manufacturing process to which students are subjected, and the sole responsibility of all who work there -- teachers, principals, custodians, etc. -- is the production of learning, or “growth.” Students are determined to have no agency in their own learning. “Modern schools,” writes Glover (2013), “treat students as if they are raw materials modified to achieve predetermined notions of what it means to be educated. Teachers are treated as factory workers who complete these predetermined tasks, supervised by principals serving as line operators” (p. 8). The teacher’s job is to subject students to a scientifically determined teaching process. Without getting into the details of value-added statistics, the use of these models in this manner presumes that value in the form of “growth” is produced within the school “plant.”

Finally, with Ayres’ last step, he actually uses the word “product.” The product under his system is ultimately the number of students who actually successfully exit the primary grades. His efficiency determination is based on those who do not, meaning that schools that do not exit students on time when they are supposed to exit them, are considered inefficient.

Like Ayres' efficiency determination, there is no doubt that value-added measures make one think about production, such as growing tomatoes or potatoes more than learning. Just by the name, but the term itself, like Ayres' index of efficiency, value-added is a term of production, and as a term of production it can't help but reduce teaching and learning to measurable production activities. Like Ayres attempts to measure efficiency based on the number of students who fail to move through the system as expected, the practice of using value-added measures ludicrously leads to the focus on test scores and measurable learning at the expense of other types of learning or value not measurable (Paige, 2016, p. 8). Ayres' measure of efficiency, though I find no evidence of it, would theoretically lead schools to improve their efficiency by making sure no students are held back and that they exit on time. In that same "playing-the-game approach," the practice of using value-added measures to determine teacher quality, should and does lead teachers to focus on the test and test preparation and getting high test scores instead of teaching the curriculum (Ravitch, 2013, p. 111). While Ayres' (1909) description of his "index of efficiency" is telling, his application examples are more interesting in light of education science.

Ayres goes on to provide an application example of his "index of efficiency":

To illustrate, suppose we had a factory which instead of utilizing all of its raw material (100 percent) embodied only 50 percent in its finished product. It appears that the 50 percent is the measure of its efficiency. But suppose the plant is not economically organized. Suppose that for a theoretical product of 100 percent it requires an organization represented by 8,000 units, but it actually comprises 9,000 units, an organization which may be represented by $\frac{9}{8}$ or 112.5 percent of the standard. What then is its real efficiency? Its plant is $\frac{9}{8}$ as large as it should be

theoretically. From that viewpoint of the plant then, the efficiency is $8/9$. But its product is only $1/2$ as large as it should be. From the viewpoint of product then the efficiency is only $1/2$. Look at our plant now from the two viewpoints, it is obvious that its efficiency is expressed by the product of these two fractions or $1/2 \times 8/9 = 4/9$ or 44.4 percent. (p. 176-177)

In these application examples, it is no surprise that Ayres used an industrial example to explain what is basically the application of the industrial or manufacturing discourse to an educational problem to begin with. This certainly reflects the society in which Ayres operated, which was a society saturated with business-industrial thinking and values, available to readily apply to educational problems (Callahan, 1962, p. 2). Again, it is this same belief that industry and business can supply answers to educational problems that legitimates value-added measures as well as a major tenet of managerialism, which says that “efficient management can solve any problem” and that “practices which are appropriate for the conduct of private sector enterprises can also be applied to public sector services” (Rees, 1995, p. 15).

Ayres (1909) continues with an education problem to demonstrate the application of his index of efficiency:

Now suppose these conditions are found not in a factory but in a school system. For each 1,000 children who enter only 50 percent reach eighth grade. The efficiency from the viewpoint of the product is $1/2$ or 50 percent. Moreover, instead of finding 8,000 pupils in the eight grades we find 9,000. From the viewpoint of plant the efficiency is $8/9$ or 88.8 percent. The figure representing the efficiency of the school

system is then $\frac{1}{2} \times \frac{8}{9} = \frac{4}{9}$ or, in terms of percentages, 50 percent \times 88.8 percent = 44.4 percent. (p. 177).

In his index of efficiency, Ayres (1909) successfully reduces the efficiency of a school to a measure. His measure of efficiency depends on whether or not schools are successful in getting students through the system within the time allotted. This is akin to making sure the assembly line gets its gadgets through to the end according to a time limit. One can only picture when this measure of efficiency is applied, that schools would make sure to avoid practices that keep students from progressing, such as retention and failing students. The application of business and industry thinking in this case would theoretically produce perverse responses. Instead of trying to address the learning and education issues that are causing retention, the system would resort to finding ways to make sure all students exit on time, and would perhaps gravitate to the easiest, less costly solutions. In addition, Ayres' work and his index of efficiency also demonstrate the continued modernist transformation of education, but this time using a discourse of statistics and measures to add legitimacy to the project and following of a more apparent "scientific" study of a problem.

In some ways, Ayres' work foreshadows the practice of using value-added measures to determine teacher effectiveness in the future. Like value-added measures' attempts to measure teacher effects on student learning, where greater effects mean the education system is getting more "productivity" out the teacher for its financial investment, his work was to provide a simple measure of efficiency at a time when the public was clamoring for it in everything including schools (Callahan, 1962, p. 18). But Ayres' work does not address the whole problem. It fails to focus on what would be seen as the most likely issue: worker

productivity. It would take the work of Frederick Winslow Taylor to establish a scientific means of constituting the productive worker.

Ayres' work in establishing a "measure" used to determine educational quality represents one of the earliest uses of Comtean positivist science, applied so vigorously using the discursive practices of that science. True to positivistic science and the scientific method, efficiency was operationalized and simplified in order to create a measure which then could be compared among school systems. With this measure, the quality of those school systems could finally be determined, and within those comparisons, it was possible for the first time to delineate an abnormal school system from a normal one.

Ayres' index of efficiency is a classic example of Foucault's disciplinary mechanism of examination (Foucault, 1995, p. 187). It is true that Ayres actually would find it difficult to "hierarchically observe" efficiency by true experiential observation. One could theoretically place an "efficiency observer" in each and every school to observe and record instances of school practices as efficient or inefficient, but such an idea would not in itself be efficient and would be costly. Instead, Ayres' index of efficiency establishes a "statistical gaze" over the school system and its schools, and thereby establishes a much less costly means of hierarchical surveillance. What we are seeing here is one example of the first ingenious employment of statistics to maintain a "hierarchized, continuous, and functional surveillance" and exert power over schools to make them efficient (Foucault, 1995, p. 176).

As a disciplinary mechanism of "examination," this statistical disciplinary mechanism combines this hierarchical observational gaze with normalizing judgment to be even more effective (Foucault, 1995, p. 184). As Foucault (1995) points out, the examination "is a normalizing gaze, a surveillance that makes it possible to qualify, to classify, and to punish"

(p. 184). In this case, Ayres' index of efficiency allows the educational hierarchy to qualify schools as "efficient" and categorize them in a binary fashion as "efficient" or "inefficient," and then use that knowledge to theoretically punish or subject "inefficient" schools to remedial measures. Ayres' index of efficiency uncannily had the potential to operate as value-added measures do in contemporary times. Both use what I would call a "statistical gaze" to utilize Foucault's disciplinary mechanism of "examination." Like in Ayres' index of efficiency, teachers under value-added measures are subjected to effective and ineffective classifications based on a criterion. In VAMs, this is based on the level of "growth" obtained from students. Teachers are judged as "normal," or effective based entirely on a statistical measure just as schools are in Ayres's index. Those who are judged as ineffective because they have not been rated as having met growth are then punished and/or subjected to remedial measures. In the end, both of these measures function in a disciplinary manner, where it exerts a "virtual supervision" over its subjects, in order to make them into the subjects desired (Foucault, 2003a, p. 47). In some ways, Ayres' work was a prelude toward the appropriation of scientific management by educational administrators in its effort to establish an education science and continue the modernist and rationalist transformation of teaching, because of its emphasis on a discourse of efficiency and with its desire for the employment of "science."

Appropriation of Scientific Management by Early Education Administrators

The past and present influence on education of Frederick Winslow Taylor's *Principles of Scientific Management* is undeniable. Foster (1986) acknowledges the central role of Taylor's work to education, and also the role Taylorism had on educational administration when he states that scientific management is "an influential body of concepts

that continues to structure the field of administration” (p. 37). English (2003) acknowledges this influence as well and says that scientific management offered a “platform of legitimacy” for the schools of college of education that emerged at the turn of the twentieth century (p. 45). Peter Drucker, whose classic management work has guided the field of leadership for some time, called scientific management “the most powerful as well as the most lasting contribution America has made to Western thought since the Federalist Papers” (Drucker, 1954, p. 280). Braverman (1998) also acknowledges the importance of scientific management “in the shaping of the modern corporation and indeed institutions of capitalist society which carry on labor processes” (p. 60). Rifkin (1987) says Taylor “has probably had a greater effect on the private and public lives of the men and women of the twentieth century than any other single individual” (p. 127). Wren and Hay (1977) surveyed 134 academicians in the field of the “Academy of Management,” and these academics ranked Frederick W. Taylor as number one in a list of 20 individuals who have influenced American business and industry the most. Next, Bedeian and Wren (2001) considered Taylor as the most influential contributor to business and management in the twentieth century, and in a replication of Bedeian and Wren’s work, Heames and Breland (2010) more recently found that Taylor still is ranked as the most influential figure on modern management. Because of Taylor’s status in both business and educational organization thought, there is little doubt that scientific management, his lasting legacy, still influences all kinds of organizations, including educational organizations.

The appropriation of scientific management by the emerging discipline of educational administration and the founders of educational administration at the turn of the century served only to intensify efforts by educational administrators to establish a discipline of

education science, and to intensify the modernist and rationalist transformation of teaching. It is with the metanarratives, discourses, and discursive practices of Taylorism that these educational leaders finally found the means by which the modernist transformation of teaching could be undertaken. In the present, these have great significance to my inquiry into the use of value-added measures to determine teacher effectiveness because they still serve in the constitution and legitimation of that practice.

Before discussing the appropriation of scientific management by educational administrators at the turn of the century, it is important to revisit the terms metanarrative, discourse, and discursive practice. Malpas (2003), in a critical work on Jean-Francois Lyotard, offers this definition of metanarrative:

A metanarrative sets out the rules of narratives and language games. This means that the metanarrative organizes language games, and determines the success of each statement or language 'move' that takes place in them. (p. 24)

Furthermore, according to his thinking and my use of the term, metanarratives establish rules of "legitimation" for narratives. Narratives used in this sense are the "stories" that legitimate statements, and they establish the rules of the language games of fields such as science.

Usher and Edwards' (1994) point out that metanarratives, which they call "grand narratives," play a role in "legitimizing modern scientific knowledge and its institutional supports" (p. 155). Additionally, they are the "game rules" which govern science. In my inquiry, there are a number of ideas and concepts that function as metanarratives which means they establish the game rules of what can be scientific and what cannot. Some of the aspects of scientific management function just in this manner. Essentially, they determine what methods or ways of doing things can be scientific and what is not. It is my contention that educational

administration appropriated these metanarratives of scientific management and its accompanying discourses to establish its “game rules” for legitimating both its “education science” and its legitimation of the field of education administration. These same game rules, or rules of legitimation, are still in place today. For example, from my experience as a school administrator, school leaders are encouraged to be obsessed with instructional time, just as managers are under scientific management. Time is to be valued and cherished, and time spent outside of teaching and learning is expendable. The game rules of school management, like the game rules of scientific management, determine the value of activity based on productivity.

Associated strongly with metanarratives is the term discourse, which, as Mills (2004) describes it, refers to a “regulated set of statements which combine with others in predictable ways” (p. 54). Ultimately, discourse is “regulated by a set of rules which lead to the distribution and circulation of certain utterances and statements” and can also be seen as a “complex set of practices which try to keep [statements] in circulation...or out of circulation” (Mills, 2004, p. 54). Through these limits, discourses are also “a system which structures the way we perceive reality” or as “something which constrains our perceptions” (p. 55). For my inquiry, I am interested in discourse as a “set of statements or practices” that function in a “rule-like manner” that try to keep certain sets of statements in circulation and that try to limit others from circulation all in the service of structuring the way reality is perceived. These rules and constraints on what can be said and who has the right to speak produce discursive practices which are “characterized by a “delimitation of a field of objects, the definition of a legitimate perspective for the agent of knowledge, and the fixing of norms for the elaboration of concepts and theories” (Foucault, 1995, p. 199). In the next section, I turn

to those aspects of scientific management that establish the rules for discourses and with what can be said in those discourses, along with what counts as “scientific,” especially as these relate to the practice of using value-added measures to determine teacher effectiveness.

Scientific Management and Its Business Discourses of Efficiency and Productivity

Taylor’s book, *The Principles of Scientific Management*, published in 1911, offers his first-person description of the system of management that is also called Taylorism. From the beginning, he makes clear that the objective of scientific management is “to prove that the best management is a science resting upon clearly defined laws, rules, and principles, as a foundation” (p. 7). In other words, at the center of Taylorism is the declaration that management is “science” with universal laws and principles with universal application. These same laws also establish the rules regarding the circulation of this system of knowledge, and at the center of scientific management is the managerialist belief in the ability that management discourses can solve any of society’s problems (Rees, 1995, p. 15). With that declaration, Taylor echoes the same sentiments of William Payne when he expressed the need for an education science forty years earlier. It was Payne who yearned for the same thing for the field of education and teaching. Taylorism authoritatively declares that management is a science, privileging the status of its knowledge above the experiential. Also, with that statement, Taylor expresses a structuralist belief that the act of “management” can be reduced to “laws, rules, and principles” and later, he equally states that the act of “work” is subject to the same science and the same laws.

While Taylor was not exactly offering the modernist tools with which to transform teaching and education into a science, he was essentially offering tools for the modernist transformation of “management” which he argued was applicable across any organizations.

He saw a management discourse made up of universal, foundational principles that could be applied across settings, even those outside of business and industry, and he actually stated that “the same principles could be applied with equal force to all social activities ...” (p. 7). This belief in the universal nature of scientific management makes it portable across disciplines, discourses, and many fields of endeavor. With the belief that his principles have wide application, Taylor’s thought foreshadows the same fundamental belief that later perhaps motivated Williams Sanders to apply his value-added model to education, who at the end of the 20th century developed what was to become known as the most predominantly used statistical value-added model in use today, known as Education Value-added Assessment System, or EVAAS (Amrein-Beardsley, 2014, p. 25). Even today, the discourses of business and management continue to circulate this idea that their principles have universal application. This same idea is also driven by the fundamental belief behind managerialism, which is that management can be universally applied and is capable of solving any problems (Pollitt, 1993, p. 1). Because of these, educational administrators have and still unquestionably believe that the answer to many educational problems lie with the application of business management discourses and practices. That is, the practice of using value-added measures to determine teacher quality is seen as a “business solution” for resolving the problem of providing a quality education for all students. The appropriation of scientific management by the founders of education administration brought about the importation of many business management discourses and practices into education, and with it, managerialism took root as well, with its faith in the application of managerial solutions to solving all education problems.

Among these business management discourses adopted through the appropriation of scientific management by educational administrators is a “discourse of efficiency management.” The discourse of efficiency management establishes the rules and practices for ensuring efficiency of the organization and for the prevention of waste. At the beginning of his *Principles of Scientific Management*, Taylor (1911) opens with what he calls the main objective of management, which is “to secure the maximum prosperity for the employer, coupled with the maximum prosperity of each employee” (p. 9). What does he mean by “prosperity”? He says prosperity is “the development of every branch of the business to its highest state of excellence in order to make that prosperity permanent” (p. 9). Maximum prosperity, he says is the “development” of each employee “to his fullest potential and maximum efficiency,” and with this, Taylor places “efficiency” at the heart of his system, both as its main goal and ultimately as a main goal of scientific management. With this, “efficiency became the modus operandi of American industry and the cardinal virtue of American culture” (Rifkin, 1987, p. 127). While the business discourse of efficiency management is still at the heart of business and industry, this focus on efficiency was and is also still prominent in schools too. For example, it’s not difficult to see that at the heart of the application of value-added measures in determining teacher effectiveness is also a desire to ensure teacher “efficiency,” because efficiency is very much at the heart of all school accountability and testing systems (Martin, Overholt, & Urban, p. 75). In value-added systems, teachers who do not produce a year’s worth of growth in their students are rated as “not meeting growth,” which is actually an indication of both a lack of productivity and a lack of efficiency. This is because student growth was not produced in the time period specified which was one year. As in Taylor’s system and in the practice of using value-added

measures, efficiency is seen as a time issue: the act of not getting a student to learn what he or she is supposed to learn in the time allotted is implied to be wasteful and inefficient. In this instance, we have the application of the discourse of efficiency management which establishes the rules or truth of what is effective and what is proper practice in education.

Still another business management discourse adopted by education administration through their appropriation of scientific management is the discourse of “productivity management.” The discourse of productivity management focuses on limiting and controlling the worker and the work. It establishes the rules for both, that delimit practices and knowledge so that the system produces the productive worker. Because of this emphasis on productivity, at the heart of scientific management’s practices is the constitution of the productive worker (Taylor, 1911, p. 12). This means that scientific management seeks to produce a subject who is always seen as productive and contributing to the bottom line. The discourse of the productivity management also establishes the guiding principles to “control” the worker so that he or she maintains the highest level of productivity. It also utilizes the disciplinary program of Foucault, which will be discussed at length later, as well in this pursuit of productivity. It must use both of these in order to assume full control of the worker in order obtain the maximum amount of labor possible.

As a metanarrative, scientific management legitimates the discourse of productivity management by setting the parameters and rules for practice for both workers and managers alike in order to bring about the highest levels of productivity possible. For example, scientific management establishes rules for the practices that are acceptable for selecting workers, for taking control of their work, and for ensuring their work is as productive and efficient as possible. Workers, in scientific management systems are selected “scientifically”

through observation and an accounting of their character and past. In addition, the work of workers is controlled by practices such as planning all aspects of that work, or by providing close supervision. Finally, work is assured to be as productive as possible by the practices of careful work-study, through time-study, as well as on the job training. In the present, it is also this same business discourse of productivity management that legitimates the practice of using value-added measures to determine teacher effectiveness and also legitimates a discourse of measurement and a discourse of accountability in which these inhabit. Basically, the discourse of productivity management sets the rules for what productivity is, which is getting the most output possible in a given period of time. Today, VAMs are established by these same rules because they attempt to measure the amount of “growth” in learning obtained by students in a period of time too.

Fast-forward to the present, and it is easy to see that much of the educational discourse around the application of value-added measures in determining teacher effectiveness speaks of its use as a feedback system that informs teacher instruction (see Amrein-Beardsley, 2014, p. 6). In reality, it actually functions as a feedback system under the business discourse of productivity management, where its goals are to inform teachers of their productivity or lack of productivity. It also serves in a true Foucauldian disciplinary manner as a disciplinary mechanism that sorts teachers, judges them, and declares them as productive or unproductive subjects. This is especially true when used as a part of teacher evaluations (Ravitch, 2013, p. 107). Don’t forget that Taylor’s definition of the “productive worker” was a worker who worked at “his fastest pace and with maximum efficiency” (p. 12). Whether the intention of value-added measures is to measure teacher productivity or not, it does. Psychometrically, it only measures the theoretical “value-added” to a student in a

given year. It does nothing to measure long-term value the teacher adds to a student's life that occurs beyond that year.

In addition to adopting the business management discourse of “productivity management,” the field of school administration's founders in their appropriation of scientific management, adopted the business discourse of “worker knowledge management” as well. The management of worker knowledge discourse focuses on qualifying and disqualifying the field of worker knowledge, and it also qualifies who is allowed to say what qualifies as worker knowledge. This qualification of worker knowledge becomes clearer when Taylor describes the solution to “soldiering,” or the deliberate act of working more slowly than capable. Taylor defines soldiering as the deliberate avoidance of doing a full day's work (p. 13-14), and he saw the elimination of soldiering as the answer to increasing productivity of the worker. He says that it has two causes. First of all, he points to a “natural, innate tendency for men to take it easy” (p. 19). In other words, individuals are innately prone to doing as little as possible or exert the least amount of effort. One might call this the “innate laziness rule.” Secondly, he said soldiering was caused by workers purposefully avoiding working quickly because doing so would negatively impact them and their co-workers (p. 19). This means that workers slow down the work because working faster would adversely affect their pay or affect their co-workers' jobs, because the work might be completed with nothing left to do. Taylor called the second type of soldiering “systematic soldiering” which he considered a serious problem for the system of scientific management which depended on working as fast as possible. Much later in modern education, this idea of “soldiering” serves as a metanarrative to give justification for accountability practices generally and the practice of using value-added measures to determine teacher effectiveness.

Behind accountability and value-added practices is a narrative of the slothful worker (Ravitch, 2013, p. 3). Schools are viewed as failing because teachers are viewed through this narrative as individuals who are not producing at their highest level and with the greatest level of efficiency if their students aren't achieving appropriate test results, so they need accountability, testing, and value-added technologies to both prod them to higher levels of productivity and diagnose their deficiencies. It is these sets of practices that see improving achievement as ending the ineptitude, laziness, and teacher-practitioner ignorance as a means to achieve greater productivity, indicated by higher growth in test scores.

To address soldiering, scientific management utilizes the business discourse of worker knowledge management to establish the rules regarding what knowledge the worker will use in carrying out work tasks. It does this by ruling any experiential, local, or vernacular, knowledge as “unscientific,” and privileges the knowledge generated by management as “scientific” and as “truth.” For example, in this statement about what Taylor (1911) calls the “third cause” of slow work, he writes:

As to the third cause for slow work, considerable space will later in this paper be devoted to illustrating the great gain, both to employers and employes [sic], which results from the substitution of scientific for rule-of-thumb methods in even the smallest details of the work of every trade. The enormous saving of time and therefore increase in the output which is possible to effect through eliminating unnecessary motions and substituting fast for slow and inefficient motions for the men working in any of our trades can be fully realized only after one has personally seen the improvement from a thorough motion and time study made by a competent man. (p. 24)

In other words, only through a time-study, can the “competent” man, in this case most likely a manager, determine the “true” knowledge that the worker needs. In this statement, Taylor disqualifies “rule-of-thumb” methods and privileges the knowledge gained from motion and time studies “made by a competent man,” which Taylor elsewhere identifies as a manager. It is in scientific management that the only knowledge that is to be trusted to increase productivity is that provided by management. The discourse of worker knowledge management, which is at work here establishes the rule that experiential and craft knowledge is automatically invalid and untrustworthy, because only “scientific” knowledge about the work generated by management is privileged and to be trusted.

By extension this same discourse guides the current discourse of teacher evaluation, and has relevance into my inquiry regarding the practice of using value-added measures to determine teacher effectiveness. For example, once VAM results indicate there are production problems, any teaching practices that aren’t “research-based” are automatically questioned. Generally, what counts as “research-based” practices are practices supported by positivist research methodologies that generate evidence through the use of methods that are considered reliable and replicable. Most times, it is school administration, or school management, if you will, who gets to decide whether these practices are “research-based.” Like the scientific manager in Taylorist systems, the school administrator and her experts get to decide what are “true” teaching practices and what are not. Granted, these practices are supposed to be supported by research, but seldom is this evidence provided. At any rate, “research-based” teaching practices are “proven” usually by test results to be effective. Instead, within current testing and accountability practices, once a productivity problem has been detected through value-added measures and other test results, the teacher’s practices

automatically are questioned and the teacher is admonished to use sanctioned practices that are “research-based.”

For example, this use of testing and VAM results to uncover teacher-productivity problems has become a primary task for me as a school administrator. There is now the demand that all testing data and especially VAM results be meticulously reviewed. In this review, any signs of “lack of student growth” are to be unquestionably attributed to either the teacher’s lack of productiveness or substandard performance. This automatically means that I am supposed to call in the “experts” who will assist that teacher to remediating the problem. If the teacher’s test results don’t improve, then steps are then taken to usher that teacher out of the system. Within this use of VAMs to detect teacher-productivity problems, I am given the role of “Taylorist competent man” who is to provide the teacher with the knowledge they need to improve their practice. If after providing that additional knowledge, the teacher does not increase productivity as identified by VAMs, then I am to automatically assume that the teacher is incompetent and begin the process of ushering that teacher out of the system. In my current practices, it is easy to see how VAMs data is privileged and accepted unquestionably as detectors of teacher-productivity in order to assume control of the teacher practices.

After the business discourse of worker knowledge management establishes the rules regarding worker knowledge as well as establishing the discourse of truth for the work defined as scientific, scientific management then dispenses this new knowledge developed by these rules to the worker. In generating this knowledge for the worker, scientific management, in effect, controls that worker. It is Rifkin (1987) who expresses concern with this situation when he points out that “Taylor’s first principle of scientific management”

which “was for management to seize control over the knowledge of the work process that had previously been in the hands of the workers” (p. 128). Once “management has gained a monopoly over the knowledge required to do the work, and they then must assume the authority to plan and direct the work on the shop floor” (p. 128). Kanigel (1997) adds this about scientific management’s proclivity of controlling the knowledge of work:

Knowledge in the wrong hands, it seems could bully and coerce. And it was knowledge---the craftsman’s secrets, the mysteries of the guilds---that Taylorist management set out to gather, concentrate in its own hands, and use for its own ends. (p. 519)

In other words, scientific management seizes the knowledge of workers, because having control of that knowledge means having control of the worker. In so doing, it takes advantage of controlling the knowledge of work in order to exert power over the worker in order to bid him carry out management directives. Management under scientific management would otherwise not work.

As a part of this discourse of worker knowledge management, scientific management also establishes the “one-best-method rule” for work by using its rules and practices to disqualify and qualify worker methods. Taylor (1911) himself describes how this “one-best-method rule” works in establishing the best method for carrying out a work task:

Now, among the various methods and implements used in each element of each trade there is always one method and one implement which is quicker and better than any of the rest. And this one best method and best implement can only be discovered or developed through a scientific study and analysis of all of the methods and implements in use, together with accurate, minute, motion and time study. This

involves the gradual substitution of science for rule of thumb throughout the mechanic arts. (p. 25)

It is clear that under the discourse of worker knowledge management, scientific management demonstrates a complete faith in its ability to discover the best methods to use in work tasks in order to obtain the best results. The rules of this discourse make it clear that this can only be done through “scientific study” along with a “motion and time study.” Knowledge not arrived at through the rules of the discourse is disqualified.

This scientific management proclivity for employing the “one-best-method rule” to teaching is evident today as well and is something I see every day as an administrator. As I mentioned earlier, when VAMs have detected that a teacher’s productivity has wavered, the expectation is that the “experts” be brought in for the purpose of assisting that teacher alleviate the productivity deficiency. These experts are armed with all manner of knowledges regarding “best-methods” which they introduce to the unproductive teacher. Over time, the teacher is then monitored to ensure that she is utilizing those methods. Any time those methods are not working as promised, usually the assumption is either improper application or teacher incompetence or inability. It is in this manner that education still effectively utilizes the Taylorist “one-best-method” rule.

In this chapter, I have focused on the work of Leonard Ayres and his application of Comtean positivistic science to solve an education problem and his early attempt to develop a measure of school effectiveness based on efficiency. In addition to Ayres’ work, I have also focused on the appropriation of the metanarratives and business discourses of scientific management and managerialism by the founders of discipline of education administration in order to address the research question:

How do the metanarratives and discourses of scientific management, managerialism, positivism, and educational leadership constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as a valid educational technology?

Ultimately, Ayres' work, with its Comtean positivistic science influences and appropriation of the language and discourse of business and industry, we see the emergence of the application of an infantile education science to address a genuine education problem: the problem of students failing to progress through the system. We also see the emergence of measure of educational effectiveness and a fledgling faith in measurement. Many years later, this education science is employed to define good teaching as positive effects on test scores, as in VAMs, and the fledgling faith in measurement has evolved into a robust doctrine that everything that matters in schools and classrooms can be measured.

From the founders of education administration's appropriation of scientific management and its business discourses of efficiency management, productivity management, and worker knowledge management, and the infusion of managerialism into education administration and education science, education became focused on efficiency, productivity, and the scientific delineation of the teacher's work. Many years later, these discourses are operating to establish accountability systems and measures, like VAMs, which seek to establish and maintain efficient and productive school systems, schools, and teachers. Teaching is being reduced to a "technological" process and teachers function as technicians who apply "research-based, best practices" to provide what the system wants: acceptable test results. Managerialism operates within providing managerial fiat to the entire system.

In spite of the operation of these discourses and the power they have within both scientifically managed systems, there also operates within scientific management, a complete disciplinary program designed to subject and control the worker. While Taylor, presented his system in a positive light as a system to improve the lots of both owners, management, and workers, its disciplinary capabilities operate differently. For example, despite Taylor's rhetoric about the goal of scientific management being "to secure the maximum prosperity for the employer coupled with the maximum prosperity for each employee" (Taylor, 1911, p. 9), the actual project of his system was the application of disciplinary mechanisms in order to constitute the "productive worker." As Foucault (1995) makes clear in *Discipline and Punish*, "Discipline 'makes' individuals" and as a "specific technique of power that regards individuals both as objects and as instruments of its exercise" (p. 170). Taylorism is specifically designed to "make individuals" or create "productive subjects." Through its applications of what Foucault calls "the microphysics of disciplinary power," it constitutes both a "docile body that may be subjected, used, transformed, and improved" so that it might maximize productivity (Foucault, 1995, p. 136). In addition, it employs the "simple instruments of hierarchical observation, normalizing judgement, and their combination" in a disciplinary procedure called "the examination" (p. 170). It exerts what Foucault (1980) called "a new kind of power" that extracts from "bodies" "time and labor" thereby making the "productive individual" (p. 104). While scientific management heavily influenced management and decision-making within the organization, the central task of this system was the "constitution of the productive worker," and it accomplished this as a disciplinary system, which is the subject of the next chapter.

Chapter 6: Scientific Management as a Disciplinary System

The idea that scientific management represents a Foucauldian model disciplinary system is not new. Hoffman (2014) points out that the core principles of scientific management are nothing short of a “full-fledged disciplinary programme [sic]” (p. 27). It is “manifestly disciplinary in its overall goal of increasing efficiency” (p. 35). The goal of scientific management is the constitution of a “docile body,” as Foucault (1995) terms it (p. 136). Through this constitution of a “docile body,” scientific management seeks a “body ... that may be subjected, used, transformed and improved,” (p. 136) all in the service of productivity and efficiency. It targets the body of the worker in order to manipulate it, shape it, train it in order to display obedience and become skillful and carry out the tasks to which it is assigned (Foucault, 1995, p. 136). In the case of scientific management, the goal is to produce a subject that exists in its maximum state of efficiency and at its maximum state of productivity (Taylor, 1911, p. 9). To Taylor, the most useful, or “docile” body is that which can be transformed into a maximally efficient human being who is also maximally productive. In order to produce this maximally efficient and productive subject, Taylorism employs a disciplinary system that applies basic core assumptions and specific disciplinary mechanisms, which later become very important in its applications to education systems and to the future development and deployment of value-added measures in the task of determining teacher effectiveness in a similar project of constituting a maximally efficient and productive teacher. This aspect of scientific management has special relevance for the second research question for this project which is:

As a power/knowledge apparatus, how does the technology of value-added measures when used to determine teacher effectiveness attempt to work as a disciplinary mechanism to produce the “productive teacher?”

This analysis of scientific management as a disciplinary program means ultimately examining the practice of using value-added measures to determine teacher effectiveness as a statistical device and part of the larger disciplinary program, operating within an Taylorist system. In effect, it operates as an element of a power/knowledge apparatus which is focused on making teachers more productive.

At its core, the successful application of scientific management as a disciplinary system requires the acceptance of one major assumption regarding the manager and managed relation. This assumption is that “the principal object of management should be to secure the maximum prosperity of the employer, coupled with the maximum prosperity of each employee” (Taylor, 1911, p. 9). What this means is that the manager’s task under scientific management is to successfully manage the competing interests of the worker and employer, which are higher wages for the worker and lower wages for the employer. So, in the disciplinary system of scientific management, the manager assumes to know that the only desire of those who are being managed is higher wages, and he also assumes that the owner’s desire is simply keeping those wages to a minimum. To do this, Taylor (1911) redefines, for both the worker and the employer, the meaning of prosperity (p. 9). Instead of prosperity being defined as, for the worker, the “highest possible wages,” and for the owner, “the lowest possible wages,” he redefines the term differently for each. For the worker, prosperity is the production of “the highest grade of work for which his natural abilities fit” (Taylor, 1911, p. 9). By engaging in this “highest grade of work,” the worker automatically produces the

greatest desire of the owner by default: higher production. The owner then is obligated to pay the worker higher wages for this higher level of productivity. As a side note, it is important to know that the manager is placed in a position of power to determine what this wage is to be, which means the worker still does not get to determine the price of his labor. In order to constitute a “productive worker,” Taylor’s system turns toward what Foucault would call “disciplinary mechanisms” which he describes in *Discipline and Punish*. Under scientific management, maximum prosperity can only be had when the worker receives higher wages for greater productivity, which requires the norm of the productive worker to be established, ultimately placing the constitution of the productive worker at the center of the system’s goals.

The Norm of the Productive Worker

In Taylor’s (1911) system of scientific management, it is foundational that both the employee, or worker, and the employer believe that their interests are the same (p. 10). This must be the case at all times. The future of the organization depends upon the “prosperity” of both. The norm for the worker in this system is that he be both highly “efficient” and highly “productive,” which means under Taylorist systems, the worker norm is deemed to be when workers have reached their highest state of efficiency and where “he is turning out his largest daily output” (p. 11). In addition, the norm of the productive worker means that the worker also does the work “with the smallest combined expenditure of human effort, natural resources” with the lowest possible waste. The normal worker will “turn out the largest possible output” (Taylor, 1911, p. 12). With this level of productivity in mind, scientific management utilizes a disciplinary system designed solely to constitute a productive worker who has these qualities. It subjects the worker to a variety of disciplinary mechanisms

described by Foucault (1995), to produce a worker who will work at his fastest pace and at his highest efficiency, utilizing the smallest amount of resources possible, and doing so within the parameters of his natural abilities. In addition, as a “project of docility,” it focuses on the worker’s body as an “object of control” (Foucault, 1995, p. 137).

In its quest for worker docility, scientific management applies its forces to her or his body to constrain it---to make its movements both efficient and economical. In addition to applying constraints to the worker’s body, scientific management also seeks to produce a productive worker by applying an uninterrupted, constant coercion where “processes are supervised” not results, and where “time, space, and movement” is partitioned” (Foucault, 1995, p. 137). Through this partitioning of time, space, and movement, Taylorist systems focus on the worker’s body movements, apply constraints to that movement, and subject the worker to a mechanism of “constant coercion.” All of this makes possible the “meticulous control” of every aspect of the worker while on the job, and it imposes what Foucault called “docility-utility” on the body of the worker. In this way, scientific management becomes the means by which the worker becomes dominated. To obtain this “meticulous control of the worker,” the worker must be subjected to the disciplinary mechanisms and disciplinary power as described by Foucault (1995) in *Discipline and Punish*.

In modern education, there is still this interest in the norm of the productive worker. For example, at the heart of accountability systems is also a “norm of a productive worker.” Accountability measures have put in place since the advent of No Child Left Behind a desire to ensure that schools and teachers are “accountable” for their performances, which translates into providing a level of performance that provides the highest level of instruction to students, the highest level of product in test scores, with the smallest combined expenditure

of human effort, natural resources, all with the lowest possible waste. In other words, accountability systems have the goal of a “productive teacher” or “productive school” that maximizes both efficiency and productivity in the production of test scores. It is within this system of accountability that the practice of using value-added measures to determine teacher effectiveness have their utility. VAMs function here as a measure of “teacher productivity” within the kind of disciplinary system described by Foucault.

Scientific Management and Controlling the Body and Activities of the Worker

Scientific management begins its application of the disciplinary apparatuses, by engaging in what Foucault (1995) termed “the control of activity” (p. 149). To control the activity of the worker, Taylor’s system employs all five of Foucault’s (1995) mechanisms of disciplinary control: the time-table; the temporal elaboration of the act; the correlation of the body and the gesture; the body-object articulation; and exhaustive use (p. 149-156).

To begin its continuous control of the worker, scientific management’s disciplinary power is exerted upon the worker through a management established timetable. This timetable is created by developing “a science for each element of a man’s work, which replaces the old rule-of-thumb method” (Taylor, 1911, p. 36). In this task, managers assume control of the work task by “gathering together all of the traditional knowledge which in the past has been possessed by the workmen and then engage in the task of classifying, tabulating, and reducing this knowledge to rules, laws, and formulae” which results in a “science” of that work task (Taylor, 1911, p. 36). With this new task science, management can then plan the work for the worker, resulting in a “timetable” described by Foucault (1995) as a means of controlling the activity of the worker within the disciplinary apparatus employed by scientific management (p. 149). This timetable or work plan utilizes the

methods of “establishing the rhythms” of the work, imposing specific occupations of the body, and “regulating” the workers’ “cycles” of movement. The worker is controlled completely because his work is so carefully planned out. This mechanism of the control of activity is best illustrated in Taylor’s (1911) exchange, within the *Principles of Scientific Management*, with the pig-iron handler when Schmidt is told:

You know just as well as I do that a high-priced man has to do exactly as he’s told from morning till night... Well, if you are a high-priced man, you will do exactly as this man tells you tomorrow, from morning till night. When he tells you to pick up a pig and walk, you pick up a pig and you walk, and when he tells you to sit down and rest, you sit down. You do that right straight through the day. And what’s more, no back talk. (p. 45-46)

Within this exchange, the supervisor is tasked with controlling the activity of the worker entirely. Schmidt is to be commanded to follow a specific timetable throughout the day solely determined within the supervisor’s directions, and as Foucault points out regarding the use of time-tables to control the activities of individuals, “... an attempt is made to assure the quality of time used” through “constant supervision, the pressure of supervisors, the elimination of anything that might disturb or distract” (Foucault, 1995, p. 150). As described in Taylor’s example, the worker’s time is totally constituted as “useful time” (Foucault, 1995, p. 150). The worker is subjected to a time “without purities or defects; a time of good quality, throughout which the body is constantly applied to its exercise” in order to constitute “disciplinary time” (Foucault, 1995, p. 151). In this way, the worker’s time is entirely controlled and disciplined and therefore useful for production. In other words, scientific management ultimately obtains the efficient and productive worker through direct control of

the worker's activity and time by the use of a specific time-table controlled through supervision.

While indirectly related to my research project into VAMs, it is important to note that this same mechanism, the time-table, is used to control the activity of the teacher and students today as well. For example, in modern teaching systems, teachers are urged to develop pacing guides. In even more controlling disciplinary education systems, teachers are provided with district-developed pacing guides. These pacing guides basically define what is to be taught and when something is taught. Unlike Schmidt in Taylor's example, however, it is impossible to provide supervisors to ensure that teachers teach in the prescribed sequence and in the prescribed manner at all times. Instead of supervisors in the classrooms, formative assessments administered by district or even state level leadership are used for this purpose. These assessments, including standardized state tests, are used to control the content of teaching, the sequence of the content taught, and even how the content is taught. The pacing guide becomes the supervisory mechanism or a Foucauldian timetable to ensure that teachers are following the work plan provided or endorsed by the district. Value-added measures used to determine teacher effectiveness, in addition to standardized testing, can be employed as well to ensure that teachers are following the prescribed timetable. This is especially true in those cases where VAM results are used to discipline teachers into following these prescribed timetables, or pacing guides.

Scientific Management and the Control of the Worker's Activity

Scientific management also controls the activity of the worker through a mechanism Foucault (1995) calls "the temporal elaboration of the act" (p. 151). With this mechanism, scientific management provides the worker with what Foucault (1995) calls an "anatomy-

chronological schema of behavior” (p. 152). This schema of behavior breaks down “the act ... into its elements: the position of the body, limbs, articulations...each movement” is “assigned a direction, an aptitude, a duration” and an “order of succession is prescribed” (Foucault, 1995, p. 152). The goal of this schema is to enable “time to penetrate the body” and meticulously control it. This temporal elaborating of the act is clearly described in Taylor’s *Principles of Scientific Management* when he describes the actual supervision of the pig-iron handler Schmidt. As pointed out earlier, as Schmidt is being directed in minute detail his handling of the pig-iron, he is being instructed to follow a specific “anatomo-chronological schema” explicitly directed by his supervisor. He is told when to pick up a pig of iron, when to walk, when to rest by this supervisor, and through this, the act of loading the railroad car with pig iron is broken down into specific elements of movements under a “temporal elaboration” of that act. Elsewhere in his *Principles of Scientific Management*, Taylor (1911) describes this development of an anatomo-chronological schema of work tasks as scientific experiments to eliminate “needless motions” and utilize “quicker types of movements” instead (p. 80). These schemas also “enforce a standardization of methods” in movement of the worker. In other words, this Foucauldian “anatomo-chronological schema” becomes the standard means by which a worker’s act is carried out, hence effectively controlling the worker’s work entirely.

In education, these anatomo-chronological schemas are part of the grand disciplinary program imported into education when the founders of education administration appropriated the Taylorist system. This program constitutes a system whose goal was efficiency and productivity. While not part of the schemas themselves, VAMs function within these disciplinary schemas along with scripted lesson plans, for example, in which the lesson to be

delivered by a teacher is broken down into discrete steps and the teacher is even directed as to what to say and when. In this type of situation, the teacher's methods are standardized into a controlled schema, and her work becomes completely controlled through a "temporal elaboration of the act." In the end, VAMs and testing can then be used to discipline the teacher so that she continues to operate according to the prescribed, standardized schema.

In addition to employing Foucault's (1995) mechanism of the "temporal relation of the act," scientific management also employs a "correlation of the body and the gesture as well" (p. 152). This mechanism is especially important for scientific management due to its emphasis on efficiency. As Foucault (1995) points out, "In the correct use of the body, which makes possible a correct use of time, nothing must remain idle or useless: everything must be called upon to form the support of the act required" (p. 152). In other words, the goal of the correct use of the body is to eliminate wasteful movement so that gestures become "efficient" (p. 152). In Taylor's Schmidt example, the "correct use of the body" is clearly embedded in the instructions that the supervisor provides. Schmidt is provided with specific verbal instructions that preclude any possibility of wasteful movements when he is told "to pick up a pig of iron and walk" and he is told to "sit down and rest" (Taylor, 1911, p. 46). In this manner, he is forced to correlate the movements of his body for maximum efficiency. Elsewhere in his *Principles of Scientific Management*, Taylor (1911) describes the importance of this mechanism and his belief that "every single act of every workman can be reduced to a science" (p. 64). He describes scientific management's application of this mechanism to "shoveling ore" (p. 67) and "bricklaying" (p. 77).

From an education perspective, and from the perspective of my inquiry into the practice of using VAMs to determine teacher effectiveness, this mechanism has an indirect

bearing. Schemas within education that specify the “correct use of the body” are part of the larger disciplinary system that evolved out of the appropriation of scientific management by the founders of education administration. These attempts to control the movement of students and teachers are evident throughout education systems, such as when teachers deliberately describe for their students “the temporal relation of the act” of passing papers to the front of the classroom, or the act of getting in and out of their seats. All of these are done in the service of efficiency. While VAMs are not part of this schema of forcing the “correct use of the body,” they are part of the larger disciplinary system appropriated from scientific management, and can perhaps be used as a means to justify any of these schemas used.

In the effort to control the body of the worker, Taylor’s system of scientific management also attempts to control the worker’s activity through what Foucault (1995) calls “the body-object articulation” (p. 152). Foucault also terms this as “instrumental coding of the body” which consists of breaking “down the total gesture into two parallel series: that of the parts of the body to be used (right hand, left hand, different fingers of the hand, knee, eye, elbow, etc.) and that of the parts of the object manipulated (barrel, notch, hammer, screw, etc....” (p. 153). It is “then that these two sets of parts are correlated together according to a number of simple gestures (rest, bend); lastly, it fixes the canonical succession in which these correlations occupy a particular place” (Foucault, 1995, p. 153). This mechanism is the specific coding of how an object manipulation is to occur in order to produce the movement required. Taylor’s scientific management also utilizes this disciplinary mechanism as well to control the activity of the worker. In *Principles of Scientific Management*, Taylor (1911) points out the application of this mechanism when he

describes how Frank Gilbreth developed the scientific task of bricklaying. Taylor (1911) writes:

He [Gilbreth] developed the exact position which each of the feet of the bricklayer should occupy with relation to the wall, the mortar box, and the pile of bricks, and so made it unnecessary for him to take a step toward the pile of bricks and back again each time a brick is laid. (p. 77-78)

Gilbreth in Taylor's example describes the "body-object" articulation of the bricklayer to the wall, the mortar box and the pile of bricks. The bricklayer is to position himself such that he does not have to move in order to reach the wall he is working on, and the bricks and mortar he's using to build the wall. This "body-object articulation" described by Taylor ensures the most efficient movement by the bricklayer in order to ensure the highest levels of efficiency and productivity. In education, the employment of the disciplinary mechanism of "body-object articulation" is ubiquitous to ensure the highest level of efficiency and productivity in the school. For example, the placement of the teacher in relation to students ensures their ability to maximize their work with students, hence the oft-repeated placement of desks in rows. Also, this placement ensures the most efficient means of passively imparting knowledge to students.

The final mechanism utilized by Taylor in controlling the activity of the worker is what Foucault (1995) calls "exhaustive use" (p. 154). Foucault describes this mechanism as "extracting from time, ever more available moments, and from each moment, ever more useful forces" (p. 154). When applying "exhaustive use" in an effort to control the activity of the individual, one "intensifies the use of the slightest moment..." (p. 154). In other words, time is "filled with many different, but ordered activities" to the point that there is little room

for wasted activity (p. 154). Taylor's scientific management clearly employs the mechanism of exhaustive use as well, in order to maintain maximum efficiency and maximum productivity. For example, once again, in his example of Schmidt, it is evident in the instructions given to the pig-iron handler that his time is to be exhaustively employed in order to eliminate waste (Taylor, 1911, p. 44). The instructions of when to pick up a pig of iron, when to walk, and when to set the pig of iron down and to rest are all designed to make sure that productivity is maximally extracted from the worker throughout the day. In other words, the goal is the "exhaustive use" of Schmidt's time. Taylor's repeated emphasis on "time studies" and planning the worker's work and providing the worker with work instruction cards are all designed to make sure that his work activity is completely controlled to the point that time is exhaustively employed.

Foucault's (1995) "exhaustive use" is also employed in education in an overt manner. For example, bell ringing and buzzer systems are designed to demarcate the day in order to ensure that both teachers and students can exhaustively use the time they have during the school day for learning activity. Like the supervisor telling Schmidt when to walk, when to pick up the pig-iron, etc., bells within the school tell the students and teachers when to go to class, when class is over and when it's time to go to the next class, and so on. Other examples of this exhaustive use of time include situations when teachers are admonished to exhaustively use instructional time with "bell-to-bell activities," and with making sure all activity focuses on a learning target or essential questions. In addition to these, they are admonished as well to minimize the amount of time used for administrative activities. Teachers usually comply with these demands to use instructional time exhaustively when they are being observed, but it is certainly questionable whether that is always the case once

teachers are not being subjected to the administrative gaze. In some ways this obsession with the exhaustive use of time is found in the application of value-added measures as well. This is evident in the term used to describe value as “a year’s worth of growth,” thereby suggesting that learning and teaching measuring less than that has been wasteful.

It is clear, by examining scientific management’s use of these disciplinary mechanisms to “control the activity” of the worker, scientific management utilizes the kind of disciplinary system described by Foucault. Gaining control of the body of the worker is of great importance in Taylorist systems. It is only then that she or he becomes docile, useful, and manipulable. Even in education, this intense focus on the “control of activity” of teachers and students demonstrates that the remnants of scientific management and its disciplinary systems are very much still in use. This is especially true because the goals of the Taylorist system, whether it is a factory or a school, is to maximize efficiency and productivity.

How then do these “mechanisms of activity control” contribute to how VAMs operate within the disciplinary program appropriated from scientific management by the founders of education administration? For disciplinary power to produce a “productive worker,” scientific management has to “exhaustively capture” the worker’s body (Foucault, 2003a). It has to seize the body entirely, including its time in totality. This is the means by which it produces a worker that can be “used, transformed, and improved” (Foucault, 1995, p. 136). The mechanisms of worker activity control do just that: they render the body of worker useful so that it may be used in the service of efficiency and productivity. The scientific management disciplinary system brings about productivity by effectively controlling the activity of the worker in its entirety. When installed in education systems, there is this same proclivity to control the activities of both teachers and students to ensure their productivity.

Once the teacher or students have been constituted as useful and productive, they can then be subjected to scientific management's more elaborate instruments of subjection, which include the practice of using value-added measures to determine teacher effectiveness as part of a larger system to constitute "productive teachers."

Chapter 7: Scientific Management's Employment of Instruments of Subjection

Because “discipline ‘makes’ individuals,” and it sees individuals as “objects and instruments” of its exercise of power, it is no wonder that scientific management utilizes what Foucault called the “simple instruments of disciplinary power,” or of subjection, to transform and constitute the “productive worker” (Foucault 1995, p. 170). As Foucault (1995) points out, “The success of disciplinary power derives no doubt from the use of simple instruments; hierarchical observation, normalizing judgement and their combination in a procedure that is specific to it, the examination” (p. 170). In other words, to successfully utilize disciplinary power to make individuals into “productive instruments” in the machinery of higher production that scientific management calls for, Taylor’s system actually employs “hierarchical observation, normalization, and the examination.” How does the technology of value-added measures when used to determine teacher effectiveness attempt work as a disciplinary mechanism to produce the productive teacher? It does this by incorporating a combination of hierarchical observation and normalization into a mechanism of examination that deems teachers as productive or unproductive.

Disciplinary mechanism of hierarchical observation in scientific management

The first of these instruments of subjection employed by scientific management is Foucault’s (1995) “hierarchical observation” (p. 170). According to Foucault, hierarchical observation is “a mechanism that coerces by means of observation” and is “an apparatus in which the techniques that make it possible to see induce effects of power, and in which conversely, the means of coercion make those on whom they are applied clearly visible” (p. 170-171). In other words, hierarchical observation is the employment of visibility, or a supervisory gaze, over the individual in order to induce the power to transform that

individual. In his *Principles of Scientific Management*, Taylor (1911) effectively describes this mechanism of coercion in multiple places.

The first time that Taylor (1911) suggests the employment of hierarchical observation is when he is discussing the problem of “soldiering” (discussed in chapter 5), or the deliberate slow-working of workers at the beginning of his *Principles*. Taylor (1911) writes,

Under the best day’s work of the ordinary type, when accurate records are kept of the amount of work done by each man and of his efficiency, and when each man’s wages are raised as he improves, and those who fail to rise to a certain standard are discharged and a fresh supply of carefully selected men are given work in their places, both the natural loafing and systematic soldiering can be largely broken up. (p. 23)

In this statement, Taylor sees records as the means of making the work of each man visible to the manager, thereby placing the worker under hierarchical observation. These records can then be employed to punitively lower wages, meritoriously raise wages, or dismiss the worker who is not producing. Hierarchical observation, in this instance, employs what Foucault (1980) calls an “inspecting gaze” under which each individual worker is placed. Subjecting the work to surveillance and punitive and meritorious measures results in a means by which the worker “interiorizes” the power to the point that he becomes “his own overseer” thereby “breaking up natural loafing and systematic soldiering” (p. 155). The worker, conscious of the collection of records of his work, and that she is being watched, causes her to supervise her own work, and as Foucault points out, results in an inexpensive and continual supervision not typically possible, making hierarchical observation less likely in complex factory environments or in modern schools.

With the employment of value-added measures, hierarchical observation is possible. Modern teacher evaluation systems that use value-added measures to determine teacher effectiveness is in fact a type of hierarchical observation of the worker as described by Foucault. Value-added measure ratings of “not-meeting growth,” “meeting growth,” and “exceeding growth” constitute a “record of productivity.” When this record of productivity is used by school administrators in evaluative decision-making of any kind, the data is employed in a hierarchical observational mechanism like the records in the Taylorist system. Teachers who do not demonstrate “meeting growth” or “exceeding growth” are in some ways perceived to be “soldiering,” or “natural loafing,” or as inadequate and are then subject to punitive measures. In other words, they are categorized as “unproductive.” Teachers who meet or exceed these growth measures often meritoriously receive additional pay and/or status, and are perceived to be productive teachers. There are numerous examples of the application of value-added measures in this manner. For example, the school district in which I am currently employed, “value-added measures” are used in this hierarchical-observational fashion. Teachers who do not “meet growth two of the last three years, with one of the years being the most current” are placed under what is called a “monitored professional development plan.” In other words, the “record of productivity” as described by Taylor, in this personal example, is used to decide whether a teacher is placed on a remedial development plan. Under this plan, the teacher is then subjected to additional administrator observations and expected to subject herself and himself to “additional support” from the district, which often means engaging district instructional experts and additional administrative leaders to remediate the lack of productivity. While the district paints this practice as wanting to provide extra support for the teacher, teachers themselves perceive this

as punitive, because they are being placed on a remedial plan due to work being deemed insufficient through the use of value-added measures.

Elsewhere in his *Principles*, Taylor (1911) describes the application of hierarchical observation. After explaining the importance of the manager in taking on the task of developing the “science of the worker’s work,” Taylor points out that the manager must now assume the duty of “daily teaching the worker” the correct way of doing the work, and of providing “friendly help”(p. 26), and in order to do this, careful hierarchical supervision of the worker is required. While Taylor describes this relationship as a “close, intimate cooperation between the management and the men” (p. 26), actually what Taylor calls for is the “fully planning out of the work by management,” and the provision of specific work instructions to each worker, along with the careful regulation of the worker by management as the work is done (Taylor, 1911, p. 39). This specific provision of work instructions requires careful supervision to ensure that those instructions are followed. The best example of this how this careful supervision is carried out is in Taylor’s description of the pig-iron handler Schmidt as he carried out the job of handling pig-iron. Taylor (1911) writes:

Schmidt started to work, and all day long, and at regular intervals, was told by the man who stood over him with a watch, ‘Now pick up a pig and walk. Now sit down and rest. Now walk---now rest,’ etc. He worked when he was told to work, and rested when he was told to rest, and at half-past five in the afternoon had his 47 1/2 tons loaded on the car. And he practically never failed to work at this pace and do the task that was set for him during the three years that the writer was at Bethlehem. (Taylor, 1911, p. 47)

What's important in this story is Taylor's description of what I would call a "management ideal," which is the ability to control the worker entirely to ensure productivity. In the "management ideal," where the manager is able to follow the worker throughout the day, like the supervisor in Schmidt's story, telling the worker exactly what to do and when to do it, which is, in effect, the ideal goal of scientific management: to install within the worker the kind of virtual and perpetual "overseer" who ensures productivity. In this narrative about Schmidt, Taylor actually captures the conditions required for productivity under scientific management, which is this perpetual supervision, but in the real world, costs prohibit this practice, hence the need for hierarchical observation.

In education, this same infatuation with the "management ideal" illustrated by the story of Schmidt in Taylor's work, has been the obsession of politicians, policy-makers and educational administrators who have embraced accountability policies. Martin, Overholt, and Urban (1976) point out that accountability is "not an educational but rather a political movement fueled by economic concerns" with the goals of "holding down costs at all levels of education, while at the same time striving to maintain the economic and political status quo" (p. 77). In other words, accountability policies are not about simply ensuring that students are educated; they are about educating students without injecting more funding and resources in the education system, or at least keeping costs and resources to a minimum, a true goal of scientific management. This is very much apparent in an era when administrators are constantly being asked to get better results as their budgets continually shrink. Under accountability, the education system is simply trying to get the best test results possible out of students with the current or least amount of resources. Management under accountability practices are concerned with the same issue that Taylor's management is in the Schmidt

narrative: productivity and efficiency, and the provision of a perpetual supervisor ensuring productivity is the ultimate goal. Additionally, as Taylor found out, it is not possible to provide a constant supervisory presence as the worker works, and educational administrators, unlike the supervisor in the Schmidt narrative, are unable to follow teachers around all day to ensure the level of productivity desired under accountability systems. This has meant that scientific management and its accountability focus have to employ a hierarchical observational mechanism like the one described by Foucault. This need for control under scientific management and under modern education science is for an economical and efficient means to provide perpetual supervision and thereby coercion to make both workers and teachers productive. This need for an economical and efficient means to provide perpetual supervision and coerce teachers and students into being more productive has most recently manifested itself in the practice of using mechanisms like “classroom walkthroughs” and in administrative practices that encourage principals to be “more visible” within their buildings. Both of these function as hierarchical observational mechanisms and function as coercive surveillance to ensure that classrooms are functioning productively. Walkthroughs, which usually involve administrative visits to classrooms lasting only minutes, serve to remind teachers they are under surveillance at all times. Administrators who are frequently visible to both teachers and students are centrally stationed observers and reminders to the school that the administrative gaze is never far away. VAMs, in effect, extend and supplement the administrative gaze into the classroom in this same manner, without needing the administrator’s presence.

It is later in his *Principles*, that Taylor (1911) implies the need for hierarchical observation in his system of scientific management. He writes:

It is only through enforced standardization of methods, enforced adoption of the best implements and working conditions, and enforced cooperation that this faster work can be assured. And the duty of enforcing the adoption of standards and of enforcing this cooperation rests with management alone. The management must supply continually one or more teachers to show each new man the new and simpler motions, and the slower men must be *constantly watched* [emphasis mine] and helped until they have risen to their proper speed. All of those who, after proper teaching, either will not or cannot work in accordance with the new methods and at the higher speed must be discharged by the management. (p. 83)

This is the first time that Taylor employs the term “standardization” when describing the methods used by the workers. As Taylor points out, management’s “duty” is to enforce this standardization and cooperation. In the event that a worker fails to utilize “standard” methods, he is to be subjected to remedial instruction until he rises to the standard level of production or is “discharged by the management.” For this system to be efficacious, workers must be “constantly watched” which alludes to the employment of a mechanism of hierarchical observation. Under this gaze, the worker engages in using standardized methods of carrying out the work at the prescribed speed, ensuring both productivity and efficiency. In other words, Taylor once again alludes to the employment of the supervisory gaze to ensure productivity and efficiency.

As I mentioned earlier, the practice of using value-added measures to determine teacher effectiveness serves to extend the administrator’s gaze into the classroom and also supplements observations, classroom walkthroughs and administrator presence all in the service of establishing a system of surveillance. Since Taylorist systems call for a

“standardization of work” that is deemed scientific, VAMs supply the statistical gaze of value-added measures to judge teacher quality, and the means “standardization of teaching practice” by ensuring that teachers adhere to sanctioned teaching methods and practices. As becomes clear in the next section, when this hierarchized surveillance function is combined with normalizing judgment, teachers can be judged as productive and unproductive by their value-added measures and be placed on monitored professional development plans and subjected to another teacher or expert who shows them the proper methodology and scientifically-based methods that can increase the desired test results measured by value-added measures.

Disciplinary Mechanism of Normalizing Judgment in Scientific Management

In addition to employing the disciplinary mechanism of hierarchical observation to discipline the worker, scientific management also employs the disciplinary mechanism of “normalizing judgment.” According to Foucault (1995), normalizing judgment utilizes “five distinct operations.” First of all, it compares an individual’s actions to a whole in order to differentiate them, and determine whether they adhere to “the principle of a rule to be followed” (p. 182). Secondly, normalizing judgment differentiates individuals from one another in terms rules that functions “as a minimal threshold,” or as “an average to be respected,” and “an optimum towards which one must move” (p. 182-183). Thirdly, it produces a quantitative measure that rates individuals. Fourthly, normalizing judgment introduces conformity constraint that must be met. Finally, it establishes the normal and abnormal (Foucault, 1995). In other words, normalizing judgment compares actions to an established rule or norm; it demarcates whether individuals have met a minimal threshold, an average, or optimal level; it measures individuals in terms of their abilities and levels; it

provides the measure of conformity that must be achieved; and it provides the limits of individuals and provides the criterion for the abnormal. Scientific management utilizes all five of these operations as it employs normalizing judgment in a disciplinary manner.

From the beginning of his *Principles*, Taylor makes it very clear that the established rule or norm for scientific management is a worker who is maximally productive and maximally efficient, and these rules or norms for productivity and efficiency are established through what Taylor calls “scientific means.” Taylor (1911) writes:

...it should be perfectly clear that the greatest permanent prosperity of the workman, coupled with the greatest prosperity of the employer, can be brought about only when the work of the establishment is done with the smallest combined expenditure of human effort, plus nature’s resources, plus the cost for the use of capital in the shape of machines, buildings, etc. Or, to state the same thing in a different way: that the greatest prosperity can exist only as the result of the greatest possible productivity of the men and machines of the establishment---that is, when each man and each machine are turning out the largest possible output ... (p. 11-12)

Under scientific management the norm that is established for the worker is quantitative: it is the “largest possible output” with the least amount of effort, the least amount of resources, the lowest possible capital costs, and in the fastest amount of time possible. It is clear that in this system, the norm of productivity and efficiency is meant to be measurable and quantitative. The rule for the worker is focused on a process of working that brings about the largest amount of work in the fastest amount of time without wasting resources.

In order to establish the rule or norm for the worker, scientific management requires the search for the “one method and one implement which is quicker and better than the rest”

(Taylor, 1911, p. 25). This one best method and one best implement or tool is developed according to “scientific study and analysis of all the methods and implements in use, together with accurate, minute, motion and time study” (p. 25). Taylorism calls this the gradual substitution of “science for rule of thumb.” In other words, the establishment of the rule or norm for the worker is done through testing and experimentation. For example, at the Bethlehem Steel Company, Taylor used stopwatch observations to determine what the “norm” was for a coal-shoveler. Using what he refers to as “thousands of stop-watch observations,” he engaged in a time-study designed to determine the best method and the best shovel to use for shoveling coal (Taylor, 1911, p. 68). Once these were determined, this data was used to establish a norm and also used to judge the performance of all coal shovelers.

Once the one best method and one implement is established, Taylorism calls for the establishment of a “minimal threshold” or amount of work to be done in a given amount of time. Workers are then measured according to their ability to reach this minimum threshold, and according to Taylorism, they are rewarded or sanctioned according to their performance against this threshold. As Taylor (1911) points out when talking about bricklayers,

Those who failed to profit by their teaching were dropped, and each man, as he became proficient under the new method, received a substantial (not a small) increase in his wages. (p. 81)

So, under Taylorism, the disciplinary technique of normalizing judgment is fully employed. Those who reach the required norm are rewarded for doing so; those who fail to reach the norm are subjected to remedial help, before they are dismissed if they still cannot perform as expected.

Modern practices of using value-added measures to determine teacher effectiveness also employ a normalizing judgment, but the norm is established, not by systems visible to the teacher, but by statistical practices. To determine the expected norm, in this case, or expected growth rating, value-added systems compare teachers with one another and the student against his own testing record to arrive at the level, or norm of expected growth. This is statistically determined and is based on the prior performance of the students the teacher has. Using a rating system, teachers are rated and compared against each other with a final determination of “not met,” “met,” or “exceeded.” In this sense, like that of scientific management’s expectation of productivity, the teacher is expected to demonstrate the level of productivity indicated by getting the maximum level of growth out of students, thus meeting a norm.

Disciplinary Mechanism of the Examination in Scientific Management

In *Discipline and Punish*, Foucault (1995) says the simple disciplinary mechanism of the examination “combines the techniques of an observing hierarchy and those of a normalizing judgement” (p. 184). The examination is a “normalizing gaze” and “surveillance that makes it possible to qualify, to classify, and to punish. It establishes over individuals a visibility through which one differentiates them and judges them” (p. 184). Furthermore, as Foucault (1995) points out, “In [the examination] are combined the ceremony of power and the form of the experiment, the deployment of force and the establishment of truth” (p. 184). In practice, the examination in disciplinary systems “manifests the subjection of those who are perceived as objects and the objectification of those who are subjected” (p. 184-185).

Within scientific management, the examination is used in order to “scientifically select” workers who are then trained and taught for the job for which they are best suited

(Taylor, 1911, p. 36). Taylor captures this scientific selection process when he was trying to identify the best men capable of handling pig-iron:

Our first step was the scientific selection of the workman. In dealing with the workmen under this type of management, it is an inflexible rule to talk to and deal with only one man at a time, since each workman has his own special abilities and limitations, and since we are not dealing with men in masses, but are trying to develop each individual man to highest state of efficiency and prosperity. Our first step was to find the proper workman to begin with. We therefore carefully watched and studied these 75 men for three or four days, at the end of which time we had picked out four men who appeared to be physically able to handle pig iron at the rate of 47 tons per day. A careful study was then made of each of these men. We looked up their history as far back as practicable and thorough inquiries were made as to the character, habits, and the ambition of each of them. Finally, we selected one from among the four as the most likely man to start with (Taylor, 1911, p. 43).

In this example, Taylor employs a “normalizing gaze” in the service of selecting a proper workman for the job. For example, his “careful watching and study” of the men was for the purpose of gathering “knowledge of each of these workers.” His gaze was individualizing as well since he says he “was not dealing with men in masses.” In a word, he utilizes a rudimentary examination of 75 men in order to judge their qualities as to whether they would be the best pig-iron handlers. It is through this process that Taylor is able to differentiate and judge each of the men as fit or unfit for the job of handling pig-iron. This application of an examination ultimately takes the selected workman, which in this case was Schmidt, and treats him as an object and establishes the truth about him as a pig-iron handler.

The use of the examination to determine the fitness of teachers for their work is clearly a disciplinary function of value-added measures, especially when employed in teacher evaluations. Like Taylor's pig-iron examination, value-added measures statistically allow school administrators to employ a gaze, in this case a statistical gaze, in order to differentiate and judge teachers. It is the value-added statistics that make the work of the teacher "visible," and therefore subject to judgment. Under its gaze, teachers and their "teaching" become an object of examination, and their subjection becomes possible. They can be determined as effective teachers or ineffective teachers, and then subjected to reward or remedial actions.

When the founders of educational administration appropriated scientific management, they accepted all its discourses surrounding productivity and efficiency as well as all the disciplinary mechanisms the system employs. This has meant in many ways the search for the effective means to measure teacher performance has focused on these two items as well. It has also meant that educational administration still has much of the discursive practices and discourses of scientific management and its managerialist tendencies woven into its DNA. This has meant that in some ways, the adoption of practices like value-added measures were perhaps inevitable.

Chapter 8 Implications and Significance

I began this postmodernist analysis of the practice of using value-added measures to determine teacher effectiveness with these two research questions:

1. How do the metanarratives and discourses of scientific management, managerialism, positivism, and educational leadership constitute and legitimate the practice of using value-added measures to determine teacher effectiveness as a valid educational technology?
2. As a power/knowledge apparatus, how does the technology of value-added measures used to determine teacher effectiveness attempt to work as a disciplinary mechanism to produce the “productive teacher?”

In reference to my research questions, it is my contention, as mentioned earlier, that most of the current research on value-added measures has almost exclusively focused on whether the technology is technically, mathematically, psychometrically, and scientifically sound. Which means much of this research has focused on whether the models themselves satisfactorily adhere to the researchers’ own positivist established game rules of science and truth-making. This means that most of this research has sought only to legitimate VAMs according to the prevailing game rules of positivism, and in some ways, assure that they operate by the underlying business discourses of scientific management and the prevailing managerialist ideology, all of which still inhabit the disciplines of educational leadership and education science. In a word, these researchers have primarily restricted themselves to questions only made possible by the very Comtean positivistic scientifico-regime of truth that makes VAMs possible to begin with. “Truth” in this kind of research can only be found in applying the unexamined assumptions and common-sense rules of a discipline of educational

administration and a discipline of education science, assembled from the metanarratives and discourses of Comtean positivistic science, business discourses of efficiency and productivity from scientific management, and its managerialist ideology. This also means that these researchers, and VAM proponents, are operating entirely within the modernist metanarratives of emancipation promised under Enlightenment science. This promise of emancipation is no more clear than in the claims about specific VAM models, such as EVAAS. They are systematically promoted by its proprietary owners as “progress” and as a naturally superior, evolutionary educational technology with great promise (Amrein-Beardsley, 2014, p. 60). Politicians, policymakers, education leaders, and educators have uncritically accepted these technologies’ ability to tell the “truth” and the promises of progress without any consideration of the underlying truth-claims of these technologies and their legitimating discourses and metanarratives. Using the “truth games” of the prevailing positivistic research paradigm, as current researchers of value-added measures have done, can only validate their regime of truth-making, and not necessarily examine whether the metanarratives, discourses and game rules they use are true and good (Cherryholmes, 1988, p. 12). By engaging in a postmodern analysis, through a Foucauldian genealogical analytics to uncover the hidden, “historical knowledge of struggles” over the establishment of a discipline of education science and education administration, I have made “use” of them to both suspend belief in their “game rules of truth-making” and examine the hidden, legitimating metanarratives and discourses that make it possible for the practice of using value-added measures to determine teacher effectiveness, and question their truth-making ability (Foucault, 1980, p. 83).

Setting to Stage for VAMS: William Harold Payne and the “Taming of Teaching”

As I indicated in earlier chapters, the constitution and legitimation of the practice of using value-added measures to determine teacher effectiveness actually traces backward to the early work of educational administration pioneer William Harold Payne and his two seminal works, *Chapters on Supervision* (1875) and *Outlines of Educational Doctrine* (1882). It was Payne’s work that disturbed the trajectory of the fields of education administration and teaching in several ways. First of all, it was Payne who sought to bring the field of teaching into the modern era, subject to the modernist metanarratives of emancipation and progress in science. He called for the modernist transformation of teaching into an education science which results in a “teaching-education” science subject to universal, Comtean laws and first principles, controlled by expert university researchers and administrators. In this modernist transformation of teaching and establishment of an education science, instructing students is reduced to universally applied laws and principles that are applied by the newly established profession of teaching. Once this transformation called for by Payne occurred, a discipline of education science, giving legitimation and power to a field of education administration was established, creating an established regime of educational truth governing both administrator and teacher.

The implications of this modernist transformation of teaching into a science is that it legitimates several present practices that ultimately make the practice of using value-added measures to determine teacher effectiveness possible. First of all, powered by a rationalization and reduction of teaching to universal laws, VAMs effectively simplify and reduce teaching to the employment of those methods that produce acceptable test results. In other words, teaching is reduced to a quantitative measure. Increasing this quantity becomes

the end goal and destination of all teaching activity. The teacher then becomes a technician who applies “scientifically prescribed” methods that have the most effect on students’ test scores. Teaching is simply equated with affecting the quantity of growth measured. VAMs require this modernist simplification and quantification of teaching in order to exist, especially when used by administrators as part of judging teachers within teaching evaluation systems. Finally, VAMs give teaching the appearance of objectivity and scientificity that Payne would have never dreamed possible.

Payne also began the call for the application of a panoptic disciplinary system to the institution of education. The goal of this system was ultimately the establishment of an education science to discipline the practice of teaching and subordinate it and the newly-minted education science to the discipline of education administration. Without the application of the disciplinary system, education administration could not exist. Payne’s panoptic disciplinary education institution utilizes a form of hierarchical observation with an administrator in a position of observation of the teacher, and that observation is intermittent and unexpected, successfully placing the teacher under a supervisory gaze, where that teacher is now subjected to both normalizing judgment and examination (Foucault, 1995, p. 184). In this system, Payne has an administrator who judges the performance of the teacher, and his teacher evaluation system generates records and knowledge about each teacher’s performance. Now, for the first time, the teacher is placed within a system where she or he will now assume responsibility for her or his own discipline, thereby placing the teacher under an administrative mechanism of virtual control (Foucault, 1995, p. 187).

This crude panoptic disciplinary system presented by Payne also has modern implications to the fields of education science and education administration as well. Since the

existence of education administration as a discipline is entirely dependent on the subordination of the field of teaching and education to administration, the history of education administration has been a continual quest in trying to subjugate and control teaching. In order for administrators to control the teaching act, that means that its practices and its science have to be subjects of the discourses and discipline of education administration. In this sense, value-added measures are one of many attempts in subordinating teaching practices so that administrators can control them. Payne's crude panoptic disciplinary control of teaching practices was simply a first step in education administration's attempts to subordinate teaching in order to make it controllable. Throughout its existence, educational administration has attempted multiple times, through its education science, to make teaching both legible and controllable. For example, as I discussed in earlier chapters, the appropriation of scientific management and its business discourses of efficiency and productivity with its accompanying disciplinary program were part of the discipline of education administration's project to subjugate the practice of teaching into an education science. Later, it was the work like that of Herbert Simon and his book *Administrative Behavior* that was also appropriated by education administration to assist further in the modernist project of transforming teaching into an education science. Fast forward to today, and the practice of using value-added measures to determine teacher effectiveness is just a continuation of the discipline of education administration's attempts to control the practice of teaching and establish a scientific discipline of education, with the administrator and her experts in charge of that knowledge.

Payne's work in *Chapters on Supervision* and *Outlines of Educational Doctrine* also called for an education science that aligns with the Comtean positivist science metanarratives

of emancipation and progress. Payne wanted a science of teaching derived from laws and principles uncovered through the application of observation and experimentation according to the positive science describe by Auguste Comte. This science and its laws and principles could then be utilized by a new profession of teaching and effectively supervised by the education administrator. Operating within the discipline and discourses of education administration is this same metanarrative -- that there are laws and principles of teaching with universal application -- that can be applied to practice. Education administration began the search for these laws and principles in earnest with its appropriation of scientific management and its business discourses, especially its belief that there is “one best method” for carrying out a work task. As a discipline, part of education administration’s quest ever since has been to find the “best methods” of teaching, and that is where educational testing and modern-day VAMs assist. Determining the “best method” for instructing students has always been problematic without an “objective” means to detecting quality of methodology. Best methods could of course be determined qualitatively, but Comtean scientific methods in the discipline of education science would view this as suspect. That’s where education testing comes in, especially VAMs. The use of VAMs to judge the quality of teaching practice assists the discipline of education administration in establishing, finally, these universal laws and principles that education science and the profession of teaching so desperately needs.

What are the implications of this perpetual search for universally applicable laws and principles of teaching through educational measurement, especially VAMs? One obvious implication is the constitution of a “science of teaching” that is narrow in scope and limited to methodologies that affect test scores, and the establishment of binary oppositions between certain types of teaching practices and teaching subjects. For example, one of the most often

cited complaints about the application of standardized test results for high-stakes decision-making is that it leads to “teaching to the test” or a “narrowing of the curriculum” (Ravitch, 2013, p. 111). Teaching that involves knowledge dissemination and impartation are set in opposition to teaching practices that foster creativity and problem-solving. The use of standardized test results as the only acceptable outcomes, means the latter are devalued, and the former are privileged. In the end, students who excel in creative endeavors and art see their skills devalued and those capable of being successful in rote memorization and test-taking have skills that are privileged. I contend that is unavoidable no matter what the intentions of administrators and others who want to prevent this side effect. Teaching methodologies that affect test scores are going to be the natural result of a *system* of science seeking the best methods validated by test results. What has been established, which Payne would have drooled over, is a system that establishes universal laws and principles of teaching that produce the best test results. The practice of using value-added measures to determine teacher effectiveness can and is used as well to “scientifically” determine the best teaching practices that produce the best test results. In the end, those subjects that can be easily tested and measured, such as math and reading, are privileged, and those subjects not easily tested are ignored. Subjects like biology, physics, and algebra become an educational focus, while visual art, music, and drama become less important. Also, those methodologies of teaching, such as writing and creative, innovative problem solving are ignored, and the methodologies of teaching that produce the desirable multiple-choice test outcomes, such as rote memorization, are privileged. No matter what administrators say and do, when teaching is quantified and reduced to test results in the form of VAMs, it creates a system where only the methodologies that produce positive test outcomes are valued. Also, that same system

only values that which is tested, and perhaps that is why there is the current intense focus on math, science, and reading. These are all subjects that can be effectively governed by current accountability and testing regimes of truth.

Ayres, VAMS, and the Innovation of a Measure of Quality

After Payne, my postmodern analysis of the practice of using value-added measures to determine teacher quality then focused on the work of Leonard Porter Ayres in his book *Laggards in Our Schools: A Study of Retardation and Elimination in City School Systems* (1909). Ayres' work is of significance because for the first time something new appeared in the modernist transformation of education into a science -we see a heavy reliance on statistics; the invention of an educational measure to ascertain quality; and a faith and reliance on numbers as necessary for legitimacy. This new education science is more heavily than ever grounded in Comtean positivistic, scientific metanarratives that limit what qualifies as knowledge to the experimental and observable and de-privileges the experiential (Comte, 1988, p. 23). Numbers are to be trusted and serve as legitimation. Data derived from statistical methodology and measurement is valued and privileged over qualitative or anecdotal data. Ayres also elevates "efficiency" as a goal over all other considerations within the educational establishment. We also see for the first time the establishment of a measure to be used for "comparison" between institutions as a means to gauge effectiveness. Finally, Ayres began to view the education institution through the prism of business and industry -- where students are viewed as raw materials and schools viewed as producing a product.

Ayres also established an early disciplinary mechanism of examination with his index of efficiency, whereby schools and school systems could be judged as efficient or inefficient. A "statistical gaze" was applied to school systems with the goal of subjecting them to a

mechanism of continuous control in order to make all of them more efficient. In the creation of this disciplinary mechanism, Ayres faithfully applies Comtean positivist science by operationalizing and simplifying “efficiency,” creating a measure for comparison purposes and creating a measure to determine quality.

The implications of Ayres work to my postmodern inquiry is rather obvious. The practice of using value-added measures also employs statistics and are seen as more objective and more reliable, thereby legitimating its power as a measure. Like Ayres’ index of efficiency, VAMs determine effectiveness through comparison and is an invention to ascertain quality, in this case, of a teacher’s teaching. It, by nature, also privileges data derived from its statistical methodology over the administrator’s observation data about a teacher’s teaching quality, and even elevates the goal of efficiency over all other considerations, with its determination of effective teaching as an acceptable quantity of growth during the period of a year.

The very practice of using value-added measures to determine teacher effectiveness also establishes the practice as a disciplinary mechanism of examination, like Ayres index of efficiency. VAMs generate a record of teacher effectiveness with its growth ratings, which are disseminated through the administrative hierarchy. They are then used to establish a statistical norm by which all teachers are judged as effective or ineffective, and then they are subjected to either punishment, remediation, or reward. This disciplinary apparatus establishes over teachers a mechanism of continual control whereby teachers eventually assume control over their own practices, and correct and adjust their teaching methods without being told to do so, while they operate under the statistical gaze supplied by value-added measures (Foucault, 2003a, p. 47). But Ayres’ work is like a prelude to education

administration's efforts at appropriating scientific management to finally obtain control over the discipline of an education science and subjugate teachers to its need to supervise them. Teachers are then effectively supervised so that they use sanctioned, and made to employ “research-based” practices, approved by the hierarchy of administration.

Appropriation of Scientific Management, VAMS, Efficiency, and Productivity

The appropriation of scientific management metanarratives and business discourses of efficiency, productivity, and worker knowledge management, and its managerialist ideology, represents a comprehensive effort on the part of education administration to finally establish control over the teacher, teaching practices, and education science. By applying its business management discourses, education administration finally had the means by which to control education institutions totally. Its appropriation of the business discourse of efficiency management ensured that education science focused on methodologies that were efficient, which were usually related to costs and resources. Its business discourses of productivity management focused on ensuring that teachers, administrators and other school workers were being productive and producing acceptable amounts of learning. And finally, scientific management’s discourses of worker knowledge management ensured that the work was managed for the sake of both efficiency and productivity. It is this assemblage of Comtean positivism, scientific management’s metanarratives, business-oriented discourses, disciplinary power mechanisms of control and subjection along with its ideology of managerialism that provides a comprehensive machinery to transform teaching into an education science and install education administration in its hierarchical position over both the discipline of education science and its teachers. It was in scientific management that the founders of educational administration found the total machinery to take control of the

teacher and the discipline of education science. Many years later, this same scientific management machinery operated to constitute and legitimate the practice of using value-added measures to determine teacher effectiveness. Education administration's quest for a means to determine teacher productivity and also produce "productive teachers" inevitably led to the establishment of value-added measures and their use to determine the quality of teachers. It is scientific management's discourses that seek to establish the rules of work, or "science of teaching." Its disciplinary mechanisms of teacher control are employed in order to make "docile" or "submissive" teachers that might be "used" in production activities. Finally, education administration employs disciplinary mechanisms of subjection to produce "productive teachers," which in the case of VAMs, are those who get students to produce acceptable levels of growth in test scores.

Implications of Postmodern/Foucauldian Theory for Education Leadership Theory

It is important to note first of all that my postmodern analysis and use of Foucauldian genealogical analytics was what Ball (2017) calls "an exercise in finding my own limits and limitations and going beyond them" (p. xii). In searching for my own limits as a practicing school administrator, I was confronted through this analysis with impossibility and contradictions of my role as an administrator operating within the modernist machinery of public education in a field of practice primarily and exclusively constituted by the modernist metanarratives of emancipation and scientific progress promised by Enlightenment science. Like Ball (2017), I found myself an "impossible subject" and a "Foucauldian educator" in a system of education driven by at least a hundred years by a modernist project to transform teaching into an education science, and powered by a discipline of education administration still intent on taming teaching into a simplified, rationalist, and measurable, but yet efficient

and productive activity (Ball, 2017, p. xii). In the process of my discovery of being an “impossible” subject of a modernist discipline of education science and education administration, I also encountered some specific implications that the use of a postmodernist-Foucauldian methodology has for my own educational leadership practices, and perhaps for the field of educational leadership as well.

One of these implications that postmodern-Foucauldian theory has for educational leaders and the field of educational leadership is what Gillies (2013) calls “skepticism.” Too often, education leaders are bombarded by practices, discourses, and theories about educational practices and leadership practices bearing the labels “research-based” or “best practices.” Postmodern-Foucauldian theory, with its suspension of belief in the truth claims and claims for legitimacy by these labels, means that these practices, these discourses, and these theories are opened up to questioning, which as English (2003) points out, is what postmodernism is most interested in generating (p. 4). With this dissertation project, I have engaged in a massive skeptical project where I have utilized a postmodern analysis of the practice of using value-added measures to determine teacher effectiveness as a means to place that specific practice, and the discourses underpinning entire disciplines of education administration and education science under question. Through a lens of skepticism, I questioned the discourses, assumptions, and knowledges that make value-added measures possible, and also uncovered some of the discourses and metanarratives that legitimate the fields of education administration and education science, opening up the possibilities for these to be something other than they are.

The second implication of postmodern and Foucauldian theory to education leadership is its propensity for critique. As Foucault points out,

A critique does not consist in saying that things aren't good the way they are. It consists in seeing on what type of assumptions, of familiar notions, of established, unexamined ways of thinking the accepted practices are based. (Foucault, 1994b, p. 456)

In other words, Foucauldian critique offers a means to examine the assumptions, notions, established ways of thinking on which current and proposed discourses and practices are based. Postmodern and Foucauldian theory provide the tools to question the truth games and truth claims made by these discourses and practices. With this critique allied with skepticism, education leaders do not accept these claims of research-based and best practices as given. They are more freely open to asking difficult questions. Like in my analysis of the practice of using value-added measures to determine teacher effectiveness, I suspended its claims to telling the truth about teachers and interrogated it under postmodern and Foucauldian theory. Its hidden legitimating discourses, metanarratives, along with its assumptions of validity are laid bare and questioned as to what truth they tell about teachers, and who is claiming this truth. As a now "impossible" postmodern school leader, this means when faced with the task of implementing a new policy, new practice, or even in the day-to-day consequential decisions I make, there is now a pause where this interrogation happens. Within this pause, I can engage in a critique ultimately deciding what is true, good, and beneficial.

Discourses and metanarratives operate to establish the rules that qualify and disqualify knowledges, other discourses, and educational practices (Usher and Edwards, 1994, p. 156). With the critique's uncovering, one can also interrogate what these discourses do to the practices of teaching and leadership, as well as to teachers, administrators and even students. For example, in my own analysis of the practice of using value-added measures to

determine teacher effectiveness, it becomes clear that Comtean positivistic science, the metanarrative of scientific management with its ideology of managerialism, and scientific management's mechanisms of disciplinary control and subjectification all work to make VAMS an acceptable means to determine teacher quality. The critique, as Foucault points out, opens up the practice so that these underlying assumptions, discourses, metanarratives, and notions can be examined, and with that knowledge it might be possible to ultimately change practice (Foucault, 1994b, p. 456).

A third important implication of the use of Foucauldian and postmodern theory for educational leadership is its ability to “problematize” a practice and discourse (Gillies, 2013, p. 23). Working with both skepticism and critique, problematization is seen as the primary purpose of a Foucauldian critique. It points to the problems and difficulties with practices, discourses, and even metanarratives in a manner whereby it becomes possible to improve or revise practices. This coupling with critique, means that problematization performs in the way in which Foucault (1994b) describes, which is, “to make harder those acts which are now too easy” (p. 456). In other words, problematization means making a practice or discourse problematic. With problematization, education leaders have the means to call into question those practices normally engaged in with little thought, and make them “problematic” and perhaps subject to change.

The ultimate implication for educational leadership via a postmodern and Foucauldian theory and methodology is that it allows an overall “critical ethos” in which the administrator can operate. Within this ethos, school leaders exist in a constant openness to critical examination of their own practices and sanctioned educational practices. They can “deny the notion of certitude proffered by modernism” in order to question these sanctioned

practices and discourses (English 2003, p. 236). They can engage in purposeful disbelief when it comes to established knowledges and experts (p. 235). Finally, they can simply refuse to accept “preliminary assertions as anything but expressions of faith” (English, 2003, p. 235). All of this becomes especially important in an environment where the words “research-based” and “best practices” are used as means to legitimate a plethora of school improvement measures and initiatives, and because educational leaders are constantly bombarded with the knowledge claims and truth claims from the educational establishment. For example, while inhabiting this ethos of critique, the school leader can effectively question the latest barrage of suggested “best practices” regarding how to implement change and empower the teachers in her or his building. The critical school administrator can beware of self-proclaimed education experts who, at conferences, are promoting themselves more than efficacious products that will actually improve her or his school. During conference presentations, a critical school administrator can immediately recognize that the statements made by a presenter are more of an expression of faith in technology than a truly legitimate solution to a classroom instruction problem. Finally, when other administrators and education experts liberally toss around the terms “research-based” and “best practices,” the critical administrator can ask to see the evidence and then critically evaluate that evidence for herself or himself, rather than accept it because another colleague stated that it was so. This ethos creates for the administrator a comfortableness with uncertainty in the role of educational leader, which does not mean being paralyzed in the face of a crisis or challenge, but it means being open to the fact that sometimes there are no research-based, certain practices on which a school leader can depend. In our current social climate, with the rapid societal and political changes occurring around our schools, it is a true advantage to sometimes avoid reliance on

“certainty” and being open to the possibilities of other ways of approaching problems. Also, inhabiting this ethos of critique also means the school administrator may find the need to engage in forms of resistance as well.

Administrative Practices of Resistance in the Postmodern

With the rather rigid and bleak image of the fields of education administration and education science and their accompanying practices that I have created through this analysis, there would be a temptation to see both the work of the school administrator and teacher in a rather impossible, negative light, because they would simply be caught up within a system of discourses and disciplinary power with no way out. The appropriation by education administration of Comtean positivist science and scientific management with its accompanying business discourses of efficiency, productivity, and worker knowledge management, along with the ideology of managerialism effectively combined with the establishment of panoptic disciplinary education system, would appear to have put in place a rather rigid, repressive hierarchical power structure over the educational establishment, where the administrative hierarchy possesses the power to finally dominate those below. But even Foucault (1995) cautioned against this solely negative, repressive view of disciplinary power; he writes:

We must cease at once and for all to describe the effects of power in negative terms: it ‘excludes’, it ‘represses’, it ‘censors’, it ‘abstracts’, it ‘masks’, it ‘conceals’. In fact, power produces; it produces reality; it produces domains of objects and rituals of truth. The individual and the knowledge that may be gained of him belong to this production. (p. 194)

In other words, for Foucault, disciplinary power is not just repressive and constraining; it also has a productive function as well, which can be useful in measures of resistances against disciplinary regimes like those established by education administration.

But as Foucault (1990) points out, “Power is not something that is acquired, seized, or shared,” either. Nor is it something that one holds on to or allows to slip away (p. 94). In other words, power is not a possession, and it is “everywhere...because it comes from everywhere” (Foucault, 1990, p. 93). Because as Foucault (1990) points out, “Where there is power there is resistance...” and that “consequently, this resistance is never in a position of exteriority in relation to power” (p. 95), within the power relations established by education administration through its appropriations, the possibility for resistance for the administrator and teacher exists as well, and as Lynch (2014) points out, it is through this resistance that power relations can be altered. (p. 24). Combine this automatic existence of resistance with the fact that power is also productive in that it “produces things” such as “discourse” and “knowledges” (Foucault, 1980, p. 119), the possibility of using power’s productivity to interrogate and disrupt the fields of educational administration and education with counter-discourses that do not rely on Comtean positivistic science and the business discourses of scientific management along with the ideology of managerialism becomes a reality. These counter-discourses, or what Foucault (1990) refers to as “reverse discourses” (p. 101), have the ability to become a “hindrance, stumbling-block, a power of resistance and a starting point for an opposing strategy” (p. 101) strategically placed against very existence of the modern assemblage of a discipline of education administration and education science comprised of the metanarratives of scientific management and its business discourses of efficiency, productivity, and worker knowledge management and its ideology of

managerialism along with its accompanying panoptic disciplinary system of control. On a more practical level, these reverse discourses can also be employed to counter a practice of using value-added measures to determine teacher effectiveness as well. Postmodern analysis and Foucauldian genealogical analytics can effectively call such practices into question, and discourses that define teaching as more of a craft or art can be used to provide a hindrance and starting point for strategies to oppose such practices.

It is postmodern theory and Foucauldian theory that provides the means for school leaders to operate in an uncertain world. As I described in the very beginning of this project, as an administrator, I have frequently found myself operating in a web of contradictions, where I am asked to engage in sanctioned educational practices and leadership practices with a nagging thought and question at the back of my mind, “Is this really good for education, for students, for my teachers, for my parents, or even for my school?” The conventional education science and the discipline of school administration in which I operate, sometimes tells me that a practice is effective for this purpose or that purpose, and that it is true. But what these disciplines, operating from their metanarratives and discourses of scientific management, managerialism, and Comtean positivist science cannot always tell me is that those practices are good. In other words, education science and education administration as it has been constituted through Comtean positivistic science, the metanarratives and discourses of scientific management and managerialism can tell me whether a practice truly does what it is supposed to do, like raise test scores, but it can’t tell me whether in that “doing” it is good, acceptable, or moral. Postmodern thinking and Foucault give me the means by which to ask questions to ultimately interrogate current practices and their conditions of possibility and

engage in resistance to the applications of value-added measures to determine teacher effectiveness.

References

- Adams, C. (1880). The development of the superintendency. *Address and Proceedings of the National Education Association*, 1880, 61-76.
- American Statistical Association. (2014). ASA statement on using value-added models for educational assessments. Retrieved from American Statistical Association website: <http://www.amstat.org/asa/files/pdfs/POL-ASAVAM-Statement.pdf>
- Amrein-Beardsley, A. (2008). Methodological concerns about the Education Value-Added Assessment System. *Educational Researcher*, 37(2), 65-75.
- Amrein-Beardsley, A. (2014). *Rethinking value-added models in education*. New York, NY: Routledge.
- Amrein-Beardsley, A., & Collins, C. (2012). The SAS Educational Value-Added System (SAS EVAAS) in the Houston Independent School District (HISD): Intended and unintended consequences. *Educational Policy Archives*, 20(12), 1-27.
- Anderson, G. (2009). *Advocacy leadership: Toward a post-reform agenda in education*. New York, NY: Routledge.
- Apple, M. (2006). *Educating the "right" way: Markets, standards, God, and inequality*. New York, NY: Routledge.
- Au, W. (2009). *Unequal by design: High-stakes testing and the standardization of inequality*. New York, NY: Routledge.
- Au, W. (2011). Teaching under the new Taylorism: High stakes testing and the standardization of the 21st century curriculum. *Curriculum Studies*, 43(1), 25-45.

- Ayres, L. (1909). *Laggards in our schools: A study of retardation and elimination in city school systems*. New York, NY: Charities Publications.
- Baker, E., Barton, P., Darling-Hammond, L., Haertel, E., Ladd, H., Linn, R., Ravitch, D., Rothstein, J., Shavelson, R., & Shepard, L. (2010). Problems with the use of student test scores to evaluate teachers. Retrieved from Economic Policy Institute website: <http://www.epi.org/publication/bp278/>
- Ball, S. (2013). *Foucault, power, and education*. New York, NY: Routledge.
- Ball, S. (2017). *Foucault as educator*. Cham, Switzerland: Springer.
- Bedeian, A., & Wren, D. (2001). Most influential management books of the 20th century. *Organizational Dynamics*, 29(3), 221-225.
- Berliner, D. (2013). Effects of inequality and poverty vs. teachers and schooling on America's youth. *Teachers College Record*. 115(2), 1-26.
- Berliner, D. (2014). Exogenous variables and value-added assessments: A fatal flaw. *Teachers College Record*, 116(1), 1-31.
- Best, S., & Kellner, D. (1991). *Postmodern theory: Critical interpretations*. New York, NY: Guilford Press.
- Braverman, H. (1988) *Labor and monopoly capital: The degradation of work in the twentieth century*. New York, NY: Monthly Review Press.
- Callahan, R. (1962). *Education and the cult of efficiency*. Chicago, IL: University of Chicago Press.

- Campbell, R., Fleming, T., Newell, L. & Bennion, J. (1987). *A history of thought and practice in educational administration*. New York, NY: Teachers College Press.
- Cherryholmes, C. (1988). *Power and criticism: Poststructural investigations in education*. New York, NY: Teachers College Press.
- Collins, C. (2014). Houston we have a problem: Teachers find no value in the SAS Education Value-Added Assessment System (EVAAS). *Education Policy Analysis Archives*, 22(98), 1-39.
- Collins, C., & Amrein-Beardsley, A. (2014). Putting growth and value-added models on the map: A national overview. *Teachers College Record*, 116(1), 1-32.
- Comte, A. (1988). *Introduction to positive philosophy*. (Frederick Ferre Trans.). Indianapolis, IN: Hackett.
- Corcoran, S. (2010). Can teachers be evaluated by their students' test scores? Should they be? The use of value-added measures of teacher effectiveness in policy and practice. Retrieved from Annenberg Institute for School Reform at Brown University website: <http://annenberginstitute.org/pdf/valueAddedReport.pdf>
- Culbertson, J. (1988). A century's quest for a knowledge base. In N. Boyan (Ed.), *Handbook of research in educational administration* (pp. 3-26). New York, NY: Longman.
- Darling-Hammond, L., Amrein-Beardsley, A., Haertel, E., & Rothstein, J. (2012). Evaluating teacher evaluation. *Phi Delta Kappan*, 93(6), 8-15.
- Drucker, P. (1954). *The practice of management*. New York, NY: Harper.

- English, F. (2003). *The postmodern challenge to the theory and practice of educational administration*. Springfield, IL: Charles C. Thomas.
- Foster, W. (1986). *Paradigms and promises: New approaches to educational administration*. New York, NY: Prometheus Books.
- Foucault, M. (1977). *Language, counter-memory, practice: Selected essays and interviews by Michel Foucault*. (D. Bouchard, Trans.). Ithaca, NY: Cornell University Press.
- Foucault, M. (1980). *Power/knowledge: Selected interviews and other writings 1972-1977*. (C. Gordon, L. Marshall, J. Mepham, & K. Soper, Trans.). New York, NY: Vintage Books.
- Foucault, M. (1990). *The history of sexuality volume 1: An introduction*. New York, NY: Vintage Books.
- Foucault, M. (1994a). Nietzsche, genealogy, history. In J. Faubion & P. Rabinow (Eds.), *Michel Foucault: Aesthetics, method, and epistemology*. New York, NY: New Press.
- Foucault, M. (1994b). So is it important to think? In J. Faubion & P. Rabinow (Eds.), *Michel Foucault: Power*. New York, NY: New Press.
- Foucault, M. (1995). *Discipline and punish: The birth of the prison*. (A. Sheridan, Trans.). New York, NY: Vintage.
- Foucault, M. (2003a). *Psychiatric power: Lectures at the College de France 1973-1974*. (G. Burchell, Trans.). New York, NY: Picador.
- Foucault, M. (2003b). *Society Must Be Defended: Lectures at the College de France 1975-1976*. (D. Macey, Trans.). New York, NY: Picador.

- Fraser, N., & Nicholson, L. (1989). Social criticism without philosophy: An encounter between feminism and postmodernism. *Social Text*, 21, doi: 10.2307/827810.
- Gallagher, S. (2003). *Educational psychology: Disrupting the dominant discourse*. New York, NY: Peter Lang.
- Garland, D. (2014). What is a “history of the present?” On Foucault’s genealogies and their critical preconditions. *Punishment and Society*, 16(4), 365-384.
- Gillies, D. (2013). *Educational leadership and Michel Foucault*. London, England: Routledge.
- Glover, E. (2013). *The myth of accountability: What we don’t know*. Lanham, MD: Rowman & Littlefield.
- Goldhaber, D., & Loeb, S. (2013). What do we know about the tradeoffs associated with teacher misclassifications in high stakes personnel decisions? Retrieved from Carnegie Foundation for the Advancement of Teaching website: <http://www.carnegieknowledgenetwork.org/briefs/value-added/teacher-misclassifications/>
- Graham, C., & Neu, D. (2004). Standardized testing and the construction of governable persons. *Journal of Curriculum Studies*, 36(3), 295-319.
- Gunzenhauser, M. (2006). Normalizing the educated subject: A Foucaultian analysis of high-stakes accountability. *Educational Studies: Journal of the American Educational Studies Association*, 39(3), 241-259.

- Harris, D., Ingle, W., & Rutledge, S. (2014). How teacher evaluation methods matter for accountability: A comparative analysis of teacher effectiveness ratings by principals and teacher value-added measures. *American Educational Research Journal*, 51(1), 73-112.
- Harris, D., & Sass, T. (2014). Skills, productivity, and the evaluation of teacher performance. *Economics of Education Review*, 40, 183-204.
- Heames, J., & Breland, J. (2010). Management pioneer contributors: 30-year review. *Journal of Management History*, 16(4), 427-436.
- Hill, H., Kapitula, L., & Umland, K. (2011). A validity argument approach to evaluating teacher value-added scores. *American Educational Research Journal*, 48(3), 794-831.
- Hoffman, M. (2014). Disciplinary power. In D. Taylor (Ed.), *Michel Foucault key concepts* (pp. 27-39). London, England: Routledge.
- Hout, M., Elliot, S., & Frueh, S. (2012). Do high stakes tests improve learning? *Issues in Science and Technology*, 28(1), 3-38.
- Jardine, G. (2010). *Foucault and education*. New York, NY: Peter Lang.
- Johnson, F. (1918). The professional reading of the high school principal. *The School Review*, 26(6), 460-467.
- Kanigel, R. (1997). *The one best way: Frederick Winslow Taylor and the enigma of efficiency*. London, England: Little, Brown and Company.
- Klikauer, T. (2013). *Managerialism: A critique of an ideology*. New York, NY: Palgrave Macmillan.

- Kula, W. (1986). *Measures and men*. Princeton, NJ: Princeton University Press.
- Kupermintz, H. (2003). Teacher effects and teacher effectiveness: A validity investigation of the Tennessee Value-Added Assessment System. *Educational Evaluation and Policy Analysis*, 25(3), 287-298.
- Lynch, R. (2014). Foucault's theory of power. In D. Taylor (Ed.) *Michel Foucault key concepts* (pp. 13-26). London, England: Routledge
- Lyotard, J. (1984). *The postmodern condition: A report on knowledge*. (G. Bennington & B. Massumi, Trans.). Minneapolis, MN: University of Minnesota Press. (Original work published in 1979).
- Maclure, M. (2006). 'A demented form of the familiar': Postmodernism and educational research. *Journal of Philosophy of Education*, 40(2), 223-239.
- Malpas, S. (2003). *Jean-Francois Lyotard*. London, England: Routledge.
- Martin, D., Overholt, G., & Urban, W. (1976). *Accountability in American education*. Princeton, NJ: Princeton Book Company.
- McCaffrey, D., & Buzick, H. (2014). Is value-added accurate for teachers of students with disabilities? Retrieved from Carnegie Foundation for the Advancement of Teaching website: http://www.carnegieknowledgenetwork.org/wp-content/uploads/2014/01/CKN_McCaffrey_Disabilities_Fourth_formatted.pdf
- Mills, S. (2003). *Michel Foucault*. London, England: Routledge.
- Mills, S. (2004). *Discourse*. London, England: Routledge.

- Newlon, J. (1934). *Educational administration as social policy*. New York, NY: Charles Scribner's Sons.
- Newton, X, Darling-Hammond, L., Haertel, E., & Ewart, T. (2010). Value-added modeling of teacher effectiveness: An exploration of stability across models and contexts. *Education Policy Analysis Archives*, 18(23), 1-23.
- North Carolina State Board of Education. (2012). Educational value-added assessment system (EVAAS) teacher module, TCS-C-021. Retrieved from <http://sbepolicy.dpi.nc.us>
- Oksala, J. (2007). *How to read Foucault*. New York, NY: W.W. Norton and Company.
- Paige, M. (2016). *Building a better teacher: Understanding value-added models in the law of teacher evaluation*. Lanham, MD: Rowman and Littlefield.
- Paufler, N., & Amrein-Beardsley, A. (2014). The random assignment of students into elementary classrooms: Implications for value-added analyses and interpretations. *American Educational Research Journal*, 51(2), 328-362.
- Payne, W. (1875). *Chapters on school supervision: A practical treatise on superintendence; grading; arranging courses of study; the preparation and use of grades, records, and reports; examinations for promotion, etc.* Cincinnati, OH: Wilson, Hinkle and Company.
- Payne, W. (1882). *Outlines of educational doctrine*. Adrian, MI.: C. Humphrey.
- Peters, M. & Burbules, N. (2004). *Poststructuralism and educational research*. Lanham, England: Row and Littlefield.
- Pollitt, C. (1993). *Managerialism and the public services*. Cambridge, England: Blackwell.

- Porter, T. (1995). *Trust in numbers: The pursuit of objectivity in science and public life*. Princeton, NJ: Princeton University Press.
- Prado, C. (2000). *Starting with Foucault: An introduction to genealogy*. Boulder, CO: Westview.
- Ransom, J. (1997). *Foucault's discipline: The politics of subjectivity*. Durham, NC: Duke University Press.
- Raudenbush, S., & Jean, M. (2012). How should educators interpret value-added scores? Retrieved from Carnegie Foundation for the Advancement of Teaching website: <http://www.carnegieknowledge.org/briefs/value-added/interpreting-value-added/>
- Ravitch, D. (2013). *Reign of error: The hoax of the privatization movement and the danger to America's public schools*. New York, NY: Vintage Books.
- Rees, S. (1995). The fraud and the fiction. In S. Rees & G. Rodley (Eds.), *The human costs of managerialism*. Marrickville, Australia: Pluto Press.
- Rifkin, J. (1987). *Time wars: The primary conflict in human history*. New York, NY: Simon & Schuster.
- Sass, T. (2008). The stability of value-added measures of teacher quality and implications for teacher compensation policy. Retrieved from Urban Institute website: <http://www.urban.org/research/publication/stability-value-added-measures-teacher-quality-and-implications-teacher-compensation-policy>

- Schochet, P. & Chiang, H. (2013). What are error rates for classifying teacher and school performance using value-added models? *Journal of Educational and Behavioral Statistics*, 38(2), 142-171.
- Scott, J.C. (2012). *Two cheers for anarchism*. Princeton, NJ: Princeton University Press.
- Shiner, L. (1982). Reading Foucault: Anti-method and the genealogy of power-knowledge. *History and Theory*, 21(3), 382-398.
- Smart, B. (2002). *Michel Foucault*. London, England: Routledge.
- St. Pierre, E. (2000). The call for intelligibility in postmodern educational research. *Educational Researcher*, 29(5), 25-28.
- St. Pierre, E. (2012). Another postmodern report on knowledge: Positivism and its others. *International Journal of Leadership in Education*, 15(4), 483-503.
- Tamboukou, M. (1999). Writing genealogies: An exploration of Foucault's strategies for doing research. *Discourse: Studies in the Cultural Politics of Education*, 20(2), 201-217.
- Taylor, F. (1911). *The principles of scientific management*. New York, NY: Harper and Brothers.
- U.S. Department of Education. (2010a). A blueprint for reform: The reauthorization of the elementary and secondary education act. Retrieved from <http://www2.ed.gov/policy/elsec/leg/blueprint/blueprint.pdf>
- U.S. Department of Education (2016a). ESEA flexibility. Retrieved from <http://www2.ed.gov/policy/elsec/guid/esea-flexibility/index.html>

U.S. Department of Education (2016b). Race to the top fund. Retrieved from

<http://www2.ed.gov/programs/racetothetop/index.html>

U.S. Department of Education. (n.d.). Every student succeeds act (ESSA). Retrieved from

<http://www.ed.gov/essa?src=rn>

Usher, R. (2006). Lyotard's performance. *Studies in Philosophy and Education*, 25(4), 279-288.

Usher, R., & Edwards, R. (1994). *Postmodernism and education*. London, England: Routledge.

Wren, D., & Hay, R. (1977). Management historians and business historians: Differing perceptions of pioneer contributors. *Academy of Management Journal*, 20(3), 470-475.

Vita

John Robinson was born in Concord, North Carolina. He attended the University of North Carolina Charlotte where he earned a bachelor of arts in English. He later earned a master of arts degree in instructional technology, a master of school administration degree, and an education specialist degree all for Appalachian State University.

John currently employed as a principal at Discovery High School with the Newton-Conover City School system located in Newton, North Carolina. He has previously served as a middle school principal, high school assistant principal, a 9-12 English teacher, a middle school language arts teacher and an instructional technology specialist. He currently has an active blog entitled *The 21stFirst Century Principal* and has published articles on technology and leadership. He hopes to continue his investigation into the administration and leadership practices of public education