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Voices of High School Seniors: Perceptions of National Honor Society Students Regarding Their Cognitive Engagement in High School

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Voices of high school seniors: Perceptions of National Honor Society students regarding their cognitive engagement in high school

by

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ABSTRACT

The purpose of this phenomenological qualitative study was to examine cognitive engagement in high school classrooms from the perspectives of twelve high school seniors who were members of the National Honor Society. No empirical studies have been conducted to explore how students perceive cognitive engagement before and after receiving training in gauging system-wide levels of student engagement, based on the Instructional Practices Inventory (IPI).

These seniors participated in two focus groups and individual interviews, utilizing a semi-structured, open-ended interview protocol to elicit responses to questions in order to discover meaning, themes, and patterns in the perceptions of these high school seniors regarding their own and other students' levels of engagement in high school. Participants were also trained with the IPI training protocol to become IPI data collectors to assess levels of student engagement within high school classrooms, utilizing the IPI, in a rural Iowa, mid-size school system.

Analysis for this research was completed using the constant comparative model which is a method for analyzing data in order to generate a theory formed from the data and based on inductive reasoning. Findings indicated a general understanding among high school seniors as to how they are and are not cognitively engaged in high school classrooms based on the following six categories: compliance, feedback and encouragement, enjoyment and interest, challenge and rigor, relationships and expectations, and control and choice. Understanding how cognitive engagement is conceptualized and experienced by high school seniors may lead to enhanced learning conditions for them. This research has implications for utilizing student voices, via high school seniors, for articulating a consistent perspective

on perceived levels of cognitive engagement in high school classrooms. These findings also have the potential to inform teacher pedagogical practices, as well as increase understanding of the importance of listening to the student voice. Further studies were recommended to determine if similar results would occur when students from different social, economic, geographic, and ethnic areas are included.

CHAPTER ONE
INTRODUCTION

"The object is to teach the student to see land, to understand what he sees and enjoy what he understands," wrote Aldo Leopold in his book *A Sand County Almanac*, published in 1949. Leopold, born in Burlington, Iowa, is considered to be the father of wildlife management. His words exemplify what I believe student cognitive engagement in a high school classroom should encompass: heightened student awareness, students fully understanding learning targets, and full-out participation and enjoyment.

Research demonstrates that students who are engaged—meaning that they are focused, committed, and participating in self-regulated learning in school—have, on average, better grades, higher test scores, and higher rates of matriculation to post-secondary education (Fredricks, Blumenfeld, & Paris, 2004; Stout & Christenson, 2009; Yazzie-Mintz, 2007). In addition to better academic outcomes, students who are engaged in school are thought to develop the type of social and cognitive skills necessary in the current labor market, including the ability to think and act in autonomous, creative, and collaborative ways (Marzano & Pickering, 2011; National Research Council, 2003; Yazzie-Mintz, 2010). The construct of student engagement has been used in educational research to explain differences in student achievement among high school students (Finlay, 2006). As an example, Kelm and Connell (2004) reported that students who were engaged were 44% more likely to do well academically and 23% less likely to have attendance issues.

By authentically engaging high school students in the process of being meta-cognitive concerning their own cognitive engagement, educators value their voice and become more open to the avenues of their contribution (Shernoff, Csikszentmihalyi, Schneider, &

Shernoff, 2003; Walker & Greene, 2009). Knowledge of learners' perspectives concerning their own cognitive engagement can provide a basis for educators to reflect and develop more relevant and authentic learning experiences for the students in their classrooms.

Problem Statement

The problem of student disengagement is a persistent and life-impacting concern in our high schools. Students who are disengaged drop out emotionally, mentally, and physically from school (Bridgeland, Dilulio, & Morrison, 2006; Fredricks, Blumenfeld, & Paris, 2004; Mark, 1995; Yazzie-Mintz, 2010). Research reveals that students become disengaged because they are bored (Briedenstein, 2007; Intrator, 2004; Yazzie-Mintz, 2010), disgruntled with the system and processes of school (Davidson, 1996), and disillusioned with how they fit within the school system (Furrier & Skinner, 2003; Watkins, 2005). Eighty-one percent of drop-outs surveyed responded that more work-world learning opportunities at school might have kept them attending high school and pursuing their high school diploma (Bridgeland, et al., 2006).

In a report supported by the Bill and Melinda Gates Foundation focusing on students' perspectives and utilizing focus groups of high school dropouts, 69% of the students surveyed said they were not motivated or inspired to work hard in high school because they were bored and disengaged. Another 47% of drop-out students reported they left school because classes weren't interesting or relevant to their lives. Additionally, 43% of these individuals reported that they had missed too many days and could not catch up, resulting in not achieving high school graduation (Bridgeland et al., 2006). For many low-performing youth, high school is marked by disengagement and declining motivation. Because these

factors are precursors to school dropout, educators must learn about and focus on ways to combat these issues.

Researchers have documented how utilizing a variety of instructional strategies and approaches in educational systems—including having students be part of the instruction by offering choice, utilizing their own interests, and formulating essential skills, concepts, and questions—can lead to higher levels of achievement and engagement in school systems (Commeyras, 1995; Csikszentmihalyi and Larson, 1984; Lincoln, 1995; Yazzie-Mintz, 2010). Educators can increase engagement levels in classrooms by utilizing more task-focused activities, making thinking visible such as by sharing thinking processes out loud, increasing rigor, and infusing technology more effectively (Fullan, 2007; Jensen 2005; Kaufeldt, 2010; Ritchhart, Church, & Morrison, 2011; Yair, 2000).

Many student achievement factors have been identified and the relationship between them is very complex and dynamic (Smyth, 2006). Some researchers have identified student characteristics, living and learning environments, and instruction activities as contributors to student achievement (House, 2002). The level of engagement students demonstrate and report with their experiences in K-12 educational settings is also a factor that impacts student achievement (Appleton, Christensen, & Furlong, 2008). There is a difference between teachers engaging students through standards, curriculum, and accountability versus the need for students to be intellectually, academically, socially, and emotionally engaged with the life and work of their high schools (Yazzie-Mintz, 2007). Student engagement data mediates the impact of instructional reform on achievement. Students need to be engaged with academic tasks to improve their academic performance (Guthrie & Wigfield, 2000).

Student engagement has long been recognized (Marzano & Pickering, 2011) as the core of effective schooling, but the definition of student engagement in the research literature is not an easily articulated construct (Marzano & Pickering, 2011). Much of the discourse about engagement has been on adult terms with engagement being defined by policy makers, researchers, educators, and parents (Fredricks et al., 2004; Resnick, 1987; Splitter, 2008). Tackling student engagement means taking the time to understand what high school students find engaging, placing student voice at the center of the definition (Sodha & Guglielmi, 2009).

How students perceive their educational experiences as contributing to their engagement level provides a basis for an educational problem that is worthy of study. This qualitative study investigates how students engage cognitively in high school classrooms, based on the students' voices and perceptions of their experiences in the high school settings. Educators may be able to use the information and close the gap between what is perceived to be engaging to high school seniors in school and what is actually experienced as engagement, as voiced by high school seniors.

Purpose of Study

The purpose of this phenomenological qualitative research was to examine high school students' perceptions of factors affecting their cognitive engagement in high school. This research has implications for utilizing student voice to articulate a consistent perspective on perceived levels of cognitive engagement in high school classrooms. Research supports that when students believe they are valued, engaged, and feel supported in classrooms, they are more likely to use strategies that support their learning (Walker & Greene, 2009). The

current assessment of cognitive engagement doesn't include student perceptions. This study focuses on incorporating student voice with the perceptions of cognitive engagement.

This research drew on the perceptions of high school seniors who were members of the National Honor Society in a rural Iowa, mid-size school system. These high school seniors participated in focus groups and individual interviews and trained as Instructional Practices Inventory (IPI) data collectors to gauge the level of cognitive engagement with high school classrooms. The IPI is an instrument used to collect data related to student cognitive engagement.

Research questions

My research study attempted to answer the following research questions:

1. What are high school students' perceptions about what engages them personally in the classroom?

2. Do students' perceptions about their own engagement in classrooms differ after being trained to gather student engagement data in a school system utilizing the IPI?

3. Do students' perceptions about other students' engagement in classrooms differ after being trained to gather student engagement data in a school system utilizing the IPI?

Overview of Methodology

The theory of constructivism, grounded in the work of Dewey (1922) and Piaget (1972) focuses on the way humans create knowledge (Ertmer & Newby, 1993; Walker & Lambert, 1995). Constructivists believe that knowledge is a function of the way in which individuals create meaning from their own experiences (Jonassen, 1991). To comprehend

others is to understand their meaning of what they do, in their own terms (Crotty, 1998). Constructivism emphasizes the active role of the learner in the learning process by seeking to find meaning in their experiences (Boghossian, 2006; Borich & Tombari, 1996).

Qualitative approaches to research attempt to tell a story (Merriam, 1998). Lincoln and Guba (1985) describe qualitative research as building metaphors and analogies so that relationships make sense. Smith (2008) describes phenomenology as the study of phenomena or the way we experience things, thus the meanings things have in our experiences. Phenomenology also studies the structures of consciousness as experienced from the first-person point of view. I reasoned that utilizing student voice in this qualitative study would enhance the analysis of student experiences and perceptions of their own and their peers' cognitive engagement, thus telling the students' stories from their own viewpoints. Educators can learn from these students' perspectives and help schools find ways to enable young people to be more engaged in the process of their own learning.

Data for this research was collected by conducting focus groups, each containing six high school seniors. In addition to the focus group sessions, each of the twelve students participated in individual interviews followed by the twelve seniors being trained in the IPI data collection process. Once trained in the IPI process, the research participants completed IPI data collection of student engagement levels with high school classrooms and then participated in a second round of focus groups and personal interviews. The combination of utilizing both focus groups and individual interviews aided in building rapport and trust between the participants and the researcher. The goal of this dissertation's data collection and analysis of transcribed data, from the focus groups and individual interviews, was to aid

the process of finding meaning in these participants' own thoughts, feelings, and actions regarding their cognitive engagement.

During the focus groups and individual interviews, the participants responded to prompts revolving around their perceptions of the ways they engaged in learning within high school classrooms. Questions assessed the perceptions of these students regarding their own levels of cognitive engagement, as well as perceptions of cognitive engagement of other students. The same set of questions was presented to the research participants, in both focus groups and individual interviews, before and after receiving training in collecting system-wide data on student cognitive engagement, based on the IPI.

Few, if any, investigative studies focus primarily on the students' perception and voice regarding cognitive engagement, utilizing an instrument which educational staff have employed to gauge levels of student cognitive engagement within the same school system or building (Yair, 2000). This qualitative study researched the perceptions of students, in their senior year of high school, as to the perceived level of cognitive engagement in high school courses. I employed the assistance of twelve Iowa high school seniors who were eighteen years old or older and members of the National Honor Society (NHS). These students had proven themselves to be academically accomplished, of good character, and committed to service and leadership, based on their selection in NHS by the educators in the school system.

School systems across the Midwest employ the Instructional Practices Inventory (IPI) to ascertain the level of student engagement within a school. The IPI uses trained adults, in the IPI process, to collect student cognitive engagement data, focusing on cognitive thinking of the students, rather than teacher or student behavior. The IPI trained collectors gather data

from classrooms to provide a snapshot of building-level student cognitive engagement. It thus provides comprehensive school-wide student cognitive engagement data, allowing teachers and administrators to continuously monitor and refine instructional practices.

Other student engagement instruments which invite students to give their input include: Student Engagement Instrument (SEI), High School Survey of Student Engagement (HSSSE), Iowa Youth Survey (IYS), and the National Survey of Student Engagement (NSSE). Each of these instruments serves a variety of purposes, including research on motivational and cognitive theories of learning, disengagement, and dropping out. They also evaluate school reform efforts and interventions; the monitoring of engagement at different levels, including the teacher, school, or district; and assessments of students' developmental assets (Fredricks, McColskey, Meli, Mordica, Montrosse, & Mooney, 2011). However, the aforementioned instruments do not measure the students' academic achievements or potential of achievements. Student engagement is not the sole purpose of education, but an essential part of overall student achievement and school success. If students are to harness and apply what they have learned, they have to be engaged in the learning process. The IPI was used to conduct this cognitive engagement research due to the balance between meaningfully categorized student engagement classifications including student active engaged learning, student verbal learning conversations, teacher-led instruction, student work with teacher engaged, student work with teacher not engaged, and student disengagement (see Appendix A) (Gauen, 2009; Valentine & Collins, 2010).

The hypothesis was that participation in this study would increase the level of student cognitive engagement for participating students. It was also predicted that, based on the results of this dissertation, educators might recognize the importance of student voice in

implementing relevant higher-order and deeper cognitively engaging strategies for high school students. Educators who took part in the IPI training for this school district gained new insights on student engagement. As a result of this research, educators may also redefine and rethink their classroom interactions and behaviors in order to increase the level of cognitive engagement in high school classrooms based on students' perceptions.

Conceptual Framework

When students are engaged they are enthusiastic and are apt to have an increase in energy and participate in new behaviors and tasks that can lead to increased learning (Stout & Christenson, 2009). Engagement is defined in the literature in many different ways according to theorists. While "the literature on student engagement has not offered a singularly consistent impression" (Ream & Rumberger, 2008, p. 113), student engagement can be considered a multi-dimensional construct involving academics, behavior, cognition, and effect (Finn, 1993; Hodges, 2000). Behavioral, emotional, and cognitive engagement are also terms researchers use to define student engagement (Fredricks et al., 2004; Newmann, Wehlage, & Lamborn, 1992).

Student engagement in research literature is seen as multi-faceted, including affective or emotional, behavioral, and cognitive engagement. The construct of affective or emotional engagement describes students' social, emotional, and psychological attachment to their educational experiences. Research in this arena examines affective engagement in relation to students' enjoyment or sense of fun in academic pursuits, including the level of interest, pleasure, feelings of belonging, boredom, and anxiety experienced during academic activity (Bohnert, Fredricks, & Randall, 2010; Schultz, 2009). Research on behavioral engagement reflects the diverse interests and perspectives at work that focus on student conduct, such as

absenteeism or in- and out-of-school suspensions, the amount of time spent on homework or compliance with school rules, and participation in school-based extra-curricular activities (Ladd & Birch, 1997; Finn, 1997; Finn & Voelkl, 1993).

Studies of students' cognitive engagement focus on students' psychological investments in academic tasks (Fredricks et al., 2004). Students' dispositions toward school work, including the effort students exert toward homework and their persistence when facing challenging academic work, are components of cognitive engagement (Corno, 1993; Ladd & Birch, 1997). Other research on cognitive engagement examines some of the more nuanced aspects of student engagement in learning tasks, such as ways in which students think deeply about ideas and concepts, make meaning out of coursework, and utilize self-regulating and meta-cognitive strategies to master academic content (Corno, 1993; Pintrich, Wolters, and Rosenthal, 2000; Valentine & Collins, 2011). Cognitive engagement refers to the intellectual effort that students put forth while accomplishing academic work. This research involved participants putting forth effort in meta-cognitive ways while focusing on cognitive engagement in themselves and while observing their peers' cognitive engagement levels.

During the recent past, students' affective, behavioral, and cognitive engagement in school has become a significant factor in regard to student academic success (Davidson, 1996; Joselowsky, 2007). Stout and Christenson (2009) report that the process of student engagement works in the following way: Students participate in school, which leads to successful performance, promoting positive feelings of belonging in school, which in turns promotes ongoing participation. Students who have reduced participation, less successful outcomes, and reduced belonging in school, tend to disengage and their educational process may culminate in an early departure from school (Stout & Christenson, 2009). As Stout and

Christenson further explain, "Regardless of grade level, fully engaged students tend to earn higher grades, perform better on tests, report a sense of belonging, set or respond to personal goals, and persist on meaningful tasks" (p. 18). These cognitions, feelings, and behaviors also help students transition successfully from one endeavor in life to another, whether personal, educational, or work related.

Significance

One potential avenue to increase engagement of students within the classroom is educators raising the cognitive engagement levels of themselves and their students as a method of empowerment and piquing the students' interest (Hooks, 1994). Educators can pique students' interest and encourage cognitive engagement by keeping their classrooms interesting and challenging for students. Lab or project-based work, presentations, working within groups, and pacing transitions allow students to respond to the learning (Kirby & Gardner, 2010; Valentine, 2007). Educators collaborating, giving feedback to one another, and sharing their own voices with peers may increase student cognitive engagement (Dahl, 1995).

Dahl (1995) reports that children's sense of self permeates the sense they make of school. Learning from students' voices allows educators to know children as learners, assist children in making sense of school, and enrich the sense of what it means to engage learners in a cognitive process (Dahl, 1995). The goal of my research was to incorporate student voice in the definitions and understanding of high school students' cognitive student engagement and to share this voice with educators to build their knowledge of ways to cognitively engage students in their own learning processes.

I found further qualitative study was needed which examines the complex interaction of how students identify cognitive engagement (Davidson, 1996). Little was known about how students would describe their own cognitive engagement after receiving training regarding student cognitive engagement via the IPI training. My research broke new ground by involving high school students in this process. Educators, including administrators and classroom teachers, who wish to cognitively engage their students might benefit from my research, with the ultimate goal of improving cognitive engagement and thus potentially improving student achievement.

My research may serve as a resource for educators who are attempting to focus on characteristics of effective instruction (IDE, 2012) which potentially could lead to increased levels of student cognitive engagement within school systems. My research may engage students to think about their own learning and to take responsibility for their learning. It may also serve as a way to share with educators the student's voice in discussions regarding educational, cognitively engaging environments (Joselowsky, 2007). Participants in this research study were given an opportunity to critically examine their own and other students' knowledge and modes of inquiry regarding cognitive engagement and to share their own voices regarding cognitive engagement in high school classrooms, via participation in focus groups, individual interviews, and IPI data collection process.

CHAPTER TWO
LITERATURE REVIEW

The purpose of my study was to fill the knowledge gap regarding perceived levels of high school students' cognitive engagement from the viewpoint of students. In my review of the literature, I found numerous interpretations of the concept of cognitive engagement and numerous theories as how best to increase student engagement. Because student engagement is a key to student achievement, I explored factors affecting student engagement, as well as their subsequent impact on academic achievement.

This chapter includes a brief section on the research strategies; I describe the types and the importance of student engagement before going on to detail studies of cognitive engagement. I then discuss various student engagement instruments. Finally, I conclude the chapter with a discussion of student engagement using instructional strategies and student voice.

Research Strategies

I reviewed scholarly books, research, and seminal journal articles through database searches including EBSCOhost, ProQuest, and ProQuest Digital Dissertations, utilizing the search terms of "student engagement," "high school engagement," "cognitive engagement," and "student voice." I also found pertinent information in the online databases of Google and Google Scholar. I assessed bibliographic and reference listings from appropriate titles during the review process. My own research confirms that the term "engagement" is a complex word and is used in a variety of contexts. I selected research artifacts based on relevance to the research questions and whether or not the research contributed to the understanding of cognitive student engagement. As a result of my research, my definition of cognitive

engagement is as follows: Cognitive engagement involves a student's ability to strategically think while problem solving; it includes a preference for challenge and choice in the learning process and an ability to self-regulate investment in the student's learning process.

Student Engagement

As educators research and explore ways to increase student engagement, they also need a common definition of engagement and an understanding of how to measure it. Youth engagement has been defined as meaningful youth participation and involvement (Fletcher, 2005; Hart, 1992; Martin & Furr, 2010), students' relationships within the school community and connectedness (Blum & Libey, 2004; Yazzie-Mintz, 2007), and personalization (Steinberg & Allen, 2002).

Educational literature also views engagement as a multi-dimensional construct (Fredricks et al., 2004) and suggests engagement can be defined in three specific dimensions: behavioral engagement, emotional engagement, and cognitive engagement (Dunleavy, 2008). Behavioral engagement is participation in, or opposition toward, the learning environment; emotional engagement relates to a student's attitude or openness toward school; and cognitive engagement refers to the cerebral effort that students devote to completing educational tasks (Ladd & Dinella, 2009). In order to describe what the literature equates as engagement, I've previewed each of the three types of engagement listed in the literature in the following sections. For the purpose of my dissertation I am focusing on cognitive engagement with high school seniors, but I also found that these students are more adept at describing their behavioral and emotional engagement than their own and others' cognitive engagement, especially before participating in the IPI training and data collection.

Behavioral Engagement

Behavioral engagement draws on the idea of student participation and observable behaviors that support achievement (Finn, 1993; Linnenbrink & Pintrich, 2003; Rhodes, 2007; Stout & Christenson, 2009). Behavioral engagement includes involvement in academic and social or extracurricular activities and time on task and is considered crucial for achieving positive academic outcomes and preventing dropping out (Yazzie-Mintz, 2007). Research on behavioral engagement also reflects the diverse interests and interplay of multiple perspectives, including compliance with school rules such as absenteeism or school suspensions, the amount of time spent on homework (Archambault, Janosz, Morizon, & Pagani, 2009) and participation in school-based extra-curricular activities (Ladd & Birch, 1997; Finn, Folger, & Cox, 1991; Finn & Voelkl, 1993,).

From the students' perspectives, the way teachers instruct can affect students' behavioral engagement (Yazzie-Mintz, 2007), meaning that students are more apt to attend and participate in class when they find the classroom provides an engaging environment. Unless students believe that they can produce the outcomes desired, they have little incentive to act or to persist when facing challenges, even though this action may be needed in order to redirect the instructional decisions educators make within high school classrooms.

Emotional Engagement

Emotional engagement (Doda & Knowles, 2008) is also referred to within the literature as social engagement, psychological engagement (Dunleavy, 2008; Finn, 1993), affective engagement (Archambault et al., 2009), and motivational

engagement (Linnenbrink & Pintrich, 2003). Emotional engagement encompasses positive and negative reactions to teachers, classmates, academics, and school in general, as well as a sense of belonging to the institution (Archambault et al., 2009; Finn, 1993, Linnenbrink & Pintrich, 2003; Rhodes, 2007).

Linnenbrink & Pintrich (2003) contend emotional engagement is an important construct in terms of a student's own interests and values. Students' emotional experiences play an important role in students' emotional engagement in classrooms. Pride in one's works, the feelings of competence in one's abilities, and happiness are thought to contribute positively to emotional engagement. Negative emotions such as anxiety, frustration, and anger have a detrimental effect on emotional engagement (Linnenbrink & Pintrich, 2003). These findings may have an impact on the relationship between the educator and his or her students, as well as the expectations each has of one another as a contributing member of a high school learning environment.

Substantiating this idea of emotional engagement, Morrison, Cosden, O'Farrell, and Campos' (2003) longitudinal study of students' perceptions found that an important component of emotional engagement is having feelings of belonging and connectedness to the school. These researchers used the Psychological Sense of School Membership (PSSM) scale, developed by Goodenow (1993). This 18-item scale was developed and is used with early and mid-adolescent age students as a measure of students' perceived belonging or psychological membership in the school environment (Goodenow, 1993). Results of these studies have implications for encouraging students to be involved in the school community to increase emotional

engagement and about how emotional engagement may contribute to a student's

cognitive engagement in high school classrooms.

Cognitive Engagement

Cognitive engagement, also referred to in the literature as academic engagement,

draws on the idea of student investment in learning, as well as incorporating thoughtfulness

and willingness to exert the effort necessary to comprehend complex ideas and master

difficult skills or to persevere in learning or work situation (Fredricks et al., 2004; Wiggins,

2005). In a recent Eastern Iowa study entitled *Skills Iowa 2014* (2011), which identified

differences and trends regarding workforce issues and gaps existing between the current

workforce needs of industry and the existing skills of the region's workforce, the following

cognitive skills were identified:

> [Language] skills including written, oral, basic English and
>
> grammar; math skills including critical thinking; reading
>
> skills including reading for information, processing
>
> information; communication skills including interpersonal
>
> skills, ability to express ideas clearly; problem solving, and
>
> listening, leadership and presentation skills. (Skills Iowa,
>
> 2011)

These skills are not only needed by the workforce employed by industry, but also by

students in classrooms. Bulgren, Deshler, and Lenz (2007), in their research on students

labeled with a learning disability, defined higher-order cognitive engagement as

"manipulation of information, such as categorizing, comparing and contrasting, determining,

causes and effects, weighing options, explaining 'big ideas' in a subject, and inquiring into and answering critical questions; the generalization of ideas to solve problems using inference or prediction… construction of new perspectives and understandings." These authors connected these concepts to workplace skills, predicting that when students move into the workforce they are expected to use facts, concepts, and prior knowledge in ways that require higher-order thinking. My study explores cognitive engagement, which includes the skills identified in the *Skills Iowa 2014* (2011) and Bulgren, Deshler, and Lenz (2007) studies, via NHS high school seniors' voices through participation in focus groups, individual interviews, IPI training, and IPI data collection and analysis.

The Importance of Engagement and Measurement

Over the past decade, researchers have found a relationship between successful completion of academic tasks and student engagement (Carnahan, Musti-Rao, & Bailey, 2009; Klein, 2008; Tytler, Symington, Kirkwood, & Malcolm, 2008). Understanding how students respond to different academic tasks can channel educators' instructional decisions, resulting in increased student engagement and student achievement (Johnson, 2008). Student achievement is measured in a variety of ways at the local, state, and federal levels, including Program for International Study Assessment (PISA), National Assessment of Educational Progress (NAEP), state assessments such as the Iowa Assessments, ACT and SAT assessments, and comparisons of percentage of graduates from high school and post-secondary programs.

Student achievement is impacted by many factors, such as student characteristics, living and learning environments, instruction activities and opportunities, and quality of instruction. The relationship between these factors is very complex and dynamic (House,

2002; Smyth, 2006). The level of engagement students demonstrate and report with their experiences in K-12 educational settings is also a factor that impacts student achievement (Appleton, Christensen, & Furlong, 2008). There is a difference between what teachers perceive to be engaging to students through standards, curriculum, and accountability, and the spoken need of students to be intellectually, academically, socially, and emotionally engaged with the life and work of their high schools (Yazzie-Mintz, 2007) through demonstration of compliant behaviors in the high school classroom (House, 2002).

Researchers argue that student engagement data mediates the impact of instructional reform on achievement; in other words, educators can aid or impede engagement levels of students, as well as their academic achievement (Johnson, 2008; Tytler et al., 2008). Students need to be engaged with academic tasks to improve their academic performance (Guthrie & Wigfield, 2000). Involving students in finding out what is engaging based on their voice may lead to increased academic performance on formative and summative assessments given in high school classrooms.

Schools use data, such as formative and summative student assessment data, student attendance information, student grade point information, and student discipline records for various reasons (Fredricks, et al., 2004), including investigating and addressing problems of students' underachievement and boredom in classrooms, developing instructional strategies to increase rigor and relevance in classroom learning, and ultimately decreasing dropouts from K-12 educational systems (Steinberg & Allen, 2002). The National Assessment of Educational Progress (NAEP), conducted by the U.S. Department of Education, is one such student summative achievement measure given in the U.S. and is known as the nation's report card. Iowa's 2011 NAEP results demonstrate a stagnation of scores from 1992 to

2011. In 1992, Iowa's fourth-grade reading score was 225; in 2011 the fourth-grade reading score was 221. Eighth-grade math scores show a similar result: Iowa students posted only a two-point gain since 1992, the smallest increase reported in this grade level within the United States.

Iowa schools also administer the Iowa Assessments as a statewide measure of student achievement for grades 3-11 for No Child Left Behind (NCLB) accountability. State-wide results from the Iowa Assessments, as reported in the 2011 State Report Card, show Iowa students have not achieved at the same achievement level as students in other states. Much like the NAEP results, this trend is especially true in the area of students with disabilities. Overall, Iowa eleventh graders were 84.5% proficient in the area of reading in the 2010-11 school year. At the same grade level on the same subtest, students with individualized education plans were 30.4% proficient. The national proficiency level on the NAEP for students in the eighth grade for reading is 27%, while in Iowa it is 33%. Nationally, students with disabilities are 7% proficient based on the NAEP; in Iowa, students with disabilities in the eighth grade are only 4% proficient on the NAEP (2012). This information is alarming as students identified as special education have a higher dropout rate (IDE, 2012) and report less engagement in school than students who are not identified as special education students(Yazzie-Mintz, 2007).

Graduation rate is another measure used in Iowa and the United States to evaluate how students are achieving. The high school graduation rate for the state of Iowa during the 2009-10 school year was 88.8%. This compares favorably with the national graduation rate of 72% in 2008. Still, graduation data supports the premise that some students are becoming disengaged with their educational progress, dropping out of school and not being successful

academic completers.   Possible explanations of this lack of academic success are that students are not cognitively engaged in their learning due to a deficit of interest, relevance, challenge, and choice in the content being presented in high school classrooms. If we knew more about these concepts as educational systems, we might see an increase in student proficiency, and my research aims to help locate solutions for this concern.

Although each of the aforementioned educational measures is an indicator used to judge the success of educational systems, other research supports using other evidence-based information to make impacting system-wide decisions on each and every child that is involved in the system (Scherer, 2007). In *The Fourth Way: The Inspiring Future for Educational Change* (2009), Hargreaves and Shirley point to changes in the educational system needing to be evidence-informed versus data-driven to meet the needs of the variety of students K-12 educational systems serve. Their contention is that attentive educators use many different kinds of information to make decisions. Evidence-informed information school systems could utilize "home visits, breakfast clubs, drama and athletic events, homework assignments shared with a family, after-school activities, and parent-friendly meetings to discuss children's progress…opportunities to help individual children and to strengthen public engagement in building a better system" (p.77). Instructional decisions and choices, based on a multitude of evidence and experience, are processed together in professional learning communities that identify common concerns, share ideas and instructional strategies, and develop and implement school-based assessments that are aligned to the curricula and have the potential to increase student engagement levels (Fredricks et al., 2004). My research may be a way for instructional leaders and educators to

add to their knowledge and information base to make increasingly engaging instructional decisions for high school students.

Although school systems have environments focused on accountability through passing rates, graduation percentages, and standardized test scores as ways to engage students, students have indicated they are looking for something more (Yazzie-Mintz, 2007). Students want to be actively involved in learning, to be academically challenged, to be respected as partners in their education, and to be valued as partners within their school communities (Appleton, Christenson, Kim, & Reschly, 2006; Lock, 2010). My research focuses on how incorporating students in discussion of student cognitive engagement may bridge the disconnect between school environments' sole focus on accountability and the expectations students have regarding cognitive engagement in high school classrooms.

Other reasons schools may want to look beyond student test scores include investigating and addressing problems of students' underachievement and boredom in classrooms, developing instructional strategies to increase rigor and relevance in classrooms, and ultimately increasing student cognitive engagement and decreasing dropouts from K-12 educational systems (Harris, 2008; Steinberg & Allen, 2002). To increase engagement levels of students in classrooms, educators must strive continually for student cognitive engagement by creating relevant, meaningful, and transformational learning (High & Andrews, 2009). Opportunities for cognitive engagement, such as authentic demonstration, inquiry-based approaches, and problem-based learning, may be limited and inaccessible to students unless educators can connect students to the relevancy of the curriculum presented in high school classrooms (Cothran & Ennis, 2000).

Studies of Cognitive Engagement

Studies of students' cognitive engagement focus on students' psychological investments in academic tasks (Fredricks et al., 2004). Students' dispositions towards school work, including the effort students exert toward homework and their persistence when facing challenging academic work, are components of cognitive engagement (Corno, 1993; Ladd & Birch, 1997). Other research on cognitive engagement examines some of the more nuanced aspects of student engagement in learning tasks, such as ways in which students think deeply about ideas and concepts and make meaning out of coursework, as well as the use of self-regulating and meta-cognitive strategies to master academic content (Corno, 1993; Pintrich, Valentine, & Collins, 2011; Wolters & Rosenthal, 2000). Newmann, Wehlage, and Lamborn (1992) defined cognitive engagement as a students' investment in learning, comprehending, and mastering both knowledge and skills. This definition of engagement centers on constructing meaning in order to produce knowledge and aiming school work toward work-life applications that have meaning beyond a completion of an assignment or a grade earned.

Other researchers have also incorporated the concept of self-regulation, which is described as the extent to which students demonstrate control over their learning actions, as another component of cognitive engagement (Miller, Greene, Montalvo, Ravindran, & Nichols, 1996). It can also include a student's excitement, interest in learning, and sense of belonging (Doda & Knowles, 2008), as well as the straightforward quantity of the overall effort (Linnenbrink & Pintrich, 2003). Connotations from this research support the premise that if students are interested and enjoy the discoveries present in high school classrooms, cognitive engagement will be increased.

Cognitive engagement incorporates thinking deeply about the content to be learned, thinking about what one knows or needs to learn, and critiquing and utilizing critical thinking skills about learning opportunities (Linnenbrink & Pintrich, 2003), as well as the extent to which students are motivated to learn and do well in school (Hudley, Daoud, Polanco, Wright-Castro, & Hershberg, 2003; Libbey, 2004). Students who are more engaged at the cognitive level are more likely to seek challenge, persist in the face of challenge, and engage in effective strategies to cope with academic challenge (Walker & Greene, 2009). Higher levels of cognitive engagement, defined as applying critical thinking skills, are associated with better learning and higher levels of student achievement (Linnenbrink & Pintrich, 2003). The quality of students' effort in the work is a reflection of the cognitive engagement; students who reflect on and regulate their own learning are more actively and cognitively engaged.

Cognitive engagement is commonly described in terms of depth of processing (Craik & Lockhart, 1972; Graham & Golan, 1991), such as deep versus shallow cognitive processing (Bandalos, Finney, & Geske, 2003; Greene & Miller, 1996; Ravindran, Greene, & DeBacker, 2005). As students process information at a deeper level, they are more likely to understand and be able to apply their learning versus just memorizing material (Linnenbrink & Pintrich, 2003; Stout & Christenson, 2009; Walker & Greene, 2009), helping students connect the relevancy between the classroom and future learning needs. Deep processing is what Valentine points to as "higher-order and deeper thinking" that incorporates aspects of complex student learning, such as abstraction, extrapolation, conceptual synthesis, and the use of meta-cognitive strategies that contribute to more strategic approaches to engaging in the learning task at hand (Valentine, 2007). Shallow cognitive processing results, Valentine

determines, when students are gaining knowledge or skills, not being engaged, or being asked to reproduce learning materials as opposed to elaborating on them (Valentine & Collins, 2011). Examples of shallow cognitive engagement might include repetitive rehearsal and rote memorization of information, underlining or highlighting text while reading, or fill-in-the-blanks activities with answers taken directly from the text (Hofer, Yu, & Pintrich, 1998; Ravindran et al., 2005). Cognitive engagement appears to be most strongly linked to academic success in terms of classroom performance, although emotional and behavioral engagement may aid cognitive engagement (Harris, 2008). While there has been an increase in the study of the effects of student cognitive engagement on academic achievement (IDE, 2012), further study may be needed in this area. My study does not focus on student academic achievement or motivation, but hopes to shed light on students' perceptions of cognitive engagement based on their perceptions of their own and other students' cognitive engagement, which may lead to increased student achievement.

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Student Engagement Instruments

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Student engagement instruments serve a variety of purposes, including research on motivational and cognitive theories of learning, disengagement, and dropping out; evaluation of school reform efforts and intervention; monitoring engagement at different levels, including the teacher, school or district; and assessments of student developmental assets (Fredricks, McColskey, Meli, Mordica, Montrosse, & Mooney, 2011). The IPI, used in my research, is an instrument intended for use by schools interested in gathering formative data about the extent of cognitive student-engaged learning within a classroom, department, grade level, or school building, and/or across a school district.

Instructional Practices Inventory

Based on the literature review conducted in this study on student cognitive engagement, the IPI was chosen as the most suitable tool for gathering student cognitive engagement data in the high school setting with high school seniors. The ease of teaching the protocol to high school seniors, the simplicity of data collection for high school seniors and the turnaround time for the IPI results to be shared with the research participants were also factors in my decision to utilize the IPI in this dissertation.

Developed in 1998, with three revisions since being created, the Instructional Practices Inventory (IPI) was created as a university-based school improvement project called Project ASSIST at the University of Missouri. The IPI has been used to study relationships among school instructional leadership, collaborative leadership, and students and teachers, as well as student cognitive engagement (Painter, 1998; Quinn, 1999). The IPI has also been used to provide instructional leaders with specific educational leadership behaviors such as providing vision, modeling behavior, fostering commitment, providing individualized support, communicating effectively, and acting as an instructional resource (Valentine, Clark, Hackmann, & Petzko, 2004). The IPI is based on three groupings associated with cognitive student engagement: student-engaged instruction, teacher-directed instruction, and student disengagement. These groupings are further defined into six categories: student active engaged learning, student verbal learning conversations, teacher-led instruction, student work with teacher engaged, student work with teacher not engaged, and student disengagement (Appendix A).

School systems across the Midwest employ the IPI to ascertain the level of student engagement within a school, utilizing trained adults to collect data. The IPI is intended to be used by schools searching for ways to gather formative data about the level of student

engagement in a building or system. This data is then used as a basis for conversations within school systems, to review their current state and to increase the level of cognitive engagement within a building or system by focusing on instructional practices that will lead to higher levels of student cognitive engagement (Valentine & Collins, 2010). The IPI protocol focuses on student cognitive engagement and classroom instructional strategies that focus on cognitive engagement, rather than teacher or student behavior.

IPI data collectors are trained to observe and record the level of cognitive complexity of a majority of the students in a classroom, based on the six IPI categories, the moment the data recorder enters the room. If data recorders are unsure of the IPI rating at the initial moment, they are encouraged to ask the students within the classroom to clarify what is happening in the classroom. If they are still unclear, they are to ask the teacher to report what is happening in the classroom. The IPI is typically administered by on- and off-site educational staff who have attended IPI training workshops and received reliability ratings of .80 or higher on the IPI data collection process. The IPI data collectors evaluate classrooms on a given day, providing a snapshot of building-level instructional processes happening on the IPI data collection day. This provides a comprehensive school-wide student engagement data profile, allowing teachers and administrators to continuously monitor and refine their instructional practices. The IPI protocol does not evaluate or provide IPI collected data on or to individual teachers (unless requested by a particular staff member) or on any individual students.

The most common concern regarding the IPI is the collection of student engagement data by individuals who lack observer or coder reliability (Gauen, 2009; Harris, 2008; Valentine, 2010). The research participants in my study were taught the established IPI

protocols and processes for systemizing the coding of the observations, in order to increase

validity (accuracy) of the observers' codes and reliability (consistent accuracy). This method

produced profiles that created student cognitive engagement data from the classrooms in the

high school where the participants' data was collected.

A second and third concern regarding the IPI is the ineffective use of the profiles and

the lack of engagement of the faculty in the study and use of the data, with only the

administrators analyzing and making decisions based on the data (Gauen, 2009; Harris, 2008;

Valentine & Collins, 2010). This concern was combated in this research by having the

research participants discuss the student collected IPI cognitive engagement data (Appendix

E) during the second focus group. My hope was that this would develop a deeper

understanding of student cognitive engagement by utilizing the student voice of those high

school seniors who are members of NHS and collected IPI data.

Other Student Engagement Instruments

In January 2011, the Regional Educational Laboratory (REL) at the University of

North Carolina at Greensboro published a report entitled, "Measuring Student Engagement in

Upper Elementary through High School: A Description of 21 Instruments" (Fredricks, et al.,

2011). This report highlights student engagement instruments that have been identified as

either student self-report instruments, teacher reports on students, or observational measures.

REL school engagement research interprets student engagement as the interplay between

three basic categories: behavioral, emotional, and cognitive. The twenty-one assessments

depicted in this report describe the extent to which student engagement can be measured on

these three levels. REL researchers connect these three categories of student engagement as

a "meta construct" involving multiple levels of engagement that can interplay with one

another (Fredricks et al., 2004), meaning that engagement may be viewed as a blend of behavioral, emotional, and cognitive engagement factors. Appendix B summarizes the 21 student engagement instruments that were highlighted in the REL report. Details in this appendix include the developer of each engagement instrument and availability of the student engagement instruments described. The REL report also highlights what each instrument measures, describes its purposes and uses, and provides technical information on the psychometric properties of each instrument (Fredricks, et al., 2011).

Each of these instruments fulfills different purposes, including research on school reform efforts; monitoring engagement at the classroom, school, or system level; research on dropping out and student disengagement; evaluation of school improvement efforts; and developmental assets of students, including relationship components, risk behavior, and future planning opportunities (Fredricks et al., 2004). Student engagement instruments are not easy to compare to one another due to their varied disciplinary perspectives, such as based on self-report or teacher-generated perceptions of student engagement, or theoretical frameworks. The REL report encapsulates student engagement instruments that can be used in upper elementary to college level students.

High School Survey of Student Engagement Instruments

The High School Survey of Student Engagement (HSSSE), developed at Indiana University Bloomington, has been used in high schools since 2004. This instrument is administered by school staff to students and includes 121 items that measure three types of student engagement: behavioral, emotional, and cognitive. HSSSE student response reports are broken down by demographics for participating schools and aid in addressing identified needs with pinpointed strategies to attend to these needs. The High School Survey of Student

Engagement (HSSSE) found that high school students are most behaviorally engaged by teaching methods in which they learn with their peers, such as debate and discussion (83%) and group projects (83%). Students feel more engaged in classroom activities in which they feel they are active participants (69%), use role play (67%), or participate in art or drama activities (70%). Students are least engaged in activities in which are passive, such as lecture (52%) (Yazzie-Mintz, 2007). These results mirror the conclusion of what was discovered in the literature review findings that students report being less cognitively engaged with classroom experiences that are more teacher-focused and less student-focused.

The Student Engagement Instrument

The Student Engagement Instrument (SEI), developed at the University of Minnesota, is a student self-report questionnaire administered by school staff. This survey is comprised of six subscales that measure two elements of engagement: emotional and cognitive. Originally piloted at the ninth grade level, this instrument has also been utilized with students in grades 6-12. This paper-and-pencil questionnaire takes approximately 30 minutes to complete and provides school districts with individual student synopses that enhance existing information regarding students' achievement levels, strengths, and areas for improvement (Fredricks et al., 2011). The results from this instrument can be used by educators to help create a plan for addressing ways of increasing student engagement levels, much like the IPI.

National Center for School Engagement Instrument

Originally developed as a way to identify interventions to reduce truancy, the Partnership for Families and Children developed the National Center for School Engagement (NCSE), which is a survey comprised of 45 items, measuring behavioral, emotional, and

cognitive engagement. This instrument has been used at both the elementary and secondary levels and is administered by staff as a paper-and-pencil questionnaire to students. The primary focus of this survey is the psychological investment in learning, affective reactions in the classroom, and school conduct, based on responses from students. The research from this survey indicates that a lack of student engagement can be overcome by schools adopting intentional student engagement strategies to create positive learning environments that in turn promote academic achievement, such as higher graduation rates and grade point averages.

Instructional Strategies for Student Engagement

Students want to understand the relevancy of what they learn in the classrooms and connect this learning with future plans. Connections between a student's brain, emotions, and the learning activities developed by educators have an impact on student engagement (Kaufeldt, 2010). In her book Kaufeldt states, "By understanding how the attention system is designed, we can better engage it and design our instructional strategies to capture the students' interests" (p. 33). Kaufeldt contends that students are more likely to engage in curriculum and learning when they see how it connects to the world outside of the educational walls and when they see that great teachers engage students' emotions (Kaufeldt, 2010). When students are given the opportunity to connect learning with a prior experience or make an emotional connection to the instructional content, they may become interested and challenged by the subject matter.

Akey (2006) proposed in an exploratory analysis on student context, student attitudes and behavior, and academic achievement, "Students learn more and retain more information when they actively participate in the learning process and when they can relate to what is being taught" (p.1). Akey's research also demonstrated that effective teachers are

"key players in fostering student engagement" (p.1), with engagement being a critical element in student success and learning. Blumenfeld and Meece (1988) reported in a study that focused on middle school students that students reported higher levels of cognitive engagement when teachers presented active challenging tasks, such as problem-based or project-based learning, with high expectations to make connections in students' brains. A noted researcher of the adolescent brain, Jenson (2005) writes, "Amazingly, the part of the brain that processes movement is the same part of the brain that processes learning" (p.61). When students are able to choose and complete complex hands-on active tasks, ones that promote movement and match learning goals, they report higher cognitive engagement and motivation to learn when provided with instructional support and pressed to demonstrate understanding (Blumenfeld & Meece, 1988). Students are more likely to be engaged in the classroom when the goals of the learning match up with the students' own goals. Allowing choice in goal development and in classroom tasks helps students match their learning with their personal goals.

Cognitively challenging tasks help students create connections to what is important in and outside of classrooms and increase cognitive engagement (Jenson, 2005). One way to help create those connections for students, Brophy (2004) contends, is modeling. He states "cognitive modeling is powerful not just as an instructional device, but as a way to show students what it means to approach a task with motivation to learn" (p. 295). He goes on to say that in education today, teachers provide "activities of special significance such as service learning projects, student-led assessment conferences…or science or social studies projects that culminate in some service to the community or lobbying of local authorities to adopt some policy or take some action" (p. 201). Partnering with community agencies and

affiliates that provide internships, job shadows, or volunteer experiences for studentscan create relationships for students between classroom learning and future opportunities. These connections or relationships may be a way for students and educators to create meaningful and interesting classroom experiences that incorporate the world outside of the high school classroom walls, thus supporting cognitive engagement.

The relationship between teacher perceptions of students and the effects these perceptions have on students is an important ingredient in student cognitive engagement (Noguera & Boykin, 2011). To support and engage students in their own learning, educators need to plan and deliver instruction clearly (Ritchhart, et al., 2011). When instructors work through this cognitive planning process, of creating lessons that provide meaning and relevancy for students, a greater understanding and interest among students is fostered, enhancing students' cognitive engagement and ability to think more deeply with their learning. Other ways to enhance student cognitive engagement, which are incorporated in the levels five and six of the IPI student cognitive engagement categories, include debating points of view, critiquing each other's work, and actively discussing ideas with peers (Guthrie & Wigfield, 2000; Meloth & Deering, 1994). Peer interaction and the choice of materials that are interesting to students have proven to enhance engagement in reading (Guthrie, McGough, Bennett, & Rice, 1996). Two research studies report that when teachers offered more choices regarding literacy tasks and when and where to perform them, students persisted when faced with challenging tasks and worked more strategically, manifesting two aspects of cognitive engagement (Turner, 1995; Perry, 1998). Cognitive engagement has also been observed when students work with peers in tasks that have personal meaning (Helme & Clarke, 2001). These types of classroom activities equate to what is depicted as

student engagement in knowledge and skill development and higher-order and deeper learning activities as described in the IPI.

Further research on instructional practices and productive time in schools found that when classroom learning experiences are realistic, relevant, and challenging to students, cognitive engagement is at higher levels (Yair, 2000). Yair's findings show that more active task-focused classroom activities, such as lab or project based work, presentations, and working within groups, help engage students at higher levels and that these methods were only reported by students 7.9% of their school day (Yair, 2000). Educators who provide more direct instruction in the classroom, decreasing the time devoted to sit and get lecture-based learning in the classroom, decreasing the emphasis on rote memorization, improving rigor, and using technology more effectively in the classrooms increase engagement in classrooms.

Engaged students learn more, retain more, and enjoy learning activities more than students who are not engaged. Motivation and student-engaged learning are two elements that link students utilizing higher-order and deeper learning skills (Hattie, 2012; Kamil, 2003). Tankersley (2005) stated "We must expect students to operate routinely at the higher levels of thinking" (p. 148). Tankersley continued, "Learning to synthesize, evaluate, and process information in new ways is the key to preparing students for the world outside of school" (p. 164).

Defining student-engaged learning by combining the dictionary definition with his own, Fullan (2007) contends that "to engage (is) 'to attract and hold thorough interest,' 'to cause to participate,' 'to connect or interlock.' Fullan (1998) also emphasized the need for collaboration amongst faculty as being a key element for learning organizations, stating that

the "ceiling effect" will come into play in our learning environments if we keep to ourselves.

Student-engaged learning flourishes in an environment where students feel the material being

studied is applicable to their lives. Fullan (1998) explained:

> The new common ground for both cognitive scientists and sociologists concerns
>
> motivation and relationships, that is, it is only when schooling operates in a way that
>
> connects students relationally in a relevant, engaging, and worthwhile experience,
>
> that substantial learning will occur. (p. 171)

The 21st-century effective teacher works to promote students to engage in higher-

order and deeper thinking skills by crafting lessons that foster students' ability to analyze,

evaluate, synthesize, and create. During the past two decades, reform movements in

education have created a paradigm shift from students memorizing facts to synthesizing

learning through higher-order and deeper learning skills (Newmann, 1990; Wortham, 2006).

The U.S. Department of Education pointed to this transformational shift having to do with

students not performing well on tests of basic skill and also on tasks that involve problem

solving, critical analysis, and flexible understanding of subject matter (Raudenbush & Bryk,

2002). The current focus of the Common Core and the Characteristics of Effective

Instruction focus on the importance of creating lessons that help students problem-solve,

analyze, and create in their learning experiences. The premise of this dissertation is that high

school students would be better served if educators listened to students' perceptions

regarding how students engage and learn in order to guide instructional practice and foster

continuous improvement toward student cognitive engagement.

Student Voice

Evidence from the 2009 HSSSE indicates that students want schools to be intellectually and academically relevant and challenging. Students who report they have had thoughts about quitting high school point to a lack of engagement with the school as a factor in their thought process (Yazzie-Mintz, 2010). Forty-two percent of students who completed the HSSSE survey report they didn't see the value in the work they were asked to do in the classrooms, and 66% report being bored in high school classes at least every day, with almost 17% reporting being bored in every class (Yazzie-Mintz, 2010). This data points to the perception that many students report they are not interested, gaining any enjoyment, or connecting with the classroom activities in high school classrooms. I hope, in my research, to promote ways in which educators can combat these statistics by listening to student voice regarding cognitive engagement levels.

Csikszentmihalyi and Larson's (1984) research included students' perceptions, focusing on boredom in the classroom. Utilizing the experience sampling method, students self-reported via electronic devices that monitored what they were doing at specific times, where they were located, and with whom they were interacting. When beepers were randomly triggered, students were to complete the self-report forms, recording what they were doing and how they felt at that precise moment. Csikszentmihalyi and Larson found that "compared to other contexts in their lives, time in class is associated with lower-than-average states…students report feeling sad, irritable, and bored, concentration is difficult, they feel self-conscious and strongly wish they were doing something else" (p. 9). This research portrays the voice of students who express they have no choice or control in their

own learning. An analogy may be pertinent to students of the 21st century – high school students in 2012 are behind the wheel of a remote control car and lack the controller to determine the direction, speed, or destination of their journey.

Educators should not discount the research that has been conducted regarding social interaction (Guthrie & Wigfield, 2000), active engagement with the environment, and reconstructing knowledge (Csikszentmihalyi & Larson, 1984) as a way that students learn at deeper levels (Lincoln, 1995). Students cite their engagement and learning as better supported by learning environments connected to how they learn (Kirby & Gardner, 2010). Learning connections can be formed in students' brains when educators see the perspective of the learner by listening, observing, and attending to students and reflecting on those connections to support their learning (Stout & Christenson, 2009). Educators can utilize the viewpoints presented in this dissertation to learn about the students' perception of cognitive engagement.

In the classroom, student voices are heard by asking and observing what types of learning interactions they consider engaging and thought-provoking. Dahl (1995) advocated that educators find and encourage student voice in written forms and in their reading selections, and then reflect on that engagement by giving meaningful feedback or engaging students in discourse. "Learners care about certain aspects of classroom life from their perspective such as having the freedom to move, being in control of when they are called on, deciding when to engage in an activity, and needing a feeling of autonomy" (p. 128). Schools are a huge influence on learning and acquiring world view and Lincoln (1995) contends that educators should attend to ways in which students shape their world by listening and responding to student voice. Several studies found that when teachers were

concerned about students' success and encouraged the students about their futures, students were more likely to be engaged in the classroom and perform well academically (Akey, 2006; Heller, Calderon, & Medrich, 2003). Creating positive relationships with students and providing specific feedback to students may aid students in being more cognitively engaged in high school classrooms.

An additional aspect of student voice relates to the student's ability to formulate essential questions—those that are deep and meaningful, such as, "What is the connection between reading and writing?" or "How would our culture be different without our current technology?" and articulate those questions to their peers and teachers (Commeyras, 1995). Commeyras (1995) wrote "if students have trouble formulating questions, it is probably because their natural inquisitiveness has been depressed through current schooling practices" (p. 105). Educators need to foster this deeper level of understanding by encouraging students to participate in questioning, higher-order and deeper learning opportunities such as inquiry-based projects, problem-based learning, authentic demonstration, and reflective journaling (Valentine & Collins 2010) to increase student cognitive engagement (Guthrie & Wigfield, 2000). Students who are cognitively engaged in the higher-order categories of the IPI will have deeper learning experiences which involve peer verbal interactions, critical thinking, discovery, and exploratory learning. Educators listening to the voices of high school students increase the likelihood of engaging these students.

Conclusion

A review of the literature supports the notion that student cognitive engagement can be increased by providing authentic learning environments, which include project-based and problem-based learning and authentic demonstrations, and by involving students in the

process of their learning (Yazzie-Mintz, 2010). Knowledge of the learner perspective and incorporating student voices concerning student cognitive engagement can provide a basis for educators to reflect upon, both individually and collectively, and develop more authentic learning experiences for their classrooms. While teachers have limited control over many external factors, they typically have a high level of control over the class environment and instructional decisions influencing student cognitive engagement. By authentically utilizing students in the process of their own engagement, teachers value their voice and become more open to the avenues of their contribution (Walker & Greene, 2009). Conducting focus groups and individual interviews of twelve high school senior NHS members, training them in the IPI student engagement data collection process, and having these students collect and discuss IPI data in high school classrooms are mechanisms I employed to give student voice to student cognitive engagement in high schools. Capturing student voices on topic of student cognitive engagement would add to the body of research.

CHAPTER THREE
METHODOLOGY

Introduction

Research indicates that students want to be actively involved in their learning (Carnahan, Musti-Rao, & Bailey, 2009; Kanpol, 1999, Klein, 2008). In this dissertation, qualitative methodology was used to give voice to what students perceive to be levels of cognitive engagement in high school classrooms. Twelve high school senior-level students, who attended a mid-sized rural Iowa school district and were members of the National Honor Society (NHS), participated in focus groups and individual interviews to give voice to their own perceptions of cognitive engagement, as well as their understanding of cognitive engagement of their peers. These same students also participated in IPI training and IPI data collection to gauge the cognitive engagement level of their peers within high school classrooms.

My rationale for selecting a qualitative research design was informed by Creswell's (2007) recommendations for designing a qualitative study. According to Creswell, qualitative research assumes "a worldview, the possible use of a theoretical lens, and the study of research problems inquiring into the meaning individuals or groups ascribe to a social or human problem" (p. 37). Using the epistemological lens of constructivism, my research focused on eliciting student voice by utilizing the twelve high school seniors regarding their perceptions of cognitive engagement in high school.

Constructivism focuses on the way humans create knowledge (Ertmer & Newby, 1993; Walker & Lambert, 1995). Constructivists believe that knowledge is a function of the way in which people learn by actively constructing knowledge (Jonassen, 1991), not by

having information poured into their heads. Constructivists also assert that people learn at

higher levels when they are engaged in constructing personally meaningful artifacts, such as

computer programs or presentations (Bichelmeyer & Hsu, 1999). Because constructivism

emphasizes the active role of the learner, it follows that high school students can be active

participants in the learning process by seeking to find meaning in their experiences

(Boghossian, 2006; Borich & Tombari, 1996). Constructivists also propose that each

person's subjective experience is as important and valid as anyone else's; therefore, there are

no objective decisive factors as to what constitutes knowledge (Poerksen, 2004), and to

comprehend others' knowledge is to understand the meaning within others' own voices as

they construct a story (Crotty, 1998). Valuing student voice, in finding ways to increase

student cognitive engagement in high school classrooms, has implications not only for

creating more cognitively engaging classrooms, but also, as the literature review supports, for

increasing student academic achievement, motivation, and desire to stay in school.

The telling of a story is the focus of qualitative approaches to research (Merriam,

1998). Qualitative research is thought of as building metaphors and analogies so that

relationships described by participants are fully understood (Lincoln & Guba, 1985). When

analyzing students' perceptions and listening to their stories of their own and other students'

cognitive engagement, educators and educational leaders can learn from these students'

perspectives and help school systems find ways to enable young people to be more

cognitively engaged in the process of their own learning. As students become more

cognitively engaged in their own learning, they learn the content, master the related skills

necessary for success, and may be able to transfer those skills to future situations they

encounter. My study supports the premise that students are able to determine what engages high school students cognitively in high school classrooms.

Research Design

The purpose of my study was to investigate student perceptions of the level of their own and other students' cognitive engagement in high school. According to McMillan and Schumacher (2006), qualitative research is "inquiry in which researchers collect data in face-to-face situations by interacting with selected persons in their settings" (p. 315). The objective of qualitative research is exploratory and the researcher's role is investigative. The researcher must possess an investigative nature, have sensitivity to personal prejudices, be a good communicator, and have some knowledge of the subject matter under study (Merriam, 1998). I have completed all the coursework for a doctorate in educational leadership and policy studies, completed a master's degree, and possess licensure in Counseling and Human Development. I've worked as a counselor in elementary and secondary educational settings, as well as a mental health clinic. I've completed requirements for licensure as a K-12 school administrator and currently serve as a school administrator in a secondary school building. The aforementioned criteria for qualitative research by Merriam (1998) and McMillan and Schumacher (2006) represent standards that promote valid, reliable, and ethical research results. My educational and professional experience in private organizations and public institutions qualifies me to conduct this research.

Because the high school participants in this study attended the K-12 system in which I work, it was appropriate to use qualitative techniques. I was able to obtain and analyze data in the "natural setting where the participants experience the issue or problem under study" (Creswell, 2007, p. 37). I met with twelve high school seniors, who were members of the

National Honor Society, at least twice in the spring of 2012 in focus groups and separately in individual interviews to explore their educational experiences, focusing on their perceptions of cognitive engagement in the high school setting. I also trained these students in the IPI protocols and had them collect and discuss IPI data on the level of student engagement in classrooms of the high school.

Participants

I employed the assistance of twelve high school seniors from a rural mid-sized Iowa school system who were eighteen years old or older and members of National Honor Society (NHS). These participants were engaged in focus groups and individual interviews regarding their engagement experiences during high school, received training in the IPI protocol, and collected IPI data during the spring semester of 2012.

The rationale for asking senior level NHS members, who met the 18-year-old age criteria for participation, was multi-faceted. The objective was to utilize students who had demonstrated academic proficiency during their high school career, previously participated in community-type service projects during high school, and were actively involved in school related activities during high school. Each of the students, due to their involvement in NHS, met this research objective. Additionally, since senior level students had an option to have an open class period in their schedule, academic conflicts could be avoided. Students were familiar with the layout and schedules of the building because of their attendance in the high school where the research was being conducted. Given that these students were members of NHS, my assumption was that they would understand the depth of the research process. After an initial meeting to introduce the study and review the consent form, which explained the responsibilities of both the research participants and me while participating in the

research process, each of the twelve students returned their signed consent forms. Because the research participants were NHS members, I also assumed that these students would understand that participation in this research had the potential to shed light not only on the cognitive engagement of students in the school system they attended, but also in other school systems as well.

Iowa State University IRB approval was obtained before initiating any form of contact with participants. I sent an email invitation to fifteen members of the senior class, who were 18 and members of NHS, to attend a meeting to discuss the research proposal. Twelve potential student participants attended the introductory meeting, during their sixty minute lunch period, to discuss the research study and expectations of the student participants and myself as the researcher.

During this meeting students were given the option of eating pizza and dessert and were provided with water to drink. Each student was given the informed consent documentation (Appendix C), along with a stamped addressed envelope, asking that he or she return the paperwork to the researcher within one week if they wished to participate in the study. If any student(s) did not return the paperwork to participate in this study, I followed up with a personal conversation to ensure that the student(s) did not have any further questions regarding their participation in the research.

Of the fifteen students who matched the criteria for the research study, three declined participation based on their own schedules and commitments to other responsibilities, both school and work related. Utilizing my training as a counselor and ethical guidelines provided by the university, I followed the procedures that were approved by the IRB in working with the remaining twelve research participants. Participants were given the option to remove

themselves from the research study at any point and time without any ramifications. No participant chose to withdraw from the research study.

It was my hope that these high school students would gain personal insight into cognitive engagement in school and how those insights might also increase their own level of cognitive engagement in their learning. As Dahl (1995) contended, "insights into what children value and care about help us structure the classroom worlds in which children are most apt to learn…(educators) need to pay attention to what children value as learners and consider children's voice if we are to genuinely support children's learning" (p.129). I hoped that research participants might also gain insight into what they value as learners from this research, and that this research might add insight for participants to take an active role in their own cognitive engagement and to possibly learn at higher levels.

Pilot Study

Pilot studies are used in qualitative research for a variety of purposes such as refining and testing adequacy of research methods and procedures, evaluating the proposed data analysis techniques to bring to light any problems, and gauging whether the research protocol aids in the desired results (Teijlingen van, Rennie, Hundley, & Graham, 2001). In conducting a small pilot study, I utilized a group of six middle school students (seventh and eighth graders) who were members in the school's talented and gifted program. Based on my observations of these students in the middle school, in both academic and non-academic settings, I felt that these students that had the potential to converse about the topic of student engagement and to provide feedback and suggestions for improving the focus group and interview questions. I met with these students for fifty minutes during their lunch period in

the guidance office conference room, as they ate their school-provided lunch. I also provided a package of licorice to each student for their participation in the pilot study.

Interview and focus group questions were developed from the literature on student cognitive engagement for my research. I focused on developing open-ended questions that would have the potential to elicit responses from the research participants, centering on the participants' perception of their own and other students' cognitive engagement within high school classrooms. After conducting the pilot study, I rearranged the order of how I anticipated asking the research participants these questions. This change was made due to the lack of understanding of the pilot study participants as to how cognitive engagement was being defined for my research. I learned in this process that I needed to be very intentional about exactly what I was asking the research participants: their perceptions of their own and other students' cognitive engagement, based on the definition of cognitive engagement developed in this research. Just as I uncovered in the literature review, engagement was viewed as a generic concept by the middle school students, in that they incorporated behavioral, emotional, and cognitive engagement in their descriptions of what engages middle school students in classrooms. Listed in Table 1 are a few of the responses I received when asking these middle school students the identified focus group prompts and questions in regards to their perceptions of their own cognitive engagement in their learning within classrooms:

Table 1

Middle School Pilot Group Responses to Interview Questions

Q1 (Think about a class or classes that you feel engaged or have been engaged in during high school. Describe to me what that looks and feels like to you.)	"Because my teacher told me I could do it made me feel like I could."
Q8 (Describe to me the importance or lack of importance you feel the concepts and skills you are learning in school are going to be to you later in life.)	"In middle school you have to push yourself because if you don't push yourself, you end up falling behind."
Q9 (What are your hopes and aspirations after finishing high school?)	"Keep your mind set on the things that you really want and you can do it." "I have to be more organized in middle school because I have to move from class to class."
Q1 (Think about a class or classes that you feel engaged or have been engaged in during school. Describe to me what that looks and feels like to you.)	"I like it when we get to do stuff in the classroom, not just sit there."
Q6 (What do you want to get out of your education?)	"Getting good grades help you get a good job"
Q11 (Do you discuss what you do in school with people outside of school?)	"When I don't understand something at home, I Google it."
Q4 (Tell me about ways in which you feel school could be more engaging to you.)	"I wish we used computers more."
Q2 (What engages you in the classroom?)	"I like to work with other people and figure things out."
Q10 (Tell me about ways in which you feel you learn at a deep level.)	"I really like to listen to music when I'm learning, if it doesn't distract others."
Q5 (What types of classroom activities do you find more engaging than others?)	"My parents and teachers have always told me I need to ask more questions when I don't understand."
Q3 (What disengages you in the classroom?)	"I don't like to sit and listen all the time."

Although these responses were given by middle school age students, they helped me think how during focus group sessions and individual interview time, I would need to stay attentive to the responses shared by the high school participants and probe them to think deeply in their responses to the prompts. I needed to be facilitative and communicate in a

manner perceived to be respectful and engage with the participants about the content being shared to honor their perceptions. Employing my counseling skills, I would demonstrate appropriate interviewing techniques during the individual interviews and focus groups. Utilizing active listening allowed me to probe the participants more effectively. Active listening included not only hearing what students shared, but also paying particular attention to students' body language, tone of voice, and facial gestures (Krueger & Casey, 2000). I needed to remain cognizant of the content of the responses I received from the participants to aid in developing themes and find meaning in their responses. The responses I received from the middle school students helped to reinforce my belief of the importance of utilizing student voice to gain insight from interviewing and conducting focus groups with high school seniors on perceived levels of cognitive engagement within high school classrooms.

Data Collection

The data collection and analysis techniques for this research study were based on McMillan and Schumacher's (2006) phases of qualitative research. These authors emphasize that data collection and analysis strategies depend upon each other, with each phase overlapping and interacting in cycles. The phases of qualitative research are "planning, data collection, and completion" (p. 322).

Permission to conduct this research in the high school was obtained from the district's superintendent. Permission to use human subjects was obtained from the Iowa State University Institutional Review Board. A letter of invitation and a consent form (Appendices C & D) were given to each participant. Twelve high school seniors, who were 18 years of age and members of NHS, indicated a desire to be included in the study.

Data for this research was collected by conducting focus groups and individual interviews with high school seniors who were members of NHS, along with training research participants in the IPI protocol and having participants collect IPI data in high school classrooms. During focus groups and individual interviews, participants responded to prompts revolving around their perceptions of ways students cognitively engage within high school classrooms. Questions assessed the perceptions of these students regarding their own levels of cognitive engagement in high school both before and after receiving training in gauging system-wide levels of student cognitive engagement, based on the IPI, which is utilized in K-12 school systems to gauge levels of student cognitive engagement within a school system.

The Instructional Practices Inventory (IPI) process for codifying student engagement data rubric utilizes "a set of observational categories complex enough to provide substantive data grounded in the knowledge of best practice yet easily understood and interpreted" (Valentine & Collins, 2010). The IPI protocol allows a trained classroom observer to collect data using approximately 150 observational data codes that capture student engagement levels over a school day. The IPI data collection process focuses on student engagement and cognitive thinking rather than teacher or student behavior. This data is then used as part of a school improvement process, designed to foster faculty collaborative study of the school system's IPI data profiles, with the purpose of increasing the level of rigorous learning activities and student engagement across the school system.

The process of creating a picture of the engagement level in the high school with high school students, using the IPI six-category coding procedure, intrigued me. Processing this information with students was part of the second phase of the focus groups and individual

interviews. Prior to this study, the IPI process was documented formally in other research projects, including a national study of leadership for the National Association of Secondary School Principals (Gauen, 2009; Valentine, 2007), but never for gathering cognitive engagement data of high school students by high school students. I hoped that the participants would use the IPI collected data to converse about their own engagement and other students' cognitive engagement.

Participant Observation

Because participant observation is appropriate for research, and interviews are appropriate for qualitative studies (McMillan & Schumacher, 2006), I used the participant observer and interviewer as my roles within this study. Researchers take an active role in creating group discussions to elicit data for collection and analysis (Morgan, 1996). Within my role as the interviewer, I posed discussion question prompts to which the students responded, as well as assisting research participants with their own line of thought process. I was the facilitator and an observer to the group dynamics that evolved through each discussion.

While not directly specified as a research role, I understood that I was also an observer in the field, in the sense that I had the potential to interact with the participants in the school the participants attend, such as seeing them in the hallways, student center, classrooms, or at school activities. These observations and perceptions, I hope, remained unobtrusive and accepted due to my natural presence on campus in my role as middle school principal in the school system where the study was being conducted.   At no time during the research process did I feel that participants avoided contact with me as a result of being involved in this research. As evidence to this point, four of the research participants had an

open block during their school day and typically spent this time in the school media center with other students. Frequently, when I passed through the media center, these students would initiate conversations with me.

Focus groups are an important technique used in qualitative research. With focus groups, researchers collect data through observation and analysis of group interaction on the topic being researched (Morgan, 1996). The data analysis I conducted of the group interactions, based only on the gender of the research participants, during the focus groups is highlighted in Table 2. I felt it important in this research study of high school seniors to have a balance of both males and females participating in this research and sharing their voice, in order to create a thorough view of students' perceptions of cognitive engagement.

Table 2

Data Analysis of Male and Female Focus Group Comments

Participant Name	*Gender*	*Number of comments made during focus groups*
Alex	Male	75
Barb	Female	62
Brad	Male	62
Bob	Male	52
Kory	Male	38
Katie	Female	64
Kourtney	Female	56
Kaiser	Male	70
Kayla	Female	62
Mia	Female	40
Ron	Male	58
Tim	Male	54

This data supports that both female and male research participants contributed a great deal in the focus group discussions by providing comments to the focus group questions and prompts, which were transcribed after each focus group session.

Focus groups can also be paired with other research methods such as surveys and individual interviews. Combining group and individual interviews can add greater depth to individual interviews and greater breadth to focus group conversations (Crabtree, Yanoshik

Miller, & O'Connor, 1993). Focus groups have the advantage of helping researchers gain insight into a wide range of participants' thought processes in a relatively short amount of time (Morgan, 1996). Individual interviews with participants can investigate thoughts and experiences in more depth, as well as attend to the connections between personal experiences over a period of time (Duncan & Morgan, 1994). I felt that employing focus groups and individual interviews, as well as training students in the IPI data collection process, added to the richness of the data collection and analysis process conducted in this dissertation.

Focus Group and Interview Protocol

Within a semi-structured, open-ended interview protocol, I was the interviewer, creating and asking the students focused questions designed to elicit student voice regarding their experiences and perceptions regarding cognitive engagement in high school classrooms. This research design is supported by Moustakes (1994) who asserts that interviews and focus groups are a conversation between people in a trusting and relaxed atmosphere. The conversations within the focus groups and individual interviews were based on open-ended questions, personal stories, critical incidents, and processes participants have encountered in high school classrooms regarding cognitive engagement. Based on IRB guidelines, participants were asked for permission to audio-record sessions to allow for full transcription of the conversations. Questions for the focus groups and individual interviews were reviewed by two high school counselors who provided oral feedback by meeting with me and offering insight into their perceptions of the purposefulness of each question or prompt. Minor changes were made in the questions, such as making the questions more specific and less general for individuals, such as adding the word cognitive in front of the word engagement or changing "what" to "tell me about...".

Participants were asked to respond to the following prompts, both in the focus groups and the individual interviews, to aid in collection and consistency of themes and meaning uncovered in the responses:

1) Think about a class or classes that you feel cognitively engaged or have been cognitively engaged in during high school. Describe to me what that looks and feels like to you.

2) What cognitively engages you in the classroom?

3) What disengages you in the classroom?

4) Tell me about ways in which you feel school could be more cognitively engaging to you.

5) What types of classroom activities do you find more cognitively engaging than others?

6) What do you hope to gain from your education?

7) Tell me about what do your grades tell you about yourself as a student?

8) Describe to me the importance or lack of importance you feel the concepts and skills you are learning in school are going to be to you later in life?

9) What are your hopes and aspirations after finishing high school?

10) Tell me about ways in which you feel you learn at a deep level.

11) Do you discuss what you do in school with people outside of school?

These same questions and prompts were used in both focus groups and individual interviews, before and after the research participants received training in the IPI protocol. My intent for using the same questions and prompts in both the focus groups and individual interviews was to determine if the research participants' perceptions of cognitive engagement

changed after participating in the IPI training and conducting IPI data collection within the high school the research participants attend.

Table 3 documents how the research questions in this dissertation corresponded with the focus group and interview prompts and questions. Each question from the interview and focus group sessions was aligned to one of the research questions of this dissertation.

Table 3

Research Questions in Relation to Focus Group and Interview Questions

What are high school students' perceptions about what engages them personally in the classroom?	Q1: Think about a class or classes that you feel cognitively engaged or have been cognitively engaged in during high school. Describe to me what that looks and feels like to you. Q2: What cognitively engages you in the classroom? Q7: Tell me about what do your grades tell you about yourself as a student?
Do students' perceptions about their own engagement in classrooms differ after these students conduct engagement research in a school system utilizing the IPI?	Q3: What disengages you in the classroom? Q5: What types of classroom activities do you find more cognitively engaging than others? Q6: What do you hope to gain from your education? Q8: Describe to me the importance or lack of importance you feel the concepts and skills you are learning in school are going to be to you later in life? Q9: What are your hopes and aspirations after finishing high school? Q10: Tell me about ways in which you feel you learn at a deep level.
Do students' perceptions about other students' engagement in classrooms differ after these students conduct engagement research in a school system utilizing the IPI?	Q4: Tell me about ways in which you feel school could be more cognitively engaging to you. Q11: Do you discuss what you do in school with people outside of school?

Analysis Procedures

Analysis for this research was done using the constant comparative model that searches for themes and patterns (Strauss and Corbin, 1990). The constant comparative method is a method for analyzing data in order to generate a theory, in this dissertation regarding cognitive engagement in high school classrooms, formed from the data and based on inductive reasoning (Strauss and Corbin, 1990). Data collected from transcriptions of the focus groups and individual interviews was analyzed by employing inductive logic. The goal of the inductive process was to observe specific data incidents (the comments of the high school students) and analyze the mass of data to identify recurring themes related to the phenomenon (Lalas & Valle, 2007), which in this study explored the perceptions of twelve high school seniors' level of perceived cognitive engagement.

I formed two focus groups of six students each in order to provide a forum where all students' perspectives could be more clearly heard. I gave an alias to each participant (Alex, Kayla, Mia, Kaiser, etc.) to ensure the anonymity of the responses throughout the data collection and analysis process. Focus groups are advantageous when the interaction among interviewees will likely yield the best information and when interviewees are similar and cooperative with each other (Morgan, 1996). Additionally, as Gall, Gall, and Borg (2007) emphasize, "group members influence each other by responding to ideas and comments in the discussion" (p. 244). By allowing students an opportunity to share in a smaller focus group setting as well as on an individual basis, every student's voice was heard and able to more concretely add to my research base. Utilizing both focus groups and individual interviews added richness to my study in that I purposely created two focus groups of six students each of variability based on their gender and participation in school activities, such

as athletics or club participation. I analyzed 119 pages of transcribed comments from the focus groups looking for themes in the data resulting from the voices of the participants.

Individual interviews were arranged with each research participant based on research participants' own schedule requirements. The individual interviews, held in my school office, lasted in length from 10 to 50 minutes. I analyzed 54 pages of transcribed comments, looking for themes in the data resulting from the voices of the participants.

Focus groups met during the seminar period for 60 minutes. Seminar period is held each day, during the middle portion of the academic school day, and it is the time when students can meet with their instructors outside of class or hold club or group meetings. I provided snacks for the research participants during the focus groups, which consisted of cookies, cheese and crackers, and fruit. No snacks were provided during the individual interviews. Both focus groups and individual interviews provided avenues for students to share their voice regarding their perceptions of cognitive engagement. One negative of the focus group setting was the tendency for more than one research participant to talk at the same time during the focus group, piggybacking on comments from others. This behavior made it difficult to transcribe each member's words, since in some instances they blended together, because of multiple students talking at once. A positive of the focus group was that research participants did not demonstrate any hesitancy in contributing their opinions regarding cognitive engagement in high school classrooms. A positive of the individual interviews was that research participants who were less vocal in focus groups were given the opportunity to share their views in a confidential arena with me. A possible downside of the individual interviews being held in my office was the perception research participants might have of being in a school administrator's office for any reason. This was not something I

explored with the research participants during this dissertation, but it may have hindered some of their comments on the topic of student cognitive engagement.

Content analysis of the concepts, words, and behaviors held within the data was analyzed from both the focus groups and individual interviews, based on the 173 pages of transcriptions of the taped sessions, as well as the IPI data collected (Appendix E) by the research participants. Overall, participants expressed that they were able to gauge the cognitive engagement level in classrooms, based on the IPI training, and that if students are cognitively engaged and interested they could gain a great deal of learning from the IPI data collection experience. Bob reported, "There are a lot fewer fives and sixes than with the teachers (IPI collected data)," after reviewing the research participants' collected IPI data (Appendix E) and comparing it to IPI data previously collected by educators, within the same building, who had been trained in the IPI data collection protocol.   Brad added, "This is probably a lot closer to actual engagement level in the building [referring to the student IPI collected data]. It's more our point of view." Kaily said, "And giving the teachers a different perspective too, from what we see as students being engaged as opposed to people [who are not high school age] who haven't been in touch." These students feel teachers are not perceiving or understanding students cognitive engagement levels or noticing how students are disengaged in high school classrooms.

To address reliability in qualitative research, scrutiny of trustworthiness is central to the process (Lincoln & Guba, 1985). Efforts to eliminate bias include triangulation of data. Triangulation is defined as "a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study" (Creswell & Miller, 2000). I triangulated the data between the focus groups, individual

interviews, and the IPI collected data to promote accurate coding of themes and meanings and to confirm my interpretation of these themes and meanings through comparison of the different data sources. Table 4 summarizes the comments made by research participants based on these themes.

Table 4

Themes Determined by Research Participant Comments

	Alex	*Barb*	*Brad*	*Bob*	*Kory*	*Katie*	*Kourtney*	*Kaiser*	*Kayla*	*Mia*	*Ron*	*Tim*
Compliance	13	14	17	11	7	18	12	12	15	10	13	10
Feedback/ Encouragement	15	12	11	9	5	15	13	14	11	6	12	13
Enjoyment/ Interest	12	15	13	8	6	12	9	13	16	8	10	13
Challenge/Rigor	10	16	14	10	9	15	8	11	15	7	12	12
Relationship/ Expectation	13	15	16	12	10	16	9	14	14	9	13	12
Control/Choice	17	18	13	13	8	13	10	16	20	12	10	13

Ethical Considerations

Current ethical guidelines require participants to give informed consent regarding their participation in research, and in some research methods may actively involve a distinct relationship between the researcher and participants (Maxwell 2005). Maxwell writes that "research should be participatory in the sense of working collaboratively with research participants to generate knowledge that is useful to the participants as well as to the researcher" (p.84). When I discussed this research with the school district's superintendent, he thought the study might help the students become more self-aware of their role in their own levels of cognitive engagement in learning, thus giving merit to Maxwell's premise of research being potentially collaborative between the research participants and researcher.

Even though current staff members of the school district were not interviewed in this research, they were informed of the study during a professional development session during the fall of 2011. An initial meeting with the potential students was held in the spring of 2012 to explain the purpose, procedures, and possible risks and benefits of the research; to convey information about voluntary participation in the research; and to explain measures I would take to ensure confidentiality of the data collectors and the school district while taking part in the study. Informed consent was also obtained from the participants by providing each person with written information explaining the study (Appendix D).

At no time have students' names or identities been revealed in documentation of this research. Research participants' names in this dissertation have been changed to support confidentiality of the participants and the school system where the research was conducted. Ground rules (Appendix C), agreed upon by the research participants during the initial meeting and discussed during each group session, aided in protecting potentially sensitive

material. Each participant agreed to keep confidential information regarding data observations and materials generated from those observations, as well as conversations within focus groups during the research. I worked to maintain a level of trust between the school system, staff, and participants by keeping the research participants informed of times and dates required by their participation in the research and by keeping the staff and school informed of these same timelines. I did not inform the school staff as to which individual students chose to participate in the research, although school staff became informed of the criteria used for selection of research participants during professional development in the spring of 2012. Communication, both written and oral, with research participants emphasized that all information shared with me by research participants during the research study would not be shared with any staff member in the school system or with the school district until after the research participants' graduation ceremonies and defense of this dissertation, and then only in terms of the findings of the results, not individual comments from research participants.

In order to maintain an ethical stance during the research, there were numerous items to address. The participants and I were the only parties with access to the data during the course of the study. As the researcher, I attempted to recognize and attend to personal and professional biases and values during the course of the study by being cognizant of myself as a researcher, educator, and former school counselor and adhering to the ethical guidelines outlined in the human subject training I completed in September of 2012, including promoting the rights and safety of the research participants in this dissertation by reviewing ground rules each time I met with them and reiterating that at any time they could stop

involvement with the research, for any reason. No research participant chose to stop participation during this research.

Conflict of interest may be defined as when the researcher's actual or implied interest compromises or appears to compromise the researcher's ability to impartially perform his or her duty (Stokes, 2000). In conducting this research I adhered to the guidelines set forth by the Association of American Universities including (a) commitment to advancing education, (b) the safety and care of participants in the study, (c) the open and timely communication and dissemination of knowledge, and (d) disclosure of any financial conflicts (Association of American Universities, 2001). I do not believe I engaged in any conflict of interest in conducting this research. Conflict of interest has been addressed because (a) I did not benefit financially or professionally from the study or the findings, (b) participants were protected through anonymity, and (c) the study does not identify the school system that was used in this research (Association of American Universities, 2001). In addition, I followed all approved IRB protocols for this dissertation research.

Limitations

This study has a number of limitations. The data are gathered from a limited, specific population – one school, one grade (seniors), and participants who were current members of NHS from one particular school system. The sample of research participants – the core source of content for the study – is far from randomly selected. I invited every eighteen-year-old senior-level member of NHS to participate. It was no surprise that late in the second semester of their senior year, not every student accepted this invitation. I did have more students participate in the research (twelve) than what was set as the goal (ten) at the beginning of the research process. Each of these participants had been part of the school

system for over six years. All twelve of these students had participated in AP or college-credit courses while in high school.

The research participants had demonstrated academic proficiency and previously participated in community type service projects, such as being a volunteer coach or religious education teacher; they were also actively involved in school related activities, such as athletics, show choir, art club, and marching band. This was a limitation to the final results of this study in that I was not using a randomized group of student participants that included a sample of the each of the populations of the entire student body, including special education students, multi-grade level students, or academically challenged students. My hope in utilizing this particular group of participants was that their abilities to articulate and give voice to their experiences with cognitive engagement in high school classrooms would aid educators in understanding the importance of meeting the needs of their students.

Since these students were seniors in the spring semester of their final year of high school, there was a narrow window in which to gather the data. One potential issue that may have influenced acceptance of the invitation to participate in this research study was the fact that the participants were busy high school seniors nearing the end of their high school experience. At the conclusion of the last interview, these students were a few weeks away from high school graduation, which may have contributed to a telescoping effect (Light, Singer, & Willet, 1990) on the research students' perceptions regarding cognitive engagement, meaning an inclination to perceive recent events as being more remote or more recent than in actuality.

Another limitation was the researcher's position and professional involvement within the school system. Every measure reasonably possible was taken to promote objectivity and

representation of the field of study. It was assumed that all volunteers for this study were unbiased and truthful in all responses. Interpretation of the notes and codes from the focus groups and analysis thereof might involve some interviewer conscious or unconscious biases that might interfere with the validity of the results (Hamel, Dufour, & Fortin, 1993; Lincoln & Guba, 1985). Every attempt to maintain a neutral tone , when interacting with the students was made, with critical reflection by myself about my position by writing and reflecting on these writings in my journal, so students would keep an open mind in terms of learning about the definition of cognitive engagement based on the six levels of engagement in the IPI protocol and give their honest perceptions of their levels of cognitive engagement. Another limitation revolved around maintaining confidentiality of the identity of the research participants. I did not conduct any member checking or peer debriefing during this research.

Finally, Lincoln & Guba's (1985) suggestion when writing about credibility of research, "making the reader an interactive partner with the writer in reaching understanding and drawing implications" was something that I hoped would be an outcome of this research. Research participants, as well as school staff, have asked to be informed of the results of this dissertation, and my hope is that they will learn from the voices of these high school seniors about their perceptions of cognitive engagement in high school classrooms.

Conclusion

Educators who wish to cognitively engage their students can benefit from this research, with the ultimate goal of improving cognitive engagement and possibly improving student achievement. This research may serve as a resource for educators who are attempting to focus on instructional strategies that increase levels of student engagement within school systems. This research may also provide ways to help engage students in

thinking about their own learning and for the high school students' perception of their

perceived levels of engagement to be shared.

CHAPTER FOUR
RESULTS AND DISCUSSION

This dissertation used a phenomenological, qualitative approach designed to examine cognitive engagement in high school classrooms via twelve high school seniors who are members of the National Honor Society. These seniors participated in focus groups and individual interviews regarding how they experience cognitive engagement within high school classes. Participants also were trained in IPI protocols and collected IPI student cognitive engagement data within high school classrooms. Through conducting focus group and individual interviews, I attempted to find meaning, themes, and patterns in the perceptions of high school students regarding their own and others' levels of engagement in high school, before and after receiving training in gauging system-wide levels of student engagement via the IPI. In this chapter, I present the findings that address the central research questions:

1. What are high school students' perceptions about what engages them personally in the classroom?

2. Do students' perceptions about their own engagement in classrooms differ after being trained to gather student engagement data in a school system utilizing the IPI?

3. Do students' perceptions about other students' engagement in classrooms differ after being trained to gather student engagement data in a school system utilizing the IPI?

Research participants participated in an initial focus group, individual interviews, and training on the IPI data collection protocol. After completion of the IPI training, students

collected IPI data, followed by a second round of focus groups and individual interviews. Subsequently, I analyzed the focus group and interview transcripts and, to form pools of meanings (Harris, 2008), gathered excerpts deemed representative of student perceptions of engagement. Arranging the data thematically in this dissertation, the points of views expressed by individuals decreased in importance as the collective meanings emerged from the entire group of participants. These collective meanings merged into six distinct categories of engagement based on how the research participants dissected cognitive engagement in high school classrooms.

From the data, these categories of descriptors (Svensson, 1997) became related to one another (Marton & Booth, 1997) based on the themes presented in the transcribed conversations of the focus groups, individual interviews, and IPI data collection. These results are context-specific in that they depict the range of ways in which eighteen-year-old high school seniors from a rural Iowa mid-size school system who are members of the National Honor Society perceived the phenomenon of engagement when participating in focus groups, individual interviews, and IPI training and data gathering.

I was struck by the depth of thought and blunt honesty in the statements these students shared with me. The students spoke so movingly about their learning and experiences of cognitive engagement and, at times, the lack thereof. An example of this type of statement is Barb saying, "I don't remember anything about it, honestly." I have represented their words verbatim except where I've inserted bracketed words or phrases to help clarify statements. I generally deleted students' use of slang, filler words, and pauses when they interfered with readability. It is important to me to do justice in representing their voices and their intended meaning.

It was not my intent to make an extensive analysis of the demographic characteristics of the participants or to attempt to draw conclusions based on age, gender, race, or socio-economic status. That said, a brief breakdown of demographic data follows: Twelve members of the senior class, who were also members of NHS and eighteen years of age, chose to participate in this research (80%). Table 5 illustrates information about gender and race of the participants and also of the entire senior high student body.

Table 5

Participant Demographic Data

Student Demographic Characteristics	*Group Size*		*Male*		*Female*		*Caucasian*		*Asian, African Am., Hispanic or Am. Indian*	
School Population	*Count*	*Percent*	*Count*	*Percent*	*Count*	*Percent*	*Count*	*Percent*	*Count*	*Percent*
High School Senior NHS Volunteer Participants	12	80.0	7	58.3	5	41.6	11	91.6	1	8.3
High School Senior NHS Non-participants	3	20.0	1	33.3	2	66.6	3	100	0	0
All High School Senior NHS	15	100	8	53.3	7	46.6	14	93.3	1	6.6
All High School: Grades 9 – 12	518	100	269	51.9	249	48.0	499	96.3	19	3.7

My research participants did not appear to characterize any uncommon demographic traits that are represented within the entire student body of the high school these students attended, with one exception: None of the research participants were considered to be of lower-economic status, based on the school's free and reduced lunch data. Twenty-four percent of the total student body of the high school is considered to be of lower socioeconomic status based on this same data. Economic status of students may be worthy of

future investigation in relationship to how students measure and define cognitive student engagement of high school students. Lack of research participants being of lower-economic status may have implications for generalizing results determined by this dissertation, although determination of economic status is a self-referral process by individual families on a yearly basis to the school. Thus, some of the research participants could qualify for this sub-group but their families have chosen not to participate in the school's free and reduced lunch program.

An assumption of phenomenography is that different ways of experiencing may be related to one another (Marton & Booth, 1997). Phenomenographic research aims to explore the range of meanings that emerge within the entire research group, not the range of meanings for individual participants. These emergences of meaning and transcripts are interpreted within the context of the group as a big-picture view – the entirety – of the experiences of all participants as a whole (Akerlind, 2005). As part of this research, participants took part in two different focus groups and completed individual interviews, as well as received training in the IPI protocols and collecting IPI data in the spring of 2012. During the first focus group, the participants were asked to define cognitive engagement. Initial comments from group members were tentative at first, with only four students responding to prompts during the first ten minutes of the first focus group. Then comments started pouring out from other members. I analyzed the content of the concepts, words, and behaviors held within 173 pages of transcribed data from focus groups, individual interviews, and IPI data training. I coded data by employing both inductive logic, with the goal to observe specific data incidents and analyze the mass of data to identify recurring themes related to the phenomenon (Lalas & Valle, 2007), and the constant comparative model that

searches for themes and patterns (Strauss and Corbin, 1990). In order to develop a richer, more in-depth understanding of the meanings related in the research participant's comments, I used the sampling strategy of confirming and disconfirming cases (Maxwell, 2005). I then refined the categories determined from the research participants, based on thick descriptions (undertone and context of the research participant comments) of the themes and meanings found within these conversations. I triangulated the data between the focus groups, individual interviews, and the IPI data to support that themes and meanings were coded accurately to confirm interpretation through comparison of the different data sources. As the data was analyzed, I found that the answers to the research questions overlapped one another. I briefly answer each research question and then provide more detail in the emerging theme section.

Research Question One Results

What are high school students' perceptions about what engages them personally in the classroom?

An analysis of the student responses indicates important findings related to the perceptions of students regarding their own engagement in high school classrooms. First, students were able to identify what engages them in high school classrooms. They reported preferring a variety of activities and learning strategies to traditional lecture methods. Students emphasized the importance of teachers engaging and challenging them, along with giving them feedback on their efforts and academic achievements. Students also reported that when given the choice of how to demonstrate their learning, cognitive engagement increases. Similarly, Cushman (2005) found that students respond best to knowledgeable, challenging, creative, and caring teachers, while Brewster and Bowen (2004) found that

teacher support in the form of listening to, encouraging, and respecting students relates to the engagement of students. The students in this study indicated a preference for teachers who are confident, passionate about their subjects, enjoy their work, create positive relationships with students, use a variety of instructional strategies, give specific and consistent feedback, and are approachable.

Research Question Two Results

Do students' perceptions about their own engagement in the classrooms differ after being trained to gather student engagement data in a school system utilizing the IPI?

Research participants initially shared generally that they would like to have instructors who believe in them and are able to teach in ways that help them understand the learning objectives. After being trained in the IPI protocol, students in this study specifically mentioned the desire to engage in discussion or debates, learn in groups, research and create projects, have some choice and ownership in how students demonstrate their learning, participate in hands-on activities, and have teachers continue to monitor their learning. One student spoke emphatically how learning about cognitive engagement has helped her think differently about her own and others' learning experiences and ways she can create better learning environments for herself. "You can always learn just basic facts on your own – you can look them up. It's that deeper stuff that you can't really do just by yourself sitting at home with a textbook" (Kayla).

As a result of the participation in this research study, research participants gained a new perspective about their own and others' cognitive engagement. A newly defined and internalized belief of their own level of involvement and participation in the cognitive engagement experience aided in the understanding of both the research participants' own and

others' cognitive engagement. Kourtney said, "Personally it helped me realize that a lot more goes into teaching than what it looks like and that you have to actually know and focus. Being a student that goes through the day, it's hard to keep focus 100% of the day." Participants not only thought about their own and other students' cognitive engagement levels; they also thought about ways in which instructors needed to be more engaged in their planning and preparation of classroom lessons and activities, in order to create a culture of engagement.

Students in this study also acknowledged that their own lack of cognitive engagement in classrooms was based on lack of choice in terms of how to demonstrate learning in high school classrooms. By affirming students and giving them opportunities to have a voice in their own learning, students are able to be critical thinkers and problem solvers and are empowered in the learning process (Kanpol, 1999). Research participants also made suggestions as to how school systems can engage other students in the academic experiences within high school classrooms. These results will be discussed further in Chapter Five of this dissertation.

<center>**Research Question Three Results**</center>

Do students' perceptions about other students' engagement in the classrooms differ after being trained to gather student engagement data in a school system utilizing the IPI?

Another significant finding in this study is students' revealed components about school settings that indicated schools' engagement or disengagement practices. Purkey (2000) contends that the current high school structure must be changed in order to provide opportunities for individuals to receive personalized attention and create positive relationships with supervisors of extra-curricular activities, which supports the results of the

students in this study, especially in the area of gauging engagement levels of other students. Archambault et al. (2009), Finn (1993), Linnenbrink and Pintrich (2003), and Rhodes (2007) found that students' social engagement is increased when students feel a sense of belonging. Students shared concerns about student participation rates in extra-curricular activities being low and needing to build more connections between students and the school community.

Research participants also noted educators; perceptions of cognitive engagement could be changed based on the observation of student collected IPI data observations. Kayla said, "And giving the teachers a different perspective, too, from our ratings may help [teachers] think differently about what engages students in classrooms." These responses help extend research question three posed in this research. Students not only change their perceptions regarding other students' cognitive engagement, but also see the connection to teachers; perceptions of cognitive engagement being changed after viewing the IPI student engagement data collected by high school seniors.

Six Themes of Student Engagement

Six distinct themes (Figure 4.1) of how students' perceived cognitive engagement or lack of cognitive engagement emerged from my analysis. Each of these themes relates to specific thoughts that emerged in the data analysis of the transcribed data from the voices of the high school seniors. Each of the themes identified in this diagram helps answer the three research questions. The representation of in Figure 4.1 is not intended to be hierarchical, but to display that there were six ways students conceptualized engagement in high school classrooms.

Figure 4.1. Six themes of description for student conceptions of engagement.
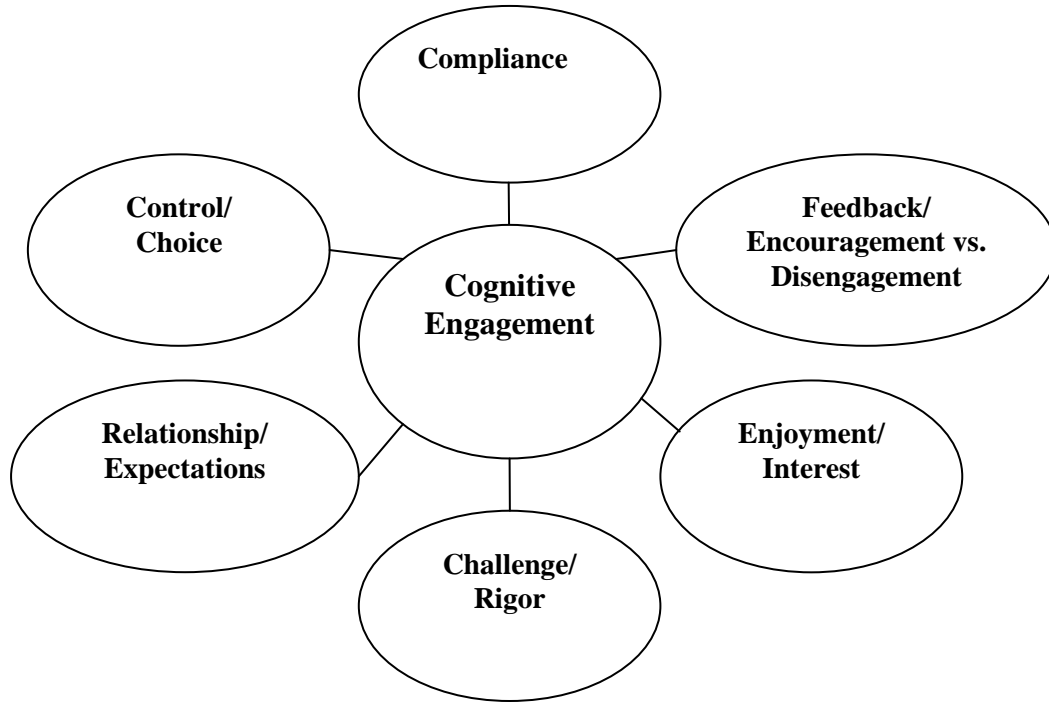
Theme One: Compliance as a Form of Engagement

One theme that emerged in this dissertation is that students comply in high school classrooms by completing required class work, but do not invest in any meaningful, or develop any substantial, learning from completion of that work. At the compliant level of engagement, students discussed the necessity of giving teachers the perception of engagement. Barb stated, "I think a lot of kids do [this]. I know there's times where I just stare at the teacher so they think I'm listening, but I'm really not paying attention." A number of participants made reference to compliance of completing homework assignments to achieve a good grade or the goal of passing a course to meet graduation requirements. Barb reported, "Honestly, we [learned about the U.S. Constitution] in Government or Global, one of those, and we read about it, did worksheets on it. I don't remember anything about it, honestly." As part of the compliance theme, participants acknowledged that they made

adjustments in their own schedules and work performance, based on the length of the course and deadlines of related assessment assignments. Kayla reported, "I knew that I could use the work I did in [X class] to help me finish my project for [Y class]." Kayla added, "I knew from listening to others that the teacher wasn't going to review my work anyway, other than to check to make sure I did it." Research subjects admitted they gave and observed in others reluctant effort if no need to retain the information for future use was noted.

Kaiser observed that grades may be a measure of compliance but they indicate little about engagement. He stated that grading in high school classrooms "is all set up so that if you make a mistake, you lose points and when you lose points, your grade suffers." He added, "Being right all the time doesn't encourage learning as much." Research participants acknowledged that students can complete coursework, such as completing a fill-in-the-blank worksheet, just to get it done and not learn anything from assignment other than to copy answers from the text and earn good grades. On the other hand, they observed that students can be engaged in class and yet fail to complete or turn in assignments. This failure to complete or turn in completed assignments is not seen from the students' perspectives as a lack of cognitive engagement, but as a non-compliant boredom behavior, similar to research findings; when students become disengaged they are bored (Briedenstein, 2007; Intrator, 2004; Yazzie-Mintz, 2010).

For classroom activities participants considered to be non-essential, some participants admitted to just playing a role or to acting in a compliant manner in order to appear to be cognitively engaged. Brad reported, when discussing educatorss use of participation points as part of the grading process in the high school classroom, "It's not like a test. I'm not being graded on whether or not I'm talking right now, so why bother. You don't want to

sound stupid by saying something someone else just said, so you just sit and nod your head once in awhile looking interested." Use of participation points by educators was exasperating to the students and undermined their desire to be cognitively engaged and to learn at higher levels in the classroom. As Kaiser stated, "these lower levels of playing the game of looking interested or memorization and routine is what [students are] graded on, but higher understanding that we're trying to strive for isn't necessarily rewarded as much." This higher understanding could come from high school students participating in reflective journaling, responding to higher-order questioning from instructors and authentic demonstration of learning targets.

Participants made comments about playing a game of perceived engagement with teachers to aid in the challenge of making it through a boring class. Barb commented, "If you look at [the teacher] so you don't get yelled at or called on type of thing, they give you the worksheet and you just have to do it and get out of class." Kaiser stated, "It's a game and the winners are the ones that don't follow the rules," meaning the winners go beyond the requirements of the teacher assignment to aid their own learning, rather than just completing an assignment for a grade. These responses help answer questions one and three posed in this research. Students are keenly aware of the ways in which they and other students are and are not cognitively engaged in the classroom. Completion of an assignment supersedes being cognitively engaged at this level of mere compliance. Students spoke candidly of their own and classmates' boredom and annoyance when classroom requirements were perceived to be a waste of their time and energy and something to just get done versus learn from. Ron responded, "I still don't understand why we have to do so many [math problems] when she can tell if we understand it after five problems, max!" Students express resentment when

having to devote time, during or outside of school, with tasks deemed to be a "waste of time." Expressions such as "zoning out," "being bored," "losing focus," and "wasting time" were plentiful when this topic was discussed. Katie reported, "A lot of classes I guess just do PowerPoints, take notes, read the book, read part of this chapter over and over, and that is really boring. [It's] not really engaging or [offering] any information that really interests anybody." Students reported that this repetition in learning experiences added to their lack of cognitive engagement.

An understanding of their own standard of cognitive engagement was not something the students had put words to before the IPI training, but once they learned the concepts that equated to higher and deeper learning levels, research participants were able to identify the types of learning experiences that matched levels five (student verbal learning conversation) and six (student active engaged learning) of the IPI. Tim reported, "The sixes were mostly the funnest classes because they had speeches and it was more like an authentic environment." This statement helps answer research question two of this dissertation. Students are able to able to determine their own levels of cognitive engagement in classrooms after participating in IPI data training.

Research participants, after participating in IPI training and data collection, related that their own perceptions of academically lower-performing students in high school is that they do not wish to learn and are not cognitively engaged. Simply stated, "Some students care and some do not", said Mia. "A lot of them would just rather have it easier than we have now and get stuff done, just so they don't have to do anything more. A lot of students don't have a work ethic" (Katie). Research participants acknowledged that some academic work might be difficult for some students due to language barriers, learning difficulties, or teacher

behavior. Katie reported, "Some of the things that were taught in one class before could be wrong to the next teacher that you have. I noticed this when I was IPI data collecting and from one level of a class to another during my observations." Katie went on to say, "What one science teacher taught was different than the other science teacher and that's hard to adjust to for anyone." Overall, research participants felt that if students remained cognitively engaged in the class and put in the work needed to pass the course, they could be successful, if success is defined as passing a course or graduating from high school.

During IPI data collection, when observing students who did little work with modest effort and minimal engagement, the participants perceived those students as impeding their own learning. On the other hand, said Alex, "You feel like you can't push them a lot, either, because then they'll just shut down." Participants became encouraged to know that their own teachers were aware of and involved in the IPI process, either by being trained as IPI data recorders or serving as members of a collaborative team that reviewed the IPI results and discussed instructional strategies that increase higher-order and deeper learning experiences. This collaborative team process will be explored in Chapter 5 of this research.

Focus

Focusing was expressed as compliance regarding what was being requested, either explicitly or indirectly, by the instructor. Going along with and not impeding the teacher's plans for the lesson – listening, following directions, or taking notes – seemed to help students tolerate the time in class. Kory verbalized this by saying, "Every day you know you're going to go in there and you're going to sing for forty minutes and then you'll leave." Kory and others reported that as a way to stay more focused and cognitively engaged in classrooms, they wanted more variety in the classroom from day to day, and at times they

created this variety to gain focus for themselves. Katie reported, "I feel like classes that we did get off topic were a lot better than the ones where we just sit there and stay on topic the whole time." She went on to say, "But if you ask a question, I mean, not purposely off topic all the time, but just if you ask a question you'll feel more engaged. Maybe it'll spur other people to ask a question," thus providing a focus for the students to become cognitively engaged in the classroom process. Kory offered this description of focusing in a class with activities developed by the instructor: "It's always about the games and being involved, and that's mostly the learning style [designed by the instructor]. Maybe I got more out of class than most people did by focusing versus just participating." Students became aware of their own modes of staying engaged in high school classrooms.

This research unveiled that another teacher behavior that seemed to impede cognitive engagement within the compliance theme is the use of wait time. Students perceived that when teachers stretch out wait time, to encourage on-task behavior of certain students, this can initiate cognitive disengagement in those students who were trying to attend to the classroom learning experience. Brad reported, "He (teacher) could have moved on with other people's questions about that or something else." This teacher behavior was seen as a classroom management tool, but one that undermined, rather than reinforced, cognitive engagement in the research participants. One student reported that teachers would often ask questions to test students to be sure they were paying attention. "He'll ask a question and then he'll just call on somebody and if they don't know it, he just sits there and like waits" (Bob). Whether cognitively engaged or not, the participants were aware of the importance of paying attention and focusing. Barb reported, "I lost focus waiting for that person [to respond] and then when [the teacher] called on somebody else, it caught my attention again."

Katie responded, "I feel like I don't really want to do anything else (during wait time). We sit there too long and so then I just, I don't know, kind of space out." Wait time tactics, enforced by teachers, did not necessarily mean the participants thought the teacher behavior was justified; only that the students perceived themselves to be respectful and wanted others to judge them to be engaged and focused – even though they reported that they sometimes felt punished as a class by this type of teacher behavior. Students understood the purpose of "wait time" to be a way for teachers to get the attention of off-task students, but also implied that teachers at times unintentionally cause students who are focusing to cognitively disengage.

Comments voiced by the participants in the preceding paragraphs are noteworthy. The students voiced connections between levels of cognitive engagement affected by compliant behavior, completion of learning tasks, meaningful classroom activities, the ability to focus, and having a classroom that is managed well. These research participants clearly preferred not to fake engagement and reject compliance with school tasks as sources of any lasting satisfaction. These findings suggest that these research participants do not want to go through the motions of appearing to be cognitively engaged; rather, they want to participate fully by being cognitively engaged in classroom learning opportunities that are at the higher-order and deeper learning continuum as described in the IPI protocol.

Theme Two: Engagement as a Response to Feedback/Encouragement vs. Disengagement

Compliance as a form of engagement, described in the preceding section, generates extrinsic rewards for students, such as receiving passing grades. The second theme defined in this dissertation, cognitive engagement as a response to feedback and/or encouragement

versus disengagement, refers to another extrinsic motivator: support, encouragement and feedback - or the lack of this type of support - from educators within high school classrooms. Lack of feedback or encouragement or disengagement is displayed in multiple ways, including the student(s) and instructor not focusing their efforts on any cognitive task associated with learning within the classroom.

Research participants feel cognitively engaged and connected to learning when they are involved in giving and receiving feedback with their classmates and instructors in the learning process. This was evidenced in others within the classrooms observed during IPI data collection. Mia stated, "It was cool seeing how the ag students worked together, grew their own plants from seed and then planned to sell their produce at their plant sale." Research participants also saw and experienced cognitive disengagement when teachers allowed Level 1 of the IPI (students not engaged) to be experienced in high school classrooms. Kory replied, "It was chaos in that classroom when the teacher didn't take control of the behavior of the students." Research participants felt that having the teachers discuss these IPI findings with other educators would help increase the cognitive engagement levels of students within the building. Brad reported, "Because we learned about [IPI protocol] and then we saw [classmates working together as well as being disengaged] in the classroom while data collecting, we got different IPI ratings and we all learned from it." Having teachers engage in reflective practices on the types of instructional strategies that increase levels of cognitive engagement is part of the IPI protocol.

Being Recognized and Recognizing

Students reported that they gained feelings of "satisfaction" and "self-respect" based on sharing their learning with others. Kaiser spoke about working with adults outside the

classroom during his internship experience. "I have to be able to explain [my decision making to them.] This experience has taught me that I need to be able to understand things at that level so that I can explain why I did something the way I did it." He said this experience was quite different than he experienced in a high school classroom setting; he felt his internship learning was deepened due to this sense of having to defend the "why" of his decision making. Being recognized by his internship supervisors for his ability to defend his "why" helped deepen Kaiser's cognitive engagement with his internship experience. Students participating in educational experiences outside the traditional high school classroom are typically not valued by educational institutions. This will be an area for future research discussed in Chapter Five.

Reciprocal teaching, where the students take turns assuming the role of teacher in leading dialogue (Palincsar, 1986), was perceived by the research participants as a way for students to become more responsive to new learning opportunities. Kayla spoke of working on a robotics team: "It was so much easier to learn from students who had experience with the machine from the year before, instead of just reading the participant packet." Students reported that obtaining praise from other students or teachers and the acknowledgement of others' engagement levels in a classroom helped increase their own engagement levels. "Usually if it's another student talking and you can tell that they're interested, it makes you interested" (Kayla). Katie said, "It's better just having somebody there that will help you understand." This technique of putting students in the facilitator role may be intimidating for some educators. Research participants acknowledged that at times the teacher is the best conduit for learning, and at other times classmates offer insight in a more understandable way. Ron stated, "In fitness class [the teacher] tells us the proper technique to do a squat, but

it's great when my partner actually shows me the correct technique." As participants reflected on IPI data collection, they noted that some classes offered more opportunities for this type of reciprocal relationship between students, such as within fitness and conditioning classes, where students "spot" for one another during weightlifting activities, and industrial technology courses, where students were involved in problem solving regarding angles of cuts to make in boards for the completion of a shed being built by the entire class. Bob noted, "Certain classes require higher level thinking. Shop classes require students to work together to create some fairly sophisticated projects." Research participants can identify the value of students in these two particular classrooms being able to communicate, give feedback to one another, and work with one another and recognize the various skills needed to accomplish the required tasks.

Ron reported that being recognized for one's performance is important in the athletic arena, as well as the classroom. He reported that he'd like to hear from coaches, "Hey, nice practice today." Connecting that type of feedback to the classroom Ron went on to say he'd "like to get stickers from instructors or have them put personal comments on report cards for students." Katie shared, "I feel you need to benefit the kids a little bit like the kids that work their tail off at practice every day." Alex said, "The more you're involved, the more you'll try. I felt like if people aren't getting any involvement or encouragement, then they're not going to want to do anything and maybe that could carry over to their educational life." Research participants also expressed their concern for students who do not have the ability to grasp concepts quickly, especially when teachers don't recognize when these students need extra help. Bob said, "You can apply everything you learn to everyday situations, so you're not like that guy that is sitting there not knowing what to do." His tone was one of sympathy

for students in that particular situation. An implication of these findings is that educators may need to find ways to challenge, connect with, and reward students in high school classrooms.

Teacher Influence

Learning is viewed as a process in which the learner actively constructs or builds new ideas or concepts based upon current and past knowledge or experience (Dewey, 1922). Research participants reported that when students encounter a new learning experience within the classroom, educators must recognize the unique abilities of each student in the classroom and provide specific tailored feedback and encouragement to each of them. Kayla affirmed that participation in the research project "actually got me thinking about the teachers themselves because then you realize it's sort of a difficult balance between learning the basic-fact part before you can do the deeper thinking part, and each student may be at a different level in their own learning." In *Creating the Opportunity to Learn: Moving from Research into Practice to Close the Achievement Gap*, Noguera and Boykin (2011) support teachers focusing on conditions for learning which include meeting the needs of the individual student, peer support for teachers, and teachers being motivated and excited about their content and teaching this content to students. Individualizing instruction, recognizing and giving specific feedback to each and every student, is not an easy task for high school educators who typically have seventy-five or more students in their high school classrooms on a daily basis.

Students also reported that feedback from teachers was important and desired and can be shared in different forms. Alex said, "Sometimes for high school, the whole goal is to be involved, like the more you're involved, the more you'll try, I guess. In school I feel if

people aren't involved, then they're not going want to do anything. Teachers and coaches can influence people being involved by giving us feedback." Tim jumped in saying, "Give me some feedback or something." When I asked what type of feedback students get from classroom teachers, Bob responded, "Not really enough." At this point in the conversations, students started talking over one another and Tim said loudly, "They might put like stickers on my work." This comment made the other participants laugh, and the conversation evolved toward comments on report cards. Students reported that they like individualized comments on report cards and not canned comments. Kourtney said, "On report cards [teachers] put the same thing for every kid." Kayla replied, "My report card didn't have any comments." Tim responded, "I've gotten a teacher multiple times that'll write something and they write the same exact thing every time I get them." Mia said, "It's like, 'Oh we can put this, let's just click that for [a student]." Kory responded, "I understand they have a lot of kids to do that to, but it's like they're not even putting their time like they want to be doing it." I asked, "So you want more feedback? You like comments on report cards, but the feedback that you get you want it to be personal?" All students agreed. Students also reported they shared their comments with one another. Alex said, "In our [X class], there were multiple people with the exact same thing on report cards." Ron responded, "When you get them in class, you're like, 'Oh look, I'm this' and [the other student] is like, 'So am I. We're both hard working, yeah!'" Kory reported, "I'd like how Mrs. D changed her classroom grading from a grade scale to specific learning targets. I now know what I know and what I need learn with this grading system. It's much more specific feedback for me to reflect on." A recent ASCD blog post on student engagement stressed striking a balance between praise and feedback. Feedback is necessary to ensure learning, while praise may

encourage effort (Harris, 2012). This area will be addressed in my recommendations in Chapter Five.

Research participants were concerned when teachers make subjective comments about students based on their own experiences with the students or activities the students were or were not involved with. Bob said teachers sometimes "know you in a different way than just the classroom" and Kayla responded, "which isn't always fair." Mia drew the conclusion that students who are not active in school activities might suffer in their educational lives, stating, "If teachers don't recognize or know you based on a sport or school activity, they might not work as well with you." Educators need to make concerted efforts to recognize and provide specific feedback to each of the students in their classrooms.

Bob said, "[The teacher] specifically made the day more engaging because a majority of her class got back to school late…and she specifically said, 'Your assignment today is to get rest.' We did our vocab card and we did a game and we did a worksheet, but it wasn't anything strenuous." Educators who pay attention to the students and change their plans based on the behavioral feedback received from students was viewed as an important factor to the research participants. On the flipside, Kory reported, "You can't really even talk to [teachers], or ask them questions, because they're so focused on whatever they're doing, and they don't care about you at all." Participants reported how their engagement was influenced by teachers and that it was easier to work hard, start and remain interested, and pay attention when teachers promoted cognitive engagement by explaining the rationale and reasons to be engaged and also monitoring the class's learning. Bob reported, "Mr. [X] does that. He watches the entire class period and gives us feedback, so we know when we are doing [class work] right." Bob shared, "She tries to have a variety of things, but sometimes it's like we

don't spend enough time on something, or we just jump around all the time. She needs to read her students better." Students also reported being cognitively engaged when teachers prepared classroom lessons and scaffold learning activities in order to foster cognitive engagement along the higher-order, deeper learning strategies end of the continuum based on the results (feedback) of formative and summative class data.

One student said, "I think some teachers make it a point to try to change things up some and change the curriculum" (Bob). Students want teachers to create the conditions and structures that meet the needs of the individuals in the classroom, not of the curriculum. When asked about how students know that a teacher wants them to learn, Brad responded, "Because I can tell when they go out of their way to help me learn. I could go in at any time and ask for help and they're there to help me. They give me extra stuff to work on at home or we have their phone numbers and their e-mails [that say] 'I'm here to help you learn this.' Brad reported, "She was a good teacher…her style was to work with all students and she made kids respect her." Students were complimentary of teachers perceived as being engaging in and of themselves, not only with the students in the classroom, but also with the content being taught within the classroom.

Although students had divergent views of which specific teaching approaches fostered student engagement before completing the IPI training, they were much more succinct in their descriptions after learning the language of the six categories of cognitive engagement described in the IPI protocols. Katie replied that before receiving IPI training, "She engaged us well, I guess." After IPI training Katie gave this feedback, "It seemed to me like a lot of teachers, at least when I went around and [collected IPI data], there were quite a few teachers that weren't really doing anything. They were just kind of sitting in their rooms

letting their students do whatever. I think as soon as they saw someone walk in, then they acted. You could tell that they weren't doing anything before; they made an effort to make it look like they were doing something to engage the students when you walked in." Educators who are not authentically participating and cognitively engaged in their own content and curriculum or using strategies that promote cognitive engagement (partner research, peer tutoring, debate, or reflective journaling), did not dupe the research participants in this dissertation.

Student participants wanted teachers to be sensitive to their needs (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003) and are open to teachers who make an effort to listen to student voices. Kayla said, "Even if one kid speaks up in the class and doesn't get it, if they're (teachers) willing to help them individually and change completely how they do it, even if you're not the person getting helped, you know that they're willing to do it and that just makes you more willing to learn, because you know if you don't get it, you eventually will." Educators' feedback and recognition of students' needs in the classroom can have an impact on the perceptions of students within the classroom.

Participants expressed higher esteem for teachers who created a learning culture that demonstrated the importance of the understanding of their subject. "When they walk around and ask 'Hey, you doing okay,' I feel like I can ask them more questions and learn more than if they're just sitting at their desk on their computer or what not" (Mia). "I love it when she (teacher) talks about her travels around the world. It really helps me connect what we are learning" (Kory). Research participants reported that they liked teachers who were able to help students engage in their learning and teachers who were intensely engaged in their teaching.

Students reported appreciation for teachers who had genuine passion for their subject areas and disdain for teachers who made the classroom learning experience take a back seat to other activities. Ron spoke of teachers who made sure students were engaged no matter what: "I appreciate teachers who are really present during class time. They're only in the back of the room correcting papers when we are not in the room. They really made sure we knew what was going on when we were in class." On the other hand, Katie shared, "I hated being in Mr. M's class. He'd have a phone call and have us check our own papers and we never turned it in. He would never know what anyone got." Alex reported, "He kind of just gave you an assignment and then he'd sit at his computer the rest of class… not caring at all what we were doing." Research participants were very perceptive as to how teacher behavior impacts cognitive engagement in the classroom, both in a positive and negative way.

The interview protocol did not include specific prompts regarding the pace of instruction. However, students offered much feedback about their own behaviors to keep the class progressing, including asking questions, participating in group discussions, and giving feedback to instructors about the relevancy and interest of the topic, as well as contacting the teacher outside of class to continue the learning. Kayla reported on class discussions: "Oh, and back into the interesting part of discussion, with certain classes it works and sometimes it doesn't, but if we can have full discussion on something – on a book or something we become cognitively engaged." Brad acknowledged, "And you all kind of look out for each other too. It kind of drags you down [when others don't participate]. You want to move forward with the discussion." Research participants are very appreciative of recognition and specific feedback that educators give to students about their behavior both in and outside of the classroom.

Theme Three: Engagement as Enjoyment and/or Interest

Aside from compliance, feedback, and encouragement received and given by others, participants reported that an important component of cognitive engagement, either for themselves or for students they observed, was being interested in and/or enjoying what they were being asked to do with the content being learned. Alex stated, "Maybe just like a video (on the subject) or something in between, or like the way [Teacher X] did in the Jeopardy game, that keeps me into it," referring to being engaged. When students perceived the learning to be enjoyable, their cognitive engagement increased.

While engagement in the first two themes involved an external pressure or influence, in this theme, engagement became more intrinsic, based on the students' own enjoyment and interest in the subject or academic task. In the first hour of IPI training, Alex asked, "Why don't we do things like this in school?" referring to discussion of a video about the use and application of technology in schools, as well as a collaboration activity the students participated in. Research participants were put into pairs and asked to participate in an activity that required problem solving with shoestrings. One partner tied one end of a shoestring around their left wrist and the other around their right wrist. The other partner tied the shoestring around their left wrist and then placed the shoestring through their partner's and tied the other end to their right wrist to create a loop that connected the students together. Students then had to work collaboratively and give each other feedback on ways to problem solve and find ways to detach from one another. As they worked to find solutions, participants questioned me as to why there are not more activity based learning experiences in their high school classrooms. "I really feel we are engaged as we are doing this (IPI training) and having fun" (Kory). Research participants reported that they found the

shoestring activity and other team-building or process-oriented activities that are similar in nature to involve cognitive engagement with higher-order thinking. "I never knew that thinking about my own learning could be so deep and fun at the same time" (Mia). Educators could incorporate activities that develop deeper thinking skills to promote student verbal interaction and higher-order questioning skills to increase cognitive engagement.

Perceptions of Teachers' Roles in Creating Engagement

Participants shared that students want to be interested and engaged in their learning and that they feel it is critical that the teacher provide and facilitate engaging activities. Alex reported, "I feel like with most of the classes here, you just learn the stuff for the test and then you never use it again." Their engagement levels increased, the participants said, when being prompted by a teacher or an activity the teacher was intentional about in delivery. Tim said he enjoyed learning "when it doesn't seem like the teacher is like rehearsing for things. [I like it to be more] sporadic." Participants also reported that teacher-directed lessons foster students experiencing connections. When asked about ways teachers can make these connections, Tim replied, "Make tests ones you actually have to study for, review for. Or use essay questions." Elaborating, he said, "Make the test higher stakes so they actually have to [study] if they want to pass the class." These answers pertain to my first research question, in that students are aware of what cognitively engages them in the classroom.

Interest in learning was stimulated when students saw connections with their personal lives. Field trips were described as a way to make this connection. Alex reported, "Like the field trip when we go see a cadaver and learning about the muscles, I learned a lot." Interested in becoming an athletic trainer, Alex made a connection between what he saw in the cadaver lab and what he would need to know in the future. These types of experiences

can be expanded in schools by using technology such as Skype or FaceTime, without adding the expense of transportation and substitute teachers.

Students connected their comprehension of cognitive engagement to their interest in the academic challenge and began to comment specifically on the perceived link between their own cognitive engagement and their higher-order learning and how teachers play a huge role in creating the culture that supports this comprehension for themselves and others. Alex enjoyed "moving around" versus "sitting in the same spot for eighty minutes" when describing how teachers could make the time spent in classes more meaningful and a better learning environment. Tim reported, "I love it when a teacher poses a question and we have to find solutions with our partners and then present the information in class in some format we determine." Learning opportunities, such as chapter reviews in the form of games developed by instructors, multi-media presentations involving research from various academic sources and shared with peers, and practice problems developed by students from the lessons were mentioned as activities that were interesting and enticing and held the students' attention, leading to a desire to understand and increased cognitive engagement.

I said to the students, "You want to learn more and you want to make sure that it all connects and you can find relevancy in it. When you think about all the other students you've had in your classes, do you think that all students want what you guys are saying?" Multiple students replied, "No," "No way," "Not even half." Katie responded, "A lot of them would just rather have it easier than we do now, just so they don't have to do anything." This perception was held by the research participants and not confirmed with other students who were not part of this dissertation research.

Study participants reported having opinions about topics in the classroom, but not always being willing to share them in class. In some cases, students became more willing to share their thoughts and feelings when their personal interest in the subject was high. Alex spoke of learning about muscles in a fitness and conditioning course: "We would ask a question, but then it would like relate to sports somehow…then it would like connect somehow there… and this helps in extra-curricular activities." Research participants also reported that they felt uncomfortable in some classrooms asking questions of teachers. Bob said, "Sometimes I feel like if you say something like, 'Well, can we have some help?' you're kind of insulting their teaching, because I feel like I'm second guessing what they said." Students reported not wanting to question an authority figure or to give the impression that the teacher was not communicating in a matter that facilitated learning. Katie said, "Sometimes with some teachers, you don't really know if you should ask questions or not." Alex added, "Some get angry." Barb said, "If she explains something, she does not want to have to explain it again," which prompted Katie to add, "And she expects you to like remember things, like from previous years. If somebody else that is really into it will say something, that's okay with me, so I don't have to ask." She felt relieved when other students asked questions. When research participants were asked what can be done to help students who don't have confidence in their learning, Bob replied, "I feel like they just give up, they completely give up. We [students who understand] still kind of ask questions I guess, but they just don't do their work if they don't understand or are not interested in it because they don't want to ask that question." He went on to say, "And if a smart kid in class knows and understands it, then they're like, 'Well, I feel dumb just asking,' because they don't want everyone to look at them and be like 'You really don't get this?' I feel more

obligated to try and ask a question I guess. I think of a question to ask." Students also suggested that peer tutoring may be helpful for students who are struggling. Ron reported that he would like to tutor. "Someone who knows it more could help [other students]." He also said, "For people who are better at a subject…if they sign up to tutor voluntarily, maybe sometime…have a pizza party for them?" Students report that they are hesitant to ask questions of teachers and that other students, who are less gifted academically, may need extra help in learning the concepts from classes. Kayla recognized, "I was new and there were so many people. [The teacher] didn't have the time to really teach the new people. I want to compare it to our [IPI] system: I never learned the two, three, and four part, so I couldn't do the five or six that the other people did." Research participants are willing to help struggling students do better academically, as long as it doesn't take away from their own learning, and they'd like to feel more comfortable asking questions of teachers.

Higher-Order Thinking as a Key Element of Engagement

Students described the satisfaction of completing activities that require higher-order thinking, interest them in the classroom, and add to their cognitive engagement. Barb reflected on creating a video project, "You kind of become an expert on (the topic). I would consider that way better." Students reflected on how to facilitate their own learning. After IPI training and data collection, Brad reported, "I notice more when I'm just sitting back and not doing anything. It makes you think a lot more of what could I be doing in this time." He had learned that he is responsible for his learning, even when not being directed by the instruction. Responses such as these are relevant to my second research question in that student's perceptions about their own engagement differ after participating in IPI training.

Active listening, intense interest, and focused attention emerged as potent indicators of building higher-order thinking capacities within the students. Kourtney expressed dislike for students in the classroom who are inattentive or distracting others, stating, "You can tell a lot by their posture – if they just sit back and push their stuff away. That drives me crazy." Research participants observed this type of behavior during IPI data collection, commenting about students who gave up and stopped being cognitively or behaviorally engaged in the learning. Brad reported, "These disengaged students are present in the classroom but off-task from the learning goals of the classroom, which are stated on each classroom whiteboard." These responses related to the third research question in that students' perceptions about other students' cognitive engagement differ after participating in IPI training.

Finding Enjoyment in the Work as a Way of Engaging

Participants correlated enjoyment or a sense of having fun in the learning with increased cognitive engagement levels. Alex said, "The more fun I have, the more I learn." Students listed characteristics of this fun and enjoyment as the level of challenge or rigor of the activity/learning, the purposefulness of the task, the opportunity to choose different learning options, learning about oneself, learning about other people, and the connection of the learning to future plans. "When we really have to create something to share with the class on a topic that we've chosen, that is when I really feel I've like learned," replied Mia. When asked what was enjoyable in a classroom, Alex responded, "Anything out of the ordinary that's related to the class like any form of videos associated with the material versus just learning out of the textbook." When the work was fun, the students referred to their desire to do the work and extend their learning.

Students are aware that their cognitive engagement, or lack thereof, was evident to other students and vice versa after participating in IPI training. "We can look at one another and not say a word and know what the other is thinking," shared Kourtney about a class she and her best friend had together. The awareness of other student's cognitive engagement became even more apparent as participants learned about the IPI data collection process. "In classes where you just stayed for a few moments, you can see the people that are like, 'Okay, I don't understand this,' but they don't say anything and don't ask anything…they just want the class to end" (Katie). Katie went on to say, "Sometimes they [other students] have a negative attitude and [don't want] to do it because they don't understand, so they just start saying that they don't want to be here, they're really tired of it, and start making excuses." Bob added, "Also I feel like if a student doesn't get it, they're less willing to reach out for themselves. Maybe if a teacher asks them, then they would be more open." Participants reported that their own awareness of cognitive engagement peaked after being trained in the IPI process and collecting data. Barb conceded, "I'm not very engaged. Maybe it's senioritis, I don't know." Kaiser reported, "I'm in college classes right now, so I kind of have to engage myself in some of it, too, but [IPI training] definitely makes you more aware of what's going on while you're sitting there." Kourtney agreed. "Before I knew about [IPI training], I just had those days, but then now I know about it and when I have those days I'm like, 'Okay, I really gotta buckle down and pay attention." These responses relate to the second and third research questions in this dissertation, in that students' perceptions of their own and other students' cognitive engagement differ after participating in IPI training.

Theme 4: Engagement as Challenge and Rigor

Students commented that the need for lower-order skills to be taught before higher-order learning can take place was not apparent to them before participating in the research. Kayla acknowledged, "At first when I started it, you know you're on a scale of one to six, so automatically you're thinking, 'Oh, you should be getting sixes and fives and whatnot, and then you realize you actually need the two, three, and four parts to get to the five and six. That made me more aware, so that makes me think I've got to learn the basics before I can go on to the deeper thinking stuff." Kayla's comment provides evidence regarding the second and third research questions in this investigation: Students' perceptions about their own and others' cognitive engagement levels do change after participating in IPI data training and collection.

Beyond doing the work that is expected of them, or as a response to encouragement and/or enjoyment and interest in the work, students also perceived cognitively engaging experiences as those that provide a challenge and a connection to future use. This corresponds to the IPI level six, "student active engaged learning." Brad reported, "I think of most seniors who have the choice between senior math or pre-calc or calc. I think most of them are doing [a version] of calc to do a higher level [math course]." At this level six of the IPI, students are participating in authentic demonstrations, reflective journaling, or inquiry-based learning approaches, such as project-based and problem-based learning at higher-deeper learning levels. Ron reported, "We don't have comprehensive finals or anything like that. Our last test in the class is over the last chapter – it's a breeze." Barb added, "We don't have a crunch week or anything." Alex stated, "A lot of other schools have finals and then [students] actually know what kind of load it's going to be like, and we have no idea." These

research participants reported wanting more level six learning opportunities in high school classrooms.

Preparing for the Next Step

Students reported that high school did not really become challenging until they reached their junior year or took college level courses. Alex explained, "Like I don't know how to study for tests." Tim responded by saying, "Some of the tests you don't really need to study for. [The teachers] just make it really easy." Students reported that most of the tests they have experienced in high school have been easy to complete. Kourtney said, "Government was only a quarter so it wasn't like you had to remember for a long time." Ron said the tests were "all multiple choice and it's not hard at all." Tim added, "It's the bigger ideas of everything in multiple choice form, so it's easier. They don't have essay questions that really make you think and apply your learning." Students frequently made mention of high school as preparation for life's next steps. Barb stated, "I wish we had end-of-the-course final exams so that I'd be better prepared for college." Some connected school challenges with preparation for dealing with life's challenges. Katie said, "Sometimes for [high school] finals, if you were to fail the test, if you did well in the quarter, you wouldn't really drop your grade off. But in college it's more like if you fail a final then you might fail the class, for sure, and have to retake it." Students also described being bored with low-level and less academically rigorous learning activities, such as PowerPoints and taking notes over PowerPoint slides, especially those that have not been updated. Barb said, "You don't really think or process through" when taking notes over slides; students just get the information down verbatim. Katie spoke of "doing the same thing every day. You know the exact thing you're going to do – look at a PowerPoint, take notes, do a study guide. Two days later you

get another PowerPoint, take notes and then get a study guide." Barb described these activities as "awful," reporting "I just personally work better in a group…if I don't understand something, I get everyone else's help." These research participants want to be academically challenged with rigorous coursework.

Reading out of textbooks and doing individual work was also seen as a low-rigor activity requiring little cognitive engagement effort on the part of the student. While able to see a disconnect between high school and life beyond high school, these students want to be challenged in high school classrooms in order to be prepared for what's ahead. Increasing opportunities for high school students to participate in higher-order thinking skills, such as preparation and partaking in comprehensive finals over coursework or authentic demonstrations of learning over the course of a class would increase cognitive engagement in high school classrooms.

Not all research participants, however, accepted the premise that doing poorly academically, as discussed in the focus groups, could be equated with the absence of engagement. Participants noted after IPI data collection that a grade could be misleading as an indicator of one's engagement; a student could try hard and be very engaged in the work and still not have high marks in reference to a high score or grade. Kory said, "I work with a student who doesn't speak English as his native language. We work together to complete his assignments and he has a very hard time even reading what is required of him, but he gives me the impression he wants to learn because he can tell me what happened in class. He just can't read what happened in class." This is an example of how a student could perform poorly academically, based on classroom assignments, but yet be cognitively engaged in the

classroom. These reflections are similar to those described in Theme One: Compliance and demonstrate an overlap among the themes.

Students described being engaged on the higher-order end of the spectrum when they were stretched to think about the learning in a different way. Ron said, "Good grades are really important, but at the same time, I feel like it's really what you get out of the learning [meaning the concepts and skills]. But at times I feel I'm not really learning anything I'll need to remember later in life." Brad discussed the IPI training with his mother, telling her "All educators should learn about this (IPI) to help make classroom learning higher-level and more engaging." Brad's mother reported this to me during a conversation at parent-teacher conferences. Another example of students sharing their knowledge of cognitive engagement and the IPI process was shared by a teacher in the building this research was being conducted in. "Brad told me that he was learning about the IPI and he could tell when my classroom was a five and six." When students described being engaged by higher-order learning, they referred not only to challenging work, but also to increased levels of cognitive engagement. This is echoed in other research as well (Fredricks et al., 2004; Harris, 2008; Martin & Furr, 2010; Marzano & Pickering, 2011). Interestingly, my research participants found enough benefit in the IPI process to share their learning with others, which provides evidence for research question number two.

Becoming Meta-Cognitive

As research participants engaged in meta-cognition – an awareness of their own thinking and analysis about their own IPI engagement levels within a learning session – and proceeded to share this awareness with others, the research participants spoke with confidence about themselves and shared some interesting illustrations to describe how they

thought their thinking and learning differed after participating in the IPI training and data collection. Kory reflected, "I learn better hands-on…I feel like I am actually learning something in this (IPI) training." Students also reported that learning is better "whenever teachers present the material by asking questions about it, as opposed to just stating the facts. It forces the students to think a little more, pay attention" (Ron). Questioning is a research-supported strategy that teachers can use to influence students' cognitive engagement (Hattie, 2012). Tim reported that the IPI training helped him to "be able to understand and apply it" when referring to ways to enhance cognitive engagement. These responses provide support to the second research question in this dissertation, in that students' perceptions about their own cognitive engagement change after participating in IPI training.

As noted earlier, students also identified the necessity of being taught factual concepts and skills before being able to perform and learn at the higher levels required in authentic demonstration or inquiry-based opportunities. "I think they [students and teachers] may spend a little more time on the two, three, and four part because they can't really do the deeper learning if they haven't grasped the basic knowledge part" (Kayla). Participants also recognized that they learned more about themselves as learners – in other words, became more metacognitive – while participating in the research project. "I've maybe thought about it before in general terms, but this is like putting labels on what I'm actually thinking to get it narrowed down to what I'm thinking. It gives it a better path" (Kayla). Desire for learning and performing well was something many participants described as they discussed the importance of classroom engagement in the ability of the learning to reach higher-order and deeper learning. Kaiser said, "So we have to be equally focused on everything in order to get back what you like." These comments speak to the second and third research questions:

Students do think differently about their own and other students' engagement in classrooms after participating in the IPI protocol training.

Students had thoughts about what skills they were currently developing that were beneficial for their current and future situations. Completing sample problems in front of peers "makes you think more about it" (Barb). Barb, Bob, and Mia reported that "mental math, communication, and writing skills" were all cognitively engaging tasks deemed important for the future. Students are also aware of their options for future work and are very cognizant of the feeling that they want to be engaged in work as well as school. After participating in a camp that focused on future career options for high school students, Kourtney shared a new recognition: "I don't want to have to get up at 1:00 in the morning and work until 1:00 in the afternoon and never see my kids and never see my husband and never get to have a Thanksgiving. I can't do that." She went on to say, "You have to figure out what you want to do or realize it's not something you want to do, and then you've got to try and redo everything and it's pretty stressful." These comments correspond to the first question I hoped to answer with this research: Students are aware of what engages them.

Personal Satisfaction from Conquering Challenges

When students discussed higher levels of cognitive engagement with rigorous activities, they did so with an overwhelming sense of accomplishment and pride. Kaiser reported, "When I don't understand something, I can't teach it, but when I really do understand it to the last detail, I can teach a student how to do something. I can think of it in different ways." He added, "I've learned more from being wrong than I have from being right and I'm proud I can say that now; I couldn't when I was a freshman. I never wanted to be wrong then." Bob added, "Yeah, I love to be able to help other students understand

something that I've struggled with." Having students work with peers to reteach and explain their thinking increases cognitive engagement levels in students and supports potential struggling learners with new lenses for understanding.

Theme Five: Relationships and Expectations

The quality of the teacher's own engagement in the subject matter being taught really mattered to the students. Participants praised teachers who created connections and who helped them engage with their learning. Kourtney reported, "When the topic relates to us in some way, like when we're sitting in math and we're asking, 'How are we actually going to use this?' and the [teacher] actually explains, 'If you go into this [career], you'll actually use it,' that helps." Teachers also helped create cognitively engaging classrooms through the relationships established with the students. Alex said, "I feel like the more a teacher connects to you as a person, I feel more apt to want to listen to them." Students agreed that younger teachers were more apt to develop good relationships with students. Ron said, "I feel like the younger teachers can relate to you more too since they were recently in your position, so they understand different things that [are] happening." When I told the students that the teachers they had named as developing good relationships with students and having engaging classrooms had been in the teaching profession for over fifteen years, one participant made this generalization: "I think it's really best if the teachers act like they want to be teaching, because frankly after conducting the IPI data collection, some teachers seem like they're here so they can have a career and get paid a living wage and that's about it" (Bob). Students were clear about teachers who appeared not to be engaged. "They bring their personal lives into school. [They might be] having like this horrible day and you just say something and they will just snap at you" (Katie). Ron said pointedly after completing

IPI data collections, "Some teachers just seem like they hate their job." These comments indicate students are perceptive to the classroom culture being built up or torn down by classroom teachers' behaviors and actions.

Participants were very in-tune with their own expectations for learning. They wanted to make others proud, to be thought of in a positive way, and to have others find their academic abilities impressive. "Not to sound arrogant, but I'm rarely in those situations where I don't know what the teacher's trying to say. More often I'm in situations where I have the feeling the teacher is wrong in what they're saying. I've learned to not confront them in front of class because it…can take away from the teacher's authority" (Kaiser). Conflicted as to how his actions would impact others' learning, Kaiser added, "I feel that it's taking away from others because if you're being taught something that isn't quite right, they're going to continue thinking that is the correct answer." He didn't want to be known as the "know it all" to classroom instructors or others in the classroom. He experienced genuine turmoil in trying to balance being recognized as someone who understood the concepts being taught and being secured in knowing that he was learning factual information. An implication of this finding is in how teachers plan for students who are already competent in the objectives of a course.

Students' fear of being wrong in front of peers prompted protective behaviors such as not responding to teacher prompts to respond, or responding with "I don't know." Research participants claimed it was better to not speak up than to speak up and be wrong, embarrassed and feeling that they alone didn't know the answer. Kaiser eloquently stated, "There are still people who are afraid to ask questions of the teachers, so I don't know if it's just some mentality that they've learned when they're coming into high school, that they're

afraid to ask questions, or if it's they're just afraid because other teachers that they have are going to be defensive about being questioned." He continued, "It doesn't feel safe because I don't know where it started, but it's some sort of mentality that if I ask questions in front of everybody, everybody's going to make fun of me or mock me or the teacher's going to be upset with me because I don't understand or because I'm questioning what they're teaching." Students reported that if they were confident in their answer, they would respond to aid the instructor in moving forward with the lesson. Students' abilities to question both themselves and instructors within the classroom is an important component of higher-order and deeper learning which leads to higher levels of cognitive engagement.

Classroom Management

Students perceived that cognitive engagement and learning increased in themselves and others when a teacher met their expectations for classroom management. Tim reported, "I think it's best when teachers leave students on their own if they really make it a point to be going around the room and asking students if they understand the material, or even just looking over their shoulder and seeing what they're doing." A disorderly classroom, on the other hand, had the effect of impeding student learning and engagement. Alex, speaking about a class observed during IPI data collection said, "[Other students] kind of like walk all over her; she's not strict enough, I guess." When research participants found the classroom environment distracting during IPI data collection, perceived higher levels of cognitive engagement became more elusive. In one instance, during IPI data collection, Kourtney reported that the instructor said, "It's a one, Kourtney," when she was confused as to what was going on in the high school classroom that was being observed. Ron observed that teachers need to create a "constructive environment which includes a learning environment

conducive to higher levels of learning by establishing rules and expectations for student and teacher behavior." Research participants, when in classes with poor classroom management, tried not to add to the distractions of a disorderly classroom. "You know their boundaries. Kids walk all over them and you just know you don't have to" (Tim). These students are aware of how chaos in the classroom distracts from the learning that could be taking place if the classroom were better managed by the teacher. Classroom management will be addressed in Chapter Five as a way to increase student cognitive engagement.

Students were definite in their criticism of teachers who are unable to convey a clear purpose for class work on a consistent basis. "We were taught one thing and the next day that was wrong – that drives us crazy," said Kourtney. Students expected teachers to be organized and have clear learning targets for the lesson. When students identified a teacher as unprepared, their own cognitive engagement became fuzzy. Kourtney reported, "I had Mrs. [X] the first quarter and Mr. [Y] the second quarter, and Mrs. [X's] was really boring, but you still learned a little more from her notes and everything. Then when you get to his, it was just like I didn't get anything out of it like at all." Teachers deemed to be unorganized in their preparation and delivery of instructional lessons were described by the research participants as being hard to learn from. Brad expanded on this concept. "I'll just bring up Mr. [Z] for example since he's my basketball coach. It seems like he puts a lot more energy into basketball than he does in actual teaching, because I see him wandering the halls a lot, just when I have open blocks and stuff. It just makes me think, 'What's he do?' but then in practice it's all 'Let's do this and this and this.' I mean, everything's all planned out and good to go." One particular teacher was mentioned as promoting student engagement, due to her encouragement and high expectations that were continually communicated and

monitored. Kory said, "I kind of like what [Teacher A] does when we are translating text and she just goes in a big circle around the room and keeps stopping at everybody and asking them if they need help or if they have a question or anything."   Research participants became very aware of the strategies instructors might be able to employ to increase cognitive engagement in classrooms after participating in IPI training, and this awareness provides evidence for the first and second questions of this dissertation.

Meaningless or Low-Level Work

Meaningless or low-level work is seen as a component of the expectations students had in high school classrooms. Katie stated that she was bored when teachers use "the same PowerPoint from five years ago. They need to update it." When students perceive work to be meaningless – work for which they cannot see the relevance to their current learning or future career aspirations – they find it difficult to staying engaged in the learning. Barb said, "I can't stand reading Shakespeare. [For what job do you] need to know that stuff?" Educators who fail to help students find connections between the content in the classroom and the world beyond the classroom walls contribute to the perception of meaningless class work.

Students reported that being able to have relationships and verbal interaction with peers while being engaged in higher-order thinking, such as conducting partner research over a class topic, helped develop confidence. Kayla said, "I'm glad I got the training (IPI) and a chance to practice in a classroom and discuss with others what we thought before we went out and data collected. It made it a lot easier." Deeper understanding through analysis, problem solving, critical thinking, debate, authentic demonstration, and synthesis of knowledge were areas highlighted to demonstrate cognitive engagement with the

participants. Kaiser added, "If you've (teacher) been practicing solely equations, make us do word problems; this makes us think more." Alex spoke of another senior: "He helps one of the [middle school] kids that has been tutored and it's changed [the middle schooler], like he wants to come here because he has someone that he can talk to." Kaiser said, "Students aren't as afraid of being wrong [in a particular class] because when they're talking about current events, there's so much room in what you're talking about, that you could have been right at one point, but new information has come and you didn't know about it." Participants agreed that being able to work in project-based and problem-based learning helped them cognitively engage more deeply in the work and learn at a level that seemed to help make connections from the classroom to future employment or educational opportunities.

Holding up expectations of self, teachers, and family members was often mentioned by students as a way of encouraging the participants to do well in their academic and extra-curricular endeavors and as a reason some students do not do well. Kayla stated, "I could get A's with one B or something and my parents will get really mad. For some students, getting a B or even a C is really good work." Kayla elaborated, "A lot of their work ethic is not good, because if their parents don't expect for them to pass or graduate from high school, that's all they're going to try for." An area for future research may be an inquiry into how school personnel can encourage students whose parents do not hold high expectations for them.

Students did report that they felt they were developing such qualities as "good character" (Ron) and "a good work ethic" (Tim) that would benefit them and others in the future, even in learning or work experiences that required only low-level participation. These students also acknowledged they are aware of changes in academic setting in their futures and the ways participants are going to need to be cognitively engaged in their future

class work: "It's going to be harder in college if you don't work hard now" (Ron). "I know I have to study way more in college than I ever did in high school" (Barb). These particular students felt that they had little exposure to high-level learning experiences or being highly cognitively engaged in their high school classrooms, but they felt prepared for the next step due to their ability to produce good grades in high school classrooms and after talking with older siblings and friends who were in college.

When I asked the students how they knew they would have to study more in college than in high school, students seemed to be realistically informed. Katie stated, "My friend, Beth, has helped me understand the amount of effort and time I'm going to need to put into my coursework in college and it's going to be a lot different than high school." She went on to say that, "Beth studies at least three hours every night. I don't study that much in a week." Ron said, "I have three older brothers who have shared their experiences of what college is like." Research participants expect in college to be required to read multiple chapters of a textbook and take tests over those multiple chapters and a final over the course at the end of the semester at the collegiate level, with their grade only based on those assessments. This type of time commitment is not what these students reported they experienced in high school during this dissertation research.

Failure was seen as not learning in students' minds, but this was not always reflected in teachers' grading practices. Kaiser recognized, "That's the way it's set up, though, you don't care about how you get there, but you care about what the answer is. It's how [they] grade what everything's based [on]." Students reflected that higher order challenges might not correlate with high grades that reflect the effort put into the challenging learning. Kayla stated, "I think that's the big thing, is that in high school they just teach you to memorize.

It's memorize what's in the book and when it comes test time, you take what you memorized and you write it down. It's not really thinking in depth like a map of all the steps and why you should do whatever step at one point. It's just that's what you do, if you remember it, then you're good." Learning should include failure or struggle with the new knowledge; this struggle is a necessary step towards gaining new understanding. Brad shared this experience: "But you still have to figure out what you want to do and what you planned for, to do a really good job. I don't think any of the other classes really stress being able to solve problems by yourself." These research participants realize that in learning, failure and struggling are part of the process, but these students also report that classroom teachers don't see failure as learning; they see it as lack of effort or lack of turning in homework. According to students, the mismatch of expectations of students and teachers regarding learning that is engaging, delivered, and learned at high levels may be an area that education systems want to research.

Several of the participants expressed an unwillingness to participate or contribute in class where the relevance of the work to their futures and goals was not perceived or communicated by the instructor. Alex, in his vocal music class, wished for "learning musical terms and having quizzes and tests" to help connect the classroom with musical extra-curricular interest. Some students, cognizant of the benefits of achieving high grades or meeting graduation requirements, acknowledged that their effort, while enough to earn high mark in the class, did not equate to their own standard for learning. Ron reported, "If you're going be bored in a class, I guess try and think of a question maybe, like sway the topic or even just wake yourself up," to stay engaged in the class. Kourtney followed up Ron's comment by stating, "I know that I can do better and I really push myself to learn about things outside of class that will make what we are learning in class more meaningful." She

gave examples of reading magazines and listening to the news as ways to increase her own level of cognitive engagement in the topics being discussed in class.

Another indicator of students' cognitive engagement in the classroom was the quality of their peers' accomplishments. After participating in the IPI training, Kaiser explained that learning in the classroom is "focused to students that don't want to learn. [Teachers are] catering to the perfectionists because perfectionists don't want anything to be wrong, and they would rather be right in everything, than be wrong and learn." Students were able to identify quality work and rated themselves as highly engaged when other students were passionate and prepared during their own presentations. Barb, speaking about a classmate, said, "I mean he didn't force you to pay attention. He still connected with you like he knew your traits that you were best at. He encouraged you to learn from him in that way." Participants reported being more engaged in their learning when projects were something they wanted to do and deemed to be important to their learning. Brad reported, "[Teachers] don't realize that we do the same thing in every class. It's just a worksheet, worksheet, and worksheet. Really, we're doing the same thing all day, just in different classrooms, so it's really not getting us going at all." On the other hand, completion of challenging tasks created a sense of pride and students reported a high degree of engagement. Kory reported, "I still am having a hard time, and [the teacher] will be like, 'Oh, you mean this?' and I'm like 'Oh yeah, I mean that.' Classroom discussion is more comfortable for us and not embarrassing because, yes, we're all learning something completely new and knowing we are getting better." Engagement was increased by overcoming unanticipated problems in the classroom. Mia declared, "I'm not always confident in my answers or the things I do. So, if I feel like I'm not as confident, but then I still have the right answer, then I feel when people tell me to

say it…I'm good." Resiliency is a topic that I think might go hand in hand with cognitive engagement. Dweck's (2007) work on mindsets of students may be an area to help connect these two concepts in future research.

Students were clear in expressing their disdain for easy work not meeting their expectations for higher levels of learning and shared that they were not engaged when they were doing what they perceived as "busy work," such as completing worksheets or study guides or following along on PowerPoints. Tim reported, "If teachers were doing worksheets all day then they would know how boring and easy those are." Kourtney reported, "After I did my IPI data collection, I noticed that lots of classes show PowerPoints and have study guides and students in those classes seemed to be going through the motion of completing the work, not learning the work." Speaking on an expectation she has for herself, Barb reported, "Maybe I'm not saying this right, but I feel like the more engaged you are, the more you get out of it, and the more you remember from it – at least that's how I am. So, something where I don't care to learn and they're not making it so fun for you to learn, then I don't care to remember it." Students reported they saw these activities quite frequently when IPI data-collecting, and these types of activities do not meet their expectations of engaging classrooms and activities.

Study participants reported that hard work was a way to respond to a challenge, along with the extra effort required in thinking. Kaiser referred to the high expectations he has of himself: "I feel like me personally, if I know it, yeah I know it, but I never want to get below the point where I don't know it and people are like 'Seriously, you don't know what's going on?' type of thing." This student had high expectations for himself; he did not want to be perceived as not understanding.

Focus and Intensity of Connections

Research participants made frequent use of the word "focus" when describing higher-order thinking and striving to find connections with their learning. Barb replied, "I can't just sit and do study guides all day. I can't do that, otherwise I just don't get focused, I get off topic." When students reported being challenged with coursework, such as debating or questioning one another in the class, engagement levels increased and so did the quality of the work produced, especially when choice was involved in the learning. Barb explained, "[Instructors] already gave you a worksheet, so I don't know if creating worksheets would help [focus] more. Maybe if you're actually doing something." Mia commented, "I'm trying to think of how to word it. It just has made me pay attention better, like, I don't honestly know how to word it, but thinking that 'Okay, this is going on, well I need to try harder in paying attention or focus.' Not just counting on the teachers to do everything. I need to work a little harder in the classroom in discussions and everything." Structure and organization developed by instructors helped students understand the learning process and be more aware of what was expected of them in the classroom.

When engagement was at a high level, the importance of learning was valued. As noted earlier, Brad acknowledged after participating in this research, "Yeah, I've definitely noticed more when I'm just sitting back and not doing anything; [I] think a lot more [about] what could I be doing in this time." Students prioritized classroom activities that they were engaged in and spent more time and energy on doing well with these tasks. Kourtney reported after completing IPI data collection, "I'll be typing my research paper and I'll just stop and look and I'll see how many people are actually typing and how people are just talking, just to see what the engagement level is. It's like I realized I need to use my time

wisely to get the most out of the learning experience." Kaiser reported that he felt engaged when teachers "take certain students, and this has happened to me, they'll take me aside and they'll ask me to try to explain certain things to [other students]." Extra effort was expended when the worthiness of the challenge was recognized.

Leadership in the Classroom

Participants stated that when they were engaged they put more effort into learning in the classroom and could share this learning with others. Tim reported enjoying the challenge of learning and sharing this learning with others, reflecting "I was always engaged in something [while working at my own pace], but [the teacher] keeps checking in with you and then I was able to share this learning with others in the class." As discussed earlier, students also reported that when they see other students struggle in the classroom, they will ask questions of the instructor, just to have the information repeated and reinforced once again to help aid struggling learners. Research participants valued helping other students in the classroom. Brad affirmed, "Sometimes it works out for the best, if I can help people more I can learn it better myself because one I'm teaching it I know it." Allowing students to teach one another may be a way to increase the cognitive engagement level in students, due to the depth of knowledge that one must have in order to teach content to others.

Theme Six: Engagement versus Control/Choice

The final theme identified in this research is driven by peer verbal interaction. Participants identified that in classrooms where challenging learning material was presented, it was easier to reflect cognitive engagement by working with others. Kourtney stated, "It's so frustrating because [one class] is so difficult and it's easy to just say, 'Oh I really don't care,' but then I think and talk more on it and I get it." These learning opportunities had

connections to life outside of school and personal meaning, as well as some sort of choice in how to demonstrate learning to the teacher. Mia said, "You want to branch out and do your own thing," and Ron responded, "Certain labs that we choose from sometimes are more exciting." When students felt challenged by schoolwork and moved beyond learning for a grade to learning for the purpose of gaining knowledge for future reference, their engagement increased. Kaiser reported, "I'm going to [university] and I've taken all the engineering classes. I'm good at math and science…and this will help me in the future." Students reported feeling that having control, independence, and choice over how to express their learning, even if mostly an illusion created by the teacher, deepened their learning. Alex said, "Activities that you can do in a group, where you can choose, makes you work and learn more." When instruction was perceived to be non-challenging and irrelevant, and where opportunities for choice and control over the demonstration of learning were limited, students were clear that they derived little cognitive engagement from those classroom experiences. "I would say once [students] reach a certain point, they should be able to kind of specialize their education. They can go and take college classes or whatever they want, in whatever field they want" (Kourtney). The students wanted to have ownership in their learning as opposed to canned curriculum with content delivery that is lock-step and controlled.

Offering students options for how they gain credits for graduation is a topic of discussion across our nation, with a focus on debating seat time versus Carnegie Units with the topic of Competency Based Instruction, which is instruction that is organized around a set of learning objectives called competencies and is not based on the amount of time a student spends in a class. I did not address this topic in my literature review, but based on the

outcomes of this research, this may be an area for future research as it relates to student cognitive engagement.

Participants spoke of needing to understand the subject matter and not just parrot back answers and instructors being flexible enough to know that sometimes getting off topic influences the students to think on their own time. Kayla said, "I didn't know exactly what was going on because they always say the War on Iraq or the War on Terror. I was confused. Discussing this and researching on my own time helped me understand what was going on." Kayla went on to say, "Having a full discussion on something and being given the freedom by the teacher to give your own opinion and feeding off of other people's opinions about something, helps get us back to the point the teacher was trying to make and connect the classroom to the world."

Kaiser noted that when making the choice to complete an internship versus taking another academic class in the high school, "Speaking from an internship experience, it has been fun. It hasn't helped me whatsoever in picking [a career] because I've done so much different work there. It's just kind of now I understand a thousand more interests and a thousand more things for me to do." Helping students see options for learning is an area that educators can reinforce by being aware of current trends in the workforce and creating options for student exposure to these trends.

When asked about execution and completion of tasks, students conveyed a deeper learning commitment to the content and class objectives when teachers helped make connections for students. Brad said, "Especially when you don't see it or when you're not thinking 'Oh yeah,' but then later you realize I can do this now and I couldn't do this half an hour ago." Kaiser added, "A lot of times there's no 'moment' for it, it's just you're doing it

and you can't figure it out, you take a break, come back and it all makes sense. Some teachers are really good at doing that and then they'll change you up on how to do something else, then come back to it." Kory spoke of watching videos that "capture your attention and keep it" and "working with a partner to take notes over the video so you can discuss it later to make sure you got all the important points in order to learn." Verbal interaction with instructors and peers regarding content in the classroom increases engagement.

Given choices and even the opportunity to fail, participants reported having higher standards for their own learning and desired levels of execution of learning tasks. Brad noted after IPI training, "Students who were given a choice, or if teachers tried to appease students to make it look like there was a choice, engagement was rated at a higher level on the IPI." Kourtney recognized increased engagement when she was fixing the band podium. "Because I had to sit there and try to reassemble it, and then it kept falling, so I kept having to do it over and over…trial and error…I just did it…but I don't know how. I was proud of myself." Educators can help increase cognitive engagement in students when they offer choices for how students learn and demonstrate this learning.

Homework and practice being graded was mentioned by the participants as a deterrent in many ways from deeper learning that could take place if only teachers could move beyond the curriculum. Kaiser reflected, "I think that's a problem, that these lower levels of just memorization and routine is what they're graded on, but that higher understanding that we're trying to strive for isn't necessarily rewarded as much." Brad said, "We want to be engaged with each other, not just with, obviously with the book stuff and everything, but being engaged with each other helps us be more engaged with this, with what is in front of us." He elaborated, "Maybe be more like, 'Oh, okay here's what you do, do it,'

but give us more control, but then still be there when we need help." Brad wants to feel "part of" versus "forced upon" in his learning. One student mused about the connection between levels of engagement, learning, and grades: "I'm curious how the higher the [level of engagement] is in a classroom, how that changes grading, or a student's attitude toward grading? In classes that are more commonly at a five or a six, does that relate to higher grades or is that completely separate?" (Kaiser). Future researchers may want to examine correlations between engagement levels and students' grades.

Students perceived that life after high school would include more choices; therefore, any type of high school learning experience would become more meaningful and engaging to them if they perceived choice(s) in ways to demonstrate learning. "Nobody likes to be told what they have to do and that's your only choice" (Kayla). "Even if you don't like them, [when given a choice], you don't feel locked in" (Brad). More choices in the classroom would shift the role of the teacher from "leader in front" to "facilitator on the side" in pursuing classroom objectives.

Research participants shared their enthusiasm for wanting to be engaged in learning. Being "in the zone" and "time flying" during class time was not evident nearly enough for these participants. However, just the opposite was experienced when students were IPI data collecting. When students report thinking about their learning outside of class time, their own engagement and learning became a priority. "Time flies when you're having fun… I found myself being surprised that I was thinking about the marble shooter throughout my day" (Brad). Spending time on an activity without giving thought to the amount of time being invested in the learning was seen as an indicator of level of engagement being experienced. As students climb the grade ladder their periods of being in the "zone"

diminish, mainly because we beat students up with only accepting black and white answers and learning at one pace, based on the pacing guide sent with the curriculum, and not as individuals.

Connecting High School Learning to Students' Futures

When purposes for learning were connected to life outside of the classrooms, students felt that their efforts in learning and engagement were worthwhile. Learning that required higher levels of thinking took greater concentration and had connections to what was deemed to be "real" to students and seemed to increase engagement. Kaiser shared the following regarding his internship experience, "It came from the [internship experience], too, that it's more important that I admit that I don't know what I'm doing and that I might be wrong about something and they correct me and they teach me what is the right answer. That's better than me spending hours and hours trying to learn something thing I'm not capable of without help."

Research participants reported that class options, such as taking college credit courses or higher-level courses could be just as beneficial to their futures as an elective course. Tim said, "I remember thinking when we did our eighth grade plan, learning about all the different courses we had as options for high school and feeling lucky to be in our size school and able to have some many options for learning and career preparation." Creating classroom experiences for students that connect to defined college and career readiness standards will help students meet expectations of future colleges and employers.

Research participants valued learning for which they held value for life beyond high school, as well as developing habits such as studying on a routine basis or creating an organizational system to aid in management of time. The responses below address the

second research question of this study.   When students learn about what being cognitively

engaged means in a high school classroom, they can apply those skills to their own learning

experiences. Kourtney reported, "I learned from Mrs. [K] about getting myself organized

when I was in ninth grade and that helped me do better in classes." Students valued the

development of a solid academic foundational base that increased their clarity about choosing

a field of study or work beyond high school. Kaiser recognized, "You'll see the ones that

can adapt and you'll see the ones that weren't getting the kind of education, the type of

learning that they needed," when IPI data collecting. Tim reported that being involved in this

research "helped me focus in classes more. I know now what not to do and just focus when

there's a distraction in the room." Students found that their engagement levels also increased

with perceived usefulness of the learning in preparing for future endeavors.

In the final weeks of high school, the uncertainty of the world beyond high school

seemed to be weighing on the participants. Barb said after IPI data collecting, "I've learned

that there are a lot of classes offered here I should have taken." Barb said begrudgingly, "I

know that I have to study way more in college than I ever did in high school." No matter

what the circumstance, participants appeared to know that the type of work and depth of

knowledge required for future work would be more difficult than what they had experienced

in high school. Alex reported, "My mom is taking college courses and studies way more

than I do, plus she has a family to take care of." These seniors, and the students they

observed, want to be challenged in high school classrooms in order to be prepared for the

future. Kourtney said, "Just impress upon teachers that it takes some students longer and

patience is required when it comes to that…but keep pushing us to learn…get past the barrier

of the student not wanting to ask for help." This statement is a true indicator that students are

able to understand how others are engaged in classroom situations after being trained in the IPI protocol, answering the third question posed in this research. These research participants expressed the desire to learn at high levels and that their learning help build a bridge from high school to whatever options they pursue once they graduate.

Chapter Summary

This chapter presented the conceptions of cognitive engagement held by the participants in the study, seniors in high school who are members of the National Honor Society in a mid-western, mid-sized rural school system. Students conceived of cognitive engagement in a number of ways:

1. Compliance as a form of engagement

2. Engagement as a response to feedback and encouragement

3. Engagement as enjoyment and interest

4. Engagement as challenge and rigor

5. Engagement in relationships and expectations

6. Engagement versus control and choice for own learning

I analyzed the concepts, words, and behaviors held within the data from focus groups, individual interviews, and IPI data. Then I triangulated data from the focus groups, individual interviews, and the IPI data to ensure that themes and meanings were coded accurately to confirm interpretation through comparison of the different data sources. The categories are consistent with phenomenographic practice in that they capture the range and variation of a phenomenon in a relatively discrete few categories for a very specific context – high school seniors who are eighteen and members of the National Honor Society. The graphic depiction (Figure 4.1) of the conceptions of cognitive engagement I have defined

suggests that the themes are connected to one another. In other words, a student describing cognitive engagement would acknowledge the existence of multiple layers of engagement, much like those depicted in the IPI categories. The IPI categories are hierarchical, meaning that the higher the IPI number the higher the level of cognitive engagement. The themes in this research are not hierarchical, but do connect with one another based on how the students conceive of engagement that encompasses behavioral, emotional, and cognitive engagement. This theoretical implication will be discussed further in Chapter Five.

At the compliance level, students commit to doing what is asked of them to do. The simple act of completing work demonstrates some level of engagement. In the second theme, encouragement and feedback are examples of ways that students find motivation and feel increased engagement in the learning. Students would like more feedback from their teachers. In the third theme of engagement having to do with enjoyment and fun, students report being more committed to things they find enjoyable or intriguing. They suggest that teachers can directly impact student engagement by structuring learning activities that are perceived by the students to be enjoyable and fun. The fourth theme adds a level of challenge and rigor into the learning. Students value learning experiences in which they are truly learning, not just fact-finding. Questioning students to help them become more meta-cognitive is one way that teachers can increase challenge and rigor in classrooms.

 In the fifth theme, students relate being influenced in their cognitive engagement by understanding teachers' expectations and having a positive relationship with their instructors. In the final theme, students report having ownership with choice in their learning and in ways to demonstrate competence in that learning would be cognitively engaging. Learning is perceived to be more meaningful if students see the connections to life outside of the

classroom walls and to their futures. Challenge and purpose come together in learning, making learning intensely and personally meaningful. Cognitive engagement in this theme becomes learning for the sake of learning, not for completion of an assignment or course grade. These students made clear their preference for higher-order classroom activities and their desire to be cognitively engaged while in high school.

My research participants commented that when instructors facilitated conversations and classroom activities that involved deep contextual learning, they were able to process information or opinions they had previously not been exposed to. Reading social context clues, such as knowing when to join a conversation, takes experience and time (Dunlap, 1999; Schultz, 2009). However, my participants also emphasized that the maturity level of underclass students might hinder their ability to know themselves as learners.

Research participants spoke of instructional practices that would make class time more productive. Participants reported that active task-focused classroom activities – such as lab or project based work, presentations, and working within groups – help cognitively engage students at higher levels (Yair, 2000). Participants also reported that when classroom learning experiences are realistic, relevant, and challenging to students, cognitive engagement at higher levels is more likely. For increased engagement, these students recommend more direct instruction in the classroom, decreasing the time devoted to the tradition lecture method, also described by students as "sit and get" learning in the classroom, decreasing the emphasis on rote memorization, improving rigor, and using technology more effectively in the classrooms.

Overall, the results of this study brought a greater understanding of how students feel about their own and other students' engagement levels in high school classrooms. The

participants helped to uncover the factors that influence the cognitive engagement of today's

high school students. Chapter Five includes a discussion of the results, implications for

theory and research, and suggestions for future research, followed by my reflections.

CHAPTER FIVE
DISCUSSION OF RESULTS

The purpose of this qualitative study was to identify students' perceptions about what engages themselves and other students in high school classrooms. I examined the literature regarding types of engagement, survey instruments that report levels of engagement, student engagement using different instructional strategies, and student voice. As part of this study, a pilot group of middle school students was asked to respond to the focus group and individual interview questions to help verify the appropriateness and usefulness of the questions. Twelve high school seniors, who were also members of NHS, participated in two different focus groups, individual interviews, and training in the IPI data collection protocol. They also collected IPI engagement data from high school classrooms.

Three research questions guided this study. The following section discusses conclusions regarding the three questions, drawn from results of the student focus groups and individual interviews. Implications for theory and research and suggestions for future research, followed by my reflections, conclude Chapter Five.

Theoretical Significance

As discussed in Chapter Two, the definition of engagement does not have widespread agreement in the research literature (Fredricks et al., 2004; Newmann, Wehlage, & Lamborn, 1992) and has previously been classified into three dimensions: behavioral engagement, emotional engagement, and cognitive engagement (Dunleavy, 2008). In the literature, behavioral engagement takes on many forms of student participation and observable student behaviors that may or may not support student achievement. Examples may be involvement in extracurricular activities, time on task, and compliance with school rules. The literature

review found that emotional engagement includes feelings of belongingness to school as well as pride in one's work and feelings of competence in one's abilities (Linnenbrink & Pintrich, 2003).

Cognitive engagement was defined in previous research as student investing in the learning, as well as incorporating thoughtfulness in class work and willingness to exert the effort necessary to comprehend ideas and master difficult skills (Fredricks et al., 2004; Wiggins, 2005). Lessons learned from this study revealed that students are not challenged adequately to need to produce at levels that require high degrees of cognitive engagement. The data from this study suggest that the NHS high school students of this study are not pushed academically, and educators underestimate high school students' academic abilities. Students in this research found the high school curriculum to be void of critical and creative thinking. Based on the data revealed in this research, cognitive engagement for high school students may be expressed as a student's ability to strategically think while problem solving and including a preference by high school students for challenge and choice in the learning process and an ability to self-regulate investment in his or her learning process.

The literature review also found that educational institutions utilize both summative and formative (Fredricks, et.al., 2004) student achievement data for a variety of purposes, including instructional decision making, development of curriculum, programming recommendations, and grade promotion (Appleton, Christensen, & Furlong, 2008). The literature review found that formative assessments (assessments that are used for learning) are those that serve to improve instruction and provide student feedback and are done throughout instruction. Summative assessments are commonly referred to as assessments of learning, in which the focus is on determining what the student has learned at the end of a

unit of instruction or at the end of a grade level (e.g., through grade-level, standardized assessments). Summative assessment helps determine to what extent the instructional and learning goals have been met. The findings of this study revealed that students do not see the value in formative or summative assessments if there is an absence of specific feedback. Students in this research recognized the need for learning at higher levels to help promote a smooth transition between high school and college. Students were aware of college final exams and conceded that they did not have the opportunity to partake in comprehensive assessments in high school classrooms.

As outlined in Chapter Two of this dissertation, there are numerous assessments and instruments to gauge engagement levels in high school students (Fredricks, et.al., 2004; House, 2002; Smyth, 2006).   The majority of the responses recorded by these engagement tools indicate that high school students are disengaged, bored, disillusioned, and unmotivated (Briedenstein, 2007; Intrator, 2004; Yazzie-Mintz, 2010). Students in this study gauged cognitive engagement differently than adults even when utilizing the same engagement instrument. The use of the IPI in this study gave the high school aged study participants an opportunity to demonstrate how their perceptions of cognitive student engagement differ from that of practicing educators trained on the same student engagement instrument. This study demonstrates that high school seniors report a higher level of student cognitive disengagement and a lower level of student active engaged learning than do their current high school teachers.

The literature review also highlighted the importance of educators utilizing instructional strategies that are geared to increase student cognitive engagement (Akey, 2006; Hattie, 2012). When learning experiences of high school seniors are presented in a way that

students perceive to be relevant and challenging, cognitive engagement increases (Yair, 2000). The findings of this study illuminate instructional strategies educators use to increase cognitive engagement in their classrooms. Project-based learning, reflective journaling, authentic demonstration, and development of rigorous coursework would increase high school students' cognitive engagement in high school classrooms.

In Chapter Two of this dissertation, evidence from the literature review revealed that students voice that they want to be academically challenged with an intellectually relevant curriculum (Yazzie-Mintz, 2010) and want to be explicitly taught the essential skills and concepts of being cognitively involved in high school classrooms (Akey, 2006, Heller, Calderon, & Medrich, 2003). High school students in this research also voiced that they want to be given the choice and opportunity to participate and demonstrate their learning in cognitively engaging challenging curriculum experiences during high school.

The findings of this study revealed that the perception of engagement took on many forms for these high school seniors who were also members of NHS. While behavioral, emotional, and cognitive engagement may be defined as three dimensions in the research literature, this study found that these concepts are interconnected for these research participants. In this study, engagement was comprised of six different aspects that affected these students' levels of cognitive engagement, how they engaged in high school classrooms, and the ways they saw other students engaging in high school classrooms. These six different themes are compliance, feedback and encouragement, enjoyment and interest, challenge and rigor, relationships and expectations, and control and choice. The findings suggest engagement played a role in students' connectedness to the content within high school classrooms and to their relationship with teachers and peers. The results of this study

reveal that students do not have a clear definition of cognitive engagement based on their experiences within high school classrooms and tend to blur their descriptions of cognitive engagement to include aspects defined in the literature of behavioral, emotional, and cognitive engagement (Davidson, 1996). The different six themes of engagement these high school seniors voiced may be used as a paradigm within educational settings that illustrates how to cognitively engage students in high school classrooms. They may also be utilized as a guide for educators who aspire to understand how they can engage students in high school classrooms.

Discussion

Themes of the perceptions of cognitive engagement, via high school seniors who were members of NHS, developed in this research included compliance, feedback and encouragement, enjoyment and interest, challenge and rigor, relationships and expectations, and, finally, control and choice. These themes are comparable to, but do not replicate, the IPI six categories of student cognitive engagement (Appendix A), which was utilized as a student engagement instrument in this dissertation to provide a gauge of the levels of cognitive engagement in classrooms, via these research participants.

Ultimately, I determined six suggestions for educational practice that focus on compliance, feedback and encouragement, enjoyment and interest, challenge and rigor, relationships and expectations, and control and choice. My use of classifying themes of engagement is comparable to ways other studies (Fredericks et al., 2004; Harris, 2008; Mark, 1995) have described the phenomenon of engagement. The connected themes, brought to light in this dissertation, are discussed below.

Compliance

Cognitive engagement that does not go beyond compliance is relatively passive (Mark, 1995), with students reporting that they complete and participate in classroom activities at the lowest level of cognition or the bare minimum to pass the class (Martin & Furr, 2010). Students want to save face or avoid hassles with classmates and instructors to receive a passing grade or the highest grade possible, not based on learning, but based on the criteria set forth by the teacher. My participants reported that they were well aware of moments they simulated cognitive engagement in classroom discussions or activities. Examples of this were periodic nodding of the head, raising of the hand, eye contact, and completion of assignments. During IPI data collection, research participants noted that this behavior was observed with students within classrooms. Participants noted that students can seem to be cognitively engaged in the learning, while really just acting engaged by being polite and compliant to avoid negative attention from the instructor.

One implication for instructors is the need to create authentic reasons for learning activities and cultures that promote questioning from students. One way to do this is for teachers to ask questions of students to promote their thinking on topics. Hattie (2012) writes that teachers need to seek student opinions, encourage debate, and teach students how to persuade in an argumentative way by being able to back up their arguments with factual data. Connection of the learning objectives with relevant, meaningful, and interactive learning tasks increases cognitive engagement and decreases compliance behaviors (Wortham, 2006). Creating rigorous and authentic classroom experiences may help create connections for students to increase cognitive engagement and decrease compliant behavior by students.

Feedback and Encouragement

This study affirmed that classroom instructors have a vital role in fostering the cognitive engagement of students (Conner, 2007; Fredricks et al., 2004). The relationship between teachers and students is the binding force that helps students stay connected to school (Hudley et al., 2003). Students reported that feedback on their work was a powerful extrinsic motivator that propelled them into doing higher levels of thinking and problem solving. Participants responded approvingly when their teachers showed signs of enthusiasm and intensity; their responses are reinforced in other research (Hodges, 2000; Marzano & Pickering, 2011). When classroom observations demonstrated evidence of genuine interest and feedback, along with appreciation of academic thinking and increased cognitive engagement in participants, the cognitive engagement was rated higher on the IPI categories in high school classrooms.

One implication of this is that students want encouragement and feedback on their effort as well as their performance. Utilizing praise with feedback helps not only encourage effort, but also helps promote learning and growth (Wiggins, 2005). What comes from the heart touches the heart. These students overwhelmingly want to know that when they put their heart into something, it is acknowledged. Educators can become more consistent and specific in their encouragement and feedback to students by practicing giving one another feedback during collaborative learning time.

Enjoyment and Interest

According to student engagement research, lack of engagement is a problem in schools today (Yazzie-Mintz, 2010). This issue has challenged educators and educational systems to reflect and adopt new methods to engage students in their own learning. IPI

training was an opportunity for each of the twelve students to be exposed to new learning. When classroom activities were perceived to be interesting and challenging to the students within the classroom, research participants reported that they saw students actively engaged in the learning – category six of the IPI protocol. Participants also reported in their data collection that they perceived other students within the observed classrooms being respectful and conforming with the learning tasks, but not cognitively engaged.

When students were able to connect the learning in the classroom to authentic and future-oriented needs, they reported an increase in their own and peers' cognitive engagement, especially after being trained in the IPI protocol. One student reported, "In class when there's a transition mode, I did think about it the other day and I was, 'Well, if somebody came in right now, we're not doing anything" (Mia). When study participants perceived class work as relevant to their future career goals, they increased their effort in understanding the material and felt the experience was made more worthwhile, not just an exercise in futility to earn a grade on an assignment or for the course.

The literature on the phenomenon of senioritis is clear regarding the issues schools may encounter during a students' senior year of high school (Drels & Rehage, 2008). Students who are close to graduation from high school often find school work to be irrelevant to their future endeavors. These student research participants reported being part of classes that required low-level thinking and rigidly defined low-level assessments. Students in this study were clear about preferring to be actively and cognitively engaged in classrooms, as other research also reinforces (Conner, 2007; Harris, 2008). They welcomed opportunities to participate in meaningful intellectual engaging discussions and classrooms.

One implication of the findings is that instructors need to design learning objectives that provide authenticity of purpose that can be defined by the students in their classrooms. Merely keeping students busy within a class period may distance the students from being fully cognitively engaged in their own learning and connecting this learning to other content areas and future paths. One avenue to accomplish this authenticity of enjoyment and interest in learning is to encourage students to be reflective in their own learning goals, while understanding the process of learning, and to make personal connections to the content and ideas presented in the classroom.

Challenge and Rigor

As reported as well by other research, my students reported to being cognitively engaged when work stretched their thinking and required them to deal with bigger issues (Doppelt, 2009; Martin & Furr, 2010) and required continued attention (Ayas & Zeniuk, 2001). Students were willing to commit to working hard and showing effort and in Kaiser's words, "self-learn," when the learning was perceived as focused, rewarding, and relevant to the students' lives (Mark, 1995; Shernoff, Cszikszentmihalyi, Schneider, & Shernoff, 2003). Strengthening teachers' abilities to differentiate instruction for all students by implementing research-based instructional strategies for higher-order deeper learning, such as authentic-intellectual work or problem based learning, may boost each student's level of rigor in the classroom. Strategies that focus on approaching students on an individual basis, in a manner that supports each child's areas of strengths and areas to improve upon (Leeper & Tonneson, 2008), may aid in increasing cognitive engagement in the high school classroom. Research participants were adamant that instructors needed to be passionate about their pedagogical practices and demonstrate to the students that they enjoy their own work as professionals.

Positive and Supportive Relationships, High Expectations

Measuring the achievement gap through assessments, test scores, and other quantifiable data can be a straightforward task. On the other hand, cognitive student engagement is dependent on the relationships – the interaction, collaboration, and perception – between students and the school community (Yazzie-Mintz, 2007). By focusing on more than just standardized curriculum and student achievement results, educators can acknowledge students' voices about their experiences in school. Engagement and success, as reviewed by constructivist standards, could be clearly defined, illuminated, and replicated across the country (Jonassen, 1991). This study also affirms that genuine teacher engagement, in the lives of the students both inside and outside the classroom, helps to form student identities (Amen & Reglin, 1992; Erickson, 2007; Riedel, 2002). Students reported disdain for class work they perceived to be a waste of their time, as well as for teachers they perceived to care little about their subject or students. Students also reported that they become more cognitively engaged when encouragement was perceived.

One of the most prominent findings in this study is the belief by all twelve participants that teachers can tend to be non-approachable in terms of comments and questions from students about what being cognitively engaged really "looks like" from the student's perspective. This study, of course, does not examine the words or behaviors of teachers. However, the findings relating to the perceptions these students have about some teachers are consistent, widely-held, and discerning. The behaviors of teachers described by the students parallel a low degree of implementation of student-centered classrooms described by an Innovation Configuration Map of Student-Centered Classrooms developed by the Iowa Department of Education, (2011). This document suggests that with a low degree

of implementation of student-centered classrooms, the educator does not engage students in any activities that prompt connections between prior knowledge and authentic experiences. Research participants not only saw this type of teacher behavior as they IPI data collected; they also reported that they experienced this first-hand in their own classrooms in high school.

Choice and Control in Demonstration of Learning

The number of research participants for this study was relatively small and it can be problematic to generalize from their experiences. With that factor in mind, it does not seem objectionable to contend that students yearn for a more rigorous and challenging high school experience. This group of National Honor Society students indicated that they enjoyed complex and challenging classroom activities and were bored with what they perceived to be easy busy-work. These students also reported these observations with their peers via the IPI student engagement instrument. These students also seemed developmentally ready (Perry, 1999) for work that prompted reflection and increased their metacognitive awareness (Catchings, 2004; Cuthbert, 1995; Garrison, 1997). Research participants preferred not to be mere observers (Darling-Hammond & Ancess, 1994), and the authentic, hands-on, multi-disciplinary tasks captivated the students' attention and desire to identify and prioritize learning goals (Erickson, 2007; Duff, 2006). It would appear to be unsatisfactory to expect students to be cognitively engaged in learning if the work is fun and interesting but lacks challenge.

Frequency of senioritis has been reported in the literature (Conrad; 2005; Drels & Rehage, 2008; Mercurio, 2007), and educational researchers may speculate that schools unintentionally put students in the position of being on a hamster wheel, demanding that they

comply with mundane coursework, offering quasi-encouragement via grading systems over and over while avoiding creating and facilitating the types of meaningful higher-order deeper learning experiences that might foster greater cognitive engagement. Without challenge, students report that there is little motivation to go above and beyond the requirements of the academic task. Zones of proximal development, as described by Vygotsky (1962), help prescribe challenges that accelerate learning in students. Research participants noted that after training on the IPI protocol and IPI data collection, they realized in different terms how what they have been exposed to in high school classrooms was not higher-order thinking.

The type of cognitive engagement research participants described and the classrooms they observed and desired is defined in the sixth IPI category: student active engaged learning. At this level, students are able to exercise agency with their learning. Choice and control are also apparent in classroom activities, and student participants express an investment (Conner, 2007) made in learning that goes beyond superficial and requires deeper learning and processing by and between students. Within the data collection process, research participants acknowledged the need to be at all levels of the IPI, but found that at the higher levels, students are able to control and choose the path of their learning and can identify the purpose behind those choices. In essence, they wanted to be cognitively engaged for the purpose of learning (Drels & Rehage, 2008; Harris, 2006), not completion of tasks. At this level, learning is self-directed and personally meaningful to the students (Ancess & Darling-Hammond, 1994). The reward in learning is the experience of learning (Shernoff et al., 2003). It was clear that some research participants experienced high levels of cognitive engagement with their involvement in the research study. Phrases such as, "It makes you work a little harder," "'Big thing' to be given at least the illusion of a choice," and "Pick

which one, then obviously you're going to be a little more engaged with it" suggest how cognitively engaged students are keenly aware of their own behaviors. At the heart of engagement for students is the ability to choose – the freedom to choose. Research participants appeared to understand that if they took control of constructing their learning, much deeper learning occurred (Doppelt, 2009). The voices of these high school students in this study strongly suggested that they genuinely wanted learning opportunities they could exercise control and choice over and experiences that were authentic in nature. Having choice matters (Shernoff et al., 2003), as does awareness of autonomy and self-efficacy (Fredricks et al., 2004). Deepening the cognitive engagement level of high school seniors helps create initiative.

Implications for Theory and Research

There are many theoretical implications that emerge in the interpretations of this dissertation from involving high school seniors and listening to their voices. These twelve students suggested that teachers should not rush to assume students are cognitively engaged based on the students' observed behavior. If nothing else, this study urges all educators to observe, listen, and understand what students deem to be cognitively engaging, not what educators deem or perceive to be cognitively engaging. Students want to be engaged. An understanding of students' perceptions of cognitive engagement and higher-order deeper learning activities has clear implications for the way we design instruction and assess learning. As educators, we can also help students realize that their intelligence can change over time by developing student-centered instruction and engaging classrooms that challenge and cognitively engage students in their learning (Dweck, 2006). When instruction is student-centered, it supports all students in making connections to create new learning in

order to problem solve, is meaningful and relevant to students, and facilitates the opportunity for students to be meta-cognitive, as well as collaborative.

If we wish to foster the deepest types of cognitive engagement, educators must seek to provide learning opportunities that can be directed by the students through choice and control in their course work and learn to give up control of all knowledge in high school classrooms. In this regard, inquiry-based approaches such as project-based and problem-based learning may cognitively engage students in higher-order thinking and developing deeper understanding through analysis, problem solving, critical thinking, creativity, and synthesis – with and without verbal peer interaction and collaboration.

Higher understanding could come in the form of proficiency-based education which focuses on the specific learning targets and students' demonstration of proficiency with the content. This type of instruction focuses on the learning and not the grades, allowing students multiple opportunities and ways to demonstrate their learning on an individual basis versus pushing all students through the content at the same pace. Proficiency-based education is not generally employed in the current educational system at the high school level in Iowa. Teachers cover content and expect students to understand as they proceed period by period, week by week, and semester by semester. Earlier, I discussed proficiency based grading and the impact this type of grading might have on students' learning, versus earning a grade that might not reflect learning. This is a topic school districts will be addressing as the Smarter Balance Assessment Partnership for Assessment of Readiness for College and Careers is administered in schools, along with the Common Core Curriculum, of which forty-eight states are supportive of, and as these are incorporated in schools across the United

States. Moving to a proficiency-based learning system, teachers and students know what is expected and each can monitor student growth.

Students can also demonstrate that they know the essential skills and outcomes of the lesson, unit, and course, rather than just completing assignments to earn a grade by participating in learning experiences outside the classroom walls. This type of "authentic environment" may be a concept that could be explored more in-depth within our educational systems. Students and employers describe a disconnect between the high school experience and what is expected of students outside of the K-12 educational system. Internships and creating authentic learning experiences for students may help bridge this disconnect and create a sense of relevancy in the learning experience for students.

The overarching lesson I would draw from this research study mostly concerns the opinion of the students to not want to question instruction and the students' ability to "fake" cognitive engagement. Both this game-playing of doing the work to earn the grade (versus deep contextual learning) and lack of development of questioning skills are detrimental to the students' future learning and working experiences. Educators, including teachers and administrators, and those who mentor and prepare future teachers, would be well-served to understand the perspectives of students within their classrooms and school systems on this game-playing and development of questioning skills. Educators and teacher preparation programs should consider how their behavior contributes to or detracts from creating a safe environment for all students to promote learning.

On one level, integrating these findings into one's schema of classroom preparation, to pay attention and listen to student voices in the school systems, may help increase cognitive engagement of high school seniors. Mentioned in the discussion of the method,

phenomenography has limitations in translating concepts into specific changes in teacher pedagogy, classroom behavior, or the academic performance of students. As challenging as it may be for educators to determine how to integrate the lessons from this study into teacher preparation programs and professional development opportunities of existing educators, it seems imperative that we listen to the voices of the students to guide us in their learning. Professional development and teacher preparation programs were not the focus of this study. It may be that succinct, sustained, and collaborative inquiry by groups of teachers will yield insights into the voices of students and therefore the cognitive engagement of these students within their classrooms. Two examples of where discussion by educators may be helpful might be in regards to using the technique of wait time in the classroom and being facilitators of learning. The research participants' reaction to the use of the wait time strategy surprised me. Wait time is an instructional strategy about which educators may want to investigate its effectiveness. Also, helping educators learn to be the "guide on the side" versus the "sage on the stage" is something which may intrigue school leaders as they develop professional development plans for school districts. As professional educators, we need to continue to seek to understand and cognitively engage every student in every classroom to the highest level possible, based on the student's definition of cognitive engagement.

This study shows that the participants were able to discuss, share, and collect data regarding the cognitive engagement level of themselves and other students within their high school, based on the IPI protocol. This in turn caused students to think differently about their own and others' cognitive engagement level in high school classrooms. It also caused them to think differently about their future educational experiences and about how to cognitively engage themselves at times when instruction is not dictating that type of engagement. These

results may be beneficial for educators to utilize in instructing students in learning centered on ways in which students are able to engage themselves cognitively within high school classrooms.

Suggestions for Further Research

Based upon the conclusions and findings in this study, there are several recommendations for further study. First, because this study involved only a select group of high school seniors, incorporating other groups of high school students could provide further information about how to best engage high school students.

Second, the students in this study emphasized the importance of teachers in their high school engagement practices. A follow-up study on teachers and their perceptions of engagement in high school settings would provide another unique perspective to compare to the student perceptions in this study. Additionally, by researching teachers, further information could be gained about how to enhance our current teacher preparation programs to better meet the needs of all high school students.

Thirdly, having research participants journal about their experiences with cognitive engagement while participating in research might yield data points that were not uncovered in the focus groups and individual interviews. This may be a way to gain insight from students who do not feel comfortable talking in front of peers or having a one-on-one conversation with a school administrator.

Fourth, video-taping or audio-taping the IPI protocol training may have generated other points of emphasis brought up by the research participants. As I reflect on the power of this learning about cognitive engagement for the research participants, I wish I would have had more than my memory and the student responses after the fact to rely upon in reflecting

on how IPI training may have had a direct impact on the research participants' conception of their own and others' level of cognitive engagement. Once students understood the framework of the IPI and how each IPI level (aside from level one of the IPI) helps build and scaffold knowledge for students, they became much more meta-cognitive. Future researchers may want to record and analyze the transcription of the training session in order to infer if this was a direct result of the IPI training or a reflection of actually completing IPI data collection, or a combination of both of these experiences.

Finally, one aspect of the pedagogy of educators that might be explored in the future is of student grades being based on participation in compliant behaviors by students. Research participants seemed to interpret their grades as a result of their participation in appropriate classroom behaviors, and as a management tool used for control of students, versus grading being used as an incentive to learn and master the content of the lesson. Future research might examine the purpose and legitimacy of grading practices.

<div align="center">**Research Reflection**</div>

As I conclude this research study, I am conscious of the evolution of my own thinking and perceptions of student voice and the value that would be gained if we, as school systems, listened more to our students – to see, understand, and enjoy what we understand. Early in my dissertation process, I was focused on undertaking a quantitative study that researched the difference, if any, of student cognitive engagement levels, based on the IPI protocol between high school seniors and adult IPI trained data collectors. I consider it fortuitous that my major professor and committee encouraged me to consider using phenomenographic and qualitative methods. This particular method seemed to be just the right approach for

understanding how something complex – cognitive engagement – was understood by a group of high school senior level students who were members of the National Honor Society.

With this type of methodology, of special note was the phenomenography's emphasis on multiple readings of the interview transcripts. The experience of themes emerging while participating, listening, and reading the voices of the students helped develop a comprehensive lens to preserve and share their perceptions. After conducting this research, my definition of cognitive engagement involves a student's ability to strategically think while problem solving, a preference for challenge and choice in the learning process, and an ability to self-regulate the student's investment in his or her learning process. My definition is one that was voiced by the research participants, when asked about their own and others' engagement in high school classrooms. It also focuses on the skills and concepts attained during learning and not the final grade earned in a class.

I discussed the limitations of this research in Chapter Three. I am keenly aware that my role as an administrator in the district as I conducted research was an intersection of my public and personal roles. I have been personally and professional vested in the topic; my experience was not entirely a neutral one. I do not view this tension as a harmful component to this research, but as a way to help facilitate change for classrooms within our school system. I am also aware that someone with a different lens may have elicited different responses to the same protocols established in this research. My passion for this topic is spurred by my own perceptions as a life-long learner. As a student who is committed to learning, I sympathize with high school students who are bored with school on a daily basis, as well as with those professional educators who are doing the best with the tools with which they have been trained.

The sentiments shared in the first two focus groups broke my heart when students shared that they didn't feel comfortable asking questions of staff. I'm uncertain as to how staff will react to this if they become aware of this finding. It is one that I want to address with staff in future professional development. I also wonder whether this dynamic is an anomaly in this particular high school or whether other research would discover the same finding elsewhere.

The twelve students who agreed to participate in this research study were self-confident, full of wisdom on student cognitive engagement, and willing to learn the process and participate in the collection of IPI data. I hope that whenever they had misgivings about their role and contribution to the research, they felt safe to talk to each other and to me. I found them admirable for the collective view of busy work and their resistance to just simply completing work for a grade. Their desire for relevancy, feedback, valuable and authentic learning experiences, and educators who cared about them and their work were sources of inspiration for me.

The small sample of students may or may not represent students in their time and space in general. To the degree that the perceptions held by the study participants may apply to high school seniors elsewhere, it appears that students thirst and hunger for higher levels of cognitive engagement and deeper level learning experiences. They want to be challenged, given choices, enjoy learning, have positive relationships, and receive feedback and encouragement all in a manner that is not consistent with compliant behavior, but one of full participation in cognitively engaging encounters. I hope we educators and school systems can learn from their voices, and more importantly, listen to the voices of the students of our current high school classrooms.

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achievement/

Appendix A

Instructional Practices Inventory Categories

Instructional Practices Inventory Categories

Student Active Engaged Learning (6)	Students are engaged in higher-order thinking and developing deeper understanding through analysis, problem solving, critical thinking, creativity, and/or synthesis. Engagement in learning is not driven by verbal interaction with peers, even in a group setting. Examples of classroom practices commonly associated with higher-order/deeper Active Engaged Learning include: inquiry-based approaches such as project-based and problem-based learning; research and discovery/exploratory learning; authentic demonstrations; independent metacognition, reflective journaling, and self-assessment; and, higher-order responses to higher-order questions.	*Student Engagement in Higher-Order Deeper Learning*
Student Verbal Learning Conversations (5)	Students are engaged in higher-order thinking and developing deeper understanding through analysis, problem solving, critical thinking, creativity, and/or synthesis. The higher-order/deeper thinking is driven by peer verbal interaction. Examples of classroom practices commonly associated with higher-order/deeper Verbal Learning Conversations include: collaborative or cooperative learning; peer tutoring, debate, and questioning; partner research and discovery/exploratory learning; Socratic learning; and, small group or whole class analysis and problem solving, metacognition, reflective journaling, and self-assessment. Conversations may be teacher stimulated but are not teacher dominated.	
Teacher-Led Instruction (4)	Students are attentive to teacher-led instruction as the teacher leads the learning experience by disseminating the appropriate content knowledge and/or directions for learning. The teacher provides basic content explanations, tells or explains new information or skills, and verbally directs the learning. Examples of classroom practices commonly associated with Teacher-Led Instruction include: teacher dominated question/answer; teacher lecture or verbal explanations; teacher direction giving; and, teacher demonstrations. Discussions may occur, but instruction and ideas come primarily from the teacher. Student higher order/deeper learning is not evident.	*Student Engagement in Knowledge and Skill Development*
Student Work with Teacher Engaged (3)	Students are engaged in independent or group work designed to build basic understanding, new knowledge, and/or pertinent skills. Examples of classroom practices commonly associated with Student Work with Teacher Engaged include: basic fact finding; building skill or understanding through practice, "seatwork," worksheets, chapter review questions; and multi-media with teacher viewing media with students. The teacher is attentive to, engaged with, or supportive of the students. Student higher-order/deeper learning is not evident.	
Student Work with Teacher not Engaged (2)	This category is the same as Category 3 except the teacher is not attentive to, engaged with, or supportive of the students. The teacher may be out of the room, working at the computer, grading papers, or in some form engaged in work not directly associated with the students' learning. Student higher-order/deeper learning is not evident.	
Student Disengagement (1)	Students are not engaged in learning directly related to the curriculum.	*Students Not Engaged*

Remember: IPI coding is not based on the type of activity in which the student is engaged, but rather how the student is engaging cognitively in the activity. Examples provided above are only examples often associated with that category. The Instructional Practices Inventory categories were developed by Bryan Painter and Jerry Valentine in 1996. Valentine refined the descriptions of the categories (2002, 2005, 2007, and 2010) in an effort to more effectively communicate their meaning.
The IPI was developed to profile school-wide student engaged learning and was not designed for, nor should it be used for, personnel evaluation.

Jerry Valentine   February 9, 2010

Appendix B

Student Engagement Instruments

Instrument	Developer	Availability/Website
Student self-reports		
4-H Study for Positive Youth Development: School Engagement Scale (4-H)	Richard Lerner, Institute for Applied Research in Youth Development, Tufts University	available by contacting developer, at Richard.lerner@tufts.edu; http://ase.tufts.edu/iaryd
Attitudes Towards Mathematics Survey (ATM)	Raymond Miller, University of Oklahoma	Available in Miller et al. (1996).
Consortium on Chicago School Research/Academic Engagement Scale (CCSR/AES)	Consortium on Chicago School Research (CCSR)	http://ccsr.uchicago.edu/surveymeasures2007
Engagement versus Disaffection with Learning (EvsD), student report	Ellen Skinner, Portland State University	www.pdx.edu/psy/ellen-skinner-1
High School Survey of Student Engagement (HSSSE)	Center for Evaluation and Education Policy, Indiana University	www,Indiana.edu/~ceep/hssse/
Identification with School Questionnaire (ISQ)	Kristin (Voelkl) Finn, Canisus College	Available in Voelkl(1996)
Motivated Strategies for Learning Questionnaire (MSLQ)	Paul Pintrich and Elisabeth DeGroot, National Center for Research to Improve Postsecondary Teaching and Learning, University of Michigan	Middle school version available in Pintrich and DeGroot (1990)
Motivation and Engagement Scale (MES)	Andrew Martin, Lifelong Achievement Group	www.lifelongachievement.com
Resear4ch Assessment package for Schools (RAPS), student report	Institute for Research and Reform in Education (IRRE)	Available in RAPSD manual (www.irre.org/publications)
School Engagement Measure (SEM)-MacArthur	Phyllis Blumenfeld and Jennifer Fredricks, MacArthur Network for Successful Pathways through Middle Childhood	Available in Fredricks et al. (2005) or by contacting co-developer, at jfred@conncoll.edu
School Engagement Scale/Questionnaire (SEQ)	Sanford Dornbusch, Stanford University, and Laurence Steinberg, Temple University	Available by contacting co-developer, at lds@temple.edu
School Success Profile (SSP)	Gary Bowen and Jack Rickman, Jordan Institute for Families, University of North Carolina at Chapel Hill	www.schoolssuccessprofile.org
Student Engagement Instrument (SEI)	James Appleton, Gwinnett County Schools, Georgia, and Sandy Christenson, University of Minnesota	Available in Appleton et al. (2006) or by contacting developer at Jim_Appleton@Gwinnett.k12.ga.us
Student School Engagement Survey (SSES)	National Center for School Engagement (NCSE)	www.schoolengagement.org
Teacher Reports		
Engagement versus Disaffection with Learning (EvsD), teacher report	Ellen Skinner, Portland State University	www.pdx.edu/psy/ellen-skinner-1
Reading Engagement Index (REI)	Allan Wigfield and John Guthrie, University of Maryland	Available in Wigfield et al. (2008) or by contacting developers at aw44@umail.emd.edu or jg76@umail.umd.edu
Research Assessment Package for Schools (RAPS), teacher report	Institute for Research and Reform in Education (IRRE)	Available in RAPSD manual (www.irre.org/publications)
Observational Measures		
Behavioral Observation of Students in Schools (BOSS)	Edward Shapiro, Lehigh University	Manual can be ordered through Guilford Press (Shapiro 2004)
Classroom AIMS	Alysia Roehrig, Florida State University	Available by contacting developer, a roehrig@fsu.edu
Code for Instructional Structure and Student Academic Response (MSCISSAR)	Charles Greenwood, Juniper Gardens Children's Project, University of Kansas	www.jgcp.ku.edu/~jgcp/products/EBASS/ebass_materials.htm

Instructional Practices Inventory (IPI)	Jerry Valentine, Middle Level Leadership Center, University of Missouri	www.mllc.org

Appendix C

Consent to Participate in Focus Group Study
as part of the
Voices of High School Seniors: Perceptions of National Honor Society Students
Regarding Their Cognitive Engagement in High School Research

The purpose of the group discussions, IPI training and the nature of the research questions have been explained to me.

I consent to take part in a focus group about my engagement experiences in high school classrooms. I also consent to be tape-recorded during the focus group discussions.

My participation is voluntary. I understand that I am free to leave the group at any time. If I decide to not participate at any time during the research study, my decision will in no way affect the research study or my status as a student.

I understand the guiding principles for the focus group are:
- Only one person speaks at a time
- Confidentiality is assured. "What is shared in the room stays in the room."
- It is important to hear everyone's ideas and opinions. There are no right or wrong answers – just ideas, experiences and opinions, which are all valuable.
- It is important for us to hear all sides of an issue – both positive and negative.

None of the experiences or thoughts will be shared with anyone outside of the focus group, unless all identifying information is removed first. The information that I provide during the focus groups will be grouped with answers from other people so that I cannot be personally identified.

_____   _____

Please Print Your Name   Date

_____

Please Sign Your Name

_____   _____

Witness Signature   Date

Appendix D

Dear Senior NHS student,

I am an Iowa State doctorial student conducting research for my dissertation. The purpose of this qualitative study will be to examine cognitive engagement in high school classrooms via high school seniors trained as data collectors of the levels of student engagement in a rural Iowa, mid-size school system. It has implications for utilizing student voice, to articulate a consistent perspective on perceived levels of cognitive engagement, in high school classrooms via high school seniors who are members of the National Honor Society.

As a senior, who is 18 and a member of the National Honor Society, you have been selected as a potential participant in this research to aid in adding student voice to the topic of student engagement.

My research questions are:

1. What are high school students' perceptions about what engages them personally in the classroom?
2. Do students' perceptions about their own engagement in classrooms differ after being trained to gather student engagement data in a school system utilizing the IPI?
3. Do students' perceptions about other students' engagement in classrooms differ after being trained to gather student engagement data in a school system utilizing the IPI?

Permission to conduct this research has been granted from the Superintendent of Schools, Gary Zittergruen, as well as the developer of the IPI, Dr. Jerry Valentine. Participation in this study is strictly voluntary on your part. You may discontinue your participation at any point during this research period.

The time commitment needed from you will be approximately 8 hours: 2 hours for focus group interviews, 1 hour for individual interviews, 2.5 hours for IPI training and then on one day during the spring of 2012, throughout the school day, you would be collecting Instructional Practices Inventory (IPI) data on classrooms located in our high school (2.5 hours).

All information collected from you will remain confidential and will only be used for the proposed research study. Any information regarding personal information will not be included in this study or documentation.

An informational meeting will be held on April 2 in the Conference Room of the Guidance Office beginning @ 11:15a.m. Lunch will be provided for you and any questions or concerns regarding this study will be explained at that point and time.
If you have questions, please contact myself @ jprusha@benton.k12.ia.us or 319-228-8701 ext. 351

Appendix E