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The Effects of Backward-Designed Curriculum and Instruction on Classroom Management

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by

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Dr. William Emrick, Dissertation Chair	Date 8-26-11
Dr. Sherrie Wisdom, Committee Member	Date 8-26-2011
Dr.Beth Kania-Gosche, Committee Member	Date 8-26-11

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

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Abstract

The purpose of this study was to investigate the link between interesting, purposeful work and positive classroom behavior. The backward design model proposed by Grant Wiggins and Jay McTighe was the foundation for establishing interesting, purposeful work. Their curriculum and instruction model termed Backward Design is a three-stage approach to curriculum design consisting of determining the desired results, acceptable evidence, and the instruction to bring about the desired results.

In the review of literature, the researcher was unable to find a study specifically investigating the relationship between classroom behavior, classroom management, and the employment of backward-designed curriculum and instruction. However, the researcher did find evidence of the positive relationship between specific elements within the backward design model and positive classroom behaviors. These elements included curriculum aligned with standards, formative and summative assessment, motivation, and understanding.

This study's intent was to provide a tool to aid teachers in their instruction and therefore, their classroom management. The effectiveness of using the backward design model as a strategy to increase positive classroom behavior was based upon teacher perceptions of the impact of backward design on classroom student behavior as recorded on one on-line survey and an accompanying questionnaire. The survey asked 13 teachers to rate their beliefs as to the effectiveness of backward-designed curriculum in promoting positive student behavior and classroom management. The purpose of the questionnaire was to encourage teachers to explain backward design in their own words, how they employed it, and how it impacted their students' learning. In eight of ten survey

statements, classroom teachers trained in a backward design model of curriculum and instruction who implemented this model in their classroom lessons verified a measurable increase in positive, on-task behaviors including, but not limited to, student attention, participation, and on-topic responding. Responses also indicated that participants felt comfortable using the backward design model and that they planned on increasing its use in designing their lessons.

Because of the small scope of the study, 13 classroom teachers, its finding may not be replicable. Therefore, further study investigating the link between backward design and classroom management is warranted.

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Chapter One: Introduction

Overview of the Study

Classroom management can be described as "the process by which teachers create… and maintain an environment in the classroom that allows students the best opportunity to learn" (Taylor, 2009, p. 1). One important aspect of classroom management is content management which focuses on the management of "space, material, equipment, the movement of people and lessons that are part of a curriculum or program of studies" (Froyen & Iverson, 1999, p. 128). When a lesson is well-organized with attention to necessary prerequisite elements, it can be said to flow well—that is, students are engaged and off-task behavior is at a minimum. An effective, well-designed lesson engages the students so that disruptive behavior is lessened (Little & Akin-Little, 2008).

Wiggins & McTighe (2005) asserted that the best lessons are both engaging and effective. They are effective when learners "become more competent and productive at worthy work" (p. 195). They are engaging when learners find the material "thought provoking, fascinating, [and] energizing" (p. 195). Effective lessons are part of a quality education along with "instruction, support, and other conditions in the classroom that meet students' basic needs" (Charles, p. 126). William Glasser (1993), well-known psychiatrist and developer of reality therapy and choice theory, termed these needs survival, belonging, power, fun, and freedom. He stated that the curriculum should be designed so that students not only enjoy learning but also find the content useful, a key component of quality teaching. Quality teaching emphasizes useful work, work in which the information taught must be directly related to an important skill, to something the

students desire to learn, or to something the teacher finds useful (Glasser, 1993). He found that students were less likely to be disruptive when their attention was focused on interesting, worthwhile work.

The purpose of this study was to investigate the link between interesting, purposeful work and positive classroom behavior. The backward design model proposed by Grant Wiggins and Jay McTighe (2005) is the foundation for establishing interesting, purposeful work. Backward design requires that "one starts with the end—the desired results (goals or standards)—and then derives the curriculum from the evidence of learning (performances) called for by the standard and the teaching needed to equip students to perform" (Wiggins & McTighe, 1998, p. 8). Wiggins and McTighe's backward design is a three-stage approach to curriculum design. In stage one, the desired results are identified, and the purpose is determined. In stage two, acceptable evidence is determined, and a means to evaluate the learning is identified. Finally in stage three, learning experiences and instruction are planned by selecting and organizing the most effective means to bring about the desired results.

For this study, the researcher evaluated the effectiveness of using the backward design model as a strategy to increase positive classroom behavior based upon teacher perceptions of the impact of backward design on classroom student behavior as recorded on one on-line survey and an accompanying questionnaire. The survey asked teachers to rate their belief as to the effectiveness of backward designed curriculum in promoting positive student behavior and classroom management, how comfortable the teachers were in its application, and how frequently it was employed. The purpose of the questionnaire was to encourage teachers to explain backward design in their own words, how they

employed it, and how it impacted their students' learning. This study investigated teacher perceptions as to how the major themes embedded within the backward design model impacted their instruction and classroom management. All the participants in this study were current classroom teachers who had completed a Curriculum Analysis and Design course which focused on teaching students the principles of backward-designed curriculum. This course, using the backward design format, has been taught at Lindenwood since 2002. Participant teachers were initially approached during their participation in the course Curriculum Analysis and Design during the fall and spring terms of 2009 and 2010. One teacher was added who had completed the course prior to 2009-2010. These teachers came from both private and public schools and from various school districts.

Background of the Problem

William Glasser (1993) realized the futility of trying to coerce students into good behavior when they found the lessons boring. This led him to advocate less attention to correction of poor student behavior and a focus on providing what he termed a quality education (Charles, 2002). A quality education is one that provides "instruction, support, and other conditions in the classroom that meet students' basic needs" (p. 126). Glasser termed these survival, belonging, power, fun, and freedom. He advocated that curriculum should be designed so that students enjoy what they are doing and find it useful. Wiggins & McTighe (2005) asserted that the best lessons are both engaging and effective. They are effective when learners "become more competent and productive at worthy work" (p. 195). They are engaging when learners find the material "thought provoking, fascinating, [and] energizing" (p. 195).

When planning lessons, Wiggins and McTighe warned against two common "sins" in lesson design (2005, p. 16). The first of these is an overreliance on activities and experiences that might be engaging, but which haphazardly address the particular goal or goals of the instruction; learning is accidental rather than planned and focused. The second "sin" is the propensity to cover large amounts of material without enough depth to make any of it meaningful. The result of either approach is a lack of "intellectual purpose" (p. 16) and a collection of unrelated facts that students cannot connect to their lives.

An effective, well-designed lesson engages the students so that disruptive behavior is lessened (Little & Akin-Little, 2008). Engagement not only increases academic performance, but it also lessens misbehaviors (Taylor & Boelter, 2008). Taylor and Boelter found that when academic engagement is low there is a higher incidence of undesirable behaviors. They found that academic engagement is indicative of academic performance and repeated academic failures lead to a host of unacceptable classroom behaviors including inattention, withdrawal, off-topic responses, and attention-seeking behavior such as bullying or creating chaos.

Many studies viewed student engagement in terms of motivation; barring other influences, motivated students should be engaged with the lesson. Student motivation can be increased in a number of ways. One way to motivate via task manipulation is to make the task meaningful to the student (Seifert, 2004; Major, 2008). Oliver (1995) stated that many students get bored. Boredom can be overcome by incorporating the students' interests into the lessons (Margolis & McCabe, 2006), and by relating tasks to students' own lives (Margolis & McCabe, 2006; Major, 2008). Tasks can have real-world

applications (Major, 2008) or be what Wiggins and McTighe (2005) called authentic tasks. For example, consider a unit of instruction on advertising. To be authentic, students should do more than just create an ad; they should approach the unit as a real advertiser would, perhaps by investigating buying trends and age demographics, or conducting some other market-based research. In this case, students are asked to do the subject, to approach the learning task much like adults do in a real-life context (Wiggins & McTighe, 2005). Students can also derive meaning when the goals of the lessons are carefully explained (Oliver, 1995).

Additionally, how the tasks are presented, not just the directions, can help motivate. Margolis and McCabe (2006) found that "tasks should be slightly above the learner's current performance level" (p.220). When tasks are seen as too difficult, too far above the student's current level, then the student can become unmotivated. For example, asking a struggling writer to produce a full composition might seem overwhelming and cause the student to resist the assignment and display, among other coping behaviors, "diversionary behavior problems" (Margolis & McCabe, 2006, p. 219). To address this, tasks should be assigned at the appropriate level: not so simple as to bore or embarrass, but not so complex as to cause undue frustration or fear of failure (Margolis & McCabe, 2006).

Vockell found that repeated failures were "hazardous to motivational health for students" (2010, p. 3). Both Major (2005) and Vockell (2010) stated that tasks should be sequenced for initial success to overcome the fear of failure. To accomplish this, tasks may have to be introduced in an order that produces initial success (Major, 2008; Vockell, 2010). Wiggins and McTighe (2005) referred to this as the logic of learning

instead of the logic of the content. Additionally, Margolis and McCabe (2006) found that tasks should not cover more than one or two critical strategies for mastery, so as not to confuse the students. They also stated that students should be given choice over tasks and materials whenever possible.

Finally, the role of feedback on task completion cannot be overstated. It provides immediate and regular feedback on the given task, and not only tells students how they are doing, but points them in the right direction (Major, 2008; Oliver 1995). Kelly (1977) found that "sensitive teachers do make constant adjustments to their procedures and to their objectives in the light of the continuous feedback they get from their pupils as any piece of work progresses" (p. 34). Garrison and Ehringhous (para. 9, 2010) called feedback "the most significant instructional strategy to move students forward in their learning." Descriptive feedback makes students active partners in their own learning, shows them how they are doing and what they need to do to improve (Garrison & Ehringhous, 2010). Formative assessments provide descriptive feedback. Formative assessments, such as teacher observation or questioning, provide feedback to teachers and pupils that is useful in guiding both the instruction and the learner while at the same time increasing engagement (Garrison & Ehringhous, 2010). The intent of formative assessment is to provide timely information to make changes to both classroom teaching and learning (Garrison & Ehringhous, 2010).

"Over the last several years, state boards of education have become increasingly engaged in the development of content and performance standards and the assessments that accompany them" (Marzano & Kendall, 1996, p. 1). Marzano and Kendall defined standards and assessments as "what students should know and be able to do—and how

these students should demonstrate their knowledge and skills" (1996, p. 1). The modern standards movement was partly a response to *A Nation at Risk* in which state and local officials sought to increase academic rigor and graduation rates (A Nation at Risk, 1983). However, there is evidence that the modern march toward standards began with the initial release of the Elementary and Secondary Education Act of 1965 (ESEA), which was part of President's Johnson's "War on Poverty" (About the Elementary and Secondary Education Act). However, policies recommended by *A Nation at Risk* did not produce the desired results. This prompted educational leaders to turn to national standards and goals (Marzano & Kendall, 1996). A key finding of the report, *A Nation at Risk*, was a concern about the preparedness of our young people to compete both economically and financially (A Nation at Risk, 1983). As a result, then President George H. Bush convened a summit of states' governors in 1989 and established six goals, two of which were related to academic achievement:

> Goal 3: By the year 2000, American students will leave grades 4, 8, and 12 having demonstrated competency in challenging subject matter including English, mathematics, science, history, and geography: and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy.
>
> Goal 4: By the year 2000, U.S. students will be first in the world in science and mathematics achievement (as cited in Marzano & Kendall, 1996).

Another major theme embedded within the backward design model is alignment to standards. Liebling (1997) found that alignment of curriculum was perceived as a

major means to improving student achievement. The strength of perception was evidenced when the alignment of curriculum was mandated under the No Child Left Behind (NCLB) Act where "schools, districts, and states [are required to] have a system of K-12 standards that are 'aligned' with the assessments used in the state accountability system" (Roach, 2008, p. 159). The American Recovery and Reinvestment Act of 2009, appropriated $4.35 billion in the form of competitive grants for states to improve their education systems. This act, signed into law on February 17, 2009, was intended to "stimulate the economy, support job creation, and invest in critical sectors, including education" (Race to the Top Executive Summary, 2009). Among the criteria for improvement were adopting standards and assessments and creating alignment throughout the curriculum. States earn more points when they take part in a consortium to jointly develop and adopt K-12 standards (Race to the Top Executive Summary, 2009).

"Teachers are designers" (Wiggins & McTighe, 1998, p. 7) with a great deal of creative freedom; they have flexibility in approaching the desired outcomes, (Stenhouse, 1975) and they have the ability to shape and prioritize those outcomes (Smith M. K., 1996, 2000). Traditionally, the instructional freedom enjoyed by teachers was grounded in the American tradition of local educational control, with districts and schools deciding for themselves what to teach. This flexibility trickled down to the individual classrooms where teachers often decided what and how to teach (Carey, 2008). Wiggins and McTighe regard teachers as design professionals who are judged by their product, student achievement. Even though teachers have great autonomy, teachers, like other professionals need to have guidelines (standards) to "inform and shape" (p. 7) their work. Backward design requires that "one starts with the end—the desired results (goals or

standards)—and then derives the curriculum from the evidence of learning (performances) called for by the standard and the teaching needed to equip students to perform" (Wiggins & McTighe, 1998, p. 8).

Alignment not only refers to following state and national standards, it also refers to the coordination between curriculum, instruction, and assessment (Marzano & Kendall, 1996). Cohen (2005) referred to instructional alignment as the agreement between all three components of instruction which include the intended outcomes, instructional processes, and assessments. Cohen found substantial evidence that alignment between curriculum, instruction, and assessment improved student performance. Liebling (1997) also claimed there was a strong correlation between achievement scores and how much the assessment matched instruction. Backward design aligns curriculum, instruction, and assessment by requiring that teachers begin with the standard or end result, determine what evidence will prove whether the goal is met, and finally, what instruction is needed to reach the goal (Wiggins & McTighe, 1998). Standards dictate the curriculum, the curriculum determines the assessments, and the assessments inform the instruction. When curriculum, instruction, and assessement are aligned according to the backward design model, the result effectively answers Tyler's (1949) four fundamental questions about curriculum:

1. What educational purposes should the school seek to attain?
2. How can learning experiences that are likely to be useful in attaining these objectives be selected?
3. How can learning experiences be organized for effective instruction?
4. How can the effectiveness of learning experiences be evaluated? (1949, p. 1).

Viewing curriculum in response to these questions has guided curriculum development for many years and continues to influence new ideas and principles (Howard, 2007; Denham, 2002).

Statement of Problem

Taylor (2009) described classroom management as the way teachers create an optimum environment for students to learn. Managing content is an important aspect of classroom management (Froyen & Iverson, 1999). An effective, well-designed lesson engages the students so that disruptive behavior is lessened (Little & Akin-Little, 2008). Engagement not only increases academic performance, but it also lessens misbehaviors (Taylor & Boelter, 2008). Conversely, Taylor and Boelter (2008) asserted that low academic engagement leads to increased undesirable behavior including disruption. Academic engagement is indicative of academic performance and repeated academic failures lead to a host of unacceptable classroom behaviors including: inattention, withdrawal, off-topic responses, and attention-seeking behavior such as bullying or creating chaos (Tyler & Boelter, 2008).

This study considered major elements within the curriculum model termed as backward design which might promote positive classroom behavior. The researcher believed that teachers who utilized the backward design model would benefit from student active involvement in their learning thus assisting the teacher with classroom management. Themes associated with the backward design model are found in the research literature and include: standards, curriculum alignment, authentic tasks, understanding, formative and summative assessment, and motivation. Backward design of curriculum does not represent a single intervention, rather its components cooperate to

ensure learning based on student involvement. If implemented properly it should positively affect student behavior and classroom management. The researcher explored each of these components to assess their impact on student learning and classroom management according to the teacher respondents' perceptions.

Importance of the Study

This study provided research-based information as to how the backward design model could be used to improve classroom management. A review of the literature showed a positive relationship between the elements of backward designed curriculum and instruction and improvement in student classroom behaviors. However, no study linked all, or even most, of the major elements within the backward design model to positive changes in student behavior. This study endeavored to compile most of the major themes in one document and to also provide details about how the strategies within the backward design model can be evidenced in the classroom thus providing teachers with a collection of "best practices" of curriculum and instruction with emphasis on goals setting, lesson planning, and assessment.

There is research which suggests that student involvement in their learning results in positive effects in their behavior (Little & Akin-Little, 2008; Taylor & Boelter, 2008). This study analyzed the backward design model of curriculum to determine teacher perceptions of the effects of the model on their classroom management

Purpose of the Study

The purpose of this study was to present the major elements of the backward design model of curriculum and instruction, illustrate how each individually impacted instruction and student classroom behavior, and then investigate how, taken together, all

the emements combine to impact instruction and student behavior. The study employed an on-line survey of teacher participants who completed the same university course titled Curriculum Analysis and Design which focused on a backward design model of curriculum. Thirteen participants were asked to rate their responses using a Likert scale for statements concerning the effects of teaching using a backward design model for curriculum on the classroom performance of their students. Participants were also asked to answer open-ended questions directly related to the survey statements. This was also done on-line. The survey and accompanying questions were designed to determine how teachers were using backward design, how major themes imbedded in the model affected their pedagogy, and how elements of backward design affected student performance and classroom behaviors.

The purpose of this study was to determine if teacher participants perceived that the strategies embedded in the backward design curriculum model motivated student involvement in their learning and postitively impacted classroom behavior and classroom management. The study consisted of literature research focusing on the major strategies within the backward design of curriculum model of curriculum and how they may impact student classroom behavior. It also contained a survey of practicing teachers who successfully completed a course in backward design of curriculum asking them to rate their perceptions of statements concerning the effectiveness of the model. Additionally, teacher participants were asked to complete an instrument containing open-ended questions directly related to the survey statements.

The Null Hypothesis H_o

Classroom teachers trained in a backward design model of curriculum and instruction who implement this model in their classroom lessons will not verify a measurable increase in positive, on-task behaviors including, but not limited to, student attention, participation, and on-topic responding.

The Alternative Hypothesis H_1

Classroom teachers trained in a backward design model of curriculum and instruction who implement this model in their classroom lessons will verify an increase in positive, on-task behaviors including, but not limited to, student attention, participation, and on-topic responding.

Research Questions For This Study

1. What is the relationship between curriculum and instruction designed according to a backward design model and on-task, positive student classroom behaviors as reported by teacher participants?
2. How do the major components within a backward design curriculum serve to increase student focus, transfer of knowledge, classroom performance and production as reported by teacher participants?
3. How do backward-designed lessons contribute to increasing student motivation for student learning as reported by teacher participants?
4. Why is the formative assessment/feedback component of a backward design lesson essential to ensure student success as reported by teacher participants?
5. How do backward design lessons align curriculum, instruction, and assessment in the classroom as reported by teacher participants ?

Variables

The independent variable of this study was the use of backward designed curriculum and instruction, including some or all of the embedded themes included within the model, by classroom teachers.

The dependent variable of the study was the behavior of the students when a teacher designed lessons using the backward design model of curriculum and instruction.

Limitations of the Study

"When a study has internal validity, it means that any relationship observed between two or more variables should be unambiguous as to what it means rather than being due to 'something else'" (Fraenkel & Wallen, 2006, p.169). Should there exist a possibility that the relationship is due to something else there exists a possible threat to internal validity (Fraenkel & Wallen, 2006). Below are the limitations that may have occurred while this study was conducted.

Subject characteristic threat. The subjects selected for the study were all practicing teachers who had taken Curriculum Analysis and Design at Lindenwood University. Since all the teachers received their instruction about backward design from the same source, there is a possibility that their responses to the questionnaires could be influenced by a number of factors including their view of the instructor or the institution. Teachers may have had more or less experience using a backward-designed curriculum. Their own teaching styles may have impacted their effective use of backward-designed curriculum, and consequently, their perceptions of its impact on classroom management.

Additionally, since the teachers did not all teach in the same school or district, their responses may have been impacted depending upon their individual curriculum, or the

degree of freedom they had in attempting backward design. Some school administrators might not have agreed with, or have knowledge of, backward design curriculum, and therefore not be supportive of the teachers in its practice.

Student motivation and characteristics may have also influenced the study. Though students themselves did not participate in the study, their reactions to the independent variable (backward designed curriculum as the treatment factor) featured in the teachers' impressions of how backward design impacted their teaching. As such, factors not connected to lesson design may have influenced students and caused varying degrees of motivation. Among these were discipline issues, family problems, a general dislike of school, learning disabilities, and language problems (Oliver, 1995). Students may have developed passive learning strategies (Joseph, 2009) and may have needed time to adjust to the treatment factor (backward-designed curriculum). Other influences such as age, gender, ethnicity, and etc. should not have impacted teacher responses.

Mortality Threat. The researcher assured all participants that their responses would be anonymous and cofidential and that their participation would not take an inordinate amount of time. Nevertheless, he could not guarantee that all subjects would complete the surveys or be currently employed as classroom teachers when the surveys and questionnaires were administered.

Data Collector Bias. Because one of the instruments called for teacher answers to open-ended questions, there existed the possibility that the collector of the data could distort or interpret the responses in a biased manner favoring the backward design model. However, the other instrument required responses which were rated according to a likert-

type scale and thus measured numerically. Still, teacher respondants may not have been completely honest in their responses.

Survey Size. The study consisted of a small number of participants, 13 teachers who had taken a graduate education course, "Curriculum Analysis and Design" at Lindenwood University. The sample was purposive and convenient, and therefore not necessarily representative of a random sampling of classroom teachers. Because the number of participants was not large, the study was restricted to a small number of schools and a very small segment of each school. Therefore, it was difficult to expand the findings. Further, the study may not be replicable without midification due to the sampling of participants who were teachers who had taken Curriculum Analysis and Design at Lindenwood University.

Definition of Terms

Achievement Goal Theory: motivational theory in which student behavior can be attributed to the desire to achieve one of two goals: a mastery goal or a performance goal. Those who strive for mastery are said to be self-regulating and self-determining learners; they believe their effort determines their success or failure. However, those who strive for performance focus more on innate ability and see their success or failure only by comparing themselves to their peers. If they are confident, they may display positive behaviors, but if they are not, they may display negative behaviors such as avoiding work or making negative comments about the work (Seifert, 2004).

Achieve Model: a tool for aligning curriculum which refers to making sure curriculum, instruction, and assessment support one another, often referred to as mapping the

curriculum. In this model experts first attach individual test items to the corresponding standard. Then alignment is analyzed by content centrality, performance centrality, and source of challenge (Roach, 2008).

Affective Domain: the emotions including motivation, attitudes, perceptions, and values that can improve or worsen learning (McQuiggan, Robinson, & Lester, 2010).

Alignment: 1. following state and national standards (Marzano & Kendall, 1996). 2. The agreement between all three components of instruction which include the intended outcomes, instructional processes, and assessments (Cohen, 2005).

Attribution Theory: a person's perceived cause of an outcome, or why something occurred (Seifert, 2004). In a classroom, according to Weiner (1974, p. 54) students could see events as caused by effort, skills and knowledge, strategies, abilities, the teacher's mood or mistakes by the teacher. He further argued that we can separate these four causes by their locus of control and whether or not the cause is fixed or variable. Ability and effort can be affected by the individual; task difficulty and luck cannot. Ability and task difficulty are fixed; effort and luck are not (Weiner, 1974, p. 54).

Bell-shaped Curve: a way to measure students against each other in which their scores are distributed from low to high with the bulk tending to be in the middle, thus creating a curve as the number of students becomes larger and trails off with fewer high and low scores (Reeves, 2002).

Bloom's Taxonomy: named for Benjamin Bloom, a system of classifying learning objectives from easier to more difficult (Wiggins & McTighe, 2005). The classification system consists of three domains: Cognitive, Affective, and Psycho-

Motor. The Cognitive Domain consists of six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. Each level serves as a stepping stone to the next higher level. The Affective Domain consists of five levels: receiving; responding; valuing; organizing and conceptualizing; and characterizing by value or value concept. This domain is primarily concerned with moral reasoning. The Psycho-Motor Domain consists of five levels: imitation, manipulation, precision, articulation, and naturalization. This domain deals with skill development and was left incomplete by Bloom (Atherton, 2011).

Connected Knowing: knowing that occurs as students interact with each other directly and collaboratively, as well as indirectly through text and other representations. It also includes interacting with concepts and methods within a discipline (Greeno, 2006, p. 540).

Constructivism: view of learning that learners interpret information in the context of their own experiences and their interpretations are unique (Duffy & Jonassen, 1992). People learn through their own experiences in a process whereby they are confronted with something new, reconcile it with existing experiences, and alter their beliefs or disregard the new information (Concept to Classroom Workshop: Constructivism as a Paradigm for Teaching and Learning, 2004).

Content Management: how teachers manage space, materials, equipment, and lessons. Content management includes consideration of a number of student behaviors which the teacher must be aware of and account for. Froyen and Iverson (1999) provide a number of observable behaviors in a checklist including instructional management, sequencing and integration of additional instructional activities, and

dealing with instruction-related discipline problems. The instructional management checklist includes: movement management, group focus, and avoidance of satiation (progress, variety, challenge). The sequencing and integration of additional instructional activities checklist includes: management of daily review/preview sessions, management of individual/group work, management of homework, management of lectures/presentation sessions, management of discussions, management of projects and problem-solving sessions. And the instructional related discipline problems checklist includes: off-task behavior, inappropriate talking, late assignments, tardiness and absenteeism, cheating, test anxiety, doing nothing, poor listening.

Covenant Management: the group dynamics of a class and managing relationships. Froyen and Iverson (1999) provide a number of observable behaviors in a checklist including: getting involved with the student, dealing with the student's present behavior, getting the student to make a value judgment about the behavior, helping the student develop a plan to change behavior, getting the student to adhere to the plan, not accepting excuses for failing to meet expectations, and not criticizing or punishing for breaking plans.

Criterion Referenced Assessment: comparing student achievement to a standard instead of other students. Using grades as an example, an instructor could determine that students must get 90% of the questions correct on a test to receive an "A" instead of using a norm-referenced assessment in which the instructor would grade all the tests and establish a cutoff score for determining who receives an "A". In the

latter example, the number of correct responses is irrelevant; what is relevant is how the student performed compared to his or her peers (Aviles, 2001).

Criterion Referenced Instruction (CRI): CRI consists of: indentifying a goal or task, establishing the performance objectives or criteria; evaluating the learning in terms of the objectives, and developing learning modules tied to the objectives (Mager, 2010).

Curriculum as Praxis: an approach to curriculum in which the curriculum evolves through a process of planning, acting, and evaluating. In this model, educators examine their own practice and values, as well as those of their peers and go into the process understanding their role and putting forth a proposal for action based upon certain agreed upon principals. Teachers are directed by these principles as they interact with their students and other teachers. The entire process is continually evaluated for possible outcomes (Smith, 1996, 2000).

Depth-of-Knowledge (DOK): originally used as part of the Web Alignment Model for aligning state standards with state assessments (Roach, 2008). Specifically, it is a way to judge the intellectual requirements of a task. It consists of the following four levels: recall, skill/concept, strategic thinking and extended thinking. Verbs describing various actions such as infer, list, connect, and revise are categorized into one of the four levels (Depth of Knowledge (DOK) Levels).

Discrepancy Analyses: curriculum alignment tool focusing on an absence of something. The model calls for teachers to submit their syllabi and pertinent documentation to a review board to determine if the course was aligned to existing college standards (Discrepancy Analyses).

Formative Assessment: assessments, such as teacher observation or questioning, which provide feedback to teachers and pupils that is useful in guiding both the instruction and the learner while at the same time increasing engagement (Garrison & Ehringhous, 2010).

Frontloading: approach to aligning curriculum in which the tested curriculum is aligned with the written curriculum's learning goals. This process occurs when teachers determine assessments that closely match the curriculum. The benefit is that involving the teacher in determining the test means that their instruction might more closely align the taught curriculum to the written curriculum. This approach to alignment entails the following steps: 1) educators write curriculum guides; 2) educators select tests, often criterion-referenced, to measure the existing curriculum; 3) educators select or create end-of-unit or end-of-course assessments; 4) educators monitor student achievement and consider changes to the assessments (Liebling, 1997).

Instructional Alignment: the agreement between all three components of instruction which include the intended outcomes, instructional processes, and assessments (Cohen, 2005). Leitzel and Vogler (1994) referred to the three components as the planning of curriculum, the instruction of curriculum, and the assessment of the curriculum goals.

James Popham Model: curriculum alignment tool that proposes that goals be identified, percentage of students who should be able to master those goals calculated, percentage of students who actually have attained the goal determined, and goals

readjusted according to the difference between those who have and have not achieved the goals (Ediger, 1986).

J-curve: originally designed as an economic model, the J-curve has been used in number of fields including education. The J-curve represents the influence of ongoing assessment of student work which promotes continious improvement thus realizing a curve of constant progress rather than a Bell-shaped curve which is the result of a lack of assessment (Mikels & Sartori).

Krathwohl's Taxonomy: the companion text to Bloom's *Taxonomy of Educational Objectives-The Classification of Educational Goals. Handbook I. – Cognitive Domain* is *Taxonomy of Educational Objectives: Affective Domain*, which lists levels of conscious and cognitive development similar to Bloom's DOK (Nuhfer, 2005).

Linchpin Ideas: the core concepts, principles theories, and processes that should serve as the focal point of curricula, instruction, and assessment (Wiggins & McTighe, 2005, p. 338).

Outstanding Schools Act of 1993: Missouri state law that created the "Show-Me Standards" which are academic performance standards. The law required the State Board of Education to provide a framework to help local districts align their curricula with the state standards. The law also mandated that districts ensure that students attain the knowledge, skills, and competencies recommended in the academic performance standards (Curriculum: Developing Curriculum Guides Aligned To Missouri's Show-Me Standards, 1997).

Problem-based Learning (PBL): originally developed to improve medical training, K-12 uses include creating authentic learning environments to develop effective problem-solving skills (Artino, 2008).

Self-efficacy Theory: a person's belief about his or her ability to perform something at a certain level of competency. When self-efficacy is low, confidence is low and students who lack confidence may shun assignments they find challenging or difficult (Seifert, 2004). Low self-efficacy impedes academic success and over time can create self-fulfilling prophecies of failure and learned helplessness (Margo & McCabe, 2006; Tyler & Boelter, 2008; Seifert 2004).

Self-worth Theory: motivation theory which states that much of the achievement in a classroom is due to the need for students to protect their self-worth (Covington, 1984).

Six Facets of Understanding: ways in which understandings are manifested. The six types are: Explanation (accounting for how products worked, what they implied, and any connections); Interpretation (making meaning or sense about a human experience, data, or texts); Application (applying knowledge and skills in different settings); Perspective (seeing other points of view, from a critical distance); Empathy (appreciating another's emotions); Self-knowledge (awareness of one's own understandings and prejudices) (Wiggins & McTighe, 2005).

Standardized Tests: a term used to describe a test or assessment in which the administrative conditions and protocol are uniform for all students (Wiggins & McTighe, 2005, p. 353).

Survey of Enacted Curriculum: a tool for comparing different aspects of curriculum, instruction, and assessments such as tests, standards, and instructional materials (Roach, 2008).

Summary

Chapter one provided background for understanding the nature of the intended study. The study was based on determining the effectiveness of a backward design model of curriculum in creating and implementing curriculum that ensured student involvement and promoted positive classroom behaviors. Wiggins & McTighe (2005) asserted that the best lessons are both engaging and effective. An effective, well-designed lesson engages the students so that disruptive behavior is lessened (Little & Akin-Little, 2008). Engagement not only increases academic performance, but it also lessens misbehaviors (Taylor & Boelter, 2008). Where academic engagement is low there is a higher incident of undesirable behavior including disruption (Taylor & Boelter, 2008).

The purpose of this study was to determine if the strategies within backward-designed curriculum and instruction could be employed by teachers to improve classroom behavior of students. This study considered the major elements within the backward design model that might promote positive classroom behavior; the idea being that teachers utilizing the backward design model would, therefore, have an easier time managing their classroom. Within Chapter One, four likert-type and five open-ended questions were described in the purpose of the study. The primary task of the researcher was to answer the questions through surveys and research.

Chapter Two: Literature Review

Overview

The purpose of this study was to investigate the relationship between interesting, purposeful work embodied in the backward design of curriculum and student classroom behavior. A curriculum model termed as backward design was developed by Grant Wiggins and Jay McTighe and served as a foundation for teachers to establish interesting and purposeful work in the classroom. This review of literature contains a study of the backward design model by focusing on major components and best instructional practices that can positively impact student classroom behavior.

The themes embedded within the backward design model were identified after first researching the model itself. The major themes identified and selected were: curriculum alignment, formative and summative assessment, student motivation, and understanding. These themes were chosen because the researcher found them to have the most impact on student academic performance and behavior. Because academic performance was a key factor in positive classroom behavior, the themes were examined not only for their direct influence on classroom behavior but also for their influence on academic performance. Depending upon the complexity of each theme, they were further detailed into subsections. This chapter began with an explanation of classroom management because that was what the researcher hoped to improve with the intervention of various elements of the backward design model.

Classroom Management

Differences between well-managed and poorly-managed classrooms are not always obvious, even to individuals trained as educators. An atmosphere that appears chaotic does not necessarily mean that learning and understanding aren't taking place; and conversely, a quiet, orderly atmosphere does not necessarily equate to learning and understanding. Therefore, the researcher needed to clearly define classroom management. Classroom management can be described as "the process by which teachers create… and maintain an environment in the classroom that allows students the best opportunity to learn" (Taylor, 2009, p. 1). Little and Akin-Little (2008) concluded that classroom management does not consist of any one technique, but a set of procedures which are proactive and reactive and used by the teacher to maintain order.

The importance of managing a classroom cannot be overstated with regard to student learning. It also ranks highly as a concern among teachers, parents, and the general public (Brown & Beckett, 2006). Poor classroom management has been linked to teacher stress and burnout (Schottle & Peltier, 1991). For new teachers, it ranks near the top of their concerns (Taylor, 2009; Little & Akin-Little, 2008). Because of this, any tool that could aid both novice and experienced teachers in their instruction and in their job satisfaction should be explored. Exploring how the effective teaching strategies embedded within backward design might impact classroom management should increase the mechanisms by which teachers facilitate learning and sustain job satisfaction.

Froyen and Iverson (1999) grouped classroom management into three areas: Content Management, Conduct Management, and Covenant Management. Conduct Management concerns procedures teachers use to deal with discipline issues. Covenant

Management describes the group dynamics of a class and managing relationships. Content Management focuses on how teachers manage space, materials, equipment, and lessons. The principles and processes embedded in backward-designed curriculum are most connected to Content Management.

Froyen and Iverson (1999) described content management as the way teachers organize their instruction including their choice of materials, equipment, student movement and lessons. When a lesson is developed with attention to prerequisite details, it runs smoothly. In other words, student engagement is high and off-task behavior is minimized. Little and Akin-Little (2008) described an effective lesson as one that captures the student's attention and thus reduces disruptive behavior.

According to Wiggins and McTighe (2005), a good lesson not only engages students, it is also effective. Lessons are considered effective when the learners are occupied with worthwhile work. Engagement is increased when students consider the material to be interesting and stimulating. William Glasser (1993) also focused on student interest in what he termed a quality education. Rather than trying to coerce bored students into proper behavior, Glasser felt student behavior would be improved if they valued the work, information, or skill being taught.

Backward Design

A review of literature demonstrated a lack of precision in defining the term curriculum; however, one major agreed-upon curriculum goal is student understanding through transfer of that learning to different settings (Posner, 1995; Smith, 2000). One curriculum model, termed as backward design by Grant Wiggins and Jay McTighe, is

seen as a "practical, simple approach(s) to curriculum development" (Howard, Judeth, 2007, p. 4) that promotes "the ability to transfer… knowledge and skill effectively… and use it creatively, flexibly, fluently, in different settings or problems" (p. 40). The authors' design takes into account Tyler's four fundamental questions about curriculum:

1. What educational purposes should the school seek to attain?
2. How can learning experiences that are likely to be useful in attaining these objectives be selected?
3. How can learning experiences be organized for effective instruction?
4. How can the effectiveness of learning experiences be evaluated? (Tyler, 1949, p. 1).

Because Ralph Tyler advocated for determining educational outcomes before determining the instruction, some of his critics claimed that students, therefore, had no input (Smith, 2000). Others contended that Tyler's theories, which were being applied to behavioral objectives, could only be measured by breaking them into discrete parts which made them meaningless (Howard, 2007), though Tyler himself never advocated this (Tyler, 1949). Wiggins and McTighe avoided some of Tyler's critics by allowing for student input and by not breaking learning into measurable behavioral objectives (Howard J. , 2007, p. 2).

Wiggins and McTighe's backward design model is a three-stage approach which directly addresses Tyler's four questions about curriculum. In stage one, the desired results are identified and the purpose is determined. In stage two, acceptable evidence is determined, a means to evaluate the learning is identified. In stage three, learning

experiences and instruction are planned by selecting and organizing the most effective means to bring about the desired results (Howard, 2007).

One major departure from traditional lesson planning is the role of assessment in the backward design model. In a traditional design, one which Wiggins and McTighe term "content-focused" (2005, p. 15), teachers assemble lessons and resources to address a topic. They may create the lesson or retrieve a previously constructed one, and then put together some sort of assessment. In this example the teacher is focusing on the inputs, or the teaching, and not the outputs or the results (Wiggins & McTighe, 2005). When teachers begin with the outputs, the goals or standards being the focus, instead of the inputs or instruction, then they begin to see themselves as assessors (Wiggins & McTighe, 1998, 2005). As assessors, teachers spend significantly more time on the front end determining what goals and standards will be addressed and what evidence will show that the students "have attained the desired understandings and proficiencies" (Wiggins & McTighe, 1998, p. 8). Assessment as evidence of understanding guides the instruction (2005) and is also formative since its primary purpose is to provide feedback to the student (Garrison & Ehringhous, 2010).

Stage One

Stage one sets the stage for understanding by calling for the designer to determine at the outset what the learner should "know, understand, and be able to do" (Wiggins & McTighe, 1998, p. 9). This determines the educational goals which match state and local standards through a process of alignment of curriculum and instruction which is mandated by state law (Roach, Niebling, & Kurz, 2008). Educational goals must be prioritized due to the number of content standards to be achieved as required by most

states (Wilson, 2005). One way to prioritize is by breaking the content down into three levels: 1) content to be familiar with, 2) important knowledge and skills, 3) enduring understanding (Wilson, 2005; Wiggins & McTighe, 1998).

Wiggins and McTighe (2005) identified a certain amount of information that can be useful to students as background, but which doesn't require deep understanding. Wilson (2005, para. 11) stated that this information adds "substance, breadth, or interest to a subject or skill." Included in this would be what teachers want their students to "hear, read, view, research, or otherwise encounter" (Wiggins & McTighe, 1998, p. 8). Something like the dress, customs, or idioms of a particular people might make them more "alive" to students, but not necessarily be needed achive the objectives of the unit.

The next level of understanding requires narrowing the focus by "specifying important knowledge (facts, concepts, and principles) and skills (processes, strategies, and methods)" (p. 9). Students must master this material or there will be a deficit in their understanding; without it they will not have the foundation to "accomplish key performances" (p. 10). It would be difficult, for example, for students to write an effective essay without having some facility with introductions, conclusions, and transitions.

The third tier refers to "enduring understandings, that will anchor the unit or course. The term enduring refers to the big ideas, the important understandings, that we want students to 'get inside of' and retain after they've forgotten many of the details" (p. 10). In other words, ideas that are transferable to new situations. For example, if a student was able to discern whether a website selling inexpensive electronics was legitimate based upon his or her experience with good and bad internet sources while conducting

research, then that student would have successfully demonstrated an enduring understanding of identifying credible online sources.

At the core of the "enduring understandings" are the big ideas Wiggins and McTighe (2005) referred to as "linchpin" ideas because they act as the axle for all the related understandings. They are as follows:

> The core concepts, principles theories, and processes that should serve as the focal point of curricula, instruction, and assessment. By definition, big ideas are important and enduring. Big ideas serve as a conceptual lens of study; they are often counterintuitive and given to misunderstanding; they get to the heart of the subject; and are transferable beyond the present instruction scope of a particular unit. (p. 338)

Big ideas are expressed as essential questions. It is by asking these questions that learners are able to "explore the key concepts, themes, theories, issues, and problems that reside within the content, perhaps as yet unseen; it is through the process of actively 'interrogating' the content through provocative essential questions that students deepen their understanding" (Wiggins & McTighe, 2005, p106). The understandings attained not only pertain to key concepts within the inquiry but also serve to answer provocative questions humans ask about themselves and the world (McTighe & Thomas, 2003). An essential question "hooks or engages learners, and serve[s] to bridge the standards and the curriculum by guiding students in creating meaning around the standards" (Childre, Sands, & Pope, 2009, p. 8). Students are able to make a connection to the instruction. They are additionally able to integrate new information with previous information to create meaning (Alderman & Beyeler, 2008). Connecting also makes the big ideas,

enduring concepts and transferrable knowledge and skills, accessible at a personal level (Wiggins & McTighe, 2005).

Essential questions can be thought of as either topical or overarching. Topical questions apply to a particular topic and are necessary to understand a particular unit of study. Why were so many 18th century Americans willing to risk their lives to cross the continental United States? Such a question calls for students to understand specific facts which led to the migration. Overarching questions, conversely, are more general in nature and have greater transferability. They are "valuable for framing courses and programs of study (eg., K-12 health curriculum) around the truly big ideas" (Wiggins & McTighe, 2005, p. 114). Continuing along the lines of the previous topical question, an overarching question could be "What motivates people to risk their lives to better themselves or their circumstances?

"Students make meaning and find patterns through essential questions (Findley, n.d.). Good questions, whether topical or overarching, call for varying viewpoints, get to the core of a subject, and might be argued outside of the classroom (Wiggins & McTighe, 2005). Because big ideas and the questions they present are so complex, they may not be easily identified within the content standards or the textbooks; therefore it may be necessary to unpack or uncover them (McTighe & Thomas, 2003). The process of unpacking involves identifying the big ideas and the core tasks within the content standard. Core tasks refer to the key skills necessary to understand the big ideas. Additionally, standards require "complex processes and mastery of complex performance tasks" (Wiggins & McTighe, 2005, p. 63). As a first step in uncovering standards, Wiggins and McTighe (2005) suggested that teachers look "carefully at the key recurring

nouns, adjectives, and verbs" (p. 63) within their content standards to determine their big ideas and essential questions. Teachers can therefore "manage large amounts of content, especially discrete factual knowledge and basic skills, by clustering the big ideas and core tasks" (p. 63). This may help overcome the complaint against standards that they are too vague or too narrow (Marzano & Kendall, 1996; Wiggins & McTighe, 2005).

Besides breaking standards down into curricular priorities, Wiggins and McTighe (1998) suggested four filters to use when determining whether something is an essential understanding. Filter one asks, "To what extent does the idea, topic, or process represent a "big idea" having enduring value beyond the classroom?" (p. 10). Does the content have applications beyond the present and uses in novel situations? In other words, are the ideas, topics, and processes transferable?

Filter two asks, "To what extent does the idea, topic, or process reside at the heart of the discipline?" (p. 11). In what the authors refer to as "doing" the subject, students are exposed to ways such work is conducted in the real world by those who actually "do" the work. These "authentic learning experiences shift a student from the role of a passive knowledge receiver into a more active role as a constructor of meaning" (p. 11). Students are able to construct knowledge through disciplined inquiry with a practical use in mind (Alderman & Beyeler, 2008). When the tasks are seen as meaningful, students are more motivated (Major, 2008; Seifert, 2004).

Filter three asks, "To what extent does the idea, topic, or process require uncoverage?" (p. 11). When something is uncovered, existing practices and assumptions are challenged to clear the way for understanding. Essential ideas are not easily understood; they are often "abstract" or "counterintuitive." Students may have difficulty

in comprehending or they may have misunderstandings. Misunderstandings may be compounded when students have poor metacognition skills, that is they are unaware how they know something, and incorporate new ideas incorrectly or not at all (Wiggins & McTighe, 2005; Zoller, 1990). The extent that students do not understand or have misconceptions of important concepts or processes may require teachers to fully uncover a topic (Wiggins & McTighe, 1998).

The fourth filter asks, "To what extent does the idea, topic, or process offer potential for engaging students?" (Wiggins & McTighe, 1998, p. 11). Certain topics and ideas which are interesting, and even material which is considered to be boring, can be enlivened by novel presentations and activities (Sale, 2004). Students become engaged when they approach big ideas with their own questions, issues, and problems (Wiggins & McTighe, 1998). Engagement not only increases academic performance, but it also lessens misbehavior (Taylor & Boelter, 2008).

Stage Two

The second stage of the backward design model asks teachers to consider how they will determine if students have achieved the desired goals or standards on the front end. "It is this stage that is probably the most 'backward' for instructors… There is a strong tendency not to think about assessment until toward the end of a topic or unit or course" (Howard, Judeth, 2007, p. 5). Wiggins and McTighe (1998) explained stage two this way:

> The backward design approach encourages us to think about a unit or course in terms of the collected evidence needed to document and validate that the desired

> learning has been achieved, so that the course is not just content to be covered or a series of learning activities. (p. 12)

Wiggins and McTighe (1998) advised thinking like assessors first before planning the unit and to determine up front what will serve as evidence of understanding. This evidence is the only way to determine what the students were thinking, why they acted a certain way, and what they thought about their actions. Assessment informs teachers with immediate student feedback in time to address misconceptions and to make adjustments before testing, while at the same time, assessment helps students learn to think more critically and to be able to self-assess their understanding (Haugen, 2011).

Wiggins and McTighe (2005) proposed six facets of understanding as "valid measures of understanding. They mapped out, in general terms, the kinds of performance evidence we need to successfully distinguish factual knowledge from an understanding of the facts" (p. 161). Assessments which require that the student explain, interpret, apply, perceive, empathize, and self-assess allow teachers to determine the degree of transferability or whether a student has acquired a "complete and mature understanding" of the material (Wiggins & McTighe, 2005, p. 84).

Assessment, therefore, plays an essential role in the backward design process. Assessment bears out what is understood and what is not. Wiggins and McTighe (2005) emphasized "the regular use of ongoing informal and formal assessments" (p. 247). Without these assessments, teachers' instruction cannot be effectively directed where needed. Evidence of understanding is not a single product (Childre, Sands, & Pope, 2009), rather it is a collection of assessments including: "checks of understanding (such as oral questions, observations, and informal dialogues); traditional quizzes, tests, and

open-ended prompts; and performance tasks and projects" (Wiggins & McTighe, 1998, p.12). Assessments vary in a number of ways. "They vary in scope (from simple to complex), time frame (from short-term to long-term), setting (from decontextualized to authentic contexts), and structure (from highly to nonstructured)" (Wiggins & McTighe, 1998, p. 12-13).

Assessments should be "performance-based and constructed-response assessments [that] can work in combination with multiple-choice items to provide robust evidence of student understanding" (McTighe & Thomas, 2003, p. 13). Performance assessments demonstrate depth of understanding and anchor the unit by calling for real-life situations where knowledge and skills are applied in authentic ways. Oral or written assessments are open-ended and require students to explain, evaluate and analyze. Quizzes or tests are formative and serve as evidence that students have grasped the prerequisite skills and knowledge for later assessments requiring deeper understanding. Informal assessments such as observations, discussions, teacher questions, and class activities reveal student understanding or misunderstanding and guide further instruction (Childre, Sands, & Pope, 2009).

McTighe and Thomas (2003) listed a number of questions that should be answered when looking at evidence of student achievement. Though these questions were meant for a school improvement team when evaluating school-wide data, several of the questions are applicable at the classroom level:

- What learning goals do the various assessments measure?
- What kinds of thinking do the assessments require –recall, interpretation, evaluation, or problem solving?

- What strengths and weaknesses in student performance do the different data sources reveal?
- Are these the results we expected? Why or Why not?
- In what areas did the students perform best? What weaknesses are evident? (p. 53).

When examining assessment data with these questions in mind, conclusions about the effectiveness of the unit can be drawn. In this case, assessment is summative because a determination about the instruction and student performance is the goal (Chappuis & Chappuis, 2008).

Stage Three

The third and final stage of the backward design model brings together all the previous steps toward accomplishing the goals of the unit or instruction (Childre, Sands, & Pope, 2009). As educators design their units they must answer the following questions:

> 1. What enabling knowledge (facts, concepts, and principles) and skills (procedures) will students need to perform effectively and achieve desired results? 2. What activities will equip students with the needed knowledge and skills? 3. What will need to be taught and coached, and how should it best be taught, in light of performance goals? 4. What materials and resources are best suited to accomplish these goals? 5. Is the overall design coherent and effective? (Wiggins & McTighe, 1998, p. 13).

Wiggins and McTighe (2005) recognized that *Understanding by Design* is not specifically designed to be an effective teaching guide, stating that there are numerous other resources with that aim; much good practice is interwoven into the design and the

authors do specify a number of general guidelines and considerations. Chief among these is determining the role of the teacher.

Mortimer Adler (1998) asserted that kindergarten through grade twelve teachers confine direct instruction to less than 20% of the time, with coached projects and open-ended conversations taking up the bulk of instructional time. Wiggins and McTighe (2005) stated that teachers can approach instruction in three ways: with direct or didactic instruction, as a constructivist facilitator, or as a coach. The role depends upon the skills and knowledge needed to accomplish the learning activities. The authors suggested "use[ing] direct instruction and focused coaching for knowledge and skill that is discrete, unproblematic, and enabling, while reserving constructivist facilitation for those ideas that are subtle, prone to misunderstanding, and in need of personal inquiry, testing, and verification" (Wiggins & McTighe, 2005, p. 244).

The authors make an important point that instruction does not follow logically from the discrete knowledge to abstractions. Instead, "To derive understandings inductively, students need the gist of particular experiences, facts, and teachings; to understand facts and skills, they need to see the problems, questions, and tasks that make content relevant" (Wiggins & McTighe, 2005, p. 244). "The design move[s] back and forth repeatedly and transparently between the part and the whole, the facts and the big picture" (p. 244). Educators need to plan the timing of the instruction, when to direct, when to facilitate, and when to coach.

When to lecture or use direct instruction and when not to may depend upon not only the type of information (discrete, unproblematic, enabling) but also on the short-term goals of the lesson. Is the immediate goal to immerse the student and explore

essential questions? Are the learning activities designed to build prerequsite knowledge and skills to promote deeper understanding? Are the students prepared to accomplish the final project or prompt assessment? (Childre, Sands, & Pope, 2009). Answering these questions really depends upon where the instructor is in the design.

Teachers can present students with big ideas in the form of essential questions at the beginning of lessons to cause learner engagement. Too often teachers frontload their lessons with copious notes and unassociated background, important information that might be better presented after establishing of a connection (Wiggins & McTighe, 2005). Students are motivated when they find the task meaningful (Major, 2008; Seifert, 2004); therefore, hooking the learners early with big ideas and essential questions and limiting direct instruction will allow their natural enthusiam to surface. This may also entail beginning in a place other than the beginning (Major, 2008; Vockell, 2010; Wiggins & McTighe, 2005); in other words, presenting information at a time, and in a manner, that is logical for the learner to grasp rather than what seems logical for the content (Wiggins & McTighe, 2005). Rather than overburdening students on the front end with unassociated facts, extra time at the beginning making clear expectations and explaining the goals of the lesson helps the students make meaning of the instruction (Oliver, 1995).

Once instruction has begun then the teacher may find him or herself doing more coaching instead of instructing. Instruction is likely to be more effective when learning tasks are presented at a level higher than the student has previously experienced (Margolis & McCabe, 2006). The instructor operates as a coach assisting struggling students with new material. In an educational setting this is referred to as scaffolding, where the teacher provides guidance, more initially and less as learning progresses. The

goal is that the learner has internalized the skills and knowledge, thus no longer requiring support (Wiggins & McTighe, 2005). This explanation of scaffolding is consistent with Mercer and Fisher's (1998) interpretation of Vygotsky's Zone of Proximal Development. Scaffolding according to the Vygotsky model requires that learners be able to work independently, that they achieve a level of competence, and that there is evidence of the results (Verenikina, 2003). To facilitate this development, students may need encouragement as they struggle with new ideas and concepts. The teacher as coach provides this encouragement and allows students to take the necessary risks when learning something new (Mims, 2003).

The teacher may also act as a facilitator as the student attempts to construct his or her own meaning. This may be as simple as providing the time and opportunity for the student to personalize the information and make it meaningful (Childre, Sands, & Pope, 2009), but it may also entail "guided inquiry and facilitated discussions around the essential questions" (Wiggins & McTighe, 2005, p. 241). The teacher's role is to guide the instruction, but to also realize that students will "interpret our message in the context of their own experiences and knowledge and construct their own meaning relative to their needs, backgrounds, and interests" (Duffy & Jonassen, 1992, p. 139).

This is especially useful as students struggle with big ideas and essential questions. Because big ideas are often counterintuitive and misunderstood, they cannot be presented as fact if students are to remember the concepts, themes, issues, and problems after they have forgotten the details (Wiggins & McTighe, 2005). For example, consider asking a class of high school seniors to define terrorism. Some obvious answers might be anyone who seeks to frighten through intimidation, kills indiscriminately, or uses force

for a political aim. However, if the same students were asked if Native Americans defending their homes were terrorists, then their answers might be markedly different. As students approach the instruction through essential questions they may be required to uncover what might otherwise be missed. Wiggins and McTighe (2005) referred to "uncoverage" in the following way: "Uncoverage is not a certain type of teaching or philosophy of education but the way to make any idea accessible and real, regardless of the teaching methods used" (p. 228-229). It involves students inquiring about concepts with the guidance of a teacher, rather than being just given the information (Wiggins & McTighe, 2005). Uncoverage causes the student to experience the key concepts and the reasons for pursuing them in the first place; uncoverage makes the subject "real" (Wiggins & McTighe, 2005).

Curriculum Aligned With Standards

Before providing research on the alignment of curriculum with standards, it is important to define curriculum in different formats, curriculum alignment, and the importance of standards in curriculum development. The Missouri Department of Elementary and Secondary Education (1997) defined curriculum as consisting of "both the plans for learning and the actual delivery of those plans" (Curriculum: Developing Curriculum Guides Aligned To Missouri's Show-Me Standards, para. 1). Wiggins and McTighe (2005) defined it as "the explicit and comprehensive plan developed to honor a framework based on content and performance" (p. 340). Curriculum can be called a "roadmap for learning, and as such focuses on knowledge and skills that are judged important to learn" (Partnership, 2007, para.1). According to Posner (1995), some claimants contend that curriculum should focus on the ends, that is, the intended learning

outcomes, of education while others focus on instructional planning by a teacher. The difficulty in articulating a common definition of curriculum is illustrated in a study conducted by Burton and McDonald. The authors of the study planned to study reforms in medical education. However, they questioned the ability to debate reforms without a common understanding of curriculum. Their investigation showed that both faculty and students of the University of Sheffield Medical School saw curriculum as "complex, and containing multiple themes (2001, p. 188).

Mark Smith (2000) did not argue for a single definition of curriculum, but contended that curriculum can be separated into four different frameworks: "curriculum as knowledge to be transferred, curriculum to achieve a particular product, curriculum as a process, and curriculum as praxis" (par. 4). Curriculum as a syllabus might best be described as "a body of knowledge to be transferred" (Smith, 2000, p. 2) consisting of a "concise statement or table of the heads of a discourse, the contents of a treatise, the subjects of a series of lectures" (Smith, 2000, p.2-3). For many, curriculum and syllabus mean the same thing (Burton & McDonald, 2001). Those who follow this approach focus on content and tend to follow a "textbook" approach, one that is orderly and logical (Smith, 2000). Posner (1995) called this the official or written curriculum which is characterized by "scope and sequence charts, syllabi, curriculum guides, course outlines, and lists of objectives" (p. 11). The Missouri Department of Elementary and Secondary Education (DESE) also referred to this curriculum as the "written curriculum" because it attempts to control the instructional programming, ensuring that district policy is followed in the classroom (Curriculum: Developing Curriculum Guides Aligned To Missouri's Show-Me Standards, 1997).

Curriculum as Syllabus

Advocates of the syllabus as curriculum approach recognized that it is "systematic" and "organized" (Smith, 2000); facilitates teaching and learning and makes the relationship between goals and assignments (Slattery & Carlson, 2005). According to Slattery and Carlson (2005) good syllabi motivate, provide structure, and are evidentiary. However, to equate a syllabus to a curriculum might be oversimplification as Kelly (1999) pointed out "many people still equate a curriculum with a syllabus and thus limit their planning to a consideration of the content or the body of knowledge they wish to transmit or a list of the subjects to be taught or both" (as quoted in Burton & McDonald, 2001, p.189). Additional criticisms of curriculum as syllabus are that a syllabus doesn't relay the weight or importance of individual topics (Smith, 2000) and that the logic of content doesn't necessarily equate to the best logic for learning (Wiggins & McTighe, 2005). Finally, preestablished objectives do not allow for much student control in the process of learning (Smith, 2000).

Curriculum as Product

Another framework in which to view curriculum is to see it as a product (The Curriculum, 1988). Objectives are established, plans are put together and then applied, and the results are measured; the emphasis being less about how the curriculum was developed and more about the objectives and content (Smith, 2000). This approach was based on early work by Franklin Bobbitt which emphasized that the objectives of the curriculum should mirror the "abilities, attitudes, habits, appreciations and forms of knowledge that men need" (1918, p. 42). Education needed to prepare for life and the activities of life (Smith, 2000). A Scientific Management approach advocated by F. W.

Taylor (1919) influenced curriculum with its focus on labor division, job simplification, time-and-motion accounting, and tight managerial control of the work environment (Smith, 2000). The progressive child movement of the 20s and 30s ameliorated this approach, but it resurfaced in the 40s (Smith, 2000). It was then championed by Ralph Tyler (1949) who asked four fundamental questions about curriculum:

1. What educational purposes should the school seek to attain?
2. How can learning experiences that are likely to be useful in attaining these objectives be selected?
3. How can learning experiences be organized for effective instruction?
4. How can the effectiveness of learning experiences be evaluated?

Viewing curriculum in response to these questions has guided curriculum development for many years and continues to influence new ideas and principles (Howard Judeth, 2007). Planners using this framework adopt a "means-end reasoning" process in which objectives or learning outcomes are selected "objectively" and "scientifically," without bias, by those with the "technical expertise to do so" (Posner, 1988). In practice, this framework establishes the teacher as the "manager" of the class; what the teacher emphasizes or the outcomes the teacher wishes to see becomes the tested curriculum (Posner, 1995). DESE also referred to this as the tested or assessed curriculum (Curriculum: Developing Curriculum Guides Aligned To Missouri's Show-Me Standards, 1997).

Though many researchers used Tyler's theories to varying degrees, there were a number of criticisms as well (Posner, 1988). One such critique was that since the instruction plan is so important it "exists prior to and outside the learning experiences.

This takes much away from learners. They can end up with little or no voice. They are told what they must learn and how they will do it" (Smith, 1996, 2000, p. 5). Another criticism surfaced when Tyler's theories were applied to behavioral objectives. In order to measure these objectives, complex activities were broken down to more and more measurable tasks, losing their "authenticity and meaningfulness" (Howard Judeth, 2007, p. 2). Tyler's seminal work *Basic Principles of Curriculum and Instruction* was not meant as a step-by-step instruction guide to curriculum planning but rather to "explain a rationale for viewing, analyzing and interpreting the curriculum and instructional program of an educational institution" (Tyler, 1949, p. 1).

Curriculum as Process

Another way to see curriculum is as a process, or as an interaction between teacher, student, and knowledge, instead of a list of behavioral objectives (Smith, 1996, 2000). Smith described this as what actually occurs in the classroom. DESE (Curriculum: Developing Curriculum Guides Aligned To Missouri's Show-Me Standards, 1997) called this the taught curriculum. Curriculum as seen from this perspective is based on the work of Lawrence Stenhouse who objected to the product model, or what he called the objective model, for a number of reasons (Howard Judeth, 2007). Stenhouse (1980) believed that behavioral objectives equated to skills and information and were insufficient to measure understanding. Using Shakespeare's *Hamlet* as an example, he maintained that breaking down the play into measurable, pre-specified, behavioral objectives, reduced the play and interfered with understanding the play. Stenhouse defined understanding in this context as "respond[ing] to or experienc[ing] the concrete reality of a work of art" (1970, p. 75). But since the response to art is individual, it is not

appropriate to gauge these individual understandings by specific objectives, though there are "canons" that can be used to judge the response's appropriateness (1970).

Stenhouse (1980) also criticized the product model on what actually occurred in the classroom. Even though standards or criteria were to guide the teacher, the teacher could not be guided by pre-specified outcomes. Teachers approach these outcomes or objectives differently. They may have differing values that are reflected in their teaching; they may interpret objectives differently; and they may prioritize objectives differently; (1980). Because of these criticisms, and more, Stenhouse advocated an alternative approach to curriculum which entailed:

> selecting content, developing teaching strategies, sequencing learning experiences, and assessing student strengths and weaknesses with an emphasis on empiricism. A process curriculum was designed to be not an outline to be followed but a proposal to be tested. (Howard Judeth, 2007, p. 2)

Smith interpreted this as curriculum being "not a physical thing, but rather the interaction of teachers, students and knowledge… curriculum is what actually happens in the classroom" (2000, p. 7). Posner (1995) called this the "operational" curriculum. Because the curriculum is not a "package of materials or a syllabus of ground to be covered" (Smith, 1996, 2000, p. 9), it becomes instead "a hypothesis testable in practice. It invites critical testing, rather than acceptance" (Stenhouse, 1975, p. 142). Each classroom is unique and therefore, everything taught would have to be tested by the teacher (Smith, 1996, 2000). Since the outcomes are less important than the interaction between teacher and student, students have more to say about the learning taking place (Smith, 1996, 2000). The difficulty arises, however, when one is looking for uniformity since "it places

meaning-making and thinking at its core and treats learners as subjects rather than objects, [it] can lead to very different means being employed in classrooms and a high degree of variety in content" (Smith, 1996, 2000, p. 10). Additionally, if teachers are weak, they may not be capable of shouldering this greater autonomy without a more prescriptive curriculum (Smith, 1996, 2000).

Curriculum as Praxis

The fourth framework Smith suggested in order to view curriculum is as praxis. This model may best be approached as a continuation of the process model (Smith, 1996, 2000; Howard Judeth, 2007), but with the added element of "a shared idea of the common good and the goal of informed and committed action" (Howard Judeth, 2007, p. 2). Grundy stated about praxis that "The curriculum is not simply a set of plans to be implemented, but rather is constituted through an active process in which planning, acting and evaluation are all reciprocally related and integrated into the process" (as quoted in Smith, 1996, 2000, p. 12). The Encarta World Dictionary (Bing Dictionary, 2009) defined praxis as: "performance or application of skill: the practical side and application of something such as a professional skill, as opposed to its theory; or as established practice: established custom or habitual practice." Application, established practice, and habitual practice are key words in the dictionary definition. These elements are incorporated into the model as educational practice is guided by collective practice, where action is guided by exploration of values and among peers (Smith, 1996, 2000). In what DESE (Curriculum: Developing Curriculum Guides Aligned To Missouri's Show-Me Standards, 1997) called the taught curriculum and what Posner called the operational curriculum (1988), teachers shape and prioritize the learning outcomes in their

classrooms. They, however, are guided not only by their individual compasses, but also by values collectively gained (Smith, 1996, 2000).

Smith referred to some criticism of the praxis model, and for the other frameworks as well, as not putting enough emphasis on the context of curriculum. However, other researchers such as Catherine Cornbleth emphasized that curriculum can only be understood in its social context (Smith, 1996, 2000). One aspect of social context is culture. Kelly (1997) proposed viewing curriculum within the cultural framework of the school. He noted that for many, the purpose of schools is to promote the existing culture, while others argue that schools should transform culture rather than just reflect it. He also acknowledged the difficulties when viewing culture in this manner as culture is a difficult thing to define: "Most modern societies are pluralist in nature; that is, it is possible to discern in them many different, and sometimes incompatible, cultures or sub-cultures" (Kelly, 1997, p. 52). Despite these difficulties in articulating what a particular culture is, curriculum as it appears in the classroom continues to be "shaped by overlapping and interactive contexts" (Cornbleth, 2008, p. 1). The context in which the curriculum is applied through the interaction between students and teachers, between teachers and teachers, and between student and student may be referred to as the hidden curriculum (Smith, 1996, 2000). This curriculum is not overtly planned or expressively acknowledged, but may have a profound impact on students (Posner, 1995; Smith, 1996, 2000). Embedded in this curriculum are "issues of gender, class and race, authority, and school knowledge" (Posner, 1988, p. 12). Through a study of the hidden curriculum one is able to "get a better grasp of the impact of structural and socio-cultural process on teachers and students'" (Smith, 1996, 2000, p. 14).

Curriculum Alignment

Despite the variance among definitions of curriculum, viewing them in the four frameworks may be useful in understanding how curriculum is influenced by and influences classroom instruction. No matter how profoundly development theorists may continue to impact curriculum (Howard Judeth, 2007), its effectiveness rests upon how well that curriculum is aligned. DESE said the following about alignment:

> Districts need written curricula to identify for teachers, students, and the community what they intend for students to learn as a result of their studies. Those curricula should also be informed by recommended curricula and should have a strong influence over what resources are obtained and developed for the instructional program, for testing and assessment, and for teaching. When those types of curricula are in a mutually supportive alignment, what students learn will likely be what the district intends for them to learn… when those types of curricula are in positive relationship to one another, the instructional program is likely to be effective. (1997, p. 2)

Cohen (2005) referred to instructional alignment as the agreement between all three components of instruction which include the intended outcomes, instructional processes, and assessments. This is a definition consistent with the literature with slight variations in the verbiage: Roach, Niebling, and Kurz (2008) referred to the components of alignment as curriculum, instruction, and assessment (CIA); Leitzel and Vogler (1994) referred to the three aspects as planning, delivery, and evaluation. In some instances this may refer to performance tasks generated at the local level and used in the classroom, while in others, assessment refers to alignment to state or national tests.

Curriculum alignment is rooted in detailed learning objectives within the programmed and mastery learning curriculum packages of the 1960s and 70s. These were based upon Bloom's taxonomies of cognitive, affective, and psychomotor behaviors in the 50s (Leibling, 1997). Cohen stated that curriculum alignment began with behaviorist reinforcement theory; more specifically, that there was a strong correlation between achievement scores and assessment matched well with instruction (Liebling, 1997). This prompted the use of instructional objectives to provide a clear connection between assessment and instruction (1997). Cohen (2005) referred to work done by Pipe where "any instructional system must derive from a clear statement of outcome; instruction generates that outcome as demonstrated in a final assessment" (p. 9). Later attempts at aligning outcomes, instruction, and assessment occurred with Criterion Referenced Instruction (CRI). CRI consists of the following: indentifying a goal or task, establishing the performance objectives or criteria; evaluating the learning in terms of the objectives, and developing learning modules tied to the objectives (Mager, 2010).

While the intent to align instructional objectives with both instruction and assessment was reasonable, initial attempts created many discrete objectives which were too cumbersome, a criticism leveled by Stenhouse against the product model (1980**)**. Further steps to align a district's written curriculum with standardized tests were attempted during the 1970s and 80s. It should be noted that that curricula was largely influenced by textbook objectives (Liebling, 1997), a point of contention from a backward design perspective that warns against relying too heavily on textbooks which may not closely mirror the learning objectives (Wiggins & McTighe, 2005). Though intended to help teachers, many educators dismissed CRI because it violated the notion of

a normal distribution of scores on assessments (Cohen, 2005). When alignment was viewed as matching state or national tests, some viewed it as using "standardized tests to sort and/or eliminate groups of people with score cut-offs and/or program eligibility requirements (Mitchell, 1999, p. 1)

Accountability became more of an issue in the 1980s, and alignment was perceived as a means to improve student achievement (Liebling, 1997). Alignment is now mandated under No Child Left Behind (NCLB) where "schools, districts, and states [are required to] have a system of K-12 standards that are aligned with the assessments used in the state accountability system" (Roach, 2008, p. 159). States have taken different approaches to this, using different models to bring about alignment. The Web alignment model called for a panel of educators and curriculum experts to rate the state content standards according to their depth-of-knowledge (DOK), rate the DOK of each assessment, and identify one or two objectives/benchmarks from the content standards to which the assessment referred (Roach, 2008, p.161). The Survey of Enacted Curriculum created a universal language with which to compare different aspects of curriculum, instruction, and assessments such as tests, standards, and instructional materials (Blank, 2005). The framework was operated by a panel of content specialists by creating general categories under which subtopics are added. Teachers use a survey to rate their subtopics according to time needed on each and the depth of cognition. A matrix is produced with the subtopic being compared to cognitive demand and content coverage. An alignment index is created by comparing two or more matrices (Roach, 2008). Another popular method is the Achieve Model (English and Communication Benchmarks, Grades 4-12-About the Benchmarks, 2011). In this approach experts first "map" the curriculum by

attaching individual test items to the corresponding standard. Then alignment is analyzed by "content centrality, performance centrality, and source of challenge" (Roach, Niebling, & Kurz, 2008, p. 168). Content centrality refers to the quality of the match; performance centrality is similar to cognitive domain and measures how closely test items relate to test demands; and source of challenge compares the difficulty of the test item to the standard (Roach, 2008).

Other models of assessing alignment such as the James Popham Model (Popham J. W., 1971-1972) focused on what is missing. For example, the James Popham Model proposed that goals be identified, percentage of students who should be able to master those goals calculated, percentage of students who actually have attained the goal determined, and goals readjusted according to the difference between those who have and have not achieved the goals (Ediger, 1986). Still another alignment tool focused on an absence of something is known as an alignment or challenge audit. In this instance, the model called for teachers to submit their syllabi and pertinent documentation to a review board to determine if the course was aligned to existing college standards (Discrepancy Analyses).

Alignment Tools

This study has considered alignment from a macro level, how the three components align to an outside standard or assessment. However, to be aligned, curriculum, instruction, and assessment need to be in positive balance with each other at both the district and the classroom level (Pellegrino, 2006). There are several tools for a district that decides to align curriculum, instruction and assessment. One such approach for a district that wants to improve achievement is an approach termed backloading

(Liebling, 1997). Ferguson described the process as follows: 1) compare achievement test objectives with the curriculum objectives with respect to content and instructional approaches; 2) compare standardized test data with the curriculum; 3) identify deficiencies in the curriculum based upon student test data; 4) align curriculum objectives with the test objectives by changing instruction, materials, or time on certain objectives; and 5) monitor student progress on the achievement tests (Liebling, 1997). Critics of this approach maintain that educators teach to the test, that curriculum goals are determined by "test developers" and "textbook writers," and that standardized tests are not authentic assessments. Because of these reasons many teachers are unwilling to attempt backloading the curriculum (Liebling, 1997).

This reluctance may be overcome with an alternate method known as frontloading. Frontloading aligns the tested curriculum with the written curriculum's learning goals. Because frontloading calls for teachers to determine, through selection or creation, assessments that mirror the existing curriculum, teachers may actually teach the written curriculum. This in turn should lead to student achievement as measured by the assessments chosen or created by the teachers (Liebling, 1997). Steps in the frontloading process are as follows: 1) educators write curriculum guides; 2) educators select tests, often criterion-referenced, to measure the existing curriculum; 3) educators select or create end-of-unit or end-of-course assessments; 4) educators monitor student achievement and consider changes to the assessments (Vaughn, Hogan, Kouzekanani, & Shapiro, 1990). The weak link in this approach lies with the delivery; there exists a gap between what is planned by the curriculum and what the teacher does (Kelly, 1977, Stenhouse, 1980).

The weakness of the delivery using the frontloaded approach might be overcome if those who have to teach the material take part in developing the curriculum. Tyler (1949) suggested that "every teacher needs to participate in curriculum planning at least to the extent of gaining an adequate understanding of these ends and means" (p. 126); he advocated for high levels of staff involvement in determining the curriculum. But while frontloading may be the preferred method of curriculum alignment among teachers because they are involved in developing with learning goals, assessments, and lesson content, these cohesive instructional units may not be useful in aligning to standardized tests which do not follow an individual district's curriculum (Liebling, 1997). Therefore, Glatthorn (1994) and English (2010) suggested using backloading to align the written curriculum with test objectives and then use frontloading to select or create classroom tests that align with the present curriculum to raise standardized test scores.

Alignment of Instruction

Thus far, the component of alignment discussed has centered on the planning leg and how that interacts with assessment, at the state level and beyond. However, when translating alignment theories into the classroom it is important to consider the actual instruction. Leitzel and Vogler (1994, p. 31) stated that "instruction should be planned, delivered, and evaluated." The statement is noteworthy because it emphasizes the purposefulness of the instruction as well as its flexibility. Wiggins and McTighe (2005) spoke to this purposefulness in stage three of their backward design model. The authors stated that instruction is guided by several key questions:

> What enabling knowledge (facts, concepts, principles) and skills (processes, procedures, strategies) will students need in order to perform effectively and

> achieve desired results? What activities will equip students with the needed knowledge and skills? What will need to be taught and coached, and how should it best be taught, in light of performance goals? What materials and resources are best suited to accomplish these goals? (p. 18-19)

These questions may serve as a guide when the classroom teacher is actually preparing for instruction and are somewhat similar to the four curriculum guiding questions proposed by Tyler (1949). Instructional flexibility can be referenced back to Stenhouse who called for instruction to be dynamic (Howard Judeth, 2007). Kelly echoed this perspective in stating that sticking too closely to a prespecified objective fails "to take account of the complexities of the curriculum and of the importance of the individual context in which every act of teaching occurs" (Kelly, 1977, p. 34). He continued by saying that teachers adjust instruction based upon student feedback. Wiggins and McTighe (2005) also suggested a hypothesis-type approach to their design with a "design, try, get feedback, adjust" (p. 271) approach to teaching. The role of regular, timely, informal feedback in regard to how the instruction is working is a staple of the backward design model and appears as a uniting theme in several areas of this research including formative and summative assessment and motivation.

Alignment of Instruction and Assessment

The final area of alignment referring to the curriculum, instruction, assessment triad is the interaction between instruction and assessment. Assessment as it is being discussed here is not at the macro level, that is assessment with the purpose of evaluating instructional programs or categorizing students via a normative test, but rather refers to how assessment is utilized in the classroom. Tyler (1949) referred to evaluation (called

assessment here) as "the process of determining to what extent the educational objectives are actually being realized by the program of curriculum and instruction" (pp.105-106). For Tyler who translated educational objectives into behavior changes, this meant the process for determining the amount of behavior changed. Tyler's work defined both formative and summative assessment. According to Leitzel and Vogler (1994), assessments are when the curriculum is specified by outcomes. Baker and Popham went so far as to state that objectives and evaluation should be the same (Leitzel & Vogler, 1994). However, many teachers are "uncomfortable with test construction and view it as a difficult chore" (Leitzel & Vogler, 1994, p. 22). Teacher-created tests often lack relevant, difficult items and are uneven over content, focusing too much on some things and not enough on others. They also rely too much on short answer questions, matching, and multiple choice, avoiding essay questions and application-type responses (Leitzel & Vogler, 1994). Despite these criticisms, teacher-created assessments do a much better job than published tests which "do not match the content that is taught. While these tests may reflect students' intellectual abilities, they are useless for evaluating what a student has learned from school instruction" (p. 20). Therefore, teachers must "think like an assessor" (Wiggins & McTighe, 2005) by determining what evidence is acceptable to measure the learning objectives.

This literature review has focused on alignment of curriculum, instruction, and assessment; alignment is the degree to which they reinforce one another. Accountability is another term in curriculum. If curricula are goal driven, then the present emphasis on accountability seeks to measure how well those goals are being met (English & Steffy, 2001). This becomes alignment between curriculum and assessment, but at the state and

national level. Cornbleth expressed the need to view curriculum in its social context (Smith, 1996, 2000) and it is in that context that fundamental changes in the nation's educational system are occurring; the focus of these changes—standards and accountability.

Modern Standards

The modern standards movement was partly a response to *A Nation at Risk* in which state and local officials sought to increase academic rigor and graduation rates (Marzano & Kendall, 1996). The modern march toward standards began with the initial release of the Elementary and Secondary Education Act of 1965 (ESEA), which was part of President's Johnson's "War on Poverty" (About the Elementary and Secondary Education Act, n.d.). However, policies recommended by *A Nation at Risk* did not produce the desired results. This prompted educational leaders to turn to national standards and goals (Marzano & Kendall, 1996). A key finding of the report, *A Nation at Risk*, was a concern about the preparedness of our young people to compete both economically and financially (*A Nation at Risk*, 1983). President George H. W. Bush convened a summit of states' governors in 1989 which established six goals, two of which were related to academic achievement:

> Goal 3: By the year 2000, American students will leave grades 4, 8, and 12 having demonstrated competency in challenging subject matter including English, mathematics, science, history, and geography: and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy.

> Goal 4: By the year 2000, U.S. students will be first in the world in science and mathematics achievement (as quoted in Marzano & Kendall, 1996, p.3).

The report was revisited annually to provide a progress check on how all the recommendations of the report were being met. To implement the goals, the National Education Goals Panel and the National Council on Education Standards and Testing were formed. These groups examined at subject matter, assessments, and standards (Marzano & Kendall, 1996). A 1999 review evidenced mixed results, however there were improvements in both mathematics and science achievement (The National Education Goals Report: Building a Nation of Learners, 1999). A few administrations and several manifestations of the ESEA later, including President's Clinton's Goals 2000 and a push for voluntary national standards (Marzano & Kendall, 1996) as well as a call for voluntary national testing (Smith, Stevenson, & Li, 1998) and the passing of the most sweeping educational reforms to date, the No *Child Left Behind (NCLB) Act of 2001* was signed into law by President Bush. The act sought to:

> improve the academic achievement of all students by enhancing state systems of accountability, requiring clearly defined statewide standards, enacting annual testing in third through eighth grades with results disaggregated by subgroups, and calling for the use of instructional practices based upon scientifically based research. Additionally, NCLB allows for choice mechanisms such as supplemental educational services and school transfers for students in schools identified as low performing (Wong & Nicotera, 2007, p. 8).

NCLB surfaced amidst a climate of ever increasing control of states over local districts. In fact, many states had already begun to create their own standards and hold

individual districts accountable. By 2003, all state accountability plans were approved by the U.S Department of Education which allowed for variance in enactment of the plans (Wong & Nicotera, 2007). Since the passage of NCLB in 2003, the momentum for using educational standards has increased. The federal government is pushing for increased educational reform as part of the American Recovery and Reinvestment Act of 2009 (ARRA); $4.35 billion was set aside as a fund for competitive grants to states to improve education programs. Among the criteria for improvement are adopting standards and assessments and creating alignment throughout the curriculum. States are given even more points when they take part in a consortium to jointly develop and adopt K-12 standards (Race to the Top Executive Summary, 2009). The impetus for a national curriculum began with the standard curriculum more than a century ago.

Standardized Curriculum

An early example of curriculum appeared in 1906 when the Carnegie Unit was adopted as the basic structure for American education. The Carnegie Unit focused on instructional time and called for a five course schedule of approximately 55 minute increments. It also set standards in subjects such as English, mathematics, foreign languages, history, and science (Marzano & Kendall 1996). This became known as a common core curriculum and included the expectations that some knowledge is universal and should be learned by everyone, curriculum should reflect culture, and curriculum should be driven by economic and political considerations such as providing useful skills and knowledge (Kelly, 1977). The first common core curriculum using a Carnegie Unit would not be solely a focus for United States education. Many countries, whose students score well on international tests, utilize educational systems which are based on a core

curriculum (Marzano & Kendall, 1996). Countries such as China, England, and Japan all use national standards (Promises to Keep: Creating High Standards for American Students, 1993). England and Japan both outscored the United States on the Trends in International Math and Science Study (TIMSS). Japan and England both outscored the U.S. in mathematics and science in 2007; China did not participate in either study (Trends in International Math and Science Study, n.d.).

In addition to creating standards which are aligned to state assessments as part of NCLB (Roach, 2008) states must also take part in the National Assessment of Educational Progress (NAEP) as a measure on how well individual states are progressing to improve student achievement in the areas of "mathematics, reading, science, writing, the arts, civics, economics, geography, and U.S. history" (NAEP Overview, 2010, par. 1). The data from the NAEP are being increasingly used to measure how well states are complying with NCLB (Shapley & Brite, 2008).

This mandated accountability is played out mostly at the local level where districts align their curricula to state standards. Even though districts create the recommended curriculum, they are greatly influenced by state-mandated standards. Districts are "graded" by how their students score on state assessments, and state assessments are set by state standards. Therefore, a district that ignores state standards while creating its curriculum does so at its own peril. In Missouri, the Outstanding Schools Act of 1993 created the "Show-Me Standards" which are academic performance standards. The law required the State Board of Education to provide a framework to help local districts align their curricula with the state standards. The law also mandated that districts ensure that "students attain the knowledge, skills, and competencies

recommended in the academic performance standards" (Curriculum: Developing Curriculum Guides Aligned To Missouri's Show-Me Standards, 1997, par. 12). All 50 states had federal approved educational accountability plans (Wong & Nicotera, 2007).

Aligning to Standards

While mandating accountability by requiring standards and alignment does not guarantee increased student performance, there exists substantial evidence that alignment between curriculum, instruction, and assessment does improve performance. The degree to which aligning the curriculum increases student performance was documented by Cohen in four studies: The Koczor, Tellarico, Fahey, and Elia Studies. When reviewing these studies, Cohen analyzed "the degree of effort relative to instructional effort and such other issues as: (a) the critical features of stimulus conditions that maximize alignment effects; and (b) the alignment effect compared to aptitude effect" (p. 10, 2005). Cohen concluded that instructional alignment accounted for a 4-to-1 effect size, that how to teach something is easier to determine than what to teach, and that subpar education in America is not a result of ineffectual teaching, but a result of misalignment between the intended curriculum (what was intended to be taught according to state and district standards), the implemented curriculum (what was actually taught in the classroom), and the attained curriculum (what students actually learned as measured through assessment).

A rather large study of successful alignment took place in Illinois. In 2003, the Peoria Unified School District #11, a district of 37,000 students, did poorly on the math section of the Arizona Instrument to Measure Standards (AIMS), a math, reading, writing, and science test given to students in grades three through eight and grade ten. A review determined that the district's textbook-based instructional materials did not align

with the state standards. After revising their curriculum and aligning with the standards, the district improved from a 20 to 79 percent pass rate in 2006 (Bolch, 2007).

From a national perspective there is growing evidence that efforts from states to align their curriculum, instruction, and assessment are increasing student performance on standardized tests. As of 2007, both reading and math scores of fourth and eighth graders as measured by the NAEP were up slightly in reading, and more substantially for math since 1992. Additionally, all subgroups as outlined by NCLB except Native Americans and Alaskan Natives increased proficiency (The Nation's Report Card: 2007 At a Glance).

Another interesting study focused on how curriculum alignment impacted those groups influenced by known predictors of poor performance, namely: poverty, race, gender and school size. The survey of 4000 third grade students in a suburban-urban district showed that "curriculum alignment appears to be an effective strategy in increasing student achievement in mathematics [as measured by the (Purposes of the ITBS Batteries, Level 5-8)] with third graders" (Mitchell F. M., 1999).

There is substantial evidence that alignment does indeed increase student performance; however, there are still great concerns about standards. Some of the criticisms include the following: 1) Standards drain resources from other needed areas, 2) Standards put another burden on at-risk students, 3) Standards are just another resurrection of previous attempts to improve instruction, such as the behavioral objectives movement of the 60s, and 4) Standards are too cumbersome to use (Marzano and Kendall, 1996). The general public is also wary of standards. In one study, 82% of parents and students in a district of 5000 chose a traditional high school math curriculum

over a standards-based math curriculum (Lubienski, 2004). This was despite energetic efforts to educate parents and previous experience with a standards-based curriculum at the lower grade levels. The study pointed to a number of perceptions including that Algebra, as opposed to the Standards-based Mathematics in Context, would prepare students better for college, or for real life. There is some evidence that Algebra is more easily recognized by colleges than the integrated math (Lubienski, 2004). However, the rest of the reference to "real life" may fall short since the integrated program's intent was to more closely approximate real-world problems.

A final research argument for aligning curriculum to standards concerns equity. As early as 1906 there was a de facto common curriculum, known as the Carnegie Unit, which was a standard five period schedule with classes generally lasting about 55 minutes; additionally, a committee overseen by the Carnegie Foundation set standards for core courses (Marzano & Kendall, 1996). Eventually, the Carnegie Unit curriculum was replaced by curricular offerings which evidenced an expansion of breadth of content, and an increasing individualization of education precipitated an expansion of available courses. Ravitch (1995) reported that by the mid 1970s more than 2,100 different courses were offered in American high schools. The problem with diversification is that there is a great inconsistency in the time spent on a subject and what is covered (Marzano and Kendall, 1996). This inconsistency can be illustrated by looking at the grades students receive. Starting in the 1780s, Yale University used a four-point scale for grades and by 1897, Mount Holyoke College employed a letter grading system still largely used today (Durm, 1993). Despite its widespread use, there is not much consensus on what exactly the letter grades mean (Marzano & Kendall, 1996). In a study by Robinson and Craver

(1988) as quoted in Marzano &and Kendall, (1996), 800 school districts were compared as to how grades were assigned. They found that besides pure academic measures, such categories as effort, behavior, and attendance were included. In a related study by Marzano & Kendall (1996), an additional category, cooperation, was added and it was up to teachers to determine how much of a grade was attributed to each category. The percentages varied greatly by grade, but more importantly, by teacher. In other words, two teachers teaching the same thing could give dramatically different grades depending on how much of the grade was attributed to each category (Marzano & Kendall, 1996). Following this line, it would be conceivable that a student pass a given course even though he or she failed the academic component of the grade. While the subjective categories might vary, having a set standard would ensure that the student met minimum levels of proficiency over the subject matter; without some sort of standard, the student might be left with deficiencies in their learning despite having a passing grade.

Standards and Grades

This does not mean that grades and standards are incompatible (Marzano & Kendall, 1996). However, grades may not be the best measure of whether or not a student has grasped, let alone mastered, the content. This is especially true when grades are given by comparing students to each other. This is referred to as normative assessing and is used to separate students based on achievement levels; often referred to as grading on a curve because the distribution of the scores tends to create a “bell-shaped” curve (Aviles, 2001). Students’ scores are “distributed” from low to high with the bulk tending to be in the middle, thus creating a curve as the number of students becomes larger and trails off with fewer high and low scores. The bulge in the middle is typically the average, and

average typically equates to a “C” grade (Reeves, 2002). The area under the curve accounts for 100% of the scores with 50% being the middle or median. One standard deviation, plus or minus, accounts for 68% of the scores. Two standard deviations, plus or minus, account for 96% of the scores. Therefore, the median would equate to a “C”; plus one standard deviation would be a “B” and minus one standard deviation would be a “D”; and plus two standard deviations would be an “A” while two minus two standard deviations would be an “F” (Aviles, 2001).

Assigning grades under such assumptions is both unfair and inaccurate according to Doug Reeves (2002). It is inaccurate because the bell curve doesn’t reflect what was actually learned. In one instance an entire class could do very badly, but one or two individuals could do much better than their peers—commonly referred to as “blowing the curve.” In this case, it is difficult to ascertain what each letter grade means. It means that someone did better than someone else, but it does not show what they learned. Under this system, it is very possible for a student to miss the majority of the answers, still score better than his or her peers, receive an “A,” and not know the material. Similar arguments are made by other researchers (Aviles, 2001). Additionally, the entire premise of applying probability distributions in general, and the bell curve specifically is problematic. “The bell curve was invented in the eighth century as a way to represent binomial probability” (Fendler & Muzaffar, 2008, p.70). Over time, probability distributions were applied by social scientists:

> who then began generating numerical descriptions of populations. Data proliferated as more things about people got counted, numerical descriptions of the Average Man were formulated and revised, immigration and industrialization

> increased in complexity, and statistics increasingly served as a technology by which government offices could rationalize systems of population management, diagnosis, and intervention (Fendler & Muzaffar, 2008, p.72).

Psychology was another field which began to use statistical analysis. Qualities thought unmeasurable such as "cleverness, morality, wit, and civility were appropriated into statistical arrays, and then these qualities gradually became standardized" (Fendler & Muzaffar, 2008, p. 74). With all of these comparisons the idea of a statistical mean or average was seen as "normal;" thus the normal distribution, or bell curve.

Two researchers, Richard Herrnstein and Charles Murray, wrote *The Bell Curve: Intelligence and Class Structure in American Life* in which they asserted that education was essentially pointless because intelligence, unequally distributed throughout the population, was the real determiner of success and no amount of remediation or social rehabilitation had much influence on intelligence (Feuerstein & Kozulin, 1995). Such conclusions are refuted by the literature (Feuerstein & Kozulin, 1995) and yet the curve persists when a better model for determining student performance exists in the form of the J-curve. Whereas the bell curve has been used to explain poor student performance, the J-curve asserts that all students can master skills over time. Originally designed as an economic model the J-curve has been used in a number of fields including education (Mikels & Sartori, n.d.). It derives its name because of the shape formed when time is allowed to be the variable when mastering a skill. The idea of flexing time has been around since before Bloom and laid the groundwork for mastery learning, which essentially states that achievement should be a constant and time should be flexible

instead of the other way around. Additionally, the normal curve should be seen not "as a representation of natural law… [but] as a symbol of failure" (Shulman, 2007, p. 2).

The idea of failure is often associated with normative assessments when such performances create winners and losers based upon arbitrary distinctions—those who receive good grades and those who do not when the actual difference in their knowledge of the subject matter is minimal (Reeves, 2002). If, however, students are judged against a standard instead of each other, then the degree to which the student understands the material could be better judged. Grades could still be assigned, but they would be in response to some sort of rubric, where levels of proficiency are clearly defined (Marzano and Kendall, 1996). Comparing student achievement to a standard instead of other students is called criterion-referenced assessment and is seen as a better gauge of whether students have actually learned what was intended. It is also a better gauge of instruction since grading on a curve allows teachers to proceed to the next concept with any number of students not grasping the material (Aviles, 2001).

Critics of aligning curriculum to standards might express dissatisfaction because this approach does not mirror the real world. In other words, people are compared to each other all the time, and there really are winners and losers. In some instances comparing students to each other is appropriate, especially where there are a limited number of available spots as in acceptance to a particular program or college (Aviles, 2001). However it is also true that in many cases comparisons between people are inadequate. Reeves (2004) asked us to consider professions such as brain surgeons, jet pilots, and driving license issuing authorities. These areas deal with health and safety and it would be inappropriate to judge proficiency in any way other than by standards. For example, is

it more important that a pilot be top in his or her class, or that he or she meets the standards for navigation, weather, and air traffic control? Obviously, standing among peers is less important than displaying proficiency at requisite critical skills (Reeves, 2004). Extending the analogy to education, it would seem more important that a student be proficient in the content covered over the previous thirteen years than to be in the top of the class.

The previously explained models, Web alignment, survey of enacted curriculum, achieve, James Popham, and discrepancy analysis are just a few of the many ways to address aligning curriculum to standards. The choice to use one of them or another might depend upon the level at which the curriculum is being addressed: state, district, building, or classroom or it might depend upon how much input is sought from the educators who will use the curriculum; understanding the necessity of standards does not mean that they will be utilized into the classrooms. Both Kelly (1977) and Tyler (1949) spoke to the necessity of involving teachers in the curriculum alignment process making them active participants in developing what they will instruct, how they will instruct, and how they will assess.

The extent to which the existing curricula will have to be modified to address the state standards (and perhaps, ultimately, national standards) may vary greatly. In some instances it may just require moving some instruction and materials (York & Greenlee, 2002). An example might be that a topic is better taught in a different grade, and it would be an easy fix to relocate it along with the necessary materials to that grade. However, more than likely, a more expansive revision would be necessary. Cromey and Hanson (2000) offered the following steps for a district to approach such a revision: analysis of

the curriculum, realigning the curriculum, alignment of the local assessment system, and reflection upon two data sources which are findings from the curriculum analysis and results from state and local assessments. A brief description of these steps is necessary.

The first thing schools should do is outline where content standards and benchmarks are being taught. This is followed by determining what should be taught at each grade level. Curriculum maps, visual aids which show the content strands and where each is being taught are useful. Finally, standards should be prioritized because it may not be achievable to cover all the standards (PreK-12 Standards: Keys to Learning).

Once the curriculum is outlined, the next step is to revise and align the taught curriculum with standards and assessment and determine whether more or less instructional time or different instructional strategies are needed. Schools should then ensure that local assessment tools measure state standards and benchmarks as represented in the curriculum. The next step requires that schools use multiple sources of data to evaluate longitudinal performance of its students and gauge their performance relative to local and statewide trends. Finally, the data should be individualized for specific needs (Cromey, 2000).

Of course, none of this can occur unless teachers, given time and support from their principals, are involved. After the curriculum is aligned, teachers and administrators need to adjust their instruction time by planning a realistic calendar for teaching the standards. Teachers then use their knowledge of content to change standards into worthwhile learning activities. Teachers also must ensure that there are no gaps or overlapping coverage by vertically teaming—that is talking to each other across grade

levels. Finally, teachers must utilize assessments that measure the thinking and performance skills mandated by the state standards (York, Bruner, & Greenlee, 2002).

Formative and Summative Assessment

Assessment plays an essential role in the backward design process. Assessment bears out what is understood and what is not. Wiggins and McTighe (2005) emphasized "the regular use of ongoing informal and formal assessments" (p. 247) and contended that without assessment, student understanding cannot be gauged: "students should be assumed innocent of understanding until proven guilty. Just because eight students 'get it' and there are no further questions does not mean the others understand" (p. 247). In other words, without effective assessment, teachers don't have the evidence they need to measure their students' understanding and, therefore, are not able to adjust their teaching accordingly to bring about that understanding.

The common concept of assessment is a test, and a test is one of many types of assessment. But in order for assessment to effectively guide instruction and measure student understanding it must be viewed in a broader framework. Reeves (2004) made a clear distinction between testing and assessment calling the former an evaluation that is given to students for the purpose of judging education in general, whereas assessing is providing feedback on tasks soon thereafter to improve performance. Summative assessments are used to pinpoint what a student knows at a given time. These tests are usually graded and come in the form of state assessments, district common assessments, end-of-unit or chapter tests, or end of term tests to name a few. Formative assessments, conversely, are included in the instruction and are given to help guide the instruction (Garrison & Ehringhous, 2010).

To make the difference between formative and summative clearer, it is useful to consider summative assessments as assessments of learning and formative assessments as assessments for learning. That defines the two according to their intent. The intent of summative assessment is to make a judgment about someone or something (Chappuis & Chappuis, 2008). An example would be a student's grade, whether a program of instruction was effective, or whether a school made adequate yearly progress (Chappuis & Chappuis, 2008). A perhaps obvious, but important point is that summative assessments occur after instruction and results may not be communicated to the student for several days, weeks, or months. Therefore, it provides no feedback to the student, though it may be useful to evaluate the instruction, curriculum, or program (Garrison & Ehringhous, 2010).

The intent of formative assessment is to provide timely information to make changes to both classroom teaching and learning rather than making judgments about the instruction or the student (Garrison & Ehringhous, 2010). The results of these interventions can be profound. Marzano (2004) called formative assessment "one of the more powerful weapons in a teacher's arsenal" (p. 13). In discussing formative assessment, Marzano pointed to two components that show a great impact on student achievement. When assessments are given frequently, as summative assessments are not, the effect size goes up significantly, from .34 for one assessment to .82 for 30 assessments (p. 13). The second component Marzano referred to when discussing formative assessment is feedback to reinforce effort. In another review of studies, Marzano pointed to the strong correlation between reinforcing effort and student achievement. In some studies the percentage gain was as high as 48 percent (p. 14).

Garrison and Ehringhous (para. 9, 2010) called feedback "the most significant instructional strategy to move students forward in their learning." Descriptive feedback makes students active partners in their own learning, shows them how they are doing, and what they need to do to improve (Garrison & Ehringhous, 2010). The authors of the backward design model, Wiggins & McTighe (2005), called for "design, try, get feedback, adjust" (p. 271), creating a feedback loop which they contended is essential for improvement.

One strength of using formative assessments is their role in engaging the student. Formative assessments involve students as "assessors of their own learning and as resources to other students" (Garrison & Ehringhous, 2010, para. 8). Of course, teachers must make decisions in response to feedback from their students, but students also make decisions as to how to proceed (Chappuis & Chappuis, 2008). This interaction with the learning environment in engaging the student is essential for optimum learning. Ellen Langer (2000) referred to a form of engagement as "mindful learning" in which the learner is "actively engaged in the present, noticing new things and [is] sensitive to content" (p. 1). The concept of mindful learning also has applications for student motivation, such as calling for the information to be presented in novel ways and for the information to be questioned at its onset which goes back to Wiggins and McTighe's essential questions and big ideas.

Though the case for formative assessment is strong, summative assessment maintains a powerful presence. Its use has grown greatly over the past 50 years from a tool with few implications to one greatly impacting all educational shareholders (Wong & Nicotera, 2007). With the passing of the Elementary and Secondary Education Act

(ESEA) of 1965, summative assessments were used to evaluate students for Title I funds (Wong & Nicotera, 2007). The purpose of Title I was to guarantee a high-quality education for all children and the measurement of that quality relied on achieving state academic standards (*Elementary & Secondary Education*. (n.d.). Measuring achievement against these standards was accomplished by using summative, norm-referenced tests (Wong & Nicotera, 2007). Additionally, the (NAEP) was formed around the same time as the ESEA to administer criterion-referenced assessments in the following subjects: mathematics, reading, writing, science, geography, U.S. history, social studies, civics, and arts (Wong & Nicotera, 2007).

Assessment within Backward Design

The regular use of assessment is essential in the backward design model (Wiggins & McTighe, 2005). Assessments vary according to their intent (Chappius & Chappius, 2007) and timeliness (Garrison & Ehringhous, 2010). Formative assessments provide feedback to teacher and pupil and are useful in guiding both the instruction and the learner while at the same time increasing engagement (Garrison & Ehringhous, 2010). Wong and Nicotera (2007) contended that both summative and formative assessments are necessary, that no one test can accurately measure "academic content and curriculum covered at the local level" (p. 110) and that "classroom-based assessments may be unable to systematically assess what students should know and be able to do concerning academic standards" (p. 110). As a final thought, Robert Stakes made the difference between summative and formative assessments very clear in the following widely-used quote, "When the cook tastes the soup, that's formative; when the guests taste the soup,

that's summative" (Earl, 2003, p. 23). Assessments are not only necessary in guiding instruction, they also play a role in motivating students.

Motivation

Children begin their school years with confidence in their abilities even though there may be times when they are not successful. However, as children become older they may lose that confidence and begin to link performance directly with ability (Kobus, Maxwell, & Provo, 2008). A pattern of repeated failures can cause students to believe they are not capable, and they often quit exerting effort. Even if they do find some success, they may attribute this to some accidental chance (Tyler & Boelter, 2008).

In a classroom where students are engaged with well-designed lessons, disruptive behavior is lessened (Little & Akin-Little, 2008). Where academic engagement is low there is a higher incident of undesirable behavior including disruption (Taylor & Boelter, 2008). Academic engagement is indicative of academic performance and repeated academic failures lead to a host of unacceptable classroom behaviors including: inattention, withdrawal, off-topic responses, and attention-seeking behavior such as bullying or creating chaos (Tyler & Boelter, 2008). To increase student performance and decrease undesirable behavior, student motivation must be taken into account.

Scott Rabideau (2010, par. 1) defined motivation as: "the driving force behind all actions of an individual. The influence of an individual's needs and desires, both have a strong impact on the direction of their behavior." With regard to student motivation, Seifert (2004) stated that there are four widely-accepted theories governing student motivation. They are self-efficacy theory, attribution theory, self-worth theory, and

achievement goal theory. Understanding these theories provides insight into why students become unmotivated and unengaged.

Self-Efficacy

"Self-efficacy is a construct synonymous with confidence and refers to a person's judgment about his/her capability to perform a task at a specified level of performance" (Seifert, 2004, p.137). Among other things, this confidence plays a role in motivation (Margolis & McCabe, 2006). When self-efficacy is low, confidence is low and students who lack confidence may shun assignments they find challenging or difficult (Seifert, 2004). Additionally, students may only superficially attempt tasks or give up soon after starting them (Margolis & McCabe, 2006). Self-efficacy is closely related to academic achievement (Tyler & Boelter, 2008). Low self-efficacy impedes academic success and over time can create self-fulfilling prophecies of failure and learned helplessness (Margo & McCabe, 2006; Tyler & Boelter, 2008; Seifert, 2004). When academic self-efficacy is high, students participate more in academic tasks, work harder, stay at the task longer, and complete tasks at a higher quality than those with low self-efficacy. Stated differently, students with high academic self-efficacy are engaged (Tyler & Boelter, 2008).

The research suggested that there are four sources from which students acquire self-efficacy: task performance or mastery experiences, vicarious experiences, social persuasions, and physiological reactions or states (Tyler & Boelter, 2008; Margolis & McCabe, 2006). "Enactive mastery refers to students' recognition of the degree to which they succeeded on tasks" (Margolis & McCabe, 2006, p.219). Teachers can influence this by giving tasks that moderately challenge students or by modifying a task if it is too

difficult (Margolis & McCabe, 2006). Jeff Howard (1992) suggested creating goals that are both challenging and realistic; these goals lead to greater satisfaction and confidence as they are accomplished. This in turn encourages the child to attempt more difficult goals.

Vicarious experiences help struggling students by allowing them to observe others perform a particular task or task performance. Teachers using this to model a skill or learning strategy can help students by explaining what they are thinking or doing at each step along the way. To be most effective students should be able to identify with those they are watching. These similarities can include "age, gender, ability, interests, clothing, social circles, and achievement levels" (Margolis & McCabe, 2006).

Verbal persuasion gives struggling learners credible encouragement. Teachers can help those with low self-efficacy by encouraging work on tasks and providing feedback on what students did that produced positive results (Margolis & McCabe, 2006). Having positive expectations and providing emotional support can also build student confidence thus leading to higher levels of self-efficacy (Howard Jeff, 1990).

The final way a student can increase academic self-efficacy is through achieving a positive psychological reaction or state. Should a student become overly anxious, a teacher or counselor could teach him or her relaxation techniques or ways to dispel negative or irrational thoughts (Margolis & McCabe, 2006). Another way a teacher can affect this is by teaching students to internalize the belief that "smart is something you can get—if you know how" (Howard Jeff, 1990, p. 15). This state is built up over time as children achieve incremental successes (Howard Jeff, 1990).

Attribution Theory

Another motivation theory affecting classroom behavior is attribution theory. According to Seifert (2004) "attribution refers to the perceived cause of an outcome: it is a person's explanation of why a particular event turned out as it did" (p. 138). He further stated that "in an academic setting, typical attributions might include effort, skills and knowledge, strategies, ability, the teacher's mood or mistakes by the teacher" (p. 138). Weiner (1974) claimed that "causal ascriptions for success and failure include ability, effort, task difficulty, and luck" (p. 54). He further argued that these four causes can be separated by their locus of control and whether or not the cause is fixed or variable. Ability and effort can be affected by the individual; task difficulty and luck cannot. Ability and task difficulty are fixed; effort and luck are not (Weiner, 1974). The way students perceive success or failure affects their emotions and these emotions are borne out with certain behaviors (Seifert, 2004). Seifert (2004) explained:

> Failure attributed to stable causes might lead to expectations of continued failure and thus feelings of hopelessness, while failure attributed to unstable causes might lead to uncertain expectations for future outcomes and thus result in feelings of hopefulness. Students who attribute success and failure to internal, controllable causes are more likely to feel pride, satisfaction, confidence and have a higher sense of self-esteem…Students who attribute failure to internal, uncontrollable stable factors (inability) are more likely to feel shame and humiliation and will show little effort or cognitive engagement. (p. 140)

"The greater the perceived likelihood of goal attainment and the greater incentive value of the goal, the more intensive is the presumed degree of positive motivation" (Weiner,

2004, 54**).** Therefore, students who think they can be successful academically at tasks considered worthwhile are more likely to succeed and avoid misbehavior. According to this theory (Vockell, 2010), students can be taught to attribute success to internal, unstable factors such as effort while attributing failure to internal, unstable factors of which they have control. Teachers can bring about the proper attributions by arranging tasks to be completed successfully, by defining effort as "devoting effective academic learning time to the task" (p. 3), by avoiding excessively competitive grading, by at least partially evaluating according to effort, by convincing students that they are competent, and by linking areas where the student is competent to the current task (Vockell, 2010). Vockell (2010) also stated that: "An important assumption of attribution theory is that people will interpret their environment in such a way as to maintain a positive self-image" (p. 1), which is a good transition to the next theory of motivation, self-worth theory.

Self-worth Theory further explains motivation in terms of a student's need to protect his or her self-worth. According to this theory, much of the achievement in a classroom is due to the need for students to protect their self-worth (Covington, 1984). Achievement is expressed through performance where high-ability students do well and low ability students do not. When low-ability students are not able to do well, they protect their feelings of self-worth by appearing to look competent or to avoid looking incompetent (Seifert, 2004). In avoiding actual or perceived failure, students use a number of defensive strategies to protect their self-worth including avoiding the task, putting it off, appearing disorganized, setting unrealistically high or low goals, cheating or asking for help. All of these behaviors provide an excuse in case the performance is

poor (Seifert, 1997). When such behavior is employed to avoid failure or the perception of failure, students find themselves in conflict with the work-expectations of their teachers (Covington, 1984).

Achievement Goal Theory

The final student motivation piece can be explained in achievement goal theory. According to this theory, student behavior can be attributed to the desire to achieve one of two goals: a mastery (learning) goal or a performance goal. Performance goals reflect a desire to prove ability and avoid looking incompetent while learning goals reflect the desire to acquire knowledge and the belief that intelligence is not fixed (Seifert, 2004). In a classroom setting, those pursuing performance goals may express maladaptive behaviors, especially if they are of low ability. These behaviors could include such coping mechanisms as task avoidance, negative self-talk, or anxiety, boredom, or task dislike (Seifert, 2004). However, some researchers have pointed out that there is a distinction between whether students are motivated by performance goals or demotivated by them and that this distinction is not well-represented in the literature (Harackiewicz, Barron, Pintrich, Elliott, & Thrash, 2002). Harackiewicz et al. (2002) agreed that there are maladaptive behaviors associated with performance goals, but they contend that those play out as performance-avoidance goals. The authors found that performance goals may be associated with several positive outcomes including task value, academic self-confidence, effort expenditure, and performance attainment.

Many theorists contend that mastery goals are superior to performance goals since mastery goals promote optimum motivation (Harackiewicz & Linnenbrink, 2005). In mastery learning when students are faced with an academic challenge, positive adaptive

behaviors are displayed such as task-focus, problem-solving self-talk, optimism, pride, satisfaction, confidence, and self-worth. Students are both task and learning oriented (Seifert, 2004). Learning goals may be self-set by the student, or may be created by the educational context (Harackiewicz & Linnenbrink, 2005). Pintrich (2000) stated that achievement goals are not goals as such, but are "cognitive representations and may show both intraindividual stability as well as contextual sensitivity" (p. 13). If the students' goals or representations are sensitive to context, then teachers should be able to motivate through the use of learning goals or tasks.

Motivation through Content

One way to motivate via task manipulation is to make the task meaningful to the student (Seifert, 2004; Major, 2008). Oliver (1995) stated that many students get bored. Boredom can be overcome by incorporating the students' interests into the lessons (Margolis & McCabe, 2006), and by relating tasks to students' own lives (Margolis & McCabe, 2006; Major, 2008). Tasks can have real-world applications (Major, 2008) or be what Wiggins and McTighe (2005) called authentic tasks. Students can derive meaning when the goals of the lessons are carefully explained (Oliver, 1995). Additionally, how the tasks are presented, not just the directions, can help motivate. For example, "tasks should be only slightly above the student's current level of performance" (Margolis & McCabe, 2006, p. 220); tasks should be sequenced for initial success and this may mean starting somewhere other than the beginning (Major, 2008; Vockell, 2010), or what Wiggins and McTighe (2005) referred to as using the logic of learning instead of the logic of the content (p. 301); no more than one or two critical strategies for mastery should be associated with a single tasks (Margolis & McCabe, 2006); and give students

choices about tasks or materials whenever possible (Margolis & McCabe, 2006). And finally, the role of feedback on tasks completion cannot be overstated; providing immediate and regular feedback on the given task, not only tells the student how they are doing, but points them in the right direction (Major, 2008; Oliver 1995).

Combined Approach to Motivation

However, if as Pintrich stated that achievement goals are intraindividual stability as well as sensitive to context, then there may be individuals who will not be motivated by learning tasks. For some, "only performance-approach goals enhanced interest for achievement-oriented individuals" (Harackiewicz, et al., 2002, p. 643). Therefore, it might be prudent to pursue both performance-approach and mastery goals since students "can and do pursue multiple goals" (p. 640). There are several ways the two goals could interact to motivate students. In some instances, mastery goals might increase interest, while performance-approach goals increase grades; students might address mastery goals while reading their assignments, but undertake performance-goals when studying for the exam (Harackiewicz, et al., 2002)

How students view intelligence impacts which goal they choose. Carol Dweck and Mary Bandura (2000) investigated how students viewed intelligence—as either fixed or changeable—and depending upon how they view intelligence, what performance tasks they would prefer to try. They found that children, who viewed intelligence as fixed, preferred tasks that were normative (performance) and allowed them to compare favorably to one another, while those who saw intelligence as variable, preferred learning (mastery) goals that were more intrinsically motivating (Dweck, 2000). It is noted in the literature that there may be certain instances when performance goals are appropriate, but

generally speaking mastery goals are seen as superior (Harackiewicz & Linnenbrink, 2005).

Seifert (2004) critically examined the four theories and pointed out some weaknesses as well as some overlapping concepts. According to self-efficacy, a student who feels capable is probably motivated. However, a student who is unmotivated may not necessarily be incapable, as with an intelligent but bored student. Further, a student may claim that he or she cannot do something, but none-the-less completes the task anyway. Seifert, therefore, thought a better model was the self-worth theory because no matter what else happens, a student would not want to look incompetent. Even a student with low self-efficacy might become motivated to protect the perception of competency. Continuing with this line of logic, the only ways these students can protect their self-worth is by avoiding failure under the self-worth theory or by pursuing a performance goal under the achievement goal theory. The common thread between the two is the belief that "success and failure are the result of ability as a fixed entity. In other words, students believe that academic outcomes are the result of an internal, stable, uncontrollable entity" (p. 145). Seifert also accounted for attribution theory by postulating that while attributions are often seen after the fact, attributions should, in fact, be considered as beliefs students have about the causes of success and failure before beginning a task.

Seifert compared the four theories to make several conclusions to help increase student motivation. Students should be made to feel competent and in control; students should find meaning in their work; and students must clearly understand what it is they are expected to do (Seifert, 2004). Many of these recommendations can be found in what

Wiggins and McTighe (2005) termed the "best" lesson designs. They presented a list of characteristics as follows:

> Clear performance goals, based on a genuine and explicit challenge; hands-on approach throughout; far less front-loaded "teaching" than typical; focus on interesting and important ideas, questions, issues, problems; obvious real-world application, hence meaning for learners; powerful feedback system, with opportunities to learn from trial and error; personalized approach, with more than one way to do the major tasks, and room for adapting the process and goal to style, interest, need; clear models and modeling; time set aside for focused reflection; variety in methods, grouping, tasks; safe environment for taking risks; teacher role resembles that of a facilitator or coach; more of an immersion experience than a typical classroom experience; big picture provided and clear throughout, with a transparent back-and –forth flow between parts and the whole. (pp. 196-197)

The "best" lessons according to Wiggins and McTighe are engaging and effective (2005). The authors use words like "thought provoking, fascinating, energizing, interesting, and relevant" to describe the work (p. 195). Effective lesson designs promote learners who are "competent and productive at worthy work" (p. 195). Many of the characteristics of good lessons suggested by Wiggins and McTighe support Seifert's recommendations to increase motivation. Clear performance goals, clear models and modeling, and understanding of the big picture all contribute to decreasing the ambiguity often associated with lessons. Powerful feedback, personal adaptive approaches to tasks, teacher as facilitator or coach, and ensuring a safe atmosphere for risk taking enable

students to gain confidence and feel a measure of control. Focusing the tasks on interesting ideas and issues, relating the lessons to the real world, and again, emphasizing the big picture make the lessons meaningful.

Bernard Weiner stated that, "intensity of the aroused motivation is determined jointly by the expectation that the response will lead to the goal and the attractiveness of the goal object" (Weiner, 1974, p. 54). So then, students will be motivated when learning and assessing is tied to challenging, life-like scenarios and this will be reflected in measurable, positive behavior.

There are, of course, other factors that influence students and can cause motivation to wane. Among these are discipline issues, family problems, a general dislike of school, learning disabilities, and language problems just to name a few (Oliver, 1995). Task avoidance, for example, has received special attention according to the literature where some researchers have asserted that task avoidance is distinct from learning and performance goals (Seifert, 2004). However, Seifert & O'Keefe (2001) cited research indicating that students avoid work not only because it lacks meaning but also because they are lacking in competence and control. Of course, lesson design cannot combat all causes of declining motivation, but in areas like boredom, worthiness of the work, and academic performance (Oliver, 1995), a lesson that is engaging and effective is a powerful tool to increase motivation and decrease misbehavior.

Understanding

"Understanding is probably the least studied and least understood type of learning within the cognitive domain" (Module 6: Understanding: What is Understanding?, n.d., para. 4). Wiggins and McTighe stated that "plenty of evidence suggests that to

understand and to teach for understanding are ambiguous and slippery terms" (2005, p.35). Part of this ambiguity is because the words *know*, *know how*, and *understanding* are used interchangeably (2005). Memorizing facts does not necessarily mean understanding; knowing how to accomplish something doesn't necessarily mean one grasps the theory or principles behind the action. An apt example might be that most people would say they understand computers, or more probably, that they know how to use computers. They certainly "know" that pressing certain keys in a particular order or "clicking" on a particular symbol results in a desired outcome. They also "know" a little bit about "how" a computer works, that it operates according to internal directives, or some sort of code. But it would be highly unlikely for them to be able to adapt that code for their own purposes. They are constricted to uses designed by those who truly understand how computers operate. Therefore, the differences between knowing, knowing how, and understanding might be best described as a continuum, moving from memorizing facts to applying and interpreting those facts into actions and different interpretations (2005). Using Bloom's work, Wiggins and Mctighe (2005) defined understanding as the following:

> Understanding is the ability to marshal skills and facts wisely and appropriately, through effective application, analysis, synthesis, and evaluation. Doing something correctly, therefore, is not, by itself, evidence of understanding. It might have been an accident or done by rote. To understand is to have done it in the right way, often reflected in being able to explain why a particular skill, approach, or body of knowledge is or is not appropriate in a particular situation. (p.39)

Based upon the previous definition, what then differentiates understanding from knowing and knowing how is effective use of skills and facts and the ability to provide reasons for their use.

Another term that is often used interchangeably with knowing and understanding is learning. The American Heritage Dictionary of English Language (2000) defined learning as: "1.The act, process, or experience of gaining knowledge or skill. 2. Knowledge or skill gained through schooling or study. 3. *Psychology* Behavioral modification especially through experience or conditioning." Looking at learning this way speaks to some degree of permanence; the knowledge or skill is "gained" or the behavior is modified. Allowing some leeway and putting the two definitions together, understanding might best be described as effectively using knowledge or facts and skills with some degree of permanence. Therefore once understood, that understanding should be able to be applied in the future. And since in the future, applications are unlikely to be exactly the same, there needs to be some sort of transferability of the understanding (Wiggins & McTighe, Understanding by Design, 2005).

Transfer

According to Wiggins and McTighe (2005), the utility of understanding is expressed through transfer; understanding is useful when it can be applied in new ways. More specifically, the authors defined transfer as "The ability to transfer our knowledge and skill effectively involves the capacity to take what we know and use it creatively, flexibly, fluently, in different settings or problems, on our own" (p. 40). "Transfer involves doing something that one has not been taught explicitly to do" (Greeno, 2006, p. 538). Tyler (1949) referred to transfer as training the mind in a general way to apply the

learning under any necessary conditions. Thomas (2007) cautioned that it is important that transfer not be viewed as a "static concept" and that "transfer takes on different meanings depending on the way it is defined and applied before, during, and after the learning experience" (p. 4).

One useful way to view transfer of learning is through the work of Benjamin Bloom (1956). Bloom viewed learning as a continuum of ever-increasing complexity from the knowledge phase of just learning and recalling facts to the more advanced phase of application and finally to the evaluation phase where the learning can be modified for future uses (Thomas, 2007). Greeno (2006) specified how transfer comes about in terms of agency. Beginning with conceptual agency as a precursor of transfer, individuals must be capable of "authorship, initiating ideas and topics, and challenging or questioning what others say" (p. 538). In order for transfer to take place conceptual agency interacts with material agency, which are "the resources…appropriated, adapted, or modified for a purpose in the agent's activity" (Greeno, 2006, p. 538) and with disciplinary agency, which refers to the algorithmic process or problem-solving steps within a discipline. Greeno (2006) referred to this interaction as "authoritative and accountable positioning" (p. 539) and stated that this positioning can be brought about by "practices that encourage problematizing substantive issues, and access to resources that students can use in their work on the issues that they problematize" (539). However, transfer only occurs when authoritative and accountable positioning occurs between settings. The expectation that students with strong conceptual agency in one area should be able to take those cognitive skills and use them in another setting provided they have the necessary material and disciplinary agency in the new area. If, however, the student's previous cognitive agency

is weak, perhaps because students learned only prescribed procedures or prescribed results of inquiry then they may not truly have the conceptual agency to apply their learning to a new problem (Greeno, 2006).

Transfer may not occur if lessons are too confined thus prohibiting students from making the knowledge their own. Sometimes transfer is hindered because students have no practical experience to apply the new learning; they have nothing to connect it to (Alderman & Beyeler, 2008). At other times, students' own preconceptions conflict with the new theories or strategies (Alderman & Beyeler, 2008; Thomas, 2007). Still other reasons for lack of transfer can be attributed to the design of the instruction itself. If learning tasks are memorization-based, then the knowledge gained tends to be inert, or knowledge learned that cannot be applied to other situations (Alderman & Beyeler, 2008). And lastly, though there are sure to be other reasons, transfer can be obstructed because of "a lack of personal motivation or confidence on the part of the learner" (Thomas, 2007, p. 6).

Strategies to Encourage Transfer

Despite the number of reasons transfer may not occur, there are many things teachers can do to facilitate transfer. One of the easiest strategies is simply to allow sufficient time to provide adequate instruction for concepts and procedures (Alderman & Beyeler, 2008). In Mastery Learning Theory, time not content, is the variable to be adjusted (Shulman, 2007); and allowing sufficient time contributes to mastering the material and subsequently, transfer.

Another strategy to facilitate transfer is collaboration. "Collaborative activities and discussions where students can share ideas and solutions as well as understanding is

another approach" (Alderman & Beyeler, 2008, p. 2) to enhancing transfer. Greeno (2006) referred to such collaboration in the following way:

> "Connected knowing involves a relation with other people, with knowing being an outcome of joint, constructive action. This includes direct collaboration interactions as well as indirect interactions (such as reading texts and other representations) treated as interactions with ideas and information contributed by other people." (p. 540)

This view of promoting transfer goes back to work by Vygotsky where all learning is social in nature and takes place through interactions between the individual and cultural artifacts (Verenikina, 2003).

Transfer can be encouraged by the design of the lesson. Instructors should start with models in which students have some familiarity and build on that (Greeno, 2006). Greeno also cited work by Marton that emphasizes the importance of acknowledging how tasks are also different. This is somewhat related to what Wiggins and McTighe (2005) referred to as uncovering. Essentially uncovering, as well as referring to depth of inquiry, also refers to challenging existing practice and assumptions which is an important aspect of cognitive agency (Greeno, 2006; Wiggins & McTighe, 2005).

> "Constructing models and activities in which perceptual distinctions students already can discern help make the behavior of the models accessible, and the perceptual distinctions they learn to discern help give them access to the regularities and principles that the instruction intends them to learn." (Greeno, 2006, p. 542)

These “regularities and principles” are the “big ideas” that are the “core concepts, principles, theories, and processes…that are important and enduring…beyond the scope of a particular unit” (Wiggins & McTighe, 2005, p. 338).

Additionally, learning tasks should be constructed using authentic or performance-based tasks (Alderman & Beyeler, 2008). Authentic tasks “require students to construct knowledge, involve disciplined inquiry, and in turn lead to more practical use” (Alderman & Beyeler, 2008, p. 2). Wiggins and McTighe (2005) likened authentic tasks to learning as it takes place on an athletic field or in an art studio. In these examples practitioners attempt “to do the subject with understanding—to acquire knowledge and skill not for their own sake but as the means for handling key tasks in the field” (p. 291). In order to bring about that performance the authors suggested designing the instruction according to the desired performance goal, responding to feedback, moving between specific knowledge and skills and the entire task, regular exchanges between demonstration and trying, and freedom to try without repercussions before the ultimate performance (2005). The performance itself is expressed through “explanation, exemplification, application, and contextualization” (Alderman & Beyeler, 2008, p. 2); in other words, there is evidence of the performance, and by extension, the transfer.

Six Facets of Understanding

Just as transfer can be evidenced, so too can understanding. However, since understanding has more than one meaning, then its expression must be multifaceted as well (Wiggins & McTighe, 2005). Wiggins and McTighe argued for six measures of understanding; each being a “facet…of transfer ability” (2005, p. 84). A student can have

a “complete and mature understanding” (p. 85) when he or she can explain, interpret, apply, have perspective, empathize, and have self-knowledge (2005).

Wiggins and McTighe defined explanation in the context of understanding as something that is “revealed through performances and products that clearly, thoroughly, and instructively explain how things work, what they imply, where they connect, and why they happened” (2005, p. 86). Explanations use verbs such as “support, justify, generalize, predict, verify, prove, and substantiate” (p. 87). For example, when a math teacher asks the student to show his or her work, he is asking the student “to communicate mathematically [meaning] to use words, numbers, or mathematic symbols to explain situations; to talk about how you arrived at an answer” (1999, p. 2). Using an example from another discipline, “expository essays are written by students to demonstrate their knowledge and understanding of a particular topic” (What is Expository Writing?, 2002, para. 2). “Expository writing is non-fiction writing; its purpose is to explain, interpret, or clarify… [it] can give an explanation or tell how a solution was determined… usually takes the form of an essay that explains important concepts in science, great events or trends in history, or the steps you have taken to reach an answer to a math problem” (What Is Expository Writing?, 2002, para. 3). Interestingly, not only does explaining count as evidence of understanding, it also leads to better and deeper understanding. In one study of self-explanations, some middle-school students were asked to write their explanations of a biology text after each passage, while others were not. Those who self-explained had greater gains from the pretest to the posttest than those who did not explain. Further, those who elaborated the most scored the highest (Chi, De Leeuw, Chiu, & LaVancher, 1994). Such research

supports writing to learn approaches based upon the theory that "students' thought and understanding can grow and clarify through the process of writing" (Bazerman, Little, Bethel, Chavkin, Fouquette, & Garufis, 2005, p. 57).

When Wiggins and McTighe (2005) discussed the next facet of understanding, interpretation, they were primarily referring to stories and reaction to those stories. Through stories students "decipher what living in the world is all about" in which stories "trigger different personal connections, different messages and different levels of meaning" (Phillips, 2005, p. 27). They ask questions such as "What does it mean? Why does it matter? What of it? What does it illustrate or illuminate in human experience? How does it relate to me? What makes sense?" (Wiggins & McTighe, 2005, p. 88) are all questions where students interpret and connect to information. Connecting helps them integrate the new knowledge with existing knowledge (Alderman & Beyeler, 2008). Connecting also makes the big ideas, enduring concepts and transferrable knowledge and skills, accessible at a personal level (Wiggins & McTighe, 2005). As a note of caution, Wiggins and McTighe (2005) pointed out that by its very nature, interpretation is messy. Individuals will see things differently; understandings of people, events, and readings will vary. However, some reactions are "more insightful or defensible that others" (p. 91). In the end, though, students will make their own meaning (Wiggins & McTighe, 2005).

The next facet of understanding to be explored is application. Application is the "ability to use knowledge effectively in new situations and diverse realistic contexts" (Wiggins & McTighe, 2005, p. 92). Paraphrasing the earlier definition of transfer as the ability to use knowledge and skills in new settings in ways not previously taught (Greeno,

2006; Wiggins & McTighe, 2005), application, then, goes to the heart of transfer. The main difference in the two definitions is the emphasis on application's realistic context. The problems and assignments should mirror the real world as much as possible (Wiggins & McTighe, 2005). In other words, the lessons should be authentic. Authentic tasks, those which "require students to construct knowledge, involve disciplined inquiry, and in turn lead to more practical use," (Alderman & Beyeler, 2008, p. 2) and allow students to connect to the material and find worth in the assignments (Mims, 2003). Duffy and Jonassen defined authentic tasks as "those that have real-world relevance and utility, that integrate those tasks across the curricula, that provide appropriate levels of complexity, and that allow students to select appropriate levels of difficulty or involvement" (1992, p. 140). As a cautionary note both Tyler (1949) and Judeth Howard (2007) warned against lessons losing their authenticity, reducing them to collections of isolated skills and facts.

Piaget asserted that learners "must be active to be engaged in real learning" (Mims, 2003, p. 1). Active learning occurs when "students are able to connect new knowledge with their prior understanding" (p. 1). From a constructivist perspective, this engagement is enhanced when lessons are presented in "a meaningful context that brings the real world into the classroom" (p. 1). Wiggins and McTighe mirrored this perspective by stating that the best lesson designs have "obvious real-world application, hence meaning for learners" (2005, p. 187), as well as "focus on interesting and important ideas, questions, issues, problems" (p. 197). Some additional characteristics of authentic learning are: a) Authentic, interesting tasks, b) Inquiry-based tasks, c) Interdisciplinary Units, d) Real-world connectivity, e) Complex tasks requiring higher-order thinking, f)

Production of a product, g) Student-driven/ teacher as coach, h) Scaffolding, i) Collaboration, j) Well-resourced (Mims, 2003).

One attempt at authentic teaching is to employ problem-based learning. Problem-based learning (PBL) requires students to tackle complicated problems with many possible solutions, collaboratively, in ways that require them to use previous and new knowledge, and to evaluate their strategies (Wood, 2003). Originally developed to improve medical training, PBL has been used successfully in K12 education (Artino, 2008). The goals of PBL are consistent with the characteristics of authentic learning in that they require students to: "a) construct extensive, flexible knowledge that transfers to other academic and non-academic settings; b) develop effective problem-solving skills; d) become effective collaborative learners; and e) become intrinsically motivated to learn" (Artino, 2008, p. 3). A specific example of PBL is *The Adventures of Jasper Woodbury*. Created by the Cognition and Technology Group of Vanderbilt University, the mathematic unit was tested against traditional mathematics curricula. Students involved in the study, those in grades five and up, completed the outcomes three to four weeks quicker, had superior performance on one-, two-, and multi-step problems, and did much better on planning and sub-goal comprehension problems (Artino, 2008).

Authentic learning activities such as *The Adventures of Jasper Woodbury*, try to put learning into a meaningful context. This is consistent with the constructivist view of learning as "a process of interacting with the outside world, and continually reanalyzing and reinterpreting new information and its relation to the real world" (Mims, 2003, p. 1). "Constructivism claims that learners can only interpret information in the context of their own experiences, and what they interpret will, to some extent, be individualistic" (Duffy

& Jonassen, 1992, p. 139). The teacher's role is to both guide the instruction while being cognizant that students will "interpret our message in the context of their own experiences and knowledge and construct their own meaning relative to their needs, backgrounds, and interests" (Duffy & Jonassen, 1992, p. 139). When students construct their own knowledge and then use that knowledge in a practical way, the task is considered authentic and counts as evidence of transfer (Alderman & Beyeler, 2008).

Understanding as revealed by perspective refers to "critical and insightful points of view" (Wiggins & McTighe, 2005, p. 95). This facet of understanding lies at the core of critical thinking and necessitates that students "expose questionable and unexamined assumptions, conclusions, and implications. When students have or gain perspective, they can gain a critical distance from the habitual or knee-jerk beliefs, feelings, theories, and appeals that characterize less careful and circumspect thinkers" (Wiggins & McTighe, 2005, pp. 95-96). When students engage in disciplined inquiry (Mims, 2003) and high-order thinking (Alderman & Beyeler, 2008), they are thinking critically.

Understanding by having perspective entails challenging assumptions and using various points of view to critically examine an issue (Wiggins & McTighe, 2005). Critical thinkers such as Descartes, Locke, Berkeley, and Hume all questioned and challenged "inherited and customary beliefs" (Cohen, Salas, & Riedel, 2002, p. 44). This questioning should occur both internally and externally. Internally, students should ask questions about their own point of view. For example "How am I looking at this situation? Is there another way to look at it that I should consider? What am I focused on? Is my view the only reasonable view?" (To Analyze Thinking We Must Identify and Question Its Elemental Structures, 2007, Point of View Section). Questioning externally,

the student needs to verify the information (Paul & Elder, n.d.) and look for biases in the information (Cohen, Salas, & Riedel, 2002). The goal is to achieve in the student the ability to "see things from a dispassionate and disinterested perspective. This type of understanding is not about any student's particular point of view but about the mature recognition that any answer to a complex question typically involves a point of view; hence, an answer is often one of many possible plausible accounts" (Wiggins & McTighe, 2005, p. 95).

Critical thinking is not a single process, rather it is characterized by several "elements of reasoning including: purpose; question at issue; assumptions; inferences; implications; point of view; and concepts and evidence" (Paul & Elder, Using Intellectual Standards to Assess Student Reasoning, 2009, p. 1). These elements can be assessed by several criteria including: clarity (Is it expressed properly? Should one elaborate?); accuracy (Is it true? Can it be verified?); precision (Are more details needed? Is it specific enough?); relevance (Does this connect to the problem or issue?); depth (Are all the complexities of the questions covered?); breadth (Are all relevant points of view considered?); and logic (Does it makes sense?) (Paul & Elder, n.d.). Point of view speaks directly to clarity, accuracy, depth and breadth. The importance of point of view as it applies to critical thinking is expressed by many, if not all, state content standards (Point of View, 2010; MOESC Language Arts Course of Study; Kendall, Norford & Snyder, 2001).

If perspective means to view something in an objective, critical manner, then empathy is to see it as another sees it; to experience another's feelings and viewpoint (Wiggins & McTighe, 2005).

> "Empathy refers to the capacity to understand and respond to the unique affective experiences of another person. At an experiential level of description, this psychological construct denotes a sense of similarity between one's own feelings and those expressed by another person." (Decety & Jackson, 2006, p. 54)

Wiggins and McTighe (2005) contended that empathy is more than an automatic affective response; it is, rather, a "disciplined attempt to feel as others feel, to see as others see" (p. 98). Perhaps what they are referring to is reactive empathy. In reactive empathy, one appreciates another's affective state in conjunction with the situation. This contrasts with what is referred to as parallel empathy which is just sharing the emotion and not taking into account other influences. Reactive empathizers will appreciate another's emotions, but will have different ones and because of this, they can attempt to change or increase the emotional response of the other person. Since the focus is on another person, reactive empathy is considered a higher level of behavior (McQuiggan, Robinson, & Lester, 2010).

Taking a step backwards, the affective domain, of which empathy is one emotion, has significant implications for learning. The affective domain "can significantly enhance, inhibit or even prevent student learning… [and] includes factors such as student motivation, attitudes, perceptions and values" (2010, p. 1). Additionally, it is not possible to separate affective effects from the cognitive domain. In fact, the companion text to Bloom's *Taxonomy of Educational Objectives-The Classification of Educational Goals. Handbook I. – Cognitive Domain* is the *Taxonomy of Educational Objectives: Affective Domain*, something that is often overlooked (Nuhfer, 2005). The latter work often referred to as Krathwohl's Taxonomy, Krathwohl being the first author along with Bloom

and Masia, lists five levels "that develops rationally and along with conscious development of the cognitive domain" (Nuhfer, 2005, p. 9). Level one: Receiving is just being cognizant of new information and the environment in which it is presented. Level two: Responding is to focus on the new information by actively engaging and questioning. Level three: Valuing requires examining old beliefs "in light of new information to produce a new outlook or attitude" (p. 9). Level four: Organization is the assimilation of new ideas and belief's seamlessly into one's own value system. Level five: Characterization by Value is "acting consistently with acquired values and perhaps becoming expert in their further development and use" (p. 9).

The power of empathy within the affective domain specifically, and within learning more generally, can be emphasized by a study of how empathy changes different emotional states during participation in an intelligent tutoring system called *Crystal Island*. The science tutorial creates a make-believe world in order to teach middle-school students microbiology and genetics. By creating situations for the characters, and using short, written expressions of their thoughts, the program endeavors to engender both parallel and reactive empathy in the user. The authors of the study wanted to know how empathy affected ten affective states (anger, anxiety, boredom, confusion, delight, excitement, fear, flow, frustration, and sadness) associated with learning. Of the ten affective states, flow, a "state of effortless concentration and enjoyment" (Csikszentmihalyi, 1997) and frustration were most likely to change in response to empathy by the user. Depending upon whether the user engaged in parallel or reactive empathy influenced how they moved into and out of states of frustration and flow. The

authors of the study concluded that empathy must be considered when creating an intelligent tutoring system (McQuiggan, Robinson, & Lester, 2010).

In Wiggins and McTighe's (2005) view of empathy as evidence of understanding the "disciplined attempt to feel as others feel, to see as others see" (p. 98) speaks to the first three level of Krathwohl's Taxonomy. Students must be aware that they are receiving new information, they must engage with the new information, and they must make a value judgment in order to appreciate another's view. Whether the differing views are incorporated into the student's own world view (the last two levels) is not necessary to appreciate what once may have been strange or different. The evidence of empathy will manifest similarly to that of perspective, in proper thinking; more specifically, when thinking involves depth, breadth, and logic (Paul & Elder, Using Intellectual Standards to Assess Student Reasoning, 2009). When empathy is neglected in teaching misunderstanding ensues and learning may become tenuous (Wiggins & McTighe, 2005). At the very least, internal biases can go unchecked (Cohen, Salas, & Riedel, 2002).

The final facet of understanding suggested by Wiggins and McTighe is self-knowledge, what the authors define as "the wisdom to know one's ignorance and how one's patterns of thought and action inform as well as prejudice understanding" (2005, p. 100). Self-knowledge is the ability to ask sometimes difficult and uncomfortable questions such as: "How does who I am shape my views? What are the limits of my understanding? What are my blind spots? What am I prone to misunderstand because of prejudice, habit, or style?" (Wiggins & McTighe, 2005, p. 100). Self-knowledge is not only influenced by a point of view and an ability to empathize with others, it is also influenced by how people think.

Metacognition

Awareness of how and why we think, along with the ways we approach learning and understanding, is referred to as metacognition (Wiggins & McTighe, 2005). An important aspect of metacognition "is the ability to self-monitor your current level of knowledge and understanding and diagnose when it is or is not adequate" (Nordell, 2009, p. 41). Often, students have a misconception about what they know, or what they think they know; they tend to believe they have a greater understanding of material than they do (Nordell, 2009). A naïve student may have no idea when an idea is outlandish, or worse, he or she may try to rationalize an understanding by bending new learning and experiences into their existing mental framework without considering how their thinking tendencies have influenced the idea (Wiggins & McTighe, 2005).

When students are metacognitively aware, they can examine their own thinking and come up with ways to solve problems with their own learning (Joseph, 2009). These students are "self-regulated learners who assess their knowledge and examine their cognitive process, [and] abilities" (Joseph, 2009, p. 100). Students are ineffective at self-assessing for a number of reasons. Some lack the "practical figure-it-out skills to approach classroom challenges in a confident manner" (Joseph, 2009, p. 99). Some have become passive learners (Joseph, 2009) or learners who engage only at a superficial level, as with students who just read the material or look over their notes (Nordell, 2009). When such ineffective strategies are employed, students may not be able to adequately recall new information, and worse, they overestimate the utility of those strategies, thinking that they "know" the material even as the assessments show otherwise (Nordell, 2009). Students may not even know what information is or isn't important and how to

take proper notes of the requisite material (Nordell, 2009). Even when they do grasp the individual concepts, they may be unable to associate them or integrate them into their own cognitive processing (Chang & Yegmin, 2008). Additionally, student motivation certainly plays a role whether or not a student puts forth the effort (Margolis & McCabe, 2006; Oliver, 1995; Seifert, 2004; Thomas, 2007; Weiner, 1974).

Sadly, it may not just be a lack of effort on the student's part. Teachers themselves play a role. They may not teach processing skills, but rather focus on content and they may do this for fear of taking valuable instruction time (Chang & Yegmin, 2008). Some teachers may not have had to struggle with learning and may not be able to identify with those who struggle with learning, and subsequently, not teach cognitive processing skills (Nordell, 2009).

Fortunately, metacognition skills can be taught (Joseph, 2009). Teachers can teach thinking about thinking by directly modeling the internal dialogue such as with a think aloud activity. They can use other students with strong metacognition strategies to peer model them. Teachers can employ self-assessment checklists or write-to-learn assignments (Joseph, 2009). Concept maps can be especially useful in integrating concepts and relating them to each other. Other strategies include recopying notes, self-quizzing, flashcards, and teaching others (Nordell, 2009).

Since so much learning happens through reading, it is especially useful to acquire strong metacognition skills in that area. Teachers should teach active reading where students are encouraged to connect with the text (Nordell, 2009). Reading logs are useful (Joseph, 2009), as are specific reading strategies such as summarizing and questioning the text (Brozo & Stahl, 1985). Finally, instructors can have students preread a section or

preview specific passages in order to get students acquainted with the material before teaching for a more thorough understanding (Nordell, 2009).

Perhaps the most important aspect of metacognition for the student is the ability to self-assess (Nordell, 2009) or to know what he or she doesn't know (Wiggins & McTighe, 2005). Unfortunately, those most likely to be deficient in self-assessing are the least likely to seek help, whether they cannot evaluate if they need it, or whether they see it as remediation, and therefore, negatively (Nordell, 2009). When metacognition skills are taught, the less proficient learners make the most academic gains (Joseph, 2009; Chang & Chang, 2008).When students are taught metacognition skills and strategies they engage in a number of higher-order thinking skills such as interpretation, synthesis, analysis, and evaluation (Joseph, 2009). Teaching and designing for metacognition "emphasizes the use of intentional processes that students can use to construct meaning from information, experiences, and their own thought and beliefs" (Affairs, 1997, p. 2) producing successful students who are "active, goal-directed, self-regulating, and who assume personal responsibility for contributing to their own learning" (p. 2).

Summary

Chapter two was a review of the literature on classroom management, backward design, and some of the major elements or themes associated with that model that might impact classroom management.

The research behind the study was to identify links between the backward design model of curriculum design and how elements of that approach impact both student achievement and classroom behaviors. Classroom management entails how teachers create the proper atmosphere for students to learn (Taylor, 2009). Exploring how the

effective teaching strategies embedded within backward design might impact classroom management should increase the mechanisms by which teachers facilitate learning.

As the wording suggests, backward design requires that teachers begin with the end result in mind, determine next what assessment will serve as evidence of understanding, and then what instruction will be necessary to prepare the student for the assessment (Wiggins & McTighe, Understanding by Design, 1998). Backward design takes into account Tyler's (1949) four fundamental questions about what curriculum should accomplish.

In its simplest form backward design can be thought of as a three-step approach to lesson design. In stage one, the desired results are identified and the purpose is determined. In stage two, acceptable evidence is determined and a means to evaluate the learning is identified. And in stage three, learning experiences and instruction are planned by selecting and organizing the most effectives means to bring about the desired results.

Within the three steps are several important themes that impact student performance and student behavior. These include curriculum alignment to standards, formative and summative assessment, student motivation, and student understanding. The research indicated that utilizing the backward design model and the embedded elements within positively impact student performance. With regard to classroom management, an effective, well-designed lesson engages the students so that disruptive behavior is lessened (Little & Akin-Little, 2008). The backward design template uses many of the mechanisms that increase student engagement such as providing worthy and authentic work, clear expectations, and immediate feedback.

Chapter Three: Methodology

Overview

This study investigated teachers' perceptions of a relationship between classroom curriculum purposefully designed backward from a determined end result to actively involve students in meeting a performance-based goal, and on-task, positive behavior of students in the classroom. A model of curriculum, with the name of backward design, was developed and published by Grant Wiggins and Jay McTighe in their book, *Understanding by Design* (2005). It provided the foundation for the researcher's study of the relationship between a curriculum that is focused, organized, and replete with interesting, purposeful performance tasks and student classroom behaviors that are on task and positive. Chapter three contains the research questions, the teacher participants in the study, data collection methods employed by the researcher, and analysis procedures used to explain the data.

The Null Hypothesis H_o

Classroom teachers trained in a backward design model of curriculum and instruction who implement this model in their classroom lessons will not verify a measurable increase in positive, on-task behaviors including, but not limited to, student attention, participation, and on-topic responding.

The Alternative Hypothesis H_1

Classroom teachers trained in a backward design model of curriculum and instruction who implement this model in their classroom lessons will verify an increase in positive, on-task behaviors including, but not limited to, student attention, participation, and on-topic responding.

Research Questions For This Study

1. What is the relationship between curriculum and instruction designed according to a backward design model and on-task, positive student classroom behaviors as reported by teacher participants?
2. How do the major components within a backward design curriculum serve to increase student focus, transfer of knowledge, classroom performance and production as reported by teacher participants?
3. How do backward-designed lessons contribute to increasing student motivation for student learning as reported by teacher participants?
4. Why is the formative assessment/feedback component of a backward design lesson essential to ensure student success as reported by teacher participants?
5. How do backward design lessons align curriculum, instruction, and assessment in the classroom as reported by teacher participants ?

Variables

The independent variable in this study was teacher use of a learned model of backward design curriculum and instruction when designing classroom lessons.

The dependent variable in this study was teachers' perceptions of the on-task, positive classroom behavior of students in classes where the backward design model of curriculum and instruction was employed.

Design

This study employed both quantitative and qualitative measures to collect data (Communications, 2011). Quantitatively, an on-line survey of teacher participants was developed by the researcher who, like the teacher participants, completed the same

university course, titled Curriculum Analysis and Design, which focused on a backward design model of curriculum and instruction. Participants were asked to rate their responses to ten (10) survey statements that addressed their perceptions of the relationship between use of a backward design model of curriculum and instruction and the classroom behaviors of their students. For each statement, participants selected strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. The survey statements were as follows:

1. My curriculum, with lessons designed backward based on beginning with the desired results, assists my students to apply what they are learning to new situations.
    a. Please describe one example of students applying/transferring what they learned in your backward-designed lessons to a new situation or problem.
2. Using essential questions, based on the big ideas of the lesson, increases my students' motivation to become involved with the lesson.
    a. How have essential questions sparked student interest and motivation?
3. Developing my curriculum with ongoing formative assessments throughout the lessons improves my students' learning.
    a. How has the use of backward- desiged curriculum with specific tasks containing immediate assessment for the student affected their understanding through each lesson?

4. The clear directions and expectations contained in each of my backward-designed lessons improves my students' attention and motivation while learning.
    a. How has your students' attention in class and motivation to learn improved?
5. My backward-designed lessons which align curriculum, instruction, and assessment assist my students to increase their performance.
    a. Please describe examples of how backward-designed lessons have assisted in increasing student performance.
6. My students' involvement with performance tasks throughout their lessons increases their motivation to learn the content.
    a. How has your use of continuous performance tasks throughout lessons increased your students' motivation to learn?
7. Using assessable performance tasks throughout my curriculum increases my students' focus on what they should understand and be able to do at the end of each lesson.
    a. How has continuous assessment in your backward-designed lessons served to help your students remain focused on their learning?
8. Developing curriculum and instruction into assessable performance events improves my instruction.
    a. How has the use of assessable performance tasks and events improved your teaching performance?

9. Making the content of my lessons authentic, since it relates directly to assessable performance tasks, in which the student is involved results in greater transfer of learning for my students to new situations.
    a. What are some situations in your lessons where students are required to use authentic tasks to learn how to deal with new situations and problems?
10. My use of backward-designed curriculum improves my students' attention and focus in my classes, directly affects student behavior positively, and makes me a better manager of my classroom.
    a. How does backward-designed curriculum assist you in managing student behavior within your classroom?

The purpose of this study was to determine if the strategies embedded in the backward design curriculum model could motivate student involvement in their learning and postitively impact classroom behavior and classroom management. The study consisted of a literature review focusing on the major strategies within the backward design curriculum model and how they may impact student classroom behavior. It also contained a survey of practicing teachers who successfully completed a course in backward design of curriculum asking them to rate their perceptions of statements concerning the effectiveness of the model. Additionally, teacher participants were asked to complete a separate instrument containing open-ended questions directly related to the survey statements.

Participants

The study participants were practicing school teachers who had completed the same Curriculum Analysis and Design course at Lindenwood University, a private Midwestern university. The content of this course was based on the principles of backward-designed curriculum as advanced by Grant Wiggins and Jay McTighe in their publication, *Understanding by Design*. This study sample was purposive since the subjects were linked by their participation in the same program of training and were "uniquely suited to the intent of the study" (Fraenkel & Wallen, 2006, p. 434). The researcher decided that to determine the impact of the backward-designed curriculum and instruction on student classroom behavior, participants must be active classroom teachers with the commonality of completing the same training. Participant teachers were initially approached during their participation in the course Curriculum Analysis and Design during the fall and spring terms of 2009 and 2010. One teacher was added who had completed the course prior to 2009-2010. The researcher met with individual teachers to solicit their participation. The scope, purpose, and importance of the study were explained to each participant. Because of the small sample size, no demographic or other personal information was collected to protect the participants anonymity.

Instrumentation

The survey and questionnaire were administered using SurveyMonkey, a web-based survey tool. The choice to use SurveyMonkey was based on its ease of use and confidentiality for participants. Teachers agreeing to participate in the study provided email addresses to which the researcher sent the link to the survey and the questionnaire.

The survey consisted of 10 statements with five rankings for participants' perceptions. Each survey statement was followed by a question asking the participant to explain their rating and to provide an example to illustrate the rating. The ratings for the ten survey statements were tallied based on grouping Agree and Strongly Agree as a positive perception and therefore in support of the alternative hypothesis; the ratings Disagree, Strongly Disagree, and Neither Agree nor Disagree were classified as a negative perception and therefore in support of the null hypothesis. The researcher conducted a *z*-test for proportions to determine a statistically measurable difference in positive perception ratings from negative perception ratings. The size of the sample raised a possibility that there would be no statistical difference.

Procedures

Because the sample size of the study was relatively small, 8-12 teachers, the statistical measurement deemed appropriate for testing the alternative hypothesis was a *z*-test for comparing proportions. This test is "used when the population is normally distributed and the population standard deviation is known" (Bluman, 2001, p. 710). When analyzing the results of the responses to the 10 statements, the researcher tallied the results and grouped "Agree" and "Strongly Agree" in the desirable range, while placing "Neither Agree Nor Disagree" "Disagree" and "Strongly Disagree" in the undesirable range. The *z*-test for proportion was used to determine if there was a statistically significant difference in the number responding in the desirable range as opposed to the undesirable range. However, because the sample size was relatively small, the possibility existed that there would not be a statistical difference.

In order to test for the alternative hypothesis, the significance value for the z-test was set at .05. The critical region "is the range of values of the test value that indicates that there is a significant difference and that the null hypothesis should be rejected" (Bluman, 2001, p. 343). The significance value was set at .05 because that represented a 5% chance that a type I error, rejecting the null hypothesis when it is true, would occur (Bluman, 2001).

The second part of the survey consisted of open-ended questions linked to the survey statements. "Open-ended questions allow for more individualized responses, but they are sometimes difficult to interpret" (Fraenkel & Wallen, 2006, p. 403). They were used in this study to provide a more detailed picture of how teachers viewed backward design in their own words, how and when they employed it, and how they felt it impacted their students. The individual replies were compiled and analyzed for commonalities; responses were grouped accordingly.

Summary

This was a mixed-methods study, employing both quantitative and qualitative measures, to investigate the relationship between interesting, purposeful work designed for student performance and production and on-task, postitive classroom behaviors. Backward-designed curriculum and instruction was the foundation for establishing interesting, purposeful work. The effectiveness of using the backward design model curriculum and instruction in increasing on-task, positive classroom behaviors was measured quantitatively by a teacher survey using Likert Scale Ratings for measurement of responses. This study employed both quantitative and qualitative measures in order to have "complementary strengths and nonoverlapping weaknesses" (Communications,

2011, pp. 4-5). Answers to the open-ended questions after each survey statement were summarized and reported as the qualitative portion in chapter four of this study. Therefore, the study was mixed "in which both qualitative and quantitative data [were] collected and analyzed to answer a single type of research question…the final inferences [were] based on both data analysis results" (Communications, 2011, p. 3). Data was to be mutually reinforcing or to have convergent inference meaning "when the conclusions or interpretations of two strands of a mixed methods study are consistent with each other" (Communications, 2011, p. 3).

Chapter Four: Results

Overview

Chapter four contains a restatement of the purpose for this study, the hypothesis, research questions, a quantitative analysis of the results of the teacher survey, and a qualitative analysis of teachers' responses to the open-ended question attached to each survey statement. Responses to the ten statements comprising the survey were ranked by participants using a Likert Scale. Circled responses of Strongly Disagree, Disagree, or Neither Agree nor Disagree were grouped as negative perceptions and thus not supportive of the alternative hypothesis while accepting the null hypothesis. Circled responses of Strongly Agree or Agree were grouped as postitive perceptions and thus supportive of the alternative hypothesis while rejecting the null hypothesis. A z-test for proportions was applied to each survey statement's responses to determine if there was a statistical significance as evidence by the data.

Each survey statement was followed by an open-ended question for the purpose of allowing the respondent to explain his/her rating and to provide an example of the concept withing each statement as observed in his/her class. Answers to the open-ended questions were compiled, summarized and analyzed to determine the depth of teachers' perceptions of the backward design method.

Participants in this study were practicing classroom teachers who completed the same Curriculum Analysis and Design course at Lindenwood University. Nineteen teachers were recruited from the course instructor's classroom during the fall and spring terms of 2009 and 2010. Each met with the researcher who explained the study, secured their permission for participation, and obtained their e-mail addresses. When the

researcher began his data collection, 13 of 19 teachers agreed to complete an online questionnaire and the attached open-ended questions.

The purpose of this study was to determine if there was a significant relationship between the strategies embedded in backward-designed curriculum and student on-task, positive classroom behaviors. The research questions were:

1. What is the relationship between curriculum and instruction designed according to a backward design model and on-task, positive student classroom behaviors?
2. How do the major components within a backward design curriculum serve to increase student focus, transfer of knowledge, classroom performance and production?
3. How do backward-designed lessons contribute to increasing student motivation for student learning?
4. Why is the formative assessment/feedback component of a backward design lesson essential to ensure student success?
5. How do backward design lessons align curriculum, instruction, and assessment in the classroom?

Quantitative Results

The Null Hypothesis H_o for this study is as follows:

Classroom teachers trained in a backward design model of curriculum and instruction who implement this model in their classroom lessons will not verify a measurable increase in on-task and positive behaviors of their students.

The Alternative Hypothesis H_1 for this study is as follows:

Classroom teachers trained in a backward design model of curriculum and instruction who implement this model in their classroom lessons will verify a measurable increase in on-task and positive behaviors of their students.

Quantitative data was gathered based on the responses to 10 survey statements. Participants responded either positively (Strongly Agree – Agree) or negatively (Strongly Disagree – Disagree – Neither Agree nor Disagree). Positive responses were considered supportive of the alternative hypothesis, and negative responses were supportive of the null hypothesis.

The survey statements and results of the *z*-test were as follows:

1. My curriculum, with lessons designed backward based on beginning with the desired results, assists my students to apply what they are learning to new situations.

Table 1
Quantitative Analysis: Results of Z-Test for Question 1.

Statistical Test	Result
Z	2.09
Z-test Critical Value	+/- 1.96

There were 9 positive responses and 4 negative responses. Because the z value of 2.09 is larger than the critical value of +/- 1.96, the z value falls within the critical region. Therefore, the researcher did reject the null hypothesis and supported the alternative hypothesis. There is a statistical difference between the positive and negative response rates.

2. Using essential questions, based on the big ideas of the lesson, increases my students' motivation to become involved with the lesson.

Table 2
Quantitative Analysis: Results of Z-Test for Question 2.

Statistical Test	Result
Z	2.09
Z-test Critical Value	+/- 1.96

There were 9 positive responses and 4 negative responses. Because the z value of 2.09 is larger than the critical value of +/- 1.96, the z value falls within the critical region. Therefore, the researcher did reject the null hypothesis and supported the alternative hypothesis. There is a statistical difference between the positive and negative response rates.

3. Developing my curriculum with ongoing formative assessments throughout the lessons improves my students' learning.

Table 3
Quantitative Analysis: Results of Z-Test for Question 3.

Statistical Test	Result
Z	2.09
Z-test Critical Value	+/- 1.96

There were 9 positive responses and 4 negative responses. Because the z value of 2.09 is larger than the critical value of +/- 1.96, the z value falls within the critical region. Therefore, the researcher did reject the null hypothesis and supported the alternative hypothesis. There is a statistical difference between the positive and negative response rates.

4. The clear directions and expectations contained in each of my backward-designed lessons improves my students' attention and motivation while learning.

Table 4
Quantitative Analysis: Results of Z-Test for Question 4.

Statistical Test	Result
Z	.45
Z-test Critical Value	+/- 1.96

There were 7 positive responses and 6 negative responses. Because the z value of .45 is smaller than the critical value of +/- 1.96, the z value does not fall within the critical region. Therefore, the researcher did not reject the null hypothesis and did not support the alternative hypothesis. There is not a statistical difference between the positive and negative response rates.

5. My backward-designed lessons which align curriculum, instruction, and assessment assist my students to increase their performance.

Table 5
Quantitative Analysis: Results of Z-Test for Question 5.

Statistical Test	Result
Z	2.09
Z-test Critical Value	+/- 1.96

There were 9 positive responses and 4 negative responses. Because the z value of 2.09 is larger than the critical value of +/- 1.96, the z value falls within the critical region. Therefore, the researcher did reject the null hypothesis and supported the alternative

hypothesis. There is a statistical difference between the positive and negative response rates.

6. My students' involvement with performance tasks throughout their lessons increases their motivation to learn the content.

Table 6
Quantitative Analysis: Results of Z-Test for Question 6.

Statistical Test	Result
Z	.45
Z-test Critical Value	+/- 1.96

There were 7 positive responses and 6 negative responses. Because the z value of .45 is smaller than the critical value of +/- 1.96, the z value does not fall within the critical region. Therefore, the researcher did not reject the null hypothesis and did not support the alternative hypothesis. There is not a statistical difference between the positive and negative response rates.

7. Using assessable performance tasks throughout my curriculum increases my students' focus on what they should understand and be able to do at the end of each lesson.

Table 7
Quantitative Analysis: Results of Z-Test for Question 7.

Statistical Test	Result
Z	2.09
Z-test Critical Value	+/- 1.96

There were 9 positive responses and 4 negative responses. Because the z value of 2.09 is larger than the critical value of +/- 1.96, the z value falls within the critical region.

Therefore, the researcher did reject the null hypothesis and supported the alternative hypothesis. There is a statistical difference between the positive and negative response rates.

8. Developing curriculum and instruction into assessable performance events improves my instruction.

Table 8
Quantitative Analysis: Results of Z-Test for Question 8.

Statistical Test	Result
Z	2.09
Z-test Critical Value	+/- 1.96

There were 9 positive responses and 4 negative responses. Because the z value of 2.09 is larger than the critical value of +/- 1.96, the z value falls within the critical region. Therefore, the researcher did reject the null hypothesis and supporteed the alternative hypothesis. There is a statistical difference between the positive and negative response rates.

9. Making the content of my lessons authentic, since it relates directly to assessable performance tasks, in which the student is involved results in greater transfer of learning for my students to new situations.

Table 9
Quantitative Analysis: Results of Z-Test for Question 9.

Statistical Test	Result
Z	2.09
Z-test Critical Value	+/- 1.96

There were 9 positive responses and 4 negative responses. Because the z value of 2.09 is larger than the critical value of +/- 1.96, the z value falls within the critical region. Therefore, the researcher did reject the null hypothesis and supported the alternative hypothesis. There is a statistical difference between the positive and negative response rates.

10. My use of backward-designed curriculum improves my students' attention and focus in my classes, directly affects student behavior positively, and makes me a better manager of my classroom.

Table 10
Quantitative Analysis: Results of Z-Test for Question 10.

Statistical Test	Result
Z	2.09
Z-test Critical Value	+/- 1.96

There were 9 positive responses and 4 negative responses. Because the z value of 2.09 is larger than the critical value of +/- 1.96, the z value falls within the critical region. Therefore, the researcher did reject the null hypothesis and supported the alternative hypothesis. There is a statistical difference between the positive and negative response rates.

Qualitative Results

A follow-up question accompanied each survey statement to allow participants to elaborate on their understanding of the statement and the rating they assigned to it. Ten questions were asked, one following each statement, and the responses were summarized according to the theme represented within the statement.

After survey statement #1, respondents were asked to provide an example of students applying/transferring what they learned in backward designed lessons to a new situation or problem. Participants responded with their explanations of transfer and application in the classroom. They also mentioned the initial extra effort to design lessons that was necessary since tasks and performances must be newly created. This was, to some of the classroom teachers, different from what they had learned in their training to become teachers. Backward design directs that the curriculum be designed based on what the student is going to do, not what the teacher is going to do, in the classroom. Therefore, as one respondent said, transfer or application is evidenced through focus on the students "writing paragraphs for other subject areas using correct paragraph structure." Another participant described how "a student took a small-scale model and then produced a much larger product, including developing rubrics for building walls." Hands-on experience embedded within the lessons made it easier for students to transfer because it involved tasks that could be assessed as intermediate learning goals enabling students to see how the understanding is evidenced in being able to apply what they are learning. Respondents said that designing for application during the lessons provides students with immediate feedback on the task and product involved, thus increasing their confidence in their ability to be successful.

Survey statement #2 was followed with the question, "How have essential questions sparked student interest and motivation?" Essential questions, according to the respondents, are the heart and soul of backward design. One participant responded, "They are essential questions for a reason. They are ESSENTIAL!! Without them there is no point to doing backward-designed lessons. The students are engaged from the get-go and

they understand.” Teachers believed that students work best when they know what is expected, and essential questions lead students to a defined end result that is known through the question. With essential questions there is no confusion about the major concept(s) to be learned. There is no confusion because the teacher has used an essential question to focus students on exactly what they are going to learn. One respondent stated, "They help students to know and stay focused on the objective and on how they can apply their learning to real-life situations.” Another explained, "Objectives are for teachers and they promote organization of curriculum; questions are for students and they allow students to know what they are supposed to inquire about in their lessons.” Essential questions, according to the teachers, move the student from being a third party in learning to active involvement through inquiry in seeking the answer. Thus, essential questions engage students, which is an excellent indication of student motivation. Several participants described essential questions as the link between the objectives and the actual content of the lessons. The questions "give the teacher and the student the big picture.” Besides framing instruction, essential questions relate the objectives to the students' real life situations. According to teacher respondents, this is useful when the student has minimal prior knowledge of the subject. Finally, teachers maintained strongly that essential questions also help students know where they are going and what they can expect.

Survey statement #3 was followed by the question, "How has the use of backward-designed curriculum with specific tasks containing immediate assessment for the students affected their understanding throughout each lesson?” Teachers responded with their belief that students perform better when they know what is expected. One

teacher specifically responded, "It keeps the students and myself aware of what needs to be retaught." Another participant said that, "They get immediate feedback." Another explained, "It provides them and me with the feedback we need to be successful." The theme in the responses was assessment, assessment, and continuing assessment. Participants indicated that formative assessment provides immediate and timely feedback thus allowing students to correct misunderstanding and to ensure understanding. One teacher emphasized, "With backward design, you are assessing all of the time, not just giving a test." Students, therefore, were not surprised by the final assessment; students were not able to complain. One respondent stated that the students were not able to say, "You didn't tell us this was on the test." Backward design causes the teacher to become an assessor since the test is contained up-front in the form of an essential question and the teacher is always checking for understanding.

"How has your students' attention in class and motivation to learn improved?" was the fourth open-ended question on the survey. Participants regarded backward design as a common sense organizing process that allows both student and teacher to focus and remain on task. One participant stated, "The students know the clear expectations." Another made note that "I am in a new area of education now. I went from Physical Education to Industrial Technology at the semester. The kids want to get right into woodworking, but they need a clear, organized path to understanding the elements of woodworking, including safety. They want to work right away with the tools, but have come to understand through my backward design organization, the necessity for understanding what they are doing before they get into the shop." Teachers stressed that motivation comes from the focus teachers place in their lessons on student comfort,

safety, and ability to be successful. One teacher specifically attributed increased student motivation to knowing the expectations and being involved in the lesson.

Survey statement #5 was followed by "Please describe examples of how backward-designed lessons have assisted in increasing student performance.” One participant explained, "A lesson that I developed on breaking down of numbers was structured in a way that helped students to develop the concept more fluently and increased their performance on that skill.” Participants referred continually to early and frequent assessment when students are first presented with learning. This is termed as "front-loading assessment" and can eliminate the need for reteaching after the test and retention of students who "just don't get it.” Teachers also alluded to intermediate assessment or learning goals attained by students on their path to a major concept. Several participants emphasized that backward designed lessons generally increased student performance. One example provided was that students were able to use figurative language while composing a description. Another participant described how students employed math, science, and technology to develop blueprints for a dream house based on a 1/4 scale model. Intermediate assessment points out exactly how well students are doing and what they may need to ensure their best performance. Thus, teachers believed they were teaching more faster because students were learning faster due to applying what they were learning during the process and receiving immediate and ongoing assessment feedback.

Question #6 asked, "How has your use of continuous performance tasks throughout lessons increased your students' motivation to learn?" Teachers agreed that motivation depends on students' belief that they can be successful based on their

involvement in achieving intermediate learning goals involving performance and production. These intermediate learning goals contain immediate and ongoing assessment feedback thus allowing the students to celebrate, adjust, or correct their current performance. Motivation also comes from "students being able to show and apply what they know" according to one respondent. Another participant stated that "Performance tasks provide the students with the ability to perform learned concepts." Continuous assessment permits students to show and apply what they know. One participant indicated that continuous performance tasks did not work with all the students in which case additional differentiation was necessary to motivate these students. The researcher was not sure what the respondent meant by "differentiation."

Question #7 asked, "How has continuous assessment in your backward-designed lessons served to help your students remain focused on learning?" Teacher respondents were concerned about the current situation in education which is not supportive of assessment based on student performance and production. In fact, according to most respondents, the current emphasis in schools is on covering material so that students will be exposed to all possible testing situations. This leaves little if any room for assessment during the learning process to ensure understanding. One participant stated that "The student needs to know where they stand with understanding the curriculum." Instead, much of what happens in the classroom is based on a fixed amount of time for learning, thus variable amounts of learning. In contrast, continuous assessment in backward-designed lessons allows students to achieve a fixed standard of learning in variable amounts of time; everyone achieves the goal but maybe not all at the same time. One participant stated that "Continuous assessment allows students to be constantly reinforced

if they are performing a correct task; it allows the student to never fall behind; everyone stays on the same page.” The focus on learning is evidenced through student persistence since it is okay not to "get it right away; it allows help to become a major part of curriculum."

Participants were asked in question #8 how the use of assessable performance tasks and events improved their teaching performance. Generally, respondents saw backward design as lesson planning that is about student learning not teacher performance. One respondent explained, "lesson planning is a very important part of teaching, and I am excellent at planning units because of backward design.” A second participant stated, "This teaching strategy has enabled me to teach and ensure that all students are learning because they are able to explain and demonstrate achievement of the learning goals based on the Big Ideas.” Respondents were general in their belief that students can, at all times, tell someone else what it is that they are learning in school. Another responded with "Backward design is so focusing, efficient, and economical. I know exactly what I want my students to understand and be able to do and I have the structure to assist them to learn by concentrating on what is really important. I was surprised at first by the quickness in learning displayed by my students when I designed lessons backward.” Teacher respondents saw themselves as teaching more, faster. It allows them to get rid of "weeds" in the curriculum and to ensure that what is left are the Big Ideas which are learned by students because the teacher uses continuous assessment to ensure that learning.

In question #9, participants were asked if they could describe some situations in their lessons where students are required to use authentic tasks to learn how to deal with

new situations and problems. Some respondents saw an authentic task as something new to their teaching since, prior to designing tasks, students were not expected to apply learning; rather students were subject to quite a bit of testing without any intermediate assessment to see if they understood.

One participant stated, "This proves a student has really learned the knowledge/skills when they can apply it to other situations." A second respondent explained, "It shows that even though I teach technology, we use it in other areas of education. It breaks it down so the students are able to see the relationship and utilize their knowledge to further enhance their modules." All teachers agreed that organization was the key to success in teaching, and backward design provided that organization. Organization is learned when students are presented with tasks to which they can relate and which make immediate use of the skills and knowledge they are learning in the classroom. Another respondent commented that "The students have to be able to transfer their knowledge to other conceptual situations, especially those involving mathematics."

Finally, #10 question dealt specifically with how backward design assists teachers in managing student behavior within their classroom. A strong theme in the answers from participants focused on classroom management as no longer being behavior management. Instead, backward design provides management of learning rather than behavior. When students are involved in their own learning through lessons that are designed for them to perform or produce, there is no thought of any distraction from the task. Student involvement is determined by teacher focus in the lessons, continuous assessment, and achievement of learning goals. A participant noted that "Backward design helps with guiding students throughout the learning process and keeping them on-task." Another

observed, "It puts the work on to the students; the teacher guides the lesson; the students do the work." A third respondent stated, "It makes the focus on the curriculum and the student an active participant in their learning." Participants were clear about the link between on-task, positive classroom behavior and backward designed lessons. One respondent emphasized that backward-designed lessons shortened the amount of unproductive time and increased the focus on completing tasks, thus producing better behavior. Only one participant indicated that there was insufficient evidence that backward design had any influence on classroom management.

Summary

Thirteen practicising classroom teachers took part in this study to determine if there was a significant relationship between the strategies embedded in backward-designed curriculum and student on-task, positive classroom behaviors. Participants completed an online questionnaire consisting of ten Likert Scale statements and an accompying open-ended question to explain their rating and provide examples within their classrooms. A z-test for proportions was applied to each survey statement's responses to determine if there was a statistical significance as evidence by the data and answers to the open-ended questions were compiled, summarized and analyzed to determine the depth of teachers' perceptions of the backward design method.

Chapter Five: Discussion, Conclusions, and Recommendations

Overview

Chapter five consists of a restatement of the research problem, a review of the methodology, a summarization of the results, implications, limitations and recommendations of the study. This study investigated the relationship between elements within the backward design model of curriculum and instruction and positive classroom behaviors. In the review of literature, the researcher was unable to find a study specifically investigating the relationship between classroom behavior, classroom management, and the employment of backward-designed curriculum and instruction. However, the researcher did find evidence of the positive relationship between specific elements within the backward design model and positive classroom behaviors.

The impetus of this research was the use of the backward design model of curriculum and instruction by the researcher. The researcher found that when a unit of study was planned and executed using the model, that not only did his students perform better on the assessments, but their overall classroom behavior was better. The researcher found that on-task behaviors increased, and there was a decrease in disruptive behavior. The study is deemed important because it compiled researched-based evidence about how individual elements of backward design including results-based learning, authentic tasks, curriculum alignment, formative and summative assessment, motivation, and understanding impact classroom management.

This study was beneficial because many of the good practices embedded within the backward design model of curriculum and instruction were included within one document. Each component was explored and combined to investigate how it might

impact class management. Research provided evidence as to how each aspect impacted not only positive classroom behavior, but also academic performance. And how academic performance related to both positive and negative classroom behavior. Additionally, the study provided teachers another tool for managing an effective classroom by following the backward design model.

Purpose of the Study

The purpose of this study was to investigate the relationship between interesting, purposeful work as contained in the strategies within backward-designed curriculum and instruction as employed by teachers, and on-task, positive classroom behavior. The study employed an on-line survey of teacher participants who completed the same university course titled Curriculum Analysis and Design which focused on a backward design model of curriculum. Participants were asked to rate their responses using a Likert scale rating for statements concerning the effects of teaching using a backward design model for curriculum on the classroom performance and behavior of their students. Participants were also asked to answer open-ended questions directly related to the survey statements.

Research Questions

1. What is the relationship between curriculum and instruction designed according to a backward design model and on-task, positive student classroom behaviors?
2. How do the major components within a backward design curriculum serve to increase student focus, transfer of knowledge, classroom performance and production?
3. How do backward-designed lessons contribute to increasing student motivation for student learning?

4. Why is the formative assessment/feedback component of a backward design lesson essential to ensure student success?
5. How do backward design lessons align curriculum, instruction, and assessment in the classroom?

Methodology

This study employed both quantitative and qualitative measures to collect data (Communications, 2011). Quantitatively, an on-line survey of teacher participants was developed by the researcher who, like the teacher participants, completed the same university course, titled Curriculum Analysis and Design, which focused on a backward design model of curriculum and instruction. Participants were asked to rate their responses to ten (10) survey statements about their perceptions of the effects of using a backward design model of curriculum and instruction on the on-task, positive behavior of their students. The questionnaire consisted of 10 statements with five rankings for participants' perceptions. Each of the statements asked respondents to rate the strength of their agreement or disagreement as follows: Strongly Disagree, Disagree, Neither Agree Nor Disagree, Agree, Strongly Agree. Each survey statement was followed by an open-ended response question to allow each participant an opportunity to explain and elaborate on their ranking.

When analyzing the results of the responses to the 10 statements, the researcher tallied the results and grouped "Agree" and "Strongly Agree" in the desirable range, while placing "Neither Agree Nor Disagree" "Disagree" and "Strongly Disagree" in the undesirable range. The z-test for proportion was used to determine if there was a statistically significant difference in the number responding in the desirable range as

opposed to the undesirable range. In order to test for the alternative hypothesis, the significance value for the z-test set at .05.

The second part of the survey consisted of open-ended questions linked to the survey statements. They were used in this study to provide a more detailed picture of how teachers viewed backward design in their own words, how and when they employed it, and how they felt it impacted their students. The individual replies were compiled and analyzed for commonalities; responses were grouped accordingly.

Quantitative Findings

The qualitative data consisted of 10 survey statements to which participants selected one of five responses: strongly disagree, disagree, undecided, agree, strongly agree. The responses of "strongly disagree," "disagree," and "neither agree, nor disagree" were considered undesirable, while "agree" and "strongly agree" were considered desirable. Should the proportion of desirable responses fall within the critical region, then the null hypothesis was rejected and the alternative hypothesis was accepted. The survey statements were as follows:

1. My curriculum, with lessons designed backward based on beginning with the desired results, assists my students to apply what they are learning to new situations.
2. Using essential questions, based on the big ideas of the lesson, increases my students' motivation to become involved with the lesson.
3. Developing my curriculum with ongoing formative assessments throughout the lessons improves my students' learning.

4. The clear directions and expectations contained in each of my backward-designed lessons improves my students' attention and motivation while learning.
5. My backward-designed lessons which align curriculum, instruction, and assessment assist my students to increase their performance.
6. My students' involvement with performance tasks throughout their lessons increases their motivation to learn the content.
7. Using assessable performance tasks throughout my curriculum increases my students' focus on what they should understand and be able to do at the end of each lesson.
8. Developing curriculum and instruction into assessable performance events improves my instruction.
9. Making the content of my lessons authentic, since it relates directly to assessable performance tasks, in which the student is involved results in greater transfer of learning for my students to new situations.
10. My use of backward-designed curriculum improves my students' attention and focus in my classes, directly affects student behavior positively, and makes me a better manager of my classroom.

In eight of ten survey statements, classroom teachers trained in a backward design model of curriculum and instruction who implemented this model in their classroom lessons verified a measurable increase in positive, on-task behaviors including, but not limited to, student attention, participation, and on-topic responding. The results of

questions 1, 2, 3, 5, 7, 8, 9, and 10 were to reject the null hypothesis and support the alternative hypothesis.

Responses to survey statements 4 and 6 fell within the undesirable range thus not allowing the researcher to reject the null hypothesis. There was no statistical difference between the desired and undesired response rates. Therefore, in two of the survey responses, classroom teachers trained in a backward design model of curriculum and instruction and who implemented this model in their classrooms did not verify a measurable increase in positive on-task behaviors including student attention and participation.

Specifics reasons for supporting the alternative hypotheses are discussed in the implications section of this chapter.

Qualitative Findings

Accompaning each survey statement was a follow-on question to allow the participants to elaborate on the statement. There were 10 questions. Responses to each question were grouped according to commonalities and themes. The questions were as follows:

1. Please describe one example of students applying/transferring what they learned in your backward-designed lessons to a new situation or problem.
2. How have essential questions sparked student interest and motivation?
3. How has the use of backward-designed curriculum with specific tasks containing immediate assessment for the student affected their understanding throughout each lesson?
4. How has your students' attention in class and motivation to learn improved?

5. Please describe examples of how backward design lessons have assisted in increasing student performance.
6. How has your use of continuous performance tasks throughout lessons increased your students' motivation to learn?
7. How has continuous assessment in your backward-designed lessons served to help your students remain focused on their learning?
8. How has the use of assessable performance tasks and events improved your teaching performance?
9. What are some situations in your lessons where students are required to use authentic tasks to learn how to deal with new situations and problems?
10. How does backward-designed curriculum assist you in managing student behavior within your classroom?

Responses indicated that participants felt comfortable using the backward design model and that they planned on increasing its use in designing their lessons. Teachers were able to cite specific lessons that illustrated how backward design resulted in transfer of knowledge. They were able to describe the importance of feedback and assessment on student understanding. Participants were able to explain how ongoing tasks and assessments impacted their students. They were also able to articulate how specific components of backward design resulted in greater student motivation and on-task behavior. Finally, teachers explained how backward design has impacted their classroom management and level of professionalism. Only one respondant indicated a somewhat neutral view of backward design, finding limited use in his or her classroom.

Implications

Classroom management refers to how teachers can promote the right atmosphere for students to learn (Taylor, 2009). One important aspect of classroom management is content management which focuses on how teachers manage space, materials, equipment, and lessons (Froyen & Iverson, 1999). When a lesson is well-organized with attention to necessary prerequisite elements, it can be said to flow well—that is, students are engaged and off-task behavior is at a minimum. An effective, well-designed lesson engages the students so that disruptive behavior is lessened (Little & Akin-Little, 2008).

Wiggins & McTighe (2005) asserted that the best lessons are both engaging and effective. They are effective when learners "become more competent and productive at worthy work" (p. 195). They are engaging when learners find the material "thought provoking, fascinating, [and] energizing" (p. 195). Engagement not only increases academic performance, but it also lessens misbehaviors (Taylor & Boelter, 2008). Taylor and Boelter found that when academic engagement is low there is a higher incident of undesirable behaviors (2008). They found that academic engagement is indicative of academic performance and repeated academic failures lead to a host of unacceptable classroom behaviors including: inattention, withdrawal, off-topic responses, and attention-seeking behavior such as bullying or creating chaos.

The purpose of this study was to investigate a relationship between strategies within backward-designed curriculum and instruction employed by teachers and on-task, positive classroom behavior. Classroom management are the steps teachers take to promote learning (Taylor, 2009). Little and Akin-Little (2008) concluded that classroom management does not consist of any one technique, but a set of procedures that the

teacher uses to maintain order and which involve comprehensive proactive and reactive procedures.

The importance of managing a classroom cannot be overstated with regard to student learning, and it also ranks highly as a concern among teachers, parents, and the general public (Brown & Beckett, 2006). Poor classroom management has been linked to teacher stress and burnout (Schottle & Peltier, 1991). For new teachers, it ranks near the top of their concerns (Taylor, 2009; Little & Akin-Little, 2008). Because of this, any tool that could aid both novice and experienced teachers in their instruction and in their job satisfaction should be explored. Exploring how the effective teaching strategies embedded within backward design might impact classroom management should increase the strategies by which teachers facilitate student learning, increase academic achievement, and find satisfaction with their work.

Themes associated with the backward design model are found in the research literature and include: standards, curriculum alignment, authentic tasks, understanding, formative and summative assessment, and motivation. Backward design of curriculum does not represent a single intervention, rather its components can combine to ensure learning based on student involvement. It can positively affect student behavior in the classroom. The researcher explored each of these components to assess their impact on student learning and classroom management.

Froyen and Iverson (1999) grouped classroom management into three areas: Content Management, Conduct Management, and Covenant Management. Conduct Management concerns the procedures teachers use to deal with discipline issues. Covenant Management describes the group dynamics of a class and managing

relationships. Content Management focuses on how teachers manage space, materials, equipment, and lessons. The principles and processes embedded in backward-designed curriculum are most connected to Content Management. However, as powerful a tool as backward design is in promoting positive classroom behaviors, teachers must also be aware of the impact of the other two areas of classroom management and how the three areas work together to create a classroom atmosphere for optimal learning. The researcher agrees with Glasser (1993) that it is very difficult to coerce students into good behavior when the lessons are boring and students are much less likely to misbehave when students find value in their tasks and enjoy doing them.

Backward design answers Ralph Tyler's four fundamental questions about curriculum:

1. What educational purposes should the school seek to attain?
2. How can learning experiences that are likely to be useful in attaining these objectives be selected?
3. How can learning experiences be organized for effective instruction?
4. How can the effectiveness of learning experiences be evaluated? (1949, p. 1).

By using these questions as a guide before beginning a unit of study and afterwards to evaluate the effectiveness of their instruction, teachers can be more effective. By starting with the desired end result, teachers are able to keep the instruction focused, thus avoiding what Wiggins and McTighe called the "twin sins" (Wiggins & McTighe, 2005, p. 16) of instructional design. The first being an overreliance on activities and experiences that might be engaging, but only haphazardly address the particular goal or goals of the instruction and the second which is the propensity to cover large amounts of

material without enough depth to make any of it meaningful. The idea of keeping instruction focused helps to ensure that what is deemed important by the states, as in standards, gets adequate attention. It might also ameliorate criticism of instruction if teachers can readily show how their instruction directly supports state standards.

Stage one of the backward design model is more than just calling for teachers to determine the learning goals. It also suggests some practical advice in how to strip complicated standards and get to the substance of the standards. As a first step in uncovering standards, Wiggins and McTighe (2005) suggested that teachers look "carefully at the key recurring nouns, adjectives, and verbs" (p. 63) within their content standards to determine their big ideas and essential questions. Teachers can therefore "manage large amounts of content, especially discrete factual knowledge and basic skills, by clustering the big ideas and core tasks" (p. 63).

The researcher's experience convinced him that most teachers were never taught how to design a standards-based lesson. Teachers do generally follow their curricula, but often do not understand how it might or might not support a particular standard. Many districts, faced with standardized testing from the state authority have mandated a curriculum that promotes coverage of the skills (standards) and knowledge (content) that might be on the test. The researcher has seen experienced first-rate teachers nearly driven from the profession by a curriculum that while focused, was neither teacher nor student friendly. If all teachers were adept at determining the goals of instruction, based upon the standards and then aligning their assessments and instruction to meet those goals, districts would be foolish to impose a prescriptive curriculum.

It is also during stage one that educators prioritize the content down into three levels: 1) content to be familiar with 2) important knowledge and skills 3) enduring understanding (Wiggins & McTighe, 1998). This helps teachers handle the massive amount of possible content and makes it possible to plan the time and materials needed before beginning a unit of study. It also forces teachers to stop and consider what a student needs to get to the desired learning goal; in other words, will the student need to be exposed to or master certain content or skills before he or she can continue to the next stage of the instruction?

Finally, stage one is also where teachers determine the Big Ideas which were what Wiggins and McTighe (2005) referred to as "linchpin" ideas because they act as the axle for all the related understandings. Big ideas are expressed as essential questions. It is by asking these that learners are able to "explore the key concepts, themes, theories, issues, and problems that reside within the content, perhaps as yet unseen; it is through the process of actively 'interrogating' the content through provocative essential questions that students deepen their understanding" (Wiggins & McTighe, 2005, p106). The understandings attained not only pertain to key concepts within the inquiry, but also serve to answer provocative questions humans ask about themselves and the world (McTighe & Thomas, 2003). Essential questions serve to hook students as they attempt to learn more about themselves and the wider world. The researcher has observed that by constantly referring back to these questions throughout a unit, he was able to keep students interested even when they might be working on some aspect of the unit of study that might be considered boring.

The second stage of the backward design model asks teachers to consider how they will determine if students have achieved the desired goals or standards on the front end. “It is this stage that is probably the most ‘backward’ for instructors… There is a strong tendency not to think about assessment until toward the end of a topic or unit or course” (Howard J. , 2007, p. 5). While this seems the logical way to approach a lesson, this is not always the case. Sometimes teachers begin a unit without a clear assessment in mind. Perhaps they have an old form of a test, or a suggested assessment as part of the curriculum, but they have not articulated to themselves, much less the students, the what and how of the test.

Assessments which require that the student explain, interpret, apply, perceive, empathize, and self-assess allow teachers to determine the degree of transferability or whether a student has acquired a “complete and mature understanding” of the material (Wiggins & McTighe, 2005, p. 84). As the researcher looked for evidence of understanding from his students, an interesting byproduct occurred when students displayed understanding in ways not foreseen. The researcher speculates that this occurs fairly often, as when students provide a different constructed response than what was originally envisioned by the instructor.

As teachers design their assessments, the idea of checks for understanding should remain in the forefront. This applies not only to the final assessment or end product, but also to the many instances where both student and teacher need feedback before proceeding. Simple checks for understanding are becoming more routine in the researcher’s experience. Teachers use exit slips, which are short summaries of the material, thumbs up or down to see who has the “right” answer, movement activities like

having students go to one side of the room if they agree with a statement, or using technology such as smart board to provide a quick tally of students' responses. However, these checks are only useful if the instructor looks at the information and uses it to inform subsequent instruction. This does not mean that the teacher must go through individual responses and adjust instruction for each student, though that may be appropriate before giving the final assessment, but rather, it should be used to assess where the class is with regard to the content and whether some of the material requires additional attention.

Designing assessments to accurately evidence learning is not an easy task. Teachers must consider not only the best measures to assess learning, but also the logistics involved. As an added consideration, teachers do also consider how much work and time will be involved with their grading. They must strike a balance between an effective comprehensive, assessment and one that becomes too time consuming to grade. The researcher mentions this because teachers need to be wary of tailoring tests for ease of grading rather than for evidence of understanding. The unintended result of these actions in breaking down complex activities to ease grading is the loss of authenticity in student learning (Howard, 2007).

Teachers should look at the assessment data and determine the effectiveness of their unit. Did the students do well on the final? If not, was the instruction properly aligned with the assessment? Did the assessment actually provide enough evidence of understanding? Could the students transfer their understanding to another context? It is important that teachers review their assessments and ensure that they were the most effective possible at determining whether the students achieved the goals of the unit.

The third and final stage of the backward design model brings together all the previous steps toward accomplishing the goals of the unit or instruction (Childre, Sands, & Pope, 2009). As educators design their units they must answer the following questions: 1. What enabling knowledge (facts, concepts, and principles) and skills (procedures) will students need to perform effectively and achieve desired results? 2. What activities will equip students with the needed knowledge and skills? 3. What will need to be taught and coached, and how should it best be taught, in light of performance goals? 4. What materials and resources are best suited to accomplish these goals? 5. Is the overall design coherent and effective? (Wiggins & McTighe, 1998, p. 13).

At this point, when actually designing the instruction, teachers should also think about their role in providing the actual lessons. In quoting work by Mortimer Adler (1984), Wiggins and McTighe (2005) stated that teachers can approach instruction in three ways: with direct or didactic instruction, as a constructivist facilitator, or as a coach. The role depends upon the skills and knowledge needed to accomplish the learning activities. The authors suggested "use[ing] direct instruction and focused coaching for knowledge and skill that is discrete, unproblematic, and enabling, while reserving constructivist facilitation for those ideas that are subtle, prone to misunderstanding, and in need of personal inquiry, testing, and verification" (Wiggins & McTighe, 2005, p. 244).

It would be academically sound for teachers to determine how to teach a lesson before beginning instruction. Of course, this happens naturally as a teacher conducts a lesson and discovers that something is not working in the instruction and makes adjustments. If the same material is taught throughout the day, then later classes receive the benefit of the adjustments. However, adjustments made on-the-fly might not be as

effective as determining at the onset what would be the most effective vehicle for the instruction.

Experienced teachers seem to flow effortlessly between the three approaches sometimes acting as lecturer, facilitator, or coach. Sometimes they are able to switch roles within the same class period and between individual students. However, this may be the result of trial and error over an often-used lesson and therefore, even experienced teachers would benefit from thinking about their approach to each lesson before implementing it.

One major issue the researcher observed with novice and experienced teachers alike was the propensity to frontload lessons. Wiggins and McTighe (2005) stated that too often teachers frontload their lessons with copious notes and unassociated background, important information that might be better presented after establishing a connection with the material. The researcher himself has struggled with this because sometimes it seems that if students do not have certain skills ahead of time, they will not be able to properly complete future tasks. For example, consider teaching a unit on research. Students need to be able to evaluate sources and information, collect and document the information, and properly give credit to the sources of that information. Therefore, certain specific skills such as creating note cards and source cards, paraphrasing and summarizing, and selecting good sources all have to be taught. But if these skills are heaped on the students at the beginning, they will not be interested in pursuing the subject of the research. The teacher will have lost the opportunity to engage the students. Instead, the teacher has to be creative and think of ways to integrate the necessary skills in a natural way that supports and enhances the research.

The involvement of teachers in the instructional design process is a given. It is the district, however, that must determine what students should learn and how that learning should be supported by an aligned curriculum (DESE, 1997). Cohen (2005) referred to instructional alignment as the agreement between all three components of instruction which include the intended outcomes, instructional processes, and assessments. While several approaches to curriculum alignment were presented in chapter two, the one that appealed most to the researcher was the one suggested by Glatthorn and English calling for a combination of backloading and frontloading (Liebling, 1997). With this approach, districts compare the curriculum and state assessments by looking at testing results and common objectives. Once deficiencies are identified, the curriculum is revised to achieve a match between goals and instruction. Teachers then become involved by determining the assessments within the newly aligned curriculum (Liebling, 1997). Tyler (1949) stated that "every teacher needs to participate in curriculum planning at least to the extent of gaining an adequate understanding of these ends and means" (p.126). The researcher believed that involving teachers in the curriculum aligning process ensured a greater degree of its acceptance. Further, teachers who participated in aligning the curriculum were able to explain and justify the curriculum to their peers who did not take part. The researcher himself had replied to criticisms of the curriculum by inviting those individuals to take part in the process.

Today's curricula are based upon state standards. The case for standards was presented in chapter two, but the researcher wanted to point out a few concerns for teachers as they attempt to follow their curricula and at the same time pursue the greatest learning for their students. It is the researcher's experience that when a district aligns its

curriculum, part of that process also involves creating common assessments and pacing guides. Common assessments, when done correctly, allow teachers to compare how effective their instruction was with their peers. Then, at some point teachers should meet to share results and discuss the most effective instruction. Additionally, pacing guides work with the common assessments to provide a window of when to give the assessments and to keep teachers on track; in other words, to ensure that teachers don't spend too much time on their favorites and not enough time on their objectives they don't enjoy. This is a completely logical approach to improving instruction. However, the difficulty arises when teachers teach for mastery. Following the J-curve model instead of the bell curve, teachers flex time instead of achievement (Shulman, 2007). It then sometimes becomes very difficult to keep on track. Even without a pacing guide, certain content must be covered at certain times, which makes mastery learning difficult.

The researcher found that sometimes time restraints cannot be overcome. Even with the best patience and use of formative assessments, some students may not "get it" by the time of the final assessment. When this occurs, there are options: staying after school, study hall, or even assessing the material in a different manner that allow for more time. For example, the researcher taught a unit on figurative language. Despite formative assessments that indicated that the students understood the concepts, some students failed the final assessment. It would have been impractical to hold the rest of the students back; study hall was primarily used for reading remediation; and many students would not stay after school. Instead, the researcher used a district writing prompt to reteach and reassess the concepts. Because there was not a set date for a final test, the researcher could keep giving back the prompt until the students were able to display

understanding of the concepts in their papers. Additionally, since the prompt called for students to use examples of figurative language in a different context than what they were taught, it counted as transfer of learning.

Assessment plays an essential role in the backward design process. Wiggins and McTighe (2005) emphasized "the regular use of ongoing informal and formal assessments" (p. 247). However, many teachers are "uncomfortable with test construction and view it as a difficult chore" (Leitzel & Vogler, 1994, p. 22). Teacher-created tests often lack relevant, difficult items and are uneven over content, focusing too much on some things and not enough on others. They also rely too much on short answer questions, matching, and multiple choice, avoiding essay questions and application-type responses (Leitzel & Vogler, 1994).

As a mentor of several teachers, the researcher has found that many teachers, especially novice teachers, are not very effective at designing assessments. When reviewing their tests, the researcher confirmed that the tests were not well aligned with the objectives. Instead, what the researcher noticed was that many assessments were overly broad and allowed students with outside knowledge or a stronger academic background to do well while penalizing those students who had deficits in their learning. The researcher has heard on more than one occasion that the smart kids get it and the dumb kids just do not. Moreover, the researcher has also heard several times teachers express their astonishment that their students did so poorly on a test.

Despite these criticisms, teacher-created assessments do a much better job than published tests which "do not match the content that is taught. While these tests may reflect students' intellectual abilities, they are useless for evaluating what a student has

learned from school instruction" (p. 20). Therefore, teachers must "think like an assessor" (Wiggins & McTighe, 2005) by determining what evidence is acceptable to measure the learning objectives. To do this, teachers must do a better job of using formative assessment data to inform further instruction. It is not enough to give an exit slip to review the concepts of the day; instead, the teacher needs to use those slips to determine what to do next.

The researcher determined a key point in using assessment as feedback was the role of the student. Unfortunately, in the researcher's opinion, students have been conditioned to be fed instruction. They take notes, do worksheets, and superficially work with the concepts. Then, at the end, they are expected to show evidence of deep understanding by analyzing, evaluating, and applying the information and skills previously taught, only to find that they are not up to the task. Instead, students need to be taught to become active participants in their own learning. Formative assessment need to inform students as well as the teacher. Students need to react to the formative assessments as well as to teacher feedback to take the appropriate action necessary to understand the concepts. The earlier this starts the better, because overcoming the inertia of passive learners gets more difficult with each passing grade.

There were two points expressed during chapter two that the researcher found particularly enlightening with regard to motivation and student behavior. Covington (1984) stated that students will act to protect their self-worth. Under this theory of motivation, it is more important to appear competent than to actually be competent at the understanding the material. Seifert (1997) described several defensive strategies these students might employ including: task avoidance, disorganization, setting unrealistically

high or low goals, cheating, or seeking excessive help. These maladaptive behaviors are similar to those expressed by students who pursue performance goals under the achievement goal theory. It should be stated that students who prefer performance goals over mastery goals may not display maladaptive strategies, especially if they are of high ability (Seifert, 1997). However, if they are struggling learners, then they may use such coping mechanisms as task avoidance, negative self-talk, anxiety, boredom, or task dislike (Seifert, 1997). What struck the researcher was that he had often witnessed these behaviors and only superficially perceived them to be behaviors displayed by students who were lazy, disorganized, or just bored with school. By speaking with the students, and looking at their learning artifacts, the researcher was able to identify why several students displayed negative coping strategies.

The four theories of motivation presented in chapter two gave insight into why students pursue and avoid certain behaviors. It is not necessary to relist them here, instead, the researcher wanted to highlight some of the strategies he believed were particularly effective in motivating and engaging students.

An effective, well-designed lesson engages the students so that disruptive behavior is lessened (Little & Akin-Little, 2008). Wiggins & McTighe (2005) asserted that the best lessons are both engaging and effective. They are effective when learners "become more competent and productive at worthy work" (p. 195). They are engaging when learners find the material "thought provoking, fascinating, [and] energizing" (p. 195). When considering student engagement, motivation must be taken into account. Scott Rabideau (2010, par. 1) defined motivation as: "the driving force behind all actions

of an individual. The influence of an individual's needs and desires, both have a strong impact on the direction of their behavior."

Margolis and McCabe (2006) explained that students benefit from observing others perform a task. Teachers often demonstrate or model a skill or learning strategy. It is powerful because teachers can verbalize the mental processes going on in their own head and perhaps, demystify for some students how to properly think through a problem. Modeling also works very well among peers. When a student can identify with another who can perform the task, he or she feels the goal is attainable.

Teachers can also design their lessons in specific ways to motivate their students. Vockell (2010) listed a number of things teachers can do to motivate students including: avoiding excessively competitive grading, rewarding effort, and building on areas of competency. Margolis and McCabe (2006) suggested sequencing tasks from less to more difficult to help build student confidence. Wiggins and McTighe (2005) suggested the following to increase student motivation with regard to lesson planning: Clear performance goals, clear models and modeling, and understanding of the big picture all contribute to decreasing the ambiguity often associated with lessons. Powerful feedback, personal adaptive approaches to tasks, teacher as facilitator or coach, and ensuring a safe atmosphere for risk taking enable students to gain confidence and feel a measure of control. Focusing the tasks on interesting ideas and issues, relating the lessons to the real world, and again, emphasizing the big picture make the lessons meaningful.

In chapter two, Wiggins and Mctighe (2005) defined understanding as the following:

> Understanding is the ability to marshal skills and facts wisely and appropriately, through effective application, analysis, synthesis, and evaluation. Doing something correctly, therefore, is not, by itself, evidence of understanding. It might have been an accident or done by rote. To understand is to have done it in the right way, often reflected in being able to explain why a particular skill, approach, or body of knowledge is or is not appropriate in a particular situation. (p.39)

One important observation the researcher made with this definition was the important misconception that doing constitutes knowing. The researcher has labored under the misunderstanding that just because a student can display a skill, he or she understands the material. Unfortunately, the student may not really have grasped the concept(s) and the student misunderstanding is exhibited on the final assessment, or in the inability for the student to use the concept appropriately in the future. Therefore, Wiggins and McTighe's six facets of understanding become very important in providing evidence of true understanding.

When a student can explain, interpret, apply, have perspective, empathize, and have self-knowledge, he or she is exhibiting evidence of understanding. Obviously, it would not be practical, or even advisable, to expect all six facets with each concept. However, some facets are a good fit depending upon the goals of a unit. For example, if a teacher wanted her students to learn about a particular group of people during a specific time period, designing assessments that encouraged perspective and empathy might be extremely appropriate. Therefore, when determining the evidence of understanding

during stage two of the backward design process, teachers should consider all the ways students should or could evidence the desired understanding.

Using the six facets also has the added benefit of taking into account different learning styles. Learners might be active or reflective; they might be sensing or intuitive; they might be visual or verbal; and they might be sequential or global learners; they might be primarily one or more of these combinations and they might lean toward one combination or another depending on the context of the learning (Felder & Soloman). Therefore, an active learner might benefit more from a performance that is more active in nature, or a reflective learner might benefit from an assessment that requires substantial self-knowledge.

It is not necessary for the student to display all six facets, but the more evidence the teacher has that the student has mastered the material, the greater likelihood that transfer of learning has occurred. Wiggins and McTighe (2005) described transfer as "The ability to transfer our knowledge and skill effectively involves the capacity to take what we know and use it creatively, flexibly, fluently, in different settings or problems, on our own (p. 40). The researcher would contend, through his own experiences, that transfer doesn't occur as often as teachers believe. For example, the researcher has taught a unit, assessed the students, and found that they understood as evidence by their superior performance on the final assessment or project. Then, several weeks may have passed, in some cases only days, and the opportunity to use the knowledge or skills in a new context arises and the students cannot apply their learning. Therefore, it has been the researcher's experience that students may display understanding in the short term, but lose it over

time. The only reasonable conclusion is that the students did not acquire the level of understanding to qualify as transfer.

Limitations

The study consisted of a small number of participants, 13 teachers who had taken "Curriculum Analysis and Design" at Lindenwood University, and thererfore was not necessarily representative of a random sampling of classroom teachers. Because the number of participants was not large, the study was restricted to a small number of schools and a very small segment of each school. Therefore, it might be difficult to expand the findings. Further, the study may not be replicable due to the sampling of participants who were teachers who had taken "Curriculum Analysis and Design" at Lindenwood University.

Nineteen teachers were originally approached to participate in the study. That number was small to begin with and having only 13 respond to the surveys decreased the strength of the study; it also decreased the number of teacher insights into the effectiveness of backward design on classroom management and student performance.

The study also did not provide any data about the teachers, their districts, or their students. No demographic data was gathered about the teacher participants or their students. Additionally, no performance data on the students were gathered. Teacher participants did give their impressions of student performance, but no actual performance data were used. Moreover, no information about student performance over time was included.

Recommendations for Further Research

The obvious recommendation for additional research would be to increase the size of the study. Though valuable insights were gathered, expanding the size of the study would strengthen the results and expand the study's applicability. A larger size would also increase the breadth and depth of the responses.

The study would also benefit from gathering data about the participants. It would be useful to know if, for example, the experience of the teacher makes implementing a backward-designed curriculum more or less effective, or if experienced teachers are more or less inclined to alter their approaches to curriculum design.

The study could also be improved by including student demographic information. If teacher participants self-identified their districts or schools, the researcher could acquire demographic information about that district or school. Such information would be useful to determine if backward design was more or less accepted by certain groups of students, or perhaps, if certain groups such as those at-risk, would benefit more or less than their peers.

Finally, the study would benefit from hard data about student performance. This study supported the assertion that student performance was improved by using a backward-designed curriculum and the link between performance and behavior was explained in chapter two. Therefore, it would be useful to gather student performance data, to verify what was presented in chapter two. Additionally, it would be useful to track student data over time. This would provide information about the long-term effects of using backward design. For example, do students show initial improvement, does that improvement continue, or does that improvement flatten out or descease?

Summary

This study sought to investigate how the good practices embedded within the backward design model of curriculum and instruction might impact classroom management. Though the number of participating teachers was small, they did offer valuable insight into how backward design impacted their students and their practice. The strength of this study was in gathering many of the major themes within backward design and compiling them into one document. As each aspect of backward design was examined with regard to improving classroom behaviors, additional information in the form of useful strategies and practices was presented in the areas of student motivation and performance.

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Vitae

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