HIGH SCHOOL CLASSROOM TEACHER TALK: THE BELIEF-DISCOURSE GAP

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Submitted to the faculty of the School of Education
in partial fulfillment of the requirements
for the degree
Doctor of Education
in the Department of Educational Leadership & Policy Studies,
Indiana University
June 2015

Accepted by the School of Education Faculty, Indiana University,
in partial fulfillment of the requirements for the degree of
Doctor of Education.

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Date of Oral Examination
(June 3, 2015)

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Classroom language is powerful. It reflects a teacher's intended lesson, cultural background, and belief system. Teacher language and all of the nuances associated with human communication can present information, encourage, discourage, and indoctrinate. How this language is interpreted by students impacts their learning and success, as the classroom teacher is pivotal in communicating the school's expected outcomes for each student.

Utilizing a mixed methods approach incorporating Hymes' SPEAKING Model, designed as a tool to understand communication from a cultural standpoint, supplemented with a modified discourse analysis, this study focused on teacher talk. Four high school teachers' classroom discourse was analyzed in light of their expressed beliefs about the students they teach and their work as teachers. The challenges of meeting both cognitive and affective needs of students, the impact of deficit thinking, and the power of discourse were addressed. This study revealed that a gap between teachers' beliefs and their discourse may be creating barriers between presenting students with a curriculum that is more engaging and, believing that, when an engaging curriculum is presented, students will achieve at higher levels.

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Chapter 1 - Introduction

Classroom language is powerful. It reflects a teacher's intended lesson, cultural background, and belief system. It embodies exchanges between teacher and student, between student and student. It epitomizes human learning as a development of shared understanding; norms, both spoken and unspoken are set; roles are espoused; and meaning, intended or unintended, is created. Teacher language and all of the nuances associated with human communication can present information, encourage, discourage, and indoctrinate. How students interpret this language impacts their learning and success, as the classroom teacher is pivotal in communicating the school's expected outcomes for each student. The profound impact of classroom discourse is reflected in how successful schools can be in helping nurture student growth and development (Bryk et al., 2010; Bryk et al., 2015; Chenoweth & Theokas, 2011; Jackson, 2011; Johnson et al., 2012; Johnston, 2004 and 2012; Theoharis, 2009).

Many teachers enter the profession hoping to motivate and inspire learning in their students. Most high school teachers come in with a passion for their particular content area and these content area experts may want to inspire curiosity and lead students to master specific subject area standards. However, teachers may also come into the classroom with beliefs and behaviors that subtly undermine student success. Negative belief systems have long been found to put barriers before many students and continue to do so today (Delpit, 1995; Howard, 1999; Kunjufu, 2006; Ladson-Billings, 1994; McKenzie & Scheurich, 2004; Singleton & Linton, 2006; Spring, 2005; Valenzuela, 1999). Indeed, a strong correlation between interrogating beliefs of educators and hopes

for true school reform continues to be made (Guerra & Nelson, 2009; Moule, 2009; Sensoy & DiAngelo, 2009).

A shared belief system is central to any movement toward a school culture in which students thrive and succeed academically (DuFour & Eaker, 1998; Elmore, 2004; Foster, 1986; Fullan, 2001; Schlechty, 2005; Schmoker, 2006). With both high expectations for student achievement and a climate in which the potential of each and every student is respected, the likelihood of an equitable and nurturing learning environment is increased. Understanding how communication in the classroom can impact school culture may be crucial in transforming learning environments. How teacher belief systems are revealed through their interactions with students has been studied to some extent, but specific studies of high school classroom discourse are few. In helping teachers lead all their students to academic success, a deeper understanding of high school classroom discourse would be valuable, as this study hopes to show.

Assumptions and definitions

As we look at ways to make students' school experiences more equitable, we begin with the assumption they are not. Larson and Murtadha (2002) explain:

> If injustice in schools is natural and unalterable, then there is nothing either researchers or administrators can do about persistent inequalities in education. However, if inequity has been institutionalized in the theories, norms, and practices of our society, and if researchers and administrators reify inequity and injustice by failing to examine, question, and redress the inequities they see, there is much to be done. (p. 134)

As achievement gaps continue to persist between groups of students based on race and socioeconomic status, this study assumes an underlying, ignored inequity prevails in our schools begging a deeper examination of what teachers believe about and say to their

students on a daily basis. With that understanding may come an impetus to begin discussions of equity.

Working toward an equitable, nurturing environment for every student is social justice work. There are differing views of social justice, but a core theme is present. Central to the definition of social justice is the understanding that injustice toward, or oppression of, some group in society exists. At the classroom level, while overt oppression may not exist, words and actions directed from a teacher in a position of power may significantly impact the opportunities students have to learn. Consciously or not, teachers employ methods that may or may not engage all students. Edmonds (1979) explains:

> We can, whenever we choose, successfully teach all children whose schooling is of interest to us; we already know more than we need to do that; and whether or not we do it must finally depend on how we feel about the fact that we haven't so far. (p. 23)

A motivation to change drives the act of providing an equitable educational setting. Crucial to creating this setting is the elimination of the anticipation of, or the permission of, lower performance from any group of children or adults (Shields, 2004). As an ongoing examination of expectations of performance of both teachers and students is begun, the classroom becomes the focus of attention. Expectations and allowances are revealed, in part, through teacher discourse and actions in the classroom.

Purpose of the study

The purpose of this study is to observe how teacher discourse and teacher-student interactions are exhibited in four high school classrooms and analyze them through the teachers' expressed belief systems. What teachers say to students as part of instruction or in conversation may reveal their expectations of student performance and their understanding of how to engage the students.

Teachers' words gathered through both classroom observations and interviews will be organized using two unique analytical methods found in discourse analysis. The methodology used may show potential as a tool for reflective discussions with teachers about their work or as a tool for professional development guiding the creation of culturally relevant classrooms.

Research questions

What does the classroom discourse of four specific classrooms reveal about teachers' understanding of their students and the significance of connecting that knowledge to their students' worlds?

What expectations of students are revealed through classroom discourse in these specific classrooms and in interviews with the teachers from these classrooms?

Significance of the study

This study provides data incompletely addressed in previous high school reform work. This will be a unique contribution as most studies highlighting school reform have focused on elementary and middle schools. Changing the culture of a high school community is understood to be a more lengthy and complex process (Fullan, 2001). Influencing the generally larger numbers of high school teachers, who may be working in isolated departmental groups, to espouse a common belief system about student potential can be challenging. Beginning at the classroom level may help reveal the beliefs that influence the whole school.

Building upon what has already been uncovered through the current body of literature, this study has the potential to contribute to the understanding of deficit belief systems and, perhaps, bring to light new understandings in how to eliminate the barriers many students experience in schools. Ideally, it can enhance the work that high achieving schools are doing, as well as, more importantly, help struggling schools find a way to

begin the work. Detailed descriptions of high school classroom interactions may raise a mirror for educators to see the work they themselves do, as this study examines how discourse and beliefs play out in the classroom, ultimately impacting student achievement.

As educators, we are products of the educational system within which we work. We carry within us societal norms, hegemonic notions of "truth", and what McKenzie and Scheurich (2004) describe as "paralogical beliefs" (p. 624). Unexamined, these norms, truths, and beliefs are perpetuated. If examined, they may lead us to question them. Until we engage in an analysis of how our expressions reveal our thinking patterns, we cannot face them, and unless we face them, we cannot address them. If our thinking patterns have a significant impact on how we work with students, we can, if we choose to do so, work on changing those patterns to help students succeed. This study, by collecting rich descriptions of teacher discourse within the high school classroom, can provide data to inform this work and may provide tools to continue the work.

Chapter 2 – Literature Review

Introduction

This literature review provides an overview of the struggles educators face in helping all students find success, including the importance of social and emotional aspects of learning. The potential impact of deficit thinking tied to culture and teachers' personal belief systems is explored. Finally, the current understanding of the impact of teacher discourse on student learning is elaborated upon.

Challenges educators face

The disconnection between what teachers know they should be doing in schools and how to get there continues. Schools are being asked, through state and federal mandates, to be accountable in ways they have never been asked to be before. A tension exists between accountability and equity. As Welner and Carter (2013) note:

> A narrow focus on the achievement gap predictably leads to policies grounded in high-stakes testing, which in turn leads to narrow thinking about groups of students, their teachers, and their schools. While these assessments attempt to determine where students are, they ignore how they may have gotten there and what alternative pathways might be available for future students. (p. 3)

This tension has existed for over a century, as noted by Resnick and Resnick (1992). Yet, some schools continue to try to influence student achievement without changing how the teaching and learning work is undertaken. Educators are in a position to significantly impact the redesign of schooling but continue to be mired in the order that produced them originally. Pimentel and McNeill (2013) suggest that teachers continue to teach in the way they were taught even after expressing a desire to change how they approach their work.

However, as outlined by Clark (2013), there are teachers who foster culturally relevant and respectful environments and who are highly aware of their own beliefs, attitudes, and biases, as well as those of others. Students in these environments are empowered to draw on their own cultures and experiences as they interact with subject matter content and other students and teachers. In these schools, curriculum affirms a wide range of perspectives through classroom materials, discussions, and student artifacts. Teachers work at finding multiple ways to connect curricular content with students' experiences. In classrooms without this type of focus, students may find themselves disconnected from learning or left behind completely.

Shields (2004) admonishes, "Anticipating or permitting lower performance from any group of children is inequitable" (p. 112). She calls for the elimination of "pathologies of silence" which prevent debate about negative belief systems and allow a lower performance to occur. With accountability systems exposing gaps in measured learning, the status quo might be addressed by focusing on the gaps in opportunity instead.

As the pervasive focus on the individual and the cognitive component of human psychology drives the measurement of performance, classroom instruction may become centered on the basic presentation of knowledge (Green, 2014; Welner & Carter, 2013). With no opportunities for students to make sense of that knowledge and make it their own, the same groups of students may continue to perform at lower levels and the cycle of inequity will be perpetuated. Exploring how to make content relevant to all students opens up discussions about closing gaps of opportunity through revisiting the social and emotional aspects of learning.

Revisiting the affective domain

The social and emotional aspects of human learning may often be dismissed as accountability measures focus so much on the individual and intellectual aspects of learning. Lynch et al. (2009) emphasize Western society's deep ambivalence about caring and loving, subordinating all aspects of the affective domain. Schooling has focused on and rewarded individual work and acquisition of a collection of knowledge. Many school settings have avoided the collaborative, problem-solving work that may be more engaging for many students. Learning in the latter scenario has been perceived as difficult to assess. As a result, the natural human learning process has been subordinated to a fact-acquiring, individual-focused, tightly controlled learning process that can be assessed more easily (City, 2014; Clark, 2013). Learning is measured by students meeting state and federal accountability standards as reflected through standardized testing performance. As alluded to by Carter (2013) and Green (2014), students and teachers become emotionally detached from the learning process as the center of power is not in the classroom but in some distant governmental office.

However, there is a growing appreciation for the impact of affective components of human nature and the need for affective awareness in the classroom. Levine et al. (1993) note, "In the messy 'real world' it is difficult to imagine any situation that is purely cognitive – devoid of emotions, social meanings, social intentions, and social residues in the form of inherited roles and tools" (p. 604). Hargreaves (2000) explains, "Teaching, learning, and leading may not be solely emotional practices, but they are always *irretrievably* emotional in character, in a good or bad way, by decision or default" (p. 812). The practice of educators attentive to emotion has been documented in culturally

relevant and respectful school environments. Valencia (2010) details how affective components can lead to an optimum learning environment for all students. These include developing classrooms that instill a sense of security and competence in students, building a learning community, inspiring hope and meaning, and bringing excitement of discovery and creativity. The importance of this type of environment is significant because of the impact it can have on students from marginalized groups. Indeed, embracing respectful methods of influencing others is crucial in any educational setting. Further, Pink (2012) suggests the importance of quality relationships in environments that help move people. Relationships fuel participation in learning and growing. A lack of social connections fuels stress.

The chronic stress felt by students who find no affiliation with the school setting can severely impact achievement. Secondary schools, in particular, can be emotionally distant and promote emotional misunderstanding and stereotyping (Hargreaves, 2000). Teacher affirmation and openness to student perspective can impact this in a positive way (Burns, 2013; Clark, 2013; Rauf & Iqbal, 2008; Sherman, 2013). This change in practice pushes against potentially ingrained beliefs about the importance of emotional safety in the classroom.

The significance of the lack of appreciation for the affective domain is summarized by Lewis et al. (2000). In their exploration of the connections between intellect and emotion, they propose, "A person who intuits the ways of the heart stands a better chance of living well. A society of those who do so holds a promise we can only guess at" (pp. 229-230). Goodman (2001) emphasizes that work towards equity in schools must deal

with both cognitive and affective dimensions. How educators view their own affect and that of their students may significantly impact how they work with students.

Reframing how educators view students

Teachers may hesitate to stretch students to higher levels of cognitive development because of the belief that intellectual abilities are set. According to Dweck's (2006) study of student behavior and success, humans espouse two mindsets – a fixed mindset and a growth mindset. In a fixed mindset, abilities are set, there is no desire or need to stretch, to learn something new. Attempting to learn more complex things exposes one to failure and, in a fixed mindset, failure must be avoided at all costs. This fixed mindset manifests itself in schools in two ways. Dweck (2006) emphasizes how either lowering expectations or raising them without appropriate supports may be revealed in schools:

> Many educators think that lowering their standards will give students success experiences, boost their self-esteem, and raise their achievement… Lowering standards just leads to poorly educated students who feel entitled to easy work and lavish praise…On the other hand, simply raising standards in our schools, without giving students the means of reaching them, is a recipe for disaster. It just pushes the poorly prepared or poorly motivated students into failure and out of school. (p. 187)

Understanding that self-esteem is raised through authentic achievement of realistic and increasingly challenging goals and that each student is capable of growth challenges the fixed mindset. A requisite growth mindset can move educators beyond deeply ingrained notions of deficit.

Johnston (2004) suggests "we can start to change our classroom interactions by changing our words and dragging some of our beliefs along with them" (p. 84). Indeed, Jackson (2011) proposes that all educators must approach their work believing all students are capable of high intellectual performance. With that belief comes an

understanding that appropriate instructional scaffolding must be put in place to support students' intellectual growth. Belief systems must change. Labeling students as "low achievers" or "disadvantaged" is ineffective in helping create systems that bring students up to their potentials. Instead, students are left to stagnate at low achievement levels. While socioeconomic conditions may disadvantage a student, schools can become the places with enriching resources.

Changing a belief system will be a significant step toward equitable educational opportunities for all students. If educators begin, as they have so many times before, with waiting until every person's belief system changes to do the work, the status quo will be maintained (Fullan, 2001; Johnston, 2004; Schmoker, 2006). When educators understand how they interact with students, they begin to question long held beliefs. When educators understand that they need to view themselves as cultural beings and then see that there is a need to connect with their students' cultures, they may begin to build bridges between them (Delpit, 1995; Howard, 1999; McAllister & Irvine, 2002; Thompson, 2004).

Bridging cultures through "third space"

In attempting to bridge cultures, teachers must understand their culture-neutral view of the school environment is as culturally and racially specific as the private world that each student brings into the classroom. A bridge between two cultures provides an opportunity for successful communication. In order to bridge students' "first space" of home, peers, and community, teachers must embrace their role in the "second space" of the formal world of schooling. Perhaps then, a hybrid "third space" may evolve where the two worlds merge (McNeil & Pimentel, 2010; Moje, et al., 2004; Wiltse, 2006).

Moje et al. (2004) envision a threefold role of "third space." First, this space creates a bridge from previously marginalized knowledge of the "first space" to the school world contained in the "second space." Second, it creates a navigational space into which students can cross and succeed in various contexts and levels of difficulty. Third, it creates a conversational space in which cultural, social, and epistemological knowledge can be challenged. In this space, teachers can position themselves as "effective" (Sosa & Gomez, 2011) and, in turn, position students as "individuals within a sociocultural context, fully capable of academic achievement, and responsible for their school success" (p. 6). In this space, classroom discourse becomes a dialogue between individuals who can share content knowledge in meaningful ways (Lareau & Horvat, 1999; McCarthy, 1999).

The "third space" becomes a relationship-building space, the space that allows teachers to become effective educators. Talbert-Johnson (2006) draws on John Dewey's assertions:

> Dewey believed that teachers need to have three characteristics to connect knowledge and skill: open-mindedness (freedom from prejudice and such other habits that close the mind), wholeheartedness (a teacher's willingness to examine himself or herself, to admit mistakes and learn from them), and responsibility (intellectual responsibility, the desire to learn new things, and holding oneself accountable for teaching in an engaging manner). (p. 154)

She summarizes:

> A highly qualified teacher should possess an empathetic disposition, which manifests itself in a caring relationship with students…. It is basically imperative that teachers know their students well and believe that all students can learn and achieve high levels of academic success. (p. 154)

While disposition may be difficult to recognize, it can be captured through the extent that a "third space" has been created in a classroom. Classroom language is the vehicle through which educators can bridge cultures.

Connecting with students in an authentic, caring way is the goal of many teachers. Many schools provide nurturing, equitable learning environments, yet the potential to create "third spaces" that provide such settings for all students continues to be elusive. Perhaps the greatest barrier is deficit thinking. Deficit thinking can be so subtle that, even when examined directly, it may be difficult to grasp its implications, let alone its existence. In order to understand how to create connections between students and teachers in classrooms, a deeper understanding of deficit beliefs and culture may be crucial.

Effects of deficit thinking

Valencia (1997a) explains, "Deficit thinking is tantamount to the process of 'blaming the victim.' It is a model founded on imputation, not documentation" (p. *x*). Deficit thinking is deeply embedded in our social conscience. Valencia (2010) describes deficit thinking as strongly held and historically perpetuated flawed reasoning. Certain members of society are held responsible for their own powerless status and this has led to lowered expectations for them. Assumed deficiency has become "fact" and has gained credibility in historical wave after wave of revisiting false data. Deficit thinking has become part of how society makes meaning for itself (Scheurich &Young, 1997).

As social beings, we take cues for expected behavior from overt and covert social messaging. How those messages are internalized can potentially lead to a self-fulfilling prophecy of deficiency. For example, as a racial minority or as someone who is poor, a

student may begin to see himself or herself as deficient and limited in opportunity. He or she may begin to believe that it may not be possible to be a minority or poor and also be academically successful. Those working with him or her, in turn, may begin to believe that the student is deficient in some way. What may follow is a belief that this type of deficient student might be "fixed" by measuring performance with high-stakes tests. The deficient student may then be studied scientifically and the results may reveal that there is yet no way to "fix" the deficiency. Or, maybe, the student cannot be "fixed" (Andre-Bechely, 2005; Delpit, 1995; Lareau & Horvat, 1999; Menchaca, 1997; Thompson, 2004; Valencia, 1997b; Valencia, 1997c; Valencia and Solorzano, 1997). And the cycle perpetuates.

Belief systems that embrace the false notion of deficit tied to any ethnic or social group impact behavior overtly and subliminally. Deficit thinking has allowed systemic factors such as segregation, funding inequalities, and disparities in curriculum to remain blameless in their effects on student achievement (Ladson-Billings, 2006a and 2007; Pearl, 1997). Questioning this thinking and interrogating its origin is significant to understanding current educational practices. Challenging unexamined beliefs about race, socioeconomic status, and culture is crucial in helping create culturally relevant classrooms.

Concepts of culture

Culture is an expression of who we are through our various affiliations and life experiences and, therefore, we are all part of cultural groups (Gay, 2003; Thompson, 2004). However, as Ladson-Billings (2006b) explains:

> Most members of the dominant society rarely acknowledge themselves as cultural beings. They have no reason to. Culture is that exotic element

> possessed by 'minorities.' It is what it means to be nonwhite. It is also the convenient explanation for why some students cannot achieve success in the classroom. (p. 107)

In our educational systems, where any "minority" may be labeled as deficient, any student who is not White, not middle class, not male, not heterosexual, not abled, not Anglo-Saxon Protestant, not a traditional learner, has a greater potential to fail at school. The value in understanding students' cultural backgrounds and incorporating that understanding into classroom discourse to enhance learning experiences may be missing. The cultures students bring into the classroom are part of their prior knowledge for teachers to draw on in enhancing learning, not a deficit to be overcome (Gay, 2003; Irvine, 2009; Theoharis, 2009).

The historical, economic, sociopolitical, and moral factors that fueled the evolution of deficit thinking tied to perceptions of culture continue to impact what happens in classrooms. The type of teaching that evolves from it is what Haberman (1991) describes as the pedagogy of poverty. The school establishment and those who believe students must be *made* to learn support the strict authoritarianism that is central to the pedagogy of poverty. This pedagogy perpetuates a system without hope of reform and grates against why teachers enter the profession. Haberman (1991) elaborates, "The pedagogy of poverty requires that teachers who begin their careers intending to be helpers, models, guides, stimulators, and caring sources of encouragement transform themselves into directive authoritarians in order to function in urban schools" (p. 291). Common symptoms resulting from a pedagogy of poverty include student work not matching teacher expectations or student behavior at odds with school expectations (McCarthy, 1999; Toll et al., 2004; Wiltse, 2006).

As the disconnections between teacher and student, and teaching and learning, are perpetuated, teachers continue to view their own perspective as irrelevant to their role and, subsequently, may espouse a color blind, culture-neutral perspective in relation to their students. As a result, unfortunately, certain students continue to not be successful and the debate as to why continues. The debate cycles back to the notion of deficit attached to particular cultural groups as part of the explanation of why certain students cannot succeed. Insisting the "culture of poverty" explains the "achievement gap" and teachers should become "color blind" to become effective educators should be counterintuitive (Ladson-Billings, 2006b; McKenzie & Scheurich, 2004; Ullucci & Battey, 2011). However, because these frequently touted concepts go unexamined, educators may not understand their underpinnings and, as a result, fail to embrace and understand their own cultures and the cultures of their students in a positive and productive way.

Ladson-Billings (2006a) challenges the focus on the gap versus a focus on the education debt leading to it. Accordingly, Ladson-Billings (2007) interrogates the notion of a culture of poverty:

> Poverty is not a culture. It is a condition produced by the economic, social, and political arrangements of a society. Poverty is linked to the values of a society. When we think it is acceptable for people to work and not earn a living wage, we contribute to the creation of poverty. When we demand low prices for goods and services – cheap and plentiful food, clothing, clerical, and domestic services – we participate in the creation of poverty. (p. 320)

The condition of poverty is a life experience that contributes to how a student understands his or her world. However, poverty alone is not a reason for a student to fail. Finding the methods to settle society's accumulated educational debt is the challenge.

Student culture

A student enters the high school classroom with a variety of life experiences and affiliations that influence his or her understanding of the world. He or she comes in with various levels of specific content knowledge related to that specific course. Similarly, the teacher enters with a certain level of understanding of the content he or she teaches. Ideally, as suggested by Ullucci and Battey (2011), the teacher comes in with an understanding that his or her "behaviors, beliefs, customs, and ways of getting things done are culturally and racially specific" (p. 1200). How the teacher and student find a way to work together and make meaning together may determine the student's success or failure. How the teacher finds a way to work with every student in the classroom may create the classroom culture.

Understanding how to work with each student may be problematic. Carter (2013) proposes:

> Some of the most consistent and convincing research examining student culture and schooling suggests that when students' cultural backgrounds are dissimilar to the backgrounds off their teachers and principals, the disadvantage experienced by those students are due to the educators' lack of familiarity with their social backgrounds, which in turn hinders those educators' capacity to engage with students effectively. This inability of educators to comprehend the social realities, cultural resources, and understandings of Black, Latino, Native American, and other nondominant groups is one of the main drivers of the opportunity gap in American education. (p. 147)

Students who believe their teacher understands them, cares about them, and cares about what they believe by giving them a voice are more engaged in their work (Chenoweth, 2010; Cheung, 2009; Kafele, 2014; von Frank, 2013; Zimmerman, 2014). Students are most engaged when they can connect the content to their understanding of the world and

are then challenged to explain and extend their views (City, 2014; Cook-Sather, 2010; Cuny, 2014; Dweck, 2010; Fisher & Frey, 2014; Hirsh & Hord, 2010).

Creating a caring, culturally relevant, and challenging classroom environment helps close opportunity gaps. Opening dialogue and sharing viewpoints can be uncomfortable for some teachers. Crafting lessons to allow student voice to be encouraged and heard involves knowing what experiences students are bringing into the classroom. The benefits to student learning, especially for those who struggle most, support this pedagogy (Fisher & Frey, 2012; Gleason & Gerzon, 2014; Green, 2014; Hawley & Nieto, 2010; Heath & Heath, 2010a; McAllister & Irvine, 2002; Rosenshine, 2012; West-Burns et al., 2013).

Understanding the value of making these connections, teachers of any cultural background can create bridges to their students' cultures. Central to those connections is communication. Interrogating the nature of relationships with students can begin with studying words and actions of teachers. Classroom discourse may be a starting place to examine how students' cultures are perceived and how students can be engaged through honoring their cultures.

Discourse as social practice

As social beings, humans communicate with each other and share cultural expectations through discourse. Those who study language and all its implications consider discourse, this "running to and fro" (from the Latin), a social practice (Rogers et al., 2005). This practice reveals itself in our socialization, as we learn from our families, and eventually extends into our greater community, school, and the workplace. An ability to engage in the social practice of any given culture can impact status in that

culture. Heath and Street (2008) explain, "Individuals who cannot use the 'official' languages or standard varieties of their countries or write that language in 'standard' form have beliefs about language and literacy that affect their perceptions of themselves" (p. 18).

School, if it indeed becomes a place for building bridges between cultures, becomes a place for understanding discourse. For example, teachers in Heath's (1983) ethnographic study of two communities found that incorporating "communities' ways of talking, knowing, and expressing knowledge with those of the school enabled…children to understand how to make choices among uses of language and link these choices to life chances" (p. 343). Understanding social structures helps students develop the personal competence that can allow them to negotiate racial, economic, and social barriers. It is a factor in building resiliency and increasing the likelihood of academic success (O'Connor, 1997).

The impact schools, specifically teacher-student interactions, can have is significant. Much of the work leading to this understanding has come from discourse analysis applied through an ethnographic lens. Hymes (1962) launched examinations of communication in a social context. Studies of language use, conducted through the lens of social interaction, have added to our understanding of discourse since the 1960s.

Teacher discourse has been studied in a variety of ways, many very specific. Some studies examine the intersection of language, social class and/or ethnicity, and the school's role in perpetuating class status, societal roles, or community norms (Heath, 1983; O'Connor, 1997; Rampton, 2001; Valenzuela, 1999; Willis, 1977). Other work surrounding teacher-student discourse centers on new language acquisition (Chavez,

2007; Hamre et al., 2012; Rauf & Iqbal, 2008; Yanfen & Yuqin, 2010). Discourse related to specific curricular subject matter has informed ways of understanding in science (Hughes, 2001; Maeng & Kim, 2011; McNeill & Pimentel, 2010), chemistry (Moje, 1997), language arts (Wiltse, 2006), and content literacy (Moje, 1996; Moje et al., 2004).

Other scholars focus on adult and peer interactions with individuals or groups (Graff, 2009; Hinchman & Young, 2001; Webb et al., 2007). In research on teacher-student relationships, Hamre et al. (2012) suggest "there is now compelling empirical evidence that one of the salient aspects of early childhood programs' effects on children's development is the nature and quality of teachers' interactions with children" (p. 90). At the high school level, studies have revealed some consistent factors make for quality relationships with teachers (Cornelius-White, 2007; Frymier & Houser, 2000; Moje, 1996; Pomeroy, 1999; Wubbels & Brekelmans, 2005). The studies of teacher interactions with students and the resultant formation of relationships indicate quality interactions may have the greatest impact on student achievement.

Adult speech acts

Relationships with students may form, or may never begin, based upon the disposition of the teacher. Educators must be aware of all that body language and spoken and unspoken language espouse. Johnston (2004) explains:

> Our speech is inseparable from our bodies. Its tone, modulation, pitch, and so forth are affected by feelings, attitudes, and relationships. We cannot effectively use a particular kind of language if the body and other crucial indicators give conflicting messages. If we are angry with a child, or disappointed, or think he or she is learning disabled or gifted, we might not directly say it, but traces of it will be in our speech.… The pauses, coughs, sighs, frowns, postures, and so forth are all part of our language,

> along with the way we organize the classroom, the activities we design, the resources we make available, and so forth. All are part of the discourse of the classroom, and all interact with one another. Children make sense of language, and themselves, in the context of it all. (p. 77)

Similarly, Jackson (2011) emphasizes powerfully that how students make sense of content is tied directly to how classroom discourse evolves. In many classrooms, because teacher talk dominates, close scrutiny of adult speech acts may be important.

Especially at the secondary level, the focus continues to be on telling and controlling. Because the level of information expected to be passed on is perceived as complicated or new, the teacher may position himself or herself in an exaggerated state of power. Freire (1970) cautions educators on the danger of "banking":

> In the banking concept of education, knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing… [it] maintains and even stimulates the contradiction…through…attitudes and practices, which mirror oppressive society as a whole. (pp. 72-73)

O'Brien et al. (1995) emphasize the secondary curriculum focuses on just that, pedagogies of control and telling. Gee (1996) and Moje (1997) elaborate that teachers are generally unaware of how their own valued discourses are neither understood nor embraced by their students. Schmoker (2006) laments, "Unfortunately, few teachers see themselves as inventive, adaptive professionals upon whom improvement primarily depends" (p. 117). Understanding and embracing the power of discourse can change beliefs and practice (Dweck, 2006; Furman & Gruenewald, 2004; Moss & Merkel, 2008; Shields, 2004; Skrla et al., 2004).

Belief systems revealed through adult-adult conversation have been studied most. Studies focused on the change process highlight the importance of crafting language to influence others (Heath & Heath, 2010b; Kegan & Lahey, 2001; Patterson et al., 2002;

Pink, 2012; Scott, 2004). In leadership and other settings where influence is necessary, much attention is given to how communication is crafted. However, adults in education have been, for the most part, slow in understanding the power of language – with each other and with students. Chenoweth and Theokas (2011) give an example:

> When adults in a school building believe some students will not succeed academically or are – to put it at its most stark – headed to prison, they inevitably begin to sort students into those who are worthy of attention and those who are not. We have heard teachers say on the first day of school, 'I can tell who is going to college.' This perception about students, whether automatically or unintentionally, creates different sets of standards and expectations. (pp. 153-154)

This type of unexamined and unchallenged language contributes to the climate of the school and of the classroom (King, 1997; McKenzie & Scheurich, 2004). Dinkins (2005) presents evidence that, even in a school where the staff attempted to maintain a social justice stance, conversations revealed a normalization of academic failure for Black students. The subtle ways words reflect unconscious beliefs about students continues to be documented (Brown & Brown, 2012; Watson, 2012). In their work examining reflective and automatic facets of the mind, Banaji and Greenwald (2013) propose that while explicit bias is infrequent in our society, implicit bias is pervasive. They conclude that Black disadvantage is perpetuated through automatic, unexamined belief systems impacting social policies and norms.

As influential members of society, teachers, through their discourse, hold great power. Teachers' discourse may reveal deeply held conscious or unconscious beliefs about who their students are as both social and intellectual beings. As a result, students may be significantly influenced by their teachers in positive or negative ways.

A conceptual framework: Teacher talk and beliefs about student culture

Unexamined language and the unconscious belief systems influencing it may have a profound impact on how teachers interact with students in schools. Adults may view their discourse as separate from how they treat students in the classroom. However, it is becoming evident in schools that are succeeding with all students that beliefs and words inform behavior. Teachers who are aware of their own beliefs about students and consider how those beliefs are revealed in their words interact with their students in ways that support achievement (Chenoweth & Theokas, 2011; Jensen, 2009; Johnson et al., 2012; Theoharis, 2009; Theoharis & Haddix, 2011; Zmuda, 2010). A few studies have specifically examined the impact that teacher awareness of their own discourse or that of others can have on motivating improvement of their own practice (Harfitt, 2008; Levine & Mann, 1985; Thornbury, 1996). What has not been studied extensively is how the adult-student school discourse reveals cultural beliefs about poverty and race in the high school setting.

Students who are poor, Black, or Hispanic/Latino tend to be the most disenfranchised in school. However, studies have shown that across all racial, socioeconomic, and gender variables, certain teacher dispositions correlate positively with student achievement. Common traits include empathy, encouragement, strong interpersonal communication skills as well as strong content communication skills, humor, and student-centered work. Authentic relationships emphasizing trust, warmth, dignity, and responsibility are stressed by Cornelius-White (2007). Trusting students to be responsible for their contributions to their own learning is accentuated by City (2014) and Cuny (2014). Frymier and Houser (2000) emphasize immediacy, caring, humor, and communicator

style. Communicator style and strong content knowledge are noted specifically by Green (2014) and Lemov (2010). O'Connor's (1997) work supports that resiliency in traditionally disenfranchised students can be buoyed by teachers who are empathetic and dignify students' cultures. Establishing caring and supportive relationships is echoed by Pomeroy (1999) and the importance of cultural sensitivity is stressed by Clark (2013). Wubbels and Brekelmans (2005) summarize that both cognitive and affective outcomes are positively influenced by teachers who lead their students well, are helpful, friendly, and understanding, and give their students freedom and responsibility. These studies and meta-analyses report findings of student perceptions as revealed by the students themselves through interviews or surveys. Only a few studies highlight specific examples of the previously mentioned traits in classrooms.

For example, in her two-year study of one chemistry teacher's use of literacy strategies, Moje (1996) questions whether some of the organizational literacy practices and supportive dispositions that one successful teacher put in place would be supported in a classroom with more student diversity. Both the teacher and her class in this study were White, middle class, and raised in the same community. This one case supports effective classroom discourse, but also leads to more questions.

Studies such as this have started laying the groundwork for practical application, but it is obvious the area of language study has yet to make the significant impact it can in schools. Heath (1984) explains:

> To be sure, however, the influence of linguistic research on education is still more wished for by researchers than acted upon by practitioners; it is often extremely difficult to translate basic research findings on language into immediate recommendations for practice. (p. 268)

O'Brien et al. (1995) emphasize secondary school pedagogy is still something *done* to students. In their study of infusion of content literacy at the high school level, they conclude that attempting to move toward student-centered instruction, active engagement in learning, and social construction is antithetical to the culture of schools. Cazden (2001) offers a more hopeful view. Continual examination of classroom discourse carries with it the potential to refine educational practices. Drawing on that hopefulness, a focus on using an analysis of classroom discourse as a method to reflect on creating equitable educational settings should continue.

This work focuses on teacher talk and how beliefs about student culture are revealed in what is said to students in the classroom and what is said about students as teachers reflect on their work. As suggested by Cazden (2001), Heath (1984), and Jackson (2011), discourse reveals beliefs through speech and action. The quality of that discourse may be a critically important key to student success.

There are many factors that perpetuate inequities in educational environments. Three factors inform this study. Goodman (2001), Hargreaves (2000), and Lynch et al. (2009) reveal the effects of unexamined beliefs about the affective and cognitive domains of learning. Deficit views tied to culture and the detrimental effects that unconscious bias can cause are emphasized by Valencia (2010). And, the importance of how communication reveals conscious and unconscious beliefs is accentuated in the work of Jackson (2011) and Johnston (2004 and 2012). How the gap between teacher talk and teacher beliefs about student culture continues to perpetuate inequities in opportunity and achievement forms the conceptual framework of this study.

Chapter 3 – Methodology

Theoretical framework

This qualitative study examined four high school teachers' classroom discourse. What teachers said to students and how they said it to students was compared to what they stated they knew and believed about their students. This discourse was analyzed based on the belief that schools perpetuate cultural hegemony through classroom language. As Habermas proposed (quoted in Held, 1980):

> In speech…grammatical sentences are embedded in relations to reality in such a way that in an acceptable speech action segments of external nature, society, and internal nature always come into appearance together. (pp. 338-339)

Discourse analysis of teacher classroom speech and interactions can reveal internal belief systems, societal norms, and external expressions of both. Kincheloe and McLaren (2003) highlight that, in the critical hermeneutic tradition, in qualitative research, there is only interpretation. "The hermeneutic act of interpretation involves in its most elemental articulation making sense of what has been observed in a way that communicates understanding" (p. 443). Crotty (2003) adds, "Hermeneutics is at once grammatical and psychological" (p. 93). Making sense of the culture of a classroom through the analysis of discourse may create new understandings to inform school reform.

Analytic framework

An analytic framework of applied linguistics guided this work. Cazden (2001) describes the study of classroom discourse as a kind of applied linguistics. She outlines the three types of multifunctional classroom language: the language of curriculum, the language of control, and the language of personal identity. The interplay of this continual

movement between the cognitive and the social raises the following questions and guides my research:

> How do patterns of language use affect what counts as 'knowledge,' and what occurs as learning? How do these patterns affect the equality, or inequality, of students' educational opportunities? What communication competence do these patterns presume and/or foster? (p. 3)

These patterns may be revealed through teacher-student interactions along with direct teacher talk. Cazden (2001) indicates that speaking rights, seating arrangements, wait time, teacher assistance, and classroom routine are observable features in the classroom that can offer insight into these questions. Hinchman and Young (2001) build on work showing what students say, which students talk, and which students are heard bring to light the power relations that are exhibited in daily classroom interactions. Heath and Street (2008) suggest, "As ethnographers come to understand culture as a verb, they recognize that the vast majority of what and how humans learn never goes into language as either model or vehicle" (p. 11). Studies may reveal that sorting out connections between language and culture in classroom settings provides great insight.

Established methodologies continue to provide valuable ways to study discourse in classrooms. Hymes' (1962) groundbreaking work in studying how people talk provides a valuable tool to examine what happens in classrooms. Matei (2009) suggests, "Perhaps the most efficient model of research, called the SPEAKING Model, was put forth by Hymes…" (p. 160). The communicative events are represented by each letter of the acronym , "Situation, Participants, Ends, Acts, Key, Instrumentalities, Norms, and Genre" (pp. 160-161). Mercer (2010) proposes a mixed methods approach, sociocultural discourse analysis, which allows for qualitative analysis of the development of shared understanding with a quantitative assessment of key words that may be revealed in the

analyzed discourse. Gee (2011) outlines the steps that would constitute a full or ideal discourse analysis. Machin and Mayr (2012) provide a valuable, practical guide for analysis of written, oral, and visual forms of communication events when conducting critical discourse analysis. Most recently, Rogers and Wetzel (2014) have supported the value of utilizing both critical discourse analysis and multimodal discourse analysis. Ultimately, the potential exists to utilize a variety of methods to begin to analyze how classroom language impacts the creation of an equitable and nurturing environment for high school students. This study incorporated a mixed methods approach utilizing the SPEAKING Model (Matei, 2009) supplemented with a modified discourse analysis (Gee, 2011).

Research challenges

Poulson and Wallace (2003) underscore the importance of focus in small-scale work. Attempting to examine every type of interaction one might see in a high school classroom setting would be daunting. Focusing on how teacher-student interactions are revealed in the classroom is one aspect in the greater scope of how the high school classroom experience might become more equitable and promote success for more students. Analysis of teacher discourse and teacher reflections on the students they teach provided a manageable focus for this study.

Research questions

- What does the classroom discourse of four specific classrooms reveal about teachers' understanding of their students and the significance of connecting that knowledge to their students' worlds?

- What expectations of students are revealed through classroom discourse in these specific classrooms and in interviews with the teachers from these classrooms?

Methods and analysis

Data collected from observations, teacher interviews, and the annual accountability and accreditation report became part of the analysis. Recordings and notes were reviewed after each set of observations. Richards (2005) recommends having an organizational cataloging system in place to assist in analyzing the volumes of qualitative data collected. Data were categorized as:

- Classroom observations – audio and notes from direct observations
- Teacher interviews – audio and notes from the interviews
- Annual accountability and accreditation report

Classroom observations

Classroom recordings were transcribed and coded (see *Coding nonverbal cues* below). Each classroom observation session was deconstructed utilizing Hymes' (1962) SPEAKING Model. This practical method of organizing observational data provided a concise snapshot of each class situation, the demographics of the class, and the intended outcomes of the class. Specifically, as defined by Matei (2009), communicative events included:

- *Situation* – physical and temporal setting and scene as well as cultural definition
- *Participants* – identities in terms of age, gender, ethnicity, social status…and their roles and relationships
- *Ends* – expected outcomes of the event, group and individual goals
- *Acts* – form, content and sequential arrangement of speech acts constituting the event
- *Key* – tone – humorous, serious, playful, solemn, ironic, formal and informal
- *Instrumentalities* – tools used in the construction of the speech event: code (language or language variety) and channel (vocal or non-vocal)
- *Norms* – of interaction and interpretation
- *Genre* – generically different speech acts such as storytelling, gossiping, joking, lecturing, interviewing, poem, myth, tale, proverb, riddle, curse, prayer, oration, commercial, form, letter, editorial, etc. (pp. 160-161)

Interview protocol

Interview questions were used to have teachers clarify their philosophical beliefs. As suggested by Seidman (2005), use of an interview guide lends itself to further probing of responses. Interview questions provided valuable information that could be compared with classroom observations. The goal of interviewing was to add a richer layer for analysis to the observational data. The interview protocol involved teachers being interviewed after classroom observations were completed. This allowed for observation-specific probing questions. Interview questions included:

- What is your educational philosophy?
- Is it the same as it was when you started teaching? If yes, how so? If no, what has contributed to keeping it the same?
- How many of your students would be classified as being of low socioeconomic status?
- Has that changed since you started teaching? If yes, how so? If no, what has contributed to keeping it the same?
- What different cultures are found in your classroom?
- Has that changed since you started teaching? If yes, how so? If no, what has contributed to keeping it the same?
- How do you engage students in learning?
- Could you describe a time when your students were very engaged in their learning?
- Could you describe a time when your students were very unengaged in their learning?
- What challenges do you face when working with your students?
- Could you describe a time when you were very challenged by a student?
- What does being respected mean to you as a teacher? Tell me about it from the perspectives of administrators, parents, and students.
- Could you describe a time when you felt respected?
- Could you describe a time when you felt disrespected?
- What are some of the things you know about your students outside of the classroom?
- Has that changed since you started teaching? If yes, how so? If no, what has contributed to keeping it the same?
- Why did you choose teaching as your career?
- If you couldn't be a teacher, what career would you choose?

Probing questions were used to further explicate responses.

Coding nonverbal cues

Notes on nonverbal cues used modified Jeffersonian Transcription (Jefferson, 1984). Taking into account the need to include some additional conventions in note taking, the following modified Jeffersonian Transcription conventions were utilized:

{}	slow pace
<<>>	fast pace
??	unintelligible words
/	rising intonation
\	falling intonation
ALL CAPS	shouting
( )	pause (time)
underline	emphasized
::	prolonged sound (vowel or consonant)
xH	exhalation
**	code switch
:)	smile
:))	laugh
:(	frown
:|	no expression
:/	alternate expression, making a face
Y	high power posture, open body
|	low power posture, closed body

Any actions of particular note not included above were included in the notes as well.

Transcriptions

Within the transcribed texts themselves, ## was used to mask identities of students, adults, and places while differentiating them for the reader. For example, different students could be imagined through identifying A##, N##, and C## in this way. Also, within teacher discourse, if student comments were intelligible, they were designated with (student comments) or (student reads), for example. If numerous students were blurting out or mumbling quietly, transcription continued with teacher words only.

Debate revolves around transcription systems (MacLean et al., 2004; O'Connell & Kowal, 1994; Oliver et al., 2005; Tilley, 1998). MacLean et al. (2004) recommend extensive, detailed notations of emotional content. Notations such as those used by Rauf and Iqbal (2008) which include transcription conventions for laughter and code switching were valuable in this study, as were conventions for smiling, laughing, frowning, and having no emotional expression. Poynton and Lee (2011) stress the value of addressing affect in discourse analysis. Also, while students and teachers might not be changing languages, as the students were in the study by Rauf and Iqbal (2008), there were variations in academic language versus less formal language. Highlighting the value of noting any potential code switching was echoed by Rogers and Wetzel (2014). Finally, work by Carney et al. (2010) emphasizes the effects of nonverbal power posing on the person displaying either a high power or low power pose. An overtly open body posture including outstretched arms and gesticulating versus a less-threatening closed body posture with arms folded and few gestures provided insight into teacher dispositions.

Utilizing analysis of speech segments along with notes on nonverbal cues, a multimodal transcription was constructed. As suggested by Rogers and Wetzel (2014), there is no one method of discourse analysis. Transcription procedures and analysis should be transparent. The unit of analysis should be explicitly addressed and congruent with the research questions. This study's coded transcriptions were created with these points in mind.

Setting

A rural high school in the Midwest was the setting for this work. The school population was that of the average high school in the United States, having between 600

and 700 students. Demographic categories for student race and ethnicity included, approximately, 72% White, 16% Black, 6% Hispanic/Latino, 3% Asian, 2% Native American, and 1% Multi-Race. Students with individualized education plans comprised 12% of the population; English Language Learners comprised 2% of the population. Over 70% of students qualified for free and reduced lunch. The last reported graduation rate was 64.2%. Census data revealed a 3% growth in the Hispanic/Latino population as well as the Mixed-Race population over the past ten years.

The community struggled with a depressed economy. Manufacturing jobs that had been plentiful in the past were gone. The few professionals who worked in the community did not live in the community. This included many staff members at the high school. The school utilized community members in outreach positions providing translation, school-to-home contacts, and in-school tutoring, and acting as liaisons for community-based programs as they worked to provide a quality education for all students. The school had developed strong connections with Native American, Hispanic/Latino, and Black community-based programs benefitting students outside of the formal school day.

The new principal was committed to developing a sense of community for all students and to providing a progressive and engaging educational program for all students. Both the principal and the superintendent expressed a commitment to continual improvement. As noted by the principal, the high school staff specifically wanted to become more collaborative and wanted to incorporate more project-based learning. Both of these efforts offered the opportunity for reflection on practice and, accordingly, the district was very open to a study on classroom discourse.

Participant selection

Working with the principal, teachers in the areas of math, language arts, science, and social studies who might be open to classroom observations and willing to share their philosophies of teaching were identified. The teachers taught at least one general level core class. A general level core course provided a setting in which a greater diversity in student interest and ability would most likely be found.

After introducing myself during a staff meeting and presenting an overview of my research intent, potential candidates contacted the principal to volunteer. In consultation with the principal, teachers who might set challenging learning goals for their students each year and/or teachers who have strong relationships with students in the school were identified. Teachers were contacted to review and sign the study's participation information document. A language arts teacher withdrew, after originally agreeing to participate. As two social studies teachers agreed to participate, both were included in the study.

My role was primarily that of observer while in the classroom, interacting casually and indirectly with individuals and groups only as needed during observations. To alleviate any concerns about my presence, the principal informed the school community of my role (Gall et al., 2003). Additionally, having teachers let students know that an observer was to be in the classroom was beneficial in limiting disruption to the classes.

I observed three entire class periods for each of the four teachers and audio recorded verbal discourse. Concurrently, notes were taken on nonverbal cues and otherwise imperceptible interactions that may not have been evident through the audio recordings. The focus was specifically on teacher words and actions with no specific identification of

students. Student comments or actions were highlighted as needed to give context to what the teacher was doing or saying.

Trustworthiness and ethical issues

Lincoln and Guba (1985) provide useful questions to guide the search for trustworthiness:

> How can an inquirer persuade his or her audiences (including self) that the findings of an inquiry are worth paying attention to, worth taking an account of? What arguments can be mounted, what criteria invoked, what questions asked, that would be persuasive on this issue? (p. 290)

Using a combination of observations, teacher interviews, and the annual accreditation and accountability report provided different means with which to uncover emerging themes. As advocated by Richardson and St. Pierre (2005) in their concept of crystallization, analysis should move beyond rigid triangulation and extend how we interpret what we see to the image of a crystal. "Crystals are prisms that reflect externalities and refract within themselves…what we see depends on our angle of repose" (p. 963). Data interpretation involved personal reflection and personal reflection informed interpretation. An essential component of qualitative work is reflexivity (Heath & Street, 2008). Awareness of self-perceptions and the potential for researcher impact in this type of work was essential.

Issues that might have arisen were reviewed through Patton's (2002) valuable "Ethical Issues Checklist" (pp. 408–409). Pertinent checklist items are addressed below.

Risk assessment

The importance of nonjudgmental and honest sharing was emphasized. During individual interactions, a focus on maintaining empathic understanding created a non-threatening environment that allowed for open discussion. Teachers were assured data

collection visits would not be used as part of the evaluation process. The nature of the data collected did not impact administrator observation of the teachers or their evaluation feedback. All input was honored and respected as sensitive and sincere. Any concerns raised by participants were to be addressed as they arose. No concerns were raised during the study.

Confidentiality

Each participant was assigned a letter, based upon the order of observation, for identification purposes. Teachers are referred to as Teacher A, Teacher B, Teacher C, and Teacher D. Accordingly, classrooms are identified as connected to each teacher: Classroom A, Classroom B, Classroom C, and Classroom D. The school itself is identified only as "American High School." Transcription was done on my personal laptop at my personal residence. All data are saved on an external memory device and are secured with original audio recordings at my home. Printed data are secured at my home as well. Original recordings will be maintained no longer than one month after the final approval and publication of the dissertation. Transcripts and data analyses will be maintained for potential extensions of the research for a time period no longer than five years after the final approval of the dissertation.

Informed consent

Institutional review board approval was solicited through the Indiana University – Purdue University at Indianapolis Review Board process through the Office of Research Administration. The application was submitted after the proposal was accepted.

Data access and ownership

All original observation notes, recordings, notes or transcripts from individual interactions, and documents related to this study are and will be accessible only by me.

Investigator bias

I entered this study believing cultural hegemonic forces shape how we think about students and that deficit thinking results in inequity in our schools. The results of this study have challenged my own beliefs and may challenge those of others working with high school students. Reflection through this process has been valuable in personal debriefing. Again, focusing on crystallization was crucial in this process (Richardson & St. Pierre, 2005).

Ethical or legal issues

It is impossible to anticipate every scenario that might raise and/or create ethical or legal issues. Any indication that students were experiencing harm would have constituted a legal issue and would have been handled as such. Any other issues raising ethical or legal concerns would have been addressed accordingly. Inappropriate comments on the part of any of the participants would have been addressed as well. No concerns arose during the study.

Chapter 4 – Findings, Interpretations, and Discussion

This study closely examined teacher discourse - how teachers interacted with students, what teachers said during teaching, and what they said when discussing their work. Teacher discourse revealed teacher beliefs about their students' cultures, curricular content, and how it is presented to and perceived by their students.

Findings are presented through the methodologies utilized: SPEAKING Model, interviews, and classroom discourse analysis. Through the SPEAKING Model, settings and interactions are described in detail. Interview data examine teacher beliefs about their work and their students. Teachers' interactions with students are interpreted through classroom discourse analysis. How classroom language reveals teachers' beliefs is discussed.

Observation settings and timeframe

School setting and building description

American High School was set in an area on the edge of town. In close proximity were the municipal airstrip and an old armory. The building exemplified school architecture from the 1960s and its 1961 cornerstone confirmed this. Although its age was evident, the grounds and interior were well-maintained. The school offices were directly in front of the main entrance doors. Unlike many contemporary schools, no security buzz-in was in place.

During visits to American High School, adults and students were quick to return a smile. At my first observation visit, I was questioned as to why I was there and reminded that there would be a twenty-five dollar charge for the visitor badge if I did not return it. When signing in during that visit, a student in the office volunteered eagerly to show me

around. I thanked her for offering after the secretary told her it would not be necessary. Prior to that, on my very first visit for the staff meeting, and then during all other observation visits I was welcomed with a smile and a request to sign in. Administrative staff members were welcoming and helpful.

Before each set of observations, I went to the media center to wait for the first class period to end. The library space was open and welcoming. Students or staff might be working at some of the computer stations. Student-created posters highlighted books to be found in the collection. The media center specialist was always upbeat and personable to both staff and students coming in and out, as well as towards me.

During passing time, teachers and staff were out in the hallways, chatting with neighboring teachers or with students in the hall. Most staff members were quick to make eye contact and help give directions when I needed assistance. Some were more standoffish. Students were respectful of each other and adults, progressing with purpose toward their next class or standing at their lockers, joking and laughing.

Timeframe

Observations took place during a timeframe which maximized teacher attendance and normal school schedules. The timing of observations had significant implications. In allowing the study, the district and school preferred a compact timeframe for observations. Particularly significant to the questions of the study, the timeframe was at a point in the semester when relationships and routines should have been established within classrooms. Also, a shorter timeframe allowed for detailed snapshots of classrooms without variables that might be infused over time. These could have included extended

teacher absences for any variety of reasons or classroom demographic changes with students moving in and out of the school.

SPEAKING Model Findings

The classrooms and participants are described in this next section. The cultural context of each classroom during each observation is interpreted through the lens of the SPEAKING Model. The full, coded transcripts of each observation are provided in the Appendices.

Classroom A

Classroom A contained student desks arranged in rows with the teacher desk in front. Agendas with tasks were written on the board. The front wall to the side of the board had a painted map along with an image of Abraham Lincoln and other figures partially covered with a framed "Who is an American?" picture. A big American High School mascot football helmet was posted. Various items were stored above the side bulletin board. Economic data, posters on government, and cutouts of George Washington's profile and the Liberty Bell were on the bulletin board. On the other side of the room, college readiness standards were posted. A globe sat in the corner. Stacks of workbooks, football drawings, and a trophy were on or near the shelves. A small mounted television and a television on a cart were in one corner. Classroom windows facing outside contained orange strips with "Emergency Escape" printed on them. The back wall had Stalin and Franklin Delano Roosevelt images painted on it. As in the other observed classrooms, a mounted projector was available for multimedia presentations.

Teacher A, teaching in Classroom A, was a White male teaching Honors World Studies A. He had eighteen years total experience and this was his eleventh year teaching at this high school. He indicated he lives in the school district.

There were twenty-six students scheduled for the class. Most were sophomores, with one junior and one senior. Seventeen of the students were male. The ethnicity / race demographics for the class showed seventeen students identified as White, four Hispanic, three Black, one Native American, and one Asian. Over half of the students qualified for free or reduced meals. None of the students qualified for special education services.

Observation A1

Class took place in Classroom A. It was the second period of the school day on a Tuesday. Students did not have school the previous day. All twenty-six students and the teacher were present.

The teacher exhibited the traditional content knowledge authority role. Students respected this by taking on the traditional student role of receiving information. There was an evident good rapport and the teacher also took on the role of advisor in preparing students for a world beyond high school. A few students did most of the answering.

Students watched the daily news program; teacher commentary followed with an invitation for student commentary after. Architectural and intellectual innovations of the 12th and 13th centuries were covered through a lecture. Students were expected to take notes and were prepped on how they should approach answers on their upcoming test. Time was provided at the end to work on homework.

Class began with a brief informal agenda. Each topic covered in the daily news received some commentary from the teacher. The typhoon in the Philippines was

compared to Hurricane Katrina. The National Football League bullying situation received the most attention with comparisons to what could happen with adults in a school setting. The Iron Man suit was addressed briefly. A formal lecture, with page references to the text, covered innovations during the Middle Ages. The facts were interspersed with hints on learning to summarize information in notes to help in college. Presentation of information on the rise of universities led to teacher comments on current college and university programs, college life, and his personal choices between working or going to college. Overall, the teacher tone was very serious, yet encouraging. An apologetic tone for the amount of time involved or the general amount of the notes was heard twice.

The lecture was presented in an overall moderate pace. Pace increased usually with instructions or explanations of agenda items. A rising tone often highlighted transitions. Major points were repeated numerous times and emphasized. Smiling and laughing were common. An open body posture was evident when information was being presented. When students were given time to write or were watching the video, the teacher exhibited a closed posture with arms folded or close to the body.

Interactions were teacher-directed. Students were referred to politely with "sir" or "ma'am" used frequently. Positive affirmations of good answers were common. Joking about the upcoming start of deer season started the class and a little self-deprecation about almost forgetting to hand out study guides came at the end of class. Personal stories were infused into the lecturing.

Observation A2

Class took place in Classroom A. It was the second period of the school day on a Thursday. Of the twenty-six students, three were absent. The teacher was present.

Students were taking a test that day. Instructions were given on turning in notes and procedures for the test. Students were encouraged to take their time, check their answers, and ask for help if needed.

The teacher was serious, yet supportive. Very little was spoken during this time frame. Quiet interactions with individual students took place throughout the test. Students were expected to do their own work and ask for teacher help only. Students complied with this expectation and were respectful of each other by remaining silent if they finished early.

Observation A3

Class took place in Classroom A. It was the second period of the school day on a Friday. It was the first day of deer hunting season. Of the twenty-six students, six were absent. The teacher was present.

Four students were making up tests. Getting together students who needed to make up the test started the class. Explaining what would and would not happen in class today preceded an overview of early African civilizations. Students were given instructions on coloring in the maps and what resources they had to complete the assignment. Once students had time to work, conversations with students ranged from informal banter to specific assistance with maps.

There was an apologetic tone for not showing a video but instead moving on with work. Student concerns raised about another teacher were not engaged. The similarities

between extended families in African cultural history and today's familial arrangements were emphasized. Facilitating the finding of information, some of it outdated in the atlases, and providing specific instructions on what colors and patterns to use in the maps followed. Informal conversation about birthdays, travel, family, standardized testing, and current news items was interspersed throughout the work time.

No changes in speaking pace were heard during this time frame. An open body posture was noted when explanations took place and especially at the end of class when working stopped earlier than intended. Smiling was common.

The instructor was the source of information and guidance. Students had time to collaborate and work together. Students took over the pace and level of engagement when they were given the opportunity to do so. Males tended to work with males and females with females, with students clustering mainly with others sitting near them. However, working groups were not exclusive and isolated, with banter between them being common.

Formal instruction and lecture led into storytelling and informal joking. A more direct, although apologetic tone, was used to try to corral activity when students were asked to start cleaning up a little too early.

Classroom B

Classroom B contained stationary, desk height, lab tables with a lab demonstration station in front. The teacher desk was in front, next to the demonstration station. A biodiversity poster and calendar were on the bulletin board. Various items were stored above the bulletin board area. A bookshelf stood in the corner. The windows contained orange "Emergency Escape" labels. Window curtains were closed during each

observation. At first it appeared they were closed due to the angle of the sun coming in; however, it was not sunny each time. It gave the room an added closed-in feeling, along with the lack of other visually stimulating items in the room. When it was very quiet in the room, activity, mainly a teacher lecturing in a neighboring room, could be easily heard. This was aided by some opening left between the walls when the old public address system was replaced.

Teacher B, teaching in Classroom B, was a White female teaching Biology A. She had eight years of experience in the district with this being her third year at the high school. Previously, she taught at the district's middle school. She graduated from this high school.

There were twenty-five students scheduled for the class. Most were sophomores, with five freshmen. A relatively equal balance of gender was seen here; thirteen of the students were male and twelve were female. The ethnicity / race demographics for the class showed nineteen students identified as White, two Hispanic, two Black, and two Native American. Over half of the students qualified for free or reduced meals. One of the students qualified for special education services.

Observation B1

Class took place in Classroom B. It was the third period of the school day on a Tuesday. This period had a built-in extended time for students to complete work in this class or others and to chart their own grades and missing assignments. Students did not have school the previous day. Along with the teacher, twenty-four of the twenty-five students were present.

The teacher exhibited the traditional content knowledge authority role. Students respected this by taking on the traditional student role of receiving information. There was an evident good rapport between students and the teacher. One male student in particular sought attention. A few students did most of the answering.

A vocabulary competition game reviewing root words and their meanings, a lecture on photosynthesis, and graphing of grades during the extended time portion of class filled the class period. The review game was student-directed with the teacher facilitating as needed. Students all had cards with root words and meanings. One student called out a root word, the student with the matching definition responded and then called out another root word. The objective was to get through the deck as a class as quickly as possible. Lecture with guided note taking incorporated students reading from the text and answering questions (volunteered or called on) specific to what was read or presented. During extended time, students were given their missing assignment reports and grade updates to graph and include in binders they kept in the room. Students also had time to complete work.

An encouraging tone was predominant during the review game and during lecture. Getting students to work quietly on different tasks required numerous redirections. The review was student-directed. The lecture and instructions and redirections during extended time were teacher-directed.

A variety of facial expressions were evident; smiling was common. Speech progressed at a constant rate. A rise in tone occurred only once during redirection during extended time. An open body posture was evident during explanations. A closed posture

was exhibited, arms folded or close to the sides, when answering individual questions or giving students time to write.

The class was teacher-directed. Lecturing and providing instructions or guidance predominated. However, students felt free to get up and sharpen pencils or throw items away as needed.

Observation B2

Class took place in Classroom B. It was the third period of the school day on a Thursday. This period had a built-in extended time. Of the twenty-five students, one was absent. The teacher was present.

Class began with the vocabulary game. The review game was student-directed with the teacher facilitating as needed. The lecture on photosynthesis continued. Lecture with guided note taking incorporated students reading from the text and answering questions (volunteered or called on) specific to what was read or presented. Students were asked to give feedback (thumbs up, to the side, or down) on their level of understanding after the lecture. Students had time to work on anything they needed to during extended time.

An encouraging tone was predominant during the review game and during lecture. The review was student-directed. The lecture and instructions and redirections during extended time were teacher-directed. A steady pace of speaking occurred throughout the class period. Getting students to work quietly on different tasks during extended time was a little challenging.

The class was teacher-directed. Students felt free to get up and sharpen pencils or throw items away as needed. Lecturing and providing instructions or guidance predominated.

Observation B3

Class took place in Classroom B. It was the third period of the school day on a Friday. Extended time did not take place on Friday. It was the first day of deer hunting season. Of the twenty-five students, seven were absent. The teacher was present.

Students had time to review their root words before the quiz. During that time, the teacher monitored a conversation that might have needed attention. It was resolved and confirmed as not an issue. After the quiz, lecture continued focused specifically on the Calvin Cycle. Paper dots and glue sticks were provided as a manipulative to help students visualize what happens in the cycle.

Students completed the quiz individually. Lecture incorporated guided note taking with students being called on or volunteering to answer. Students were asked to give feedback (thumbs up, to the side, or down) on whether or not the manipulative exercise helped them understand better.

An encouraging tone was apparent during lecture. The teacher emphasized wanting the students to understand the relatively difficult material. A steady speaking pace was noted during lecture. A variety of facial expressions were evident and laughing was common, especially when manipulating dots. An open body posture was distinct during explanations, with a closed posture distinct while the teacher was watching students take their quizzes or when answering individual questions.

Students were expected to work individually and quietly on their quiz. Instruction was teacher-directed. Lecturing and providing instructions or guidance predominated.

Classroom C

Classroom C was in an internal room with no windows. The classroom was filled with round tables that could seat four students each. It was a colorful room with a huge ruler painted on one wall along with a huge American flag. Various posters were found in the room – a "Turn It Off" cell phone poster, a "100 Years of American High School Mascot Football" poster, and college readiness standards. In each corner of the room was a poster that stated, "This is a risk taking, mistake making classroom." Agendas in various colors were posted on the board. Work drop-off stations were in the back of the room.

Teacher C, teaching in Classroom C, was a White male teaching Algebra 101. He had twenty years total experience and this was his tenth year teaching at this high school. He indicated he lives in the school district.

There were thirty-two students scheduled for the class. All were freshmen. Thirteen of the students were male and nineteen were female. The ethnicity / race demographics for the class showed twenty-four students identified as White, four Hispanic, and four Black. Half of the students qualified for free or reduced meals. Two students qualified for special education services.

Observation C1

Class took place in Classroom C. It was the fourth period of the school day on a Tuesday. Students were coming in to this class right after lunch. Students did not have school the previous day. All thirty-two students and the teacher were present Tuesday.

This class also had a resource aide who assisted students and transported one wheelchair-bound student to and from class. The teacher acted as a facilitator in the very verbally active, crowded classroom.

After papers from Friday's work were handed out, slope and intercept determination was revisited. After some guided practice, students had time to correct work, finish the assignment, and move on to the next.

Teacher-led interactions took place during the explanation. Throughout the explanations, students listened and chatted with their tablemates. Students asked for clarifications as needed. The classroom atmosphere was informal. The teacher was very playful and encouraging.

During explanations, emphasis was placed on various words to draw attention to fundamental points. Use of academic vocabulary sprinkled with slang and jokes was noted during lecturing. Explanations were given at an even pace, with decreasing intonation during side comments to individual questions. The teacher, resource aide, and students smiled and laughed a lot. An open posture was evident during explanations. When helping or answering individual questions, a closed posture was evident.

Students worked at their own pace and were encouraged to do so. Students felt very comfortable asking to leave the room and were always granted permission to do so.

Observation C2

Class took place in Classroom C. It was the fourth period of the school day on a Thursday. Students were coming in to this class right after lunch. Of the thirty-two students, four were absent. The teacher and resource aide were present.

Students were commended on their work so far. A project was introduced and students received a project packet. The project was rolled out with a little skepticism on how project-based learning works in math. The teacher's personal work history stories were infused into the task explanations. (A calculation error in the teacher's earnings story was not caught by the teacher or students. The error was repeated later in the explanation. The actual calculation was not crucial to the overall understanding of the project nor was it used as a specific example that would confuse students later.) Work continued on the next set of graphing problems. Teacher-led explanations were followed by individualized help. Explanations and work with students were informal.

During explanations, emphasis was placed on various words to draw attention to major points. Explanations incorporated academic vocabulary sprinkled with slang and jokes. Speaking pace was even, with pace increasing at one point when promising a student help. Rising intonation was heard when a correction was made to an explanation. The teacher, resource aide, and students smiled and laughed a lot. An open posture was evident during explanations. When helping or answering individual questions, a closed posture was evident.

Students worked at their own pace and were encouraged to do so. Students felt very comfortable asking to leave the room and were always granted permission to do so.

Observation C3

Class took place in Classroom C. It was the fourth period of the school day on a Friday. Students were coming in to this class right after lunch. It was the first day of deer hunting season. Of the thirty-two students, five were absent. One of the students was absent for the second day in a row. The teacher and resource aide were present.

Students had work time once papers were returned. The teacher and resource teacher assisted individuals and groups with their work. Informal banter was mixed in with explanations.

During explanations, emphasis was placed on various words to draw attention to basic points. Emphasis on academic vocabulary was sprinkled with slang and jokes. Explanations were given at an even pace. There was a lot of smiling and laughing on the part of the adults and students. During explanations, the teacher exhibited a very open posture. When listening to the students or just observing, a closed posture was evident.

Students worked at their own pace and were encouraged to do so. Students felt very comfortable asking to leave the room and were always granted permission to do so.

Classroom D

Classroom D contained student desks in rows with a couple of tables for additional student seating near the windows as well. The teacher desk and a podium were in front. Economics posters were on the bulletin board. Championship soccer trophies sat on a shelf. Windows facing the outside had the orange emergency labels seen in other rooms.

Teacher D, teaching in Classroom D, was a White male teaching American Studies. He had thirteen years of teaching experience with all of those years at this high school. Prior to entering teaching, he was a plant production manager. He indicated that he lives in the school district.

There were twenty-five students scheduled for the class. Most were freshmen with one sophomore. Twelve of the students were male and thirteen were female. The ethnicity / race demographics for the class showed fourteen students identified as White,

five Hispanic, five Black, and one Asian. Over half of the students qualified for free or reduced meals. Two students qualified for special education services.

Observation D1

Class took place in Classroom D. It was the fifth period of the school day on a Tuesday. Students did not have school the previous day. All twenty-five students were present along with the teacher. Five students had been in the previous class. Students were passive and quiet. Students waited for teacher direction of expectations.

Class started with a mind trap exercise and then moved into a lecture on the beginnings of industrialization and business development. Students were given time to work after thirty-seven minutes. Teacher D announced to the class that a new student was in the classroom. Then, notes were checked. After six more minutes, students were prompted to engage in a hangman review game.

Activities were teacher-led. Students were reluctant to say much. The teacher was encouraging but with a slight frustrated tone related to the level of participation and/or effort. During explanations, emphasis was placed on important words. A declining intonation was heard when Teacher D made side comments that were usually slightly sarcastic. An increasing intonation was heard once during questioning. Overall, an even speaking pace was heard. An open body posture was noted during explanations. Many examples of modern and local businesses were used to connect to historical information. Teacher D infused personal stories from his experiences into examples.

Students were expected to listen, take notes, and participate when called upon. Participation included answering direct questions from knowledge or in reference to the book or notes or in teacher-directed changes in activity (e.g., work time switching

unexpectedly to a review game). Formal lecture was interspersed with stories. The class starter mind trap was intended to be a fun competition for candy.

Observation D2

Class took place in Classroom D. It was the fifth period of the school day on a Thursday. Of the twenty-five students, three were absent. The teacher was present.

Class began with a current events news segment. A student was in charge of taking notes and questioning the class on major points. The class was asked to focus on the question, "Why do people move?" Students were asked to write a paragraph about it and then underline push factors and circle pull factors. The teacher circulated to see what students were writing. After about sixteen minutes, it was opened to discussion.

Discussion was teacher-led. Students who answered questions usually did so with a one-word or partial-sentence response. The teacher was encouraging but with a slight frustrated tone related to the level of participation and/or effort. An overall even speaking pace was evident. An increasing intonation occurred when the essential question was presented. A declining intonation was evident when closing opinions to a topic were given and when a comment was made that more students should be able to tackle that day's mind trap at the end of class. In the declining intonation, the tone was sarcastic.

Students were expected to listen, take notes, and participate when called upon. The class discussion included teacher emphasis on local and personal examples related to the topic. The end of class was informal with the mind trap for the day and the wishing of good luck with hunting the next day.

Observation D3

Class took place in Classroom D. It was the fifth period of the school day on a Friday. It was the first day of deer hunting season. Of the twenty-five students, six were absent. The teacher was present.

Students were told they could work on their outlines while they watched a "Decoded" episode on the Statue of Liberty. A brief, teacher-led discussion took place after to connect the topic of the Statue of Liberty to the continued discussion on immigration. Students were given time to talk and then asked to play Seven Up.

Students were quiet and passively compliant as before. Instructions and discussion were teacher-led. The teacher tried to engage the students with the conspiracy theory basis of the video. Similarly, introduction of the immigrant story they would write included an example of a story one of the students wrote for another assignment. Prior to the video, students were told to pay attention or they would be given another assignment. During the Seven Up game, a student commented quietly on the elementary nature of it. In the course of the game, it became evident some of the students did not know each other by name.

An even speaking pace was evident during the introduction to the video and the discussion after. A declining intonation was heard when students were told they would get an assignment if they did not keep their heads up and pay attention during the video. A closed body posture was noted while the video was running. The teacher laughed a lot during the Seven Up game. The students participating in making the others guess were laughing too.

Students were expected to follow teacher instructions. Presentation of information by the teacher was less formal than a lecture. The end of class was playful for most students.

General observations

All teachers employed respectful comments like “thank you” and “please” when speaking with students. Teachers A, B, and C would often include “yes, sir” or “yes, ma’am.” Teachers made a point of addressing students by name.

Overall, there was a balance between positive comments and negative comments. Positive comments included affirmations of correct answers and good work or encouragement of the approach toward work. Negative comments included corrective comments toward behavior, comments about lack of effort or incorrect work, and sarcasm. Use of sarcasm was not common but was heard more so in Classroom D than others.

There was a consistent pattern in nonverbal cues specific to stance. Every teacher exhibited patterns of using an open body posture when explaining or directing student activity and, conversely, presented a closed body posture when dealing with individual students or when not the focus of activity. This high power stance when in direct charge of the classroom and low power stance when giving students the stage added another dimension to understanding how teachers communicate expectations to students.

Interview findings

I interviewed the four teachers after my final observations. Interviews with teachers A, B, and C took place in their respective classrooms. Teacher D was interviewed in a computer lab area as his room was being used during the interview time. Teachers B and

C were interviewed after school. Teacher A was interviewed during his preparation period. Teacher D was interviewed during a time his co-teacher was conducting class.

The interview findings provide an added layer of understanding teachers' perspectives, building upon the SPEAKING Model findings. Interview comments from the teachers also add to the interpretations presented on classroom discourse later in this chapter. Responses to each of the questions are presented in the order outlined in the interview protocol.

Philosophy

Only one teacher had a written philosophy. It reflected what he shared less formally in the interview. Teacher-espoused philosophies focused on helping students learn - students of vastly different skill levels, understanding, and interest in the subject. Preparing students for the world after high school was important. As the teachers reflected on how their philosophies have changed with years of experience, the theme of helping very different students reach a similar goal was repeated. Realizing not all students will have the same passion as they did for their subject matter came with the teachers' experience, as did a greater confidence in making the subject matter their own. Awareness of the many external factors influencing teaching and the pressures teachers face was noted.

Teacher A shared the most comprehensive goals in his philosophy:

> My educational philosophy is to produce competent, responsible students that can serve the community or serve society better.… They're well-rounded, they're critically thinking and that they're problem-solvers.

He identified the importance of standards but reflected on knowing that he could craft them, at least a little more confidently, to make them his own:

> I know we have standards, state standards that we, reach and that kinda stuff. I think I've, it has evolved a little bit since I first started. I think I was very much set to what was expected of a teacher, state standard goal that's, you know, I was book-driven this is the chapter and I gotta do this and very nervous to veer off on my own and do something a little different and as the years have gone by I'm a little more confident saying, oh, we're gonna do this a little bit differently, I'm gonna handle this differently.

Quite different from Teacher A, Teacher B struggled with feeling that her initial drive to share a passion for science had been tempered by a push for standardization:

> When I first started teaching, my focus was making science fun and so that the students could feel the passion that I had for science and it's changed a lot especially with the politics in education with the idea that every student can learn to the same level.

She grappled, obviously, with students being at different levels of interest and skill and having an ultimate path after high school. Making a personal connection seemed important:

> My goal has to be reaching every single one of them in the best way possible, that every student truly learns differently and enjoys different things and, so maybe they don't walk out of my classroom with a true love of science, but being able to make a personal connection with them, also along with them learning science in my classroom is my ultimate goal… they're all headed in different paths and it's about preparing them for that.

Her views of how standards-based instruction played out at the middle school versus the high school were tied to state testing. Because of that, the collaborative work that somehow made learning fun for her students at middle school was lost in high school:

> At the middle school level we don't focus as much on the curriculum because of how it's tested for the state, focus more on, I guess I'm not really sure how to word it, that classroom environment, learning environment, working in groups… here that focus really shifts for these kids because they're all on their individual paths to graduation.

Teacher C, while searching for ways to connect with students, was mired in paradoxes. All students can learn eventually, but some do not want to learn:

> Basically I'm of the feeling that ANY student can learn given enough time and the right tools. Some don't always CHOOSE to learn and those are the ones that we absolutely can't do much with if they're gonna come in and sit and go, 'I dare you to make me learn,' I'm probably not going to be successful with them. I believe fully that all students can learn if you give them the right stuff and with that my class is set up that way.

Students need to be intrinsically motivated to choose to learn, as he stated above, but only work for the extrinsic motivation of points. Yet, he expressed that homework should be meaningful, not just work to turn in for points:

> I don't make my homework assignments due until we take the chapter test so even though they get told it's due at the end of the hour and the end of today. They know, if I don't get it done, I can still get full credit on it as long as I turn it in before the test. 'Cause my personal philosophy is I'd rather have 'em do the homework and get some points for it, 'cause if I don't give 'em points for turning it in late, they're not gonna do it and then we've lost the point of the homework. I fully believe that homework assignments should mean something, shouldn't just be I gotta have something to fill time for you to do. That's why a lot of my kids will get done early.

No student gets penalized for being slow to complete work, but many students finish early. Balancing the time for those who need acceleration with the needs for enrichment for others was an obvious struggle that was not just internal, but had been pointed out through numerous evaluations:

> I'm HORRIBLE at having something for them to do when they're done. And I've been told that by, when they do evaluations and things and they're like we need something for the kids to do when they're done, some extra credit. I'm, like, I'm having a hard enough time getting the ones to do the regular credit let alone the, oh, I wanna get to the extra credit 'cause that's the fun stuff. And those kids who are struggling want to just jump in and do the fun stuff and then they've lost out on what I NEED them to learn. So, I haven't found a good balance with that. I haven't done the same thing two years in a row.

Perhaps the need for differentiation was never articulated clearly in evaluation feedback. The idea of getting to the "fun stuff," the "extra credit," the work that students enjoyed doing, was lost in the need to cover the basics. There was an obvious disconnection

between the notions of work being engaging and work that resulted in learning.

Teacher C expressed evolving in his thinking about his role as a facilitator of learning. A willingness to be open to learning from his students was evident:

> Well, when I started teaching, like most naive teachers, I'm like, whoa, I'm a genius at this and they all will just listen and I will say it once and they will all get it. Yeah, they'll just get it and the first time somebody came up and said I don't understand a word you're sayin' I was, like, maybe this isn't quite as straightforward and easy as I thought so I've had, like, I said I've never had two years in a row the same and because as kids tell me, well this is how I think about it 'cause I'll ask them that a lot of times. Well, how did you do this one? Oh, I've never thought about doin' that so then I, I'll steal that idea for the next time and I'll be, like, here's a way somebody else thought about it. I don't care who came up with the idea. I don't have to have it. That's just as long as SOMEBODY comes up with the idea. That has DEFINITELY changed from when I first started.

Teacher D, while expressing that all students can learn, clearly articulated that his expectations are unique for each student:

> Just in general, all students can learn. Like, my expectations for one student, it's different from another student then even in the same class…the fifth hour class you have just a regular classroom with a variety of different levels but not the low, low levels are not in there. So my expectations on answering… the essential question is different for one class versus the other. You know, I'd want more detail. But…they all still are expected to answer that and give me something that shows that they picked something up from it and you can you can see the difference, obviously.

He pointed out that what has changed over time is that students are disconnected from the work of teachers and what drives that work:

> It's relatively the same things come and go but what's different in education, not what's happening in the building, but what's happening outside of the building, with education laws and things and No Child Left Behind, these are the things that we see that have an impact on us. You know that the kids don't really see that much even though they might see it in our instruction, but they don't know why we're doing things in many cases. That's the big difference.

Knowing that students may be disconnected from the curriculum and the work was coupled with teachers questioning their own promotion of the mandated curriculum.

Affirmation that all students can learn was tempered with the belief that students may not be able to be held to the same expectations. This was tied somewhat to paths students would take after high school. Preparing problem solvers and responsible citizens was hinted at as a goal for all students. Knowing that students can be engaged through the "fun stuff" they find relevant was not considered as an option because students need to learn the mandated curriculum first.

Socioeconomics

Teachers estimated that sixty to eighty percent of the student population came from a low socioeconomic status. Teachers confirmed the area's economy had been in decline over the past decade and mentioned the preponderance of single-parent homes or extended families living together.

Teacher A focused on a long span of time, noting:

> Just in my eleven years here…more single-parent homes more grandparents raising kids. Just more extended families some living with friends. Other teachers talk about thirty years, of forty years, a huge change.

Teacher B compared the current demographics to when she was in school:

> It's gotten slightly higher. I'm not sure that in eight years that it's changed that much, but I can tell you that I was born and raised here. I graduated from this school in the year 2000 and it has changed DRASTICALLY since then. So it's been a very, very steady decline in in the socioeconomic status of our population.

Teacher C highlighted the economic impact of businesses leaving:

> When I started ten years ago it has been creeping up. We've lost a lot of businesses a lot of the people who could move to a different job or to another area have already left. And so what's left behind is those who can't afford to move and so our numbers keep just rising up.

This was echoed by Teacher D:

> It's [changed)] drastically and that's the clientele we're getting - many of

> the other ones. The parents moved and went to get jobs and professionals and things like that. Others moved in with family members. It's quite different than it was.

The "others" seemed to be those with limited choices perhaps due to lack of education or skills.

Cultures

Responses to the question regarding the cultures found in their classrooms went beyond highlighting the diverse "melting pot" the school and town were. Teacher B mentioned the social culture of the classroom that develops as students end up being tracked to some extent through the courses they take:

> Well, it's very interesting because I find different dynamics between from one class to the next and I think a lot of that has to do with how tight our schedule is and the fact that a lot of our honors kids or students who are taking particular type electives get grouped together and follow each other throughout the day. So I have classes that are very small and very quiet with lower achieving students. The particular class that you were in is very, very social and they're very bright so my issue with, problem with that class, becomes making their discussion good discussion, relevant discussion, because they always want to talk. So being able to kinda try and hone in on that and get them to talking about what they need to be talking about, but they're a very social group and very bright and so that I think that's one of the reasons that they socialize is that they feel like they know what they're doing so they can afford to do that.

Three teachers mentioned socioeconomic stratification creating "cultures" of poverty and wealth. Socioeconomic stratification, along with ethnic stratification, specifically among Whites, was identified by Teacher C:

> Yeah, that class has a little bit of everything in it. We've got some Hispanic students who are typically considered migrant, some have already left, some haven't left yet, we still have a couple in there. We have some African American students, probably about thirty percent, I think. I do have a one who is a Native American who just came here from another area. We have a big influx now. They built some housing developments by the town here with the casino, of course, so we have a lot and we have our traditional of course sixty-five to seventy percent being White, but even the White ones

> we've got some who are from low socioeconomic to high socioeconomic. We've got some who are very strongly rooted in certain cultures like a couple German, strong German, there's some strong Italian, that sort of thing. We're a big melting pot.

An awareness of various groups even within Whites was mentioned. The area's migrant population and Native American tribe's focus on developing casinos made it unique.

Teacher A spoke of a culture of low work ethic:

> So, I think there's more of a culture of, wow - a different work ethic, the culture of work ethic of students and I think is changed. Just the amount of work that sometimes students want to put in. And what and how what they think is hard work and commitment opposed to what hard work and commitment is. And I think that that comes from the socioeconomics of the community of parents not being around to show them maybe what hard work is so they figure it out on their own. It's truly maybe not hard work and commitment that they feel they're doing is not what they're putting through is what society would expect or would be expected outside of society, culture that way.

When changes were discussed, he focused on the change in the culture of the school:

> Oh I think it's changed the culture of the school, it's changed. Definitely from being a more, I don't want to make it sound bad, it's not bad, but society, the culture of the school it's just, how do I put it in words? It's changed in the fact that you're seeing more kids that don't have the structure, the structure support at home that they had in the early years that I had been here. They come in behind the eight ball academically struggling academically coming from the junior high. Less parental support you know, as far as parent teacher conferences has dropped and, yeah, I'd say it's changed that way culturally from parental support and maybe a commitment and drive to be successful.

According to this teacher, students having an unstructured home life, less parental support, and less of a drive to be successful have changed the culture of the school.

Shifts in population were noted. When reflecting on the changes in area demographics Teacher C mentioned that, while Whites move out of the area, Blacks tend to move from one spot to another within the area:

> No, that's pretty much been status quo. Probably because there hasn't been much of a big influx of like a different type of job market in the community.

> Maybe now that the casino has opened, it's been open for not even a year yet, we might get some more Native Americans as opposed to what we usually had. But I think, probably as the numbers go, we'll probably stay pretty status quo. Yeah, if we lose any more JOBS we might lose some more of our White students if they decide that they have to go elsewhere. African American students tend to stick around whether they have jobs or not with their parents. We do have a lot, they move, their addresses are changing all of the time. They're moving from this housing complex to this housing complex for whatever the reason whether they're getting booted out because they don't pay rent or whatever but they don't tend to move AWAY, just tend to move from spot to spot.

Teacher D noted a slight stabilization in the Hispanic/Latino population:

> No just the amount has changed. Our Hispanics come and go. Their number depends on the growing season. You know but more Hispanics have stayed now year 'round than used to. Almost all of them used to leave, but now we see more that are staying year round. They have jobs or you know they've stayed on they like the community or whatever but many…I coach soccer so I see many of my students leave, but I only have right now two of them that are leaving compared to before I'd have six or seven that would be leaving. You know, then our African American population has increased percentage-wise because their numbers haven't really changed, but the White population's went down so there's an increase in that.

Teachers connecting low work ethic to socioeconomic status alluded to the belief that there is a "culture" of poverty. While it was evident that the teachers were aware of their students' life experiences and saw those in the context of race or culture, the connections to the classroom and learning tended to be viewed through the negative impact those experiences had.

Engaging students

In response to my question about engaging students, Teacher A highlighted trying to use real life examples, including technology, as ways to engage students:

> I try many different ways, any way possible that I can engage from bringing real life aspects to the classroom. Try to give them antidotes [*sic*] that they can relate to in their culture, their life, my own life…try to give them different opportunities for learning so it's not you know not hands on all the time, but it's not lecture all the time. But it's all the different styles of engaging 'em

> trying to include technology which I think our students are more in tune to in this day and age and that's culture, too. If you go back to culture, technology culture is HUGE from what it was even five years ago with what kids can do with technology that is a positive…I try to engage them any way I possibly can through different learning styles and then I think you engage them, too, just by letting them know you care. You know, if you talk to them and you know that you're talking about other stuff they're more open to learn for you and work for YOU, as opposed to if you just slap it on the board and say this is what you're supposed to do. Then it's more impersonable [*sic*] and that's an assignment, but an assignment from *Teacher A* maybe I'll work a little harder to get it done.

Teacher B indicated the advantage of science being a little more hands-on than other subjects. Relating material to students' personal lives was important, as well:

> Well, in science, it kind of lends itself to hands on I think um I'm at an advantage in this particular subject area because a lot of students as soon as you can get them doing something that pertains to the real world and something that they can actually get their hands on doing, they immediately become a lot more interested. I'm at a much more of an advantage teaching physics because the students can tend to do demonstrations and hands on things more often. With the biology, the curriculum has become so detailed that it's a little bit more difficult. So later on, when I'm able to do work in genetics and populations and ecosystems we can do a lot more simulations and group activities and really just being able to get hands on and relate to their personal lives is probably the way that I would engage my students the best.

Teacher C emphasized humor, as so many students come in with a bad attitude towards math, an attitude parents reinforce when sharing their own bad math experiences with their children:

> Usually I try to incorporate a lot of humor because math is a very tension-oriented subject, in my opinion. They come in with a nasty attitude towards it. Their parents give it to me all the time, 'Oh I hated math when I was in school, I'm not going to be able to help them because I was never good at math,' and so the kids come in going, 'I'm going to dread this class, it's going to be boring,' so we try to have some fun one way or another. Usually, I will start off with some direct instruction of some sort and then I'll turn 'em loose on their assignments. As they're working on their assignment as I walk around and I see which ones are struggling. A lot of times we'll get hands up, sometimes they don't. Sometimes they sit there and you can't tell if they're just sittin' there starin' at the paper or I'll come over and sometimes I pull up a chair and say,

> ‘Hey, what's goin' on? You're not understanding this? What part don't you understand?’ And usually that one on one conversation will start to get ‘em in. It gets difficult with bigger classes I mean the class you were in is my largest class. So there's not even really many chairs to pull up and sit next to somebody so I don't get to do that very often but some of the smaller classes I get to do that. I give them an interest thing at the beginning of the year so as we go through some of the lecture things I'll try to catch something sometime in the year for them off of their interest sheets.

Teacher D indicated his higher level classes are easier to engage because they want to learn. Others need things to be mixed up more to keep their attention. He pointed out that he mixed things up on purpose for the class observed in this study:

> Oh, all different types of strategies, it just depends on the class. I mean, like, my first period class would be close to an honors class to where they wanna know they're pulling it, they're throwing hands up, they’re asking questions they, I mean it's easy to get them engaged. But a class that like the fifth hour class, you gotta throw ‘em a bone, you gotta throw ‘em a candy, a mind trap once in a while. And you do those different things, and I mixed things up on purpose just so you'd have more things to use in there. I do that in different classes. It's just…different one day to another…over the years you learn, how do I get that type of kid, because there's not too many new types of kids coming around it's just, oh I know what type of kid that is so I can get them in there. But they have to be involved and active in there and so I'm, I'm not satisfied with the kids settin' in class and not doin' anything.

In general, all teachers mentioned students being most engaged when they were actively involved in something hands-on or in an extensive project. Students were identified as least engaged during detailed lectures, according to Teachers A and B. Teacher A suggested:

> Yeah, there's been times…unfortunately, if it's a lecture, note-taking, where they're taking the notes but they're just writing them down and not thinking about ‘em and you gotta prompt many questions in those situations to try to engage them because they just get locked in sometimes to…giving notes. I'm taking notes and just writing them without thinking about it and then, so in that case, you can see they're not engaged, you can see the wheels aren't turning. They're just looking up readin' and writin' and not thinking about it.

Teacher B lamented:

> Yes, often! With the biology we're using now, I'm not particularly fond of our textbook and, like I said, it's very deep detail and you can see what we were doing today, you know, the Calvin Cycle and working with chemistry-type things and so I can't blame them, but unfortunately they lose their attention span very quickly with that type of material.

Teacher C noted disengagement when students do not understand something:

> Very unengaged usually is when they don't understand something. For example, when we were going through and the first time we were just identifying the slope from two points they didn't understand what the formula was. Well, now all of the sudden it's, like, 'Well I don't know what I'm doin', he's busy with them over there. What's goin' on this weekend? Yeah, we're gonna have a party, yeah it's gonna be good. OK he's done, but yeah, I need to know more about this party…' Very seldom do I see during lectures that they're not engaged because I they know I'm going to miss a joke if I'm not paying attention. They like that part of it.

Teacher D mentioned several students who "don't want to be here" as very disengaged:

> Oh, there's several just I mean there's some that don't want to be here and I have a senior right now in my junior level class that needs to pass everything that he's taking. Plus, he has to pass five online classes to graduate. And so the odds are stacked against him for sure. And so still, my expectations are the same; when you come in you learn. You work and you know and he tries to come in and not do anything and it's, like, no that's not the way we do it, and then he becomes confrontational. I had a meeting with his parent yesterday for the third time and administration 'cause we've been tryin' to help this kid, you know, and it's like, she's, like, 'He's eighteen I don't know what, you know but it's one of those things that those are the kids that, you know, they really don't want to be here so you find another option and encourage them to go and that option doesn't mean you're bad. If you go to altern ed [*sic*] that doesn't mean you're a bad kid, that means your chances are not very good here and you're not even goin' to college after this.

While expressing understanding that connecting student interest and background as being important to engagement, doing that in large classes with chronically unmotivated students presented a challenge. Teachers saw the impact their own dispositions could have on motivating students, but it seemed the underlying expectation was that the students had to make the connection, not the other way around.

Challenges

When asked about challenges, each of the teachers identified different challenges they face. Teacher A highlighted the emotional problems students bring to school due to not having food, living with friends or grandparents, having parents in jail, or being frustrated with their own lack of skills:

> Kids that don't eat, to kids that stayed with friends, that don't have a house and home, to kids that live with their grandparents and, you know, kids whose parents are in jail, to kids with low learning ability, reading comprehension. I wish it was just the academic problems, but I think more of it is the emotional, the problems we face. It you just don't realize until you talk to the kids on a regular basis. Yeah, I would say that's just a few and I would say the biggest ones are the emotional problems, social problems over the academic problems that takes away the ability to focus on academics when you're livin' with a friend or, you know, grandparent, parents in jail, and all that type of stuff.

Teacher B indicated recent increases in class sizes (twenty-eight to thirty-four students in a class) make it hard to build rapport with students:

> Well, I think one of the ones more recently has been an increase in class sizes. I don't feel as if I get as much one on one time as I would like to and I think being able to build a personal rapport with each student really, really helps in the classroom no matter what you're trying to teach them. And so I feel a disadvantage that I have not had the opportunity to do that as much as I used to when I started teaching. I would say when I first started teaching I would say I had classes of maybe at twenty-foursome days and right now I would say between twenty-eight and thirty-three, thirty-four.

Teacher C focused on the widely varying skills students come in with and the sometimes huge gaps that students moving in from other schools bring with them:

> Part, the biggest challenge I face, at least I think, is the different skill sets that they have coming in. I have students who come in that can do most of what we already do because they took algebra last year as an advanced eighth grader but maybe they weren't so successful maybe they got a C in it or a D because they didn't do the assignments and so now they've already had exposure to it and so they come into here and say, 'I already know how to do this.' Versus, I also have students who come in from, like I have a

> couple who have transferred in this year from *Local City* and they come into my Algebra class and what's the last thing you remember doing? And, 'Uh, I couldn't tell you.' OK. Have you solved a one-step equation? 'Uh, no, we haven't done that.' And we expect that they have to do that in Algebra here. We expect that they've already done it. So we start with two-step equations. So if they haven't even done one-step equations, we got a gap. Plus, they came in nine weeks late so we're WELL past that and they're still back here. So that is the biggest problem that I have is that I have to try to pull everybody together and move 'em up.

Teacher D highlighted students thinking of education as a punishment instead of as an opportunity as being a huge challenge:

> Them wanting, wanting it as bad as you want to give it to them. I think is what it is, is what they see as education as a punishment almost. Many of them do. It's like I HAVE to go to school not as I'm fortunate you know and like what we'll be talkin' about here is how lucky we have, what we are, what we have compared to what immigrants had when they came…But it's just them wanting it you know and getting them to see the connection between class and life. And social studies is relatively easy and so it's not as hard.

When asked for examples, Teachers A, C, and D told stories of specifically defiant students. Teacher C's example highlighted parental and cultural components as well:

> I do summer school with the computer so it's a computerized program. But I have to monitor what they are doing. I had a student this summer who decided that tattoos were a lot more important that getting the things done and I warned him, warned him, called home. One day I told him, I said, 'OK if you don't do this today, the rules are, we have the right to send you home for the day. If you get sent home three times, if you don't stay for summer school, you lose credit. You'll have to take this class over all year long.' Well, OK whatever. Got back on it. I said, 'OK you can go home now.'

At this point, Teacher C felt that he had done his due diligence. The student knew the expectations; whomever was contacted at home knew the expectations. Despite that, the situation became more complicated:

> His mom called the police and said I threatened his life. I was, 'Really?' Now, he was a Hispanic student who has traditionally not done well. Mom, well, works in the fields, came out of the fields, has a hard time with English. And what she really meant to say was his education IS his life and therefore by threatening his EDUCATION he's not gonna have a good life. I was threatening

> his life…but, again it was just one of those things that where, you know, I can give you all the tools you could possibly need, but I can't make you do something. If you're going to decide not to, there's not much I can do about it.

Despite his understanding the language barrier, a greater communication gap may have been in place. The student had not done well, so it was apparently not surprising that he was continuing not to care. The parent, obviously, had a strong concern about her son's progress. Yet, the situation was left at an impasse; there was no resolution. An obvious tension was evident between moving all, knowing each, and trying to motivate students to do the prescribed work whether they want to or not. If students chose not to work and parents could not make them work, there seemed to be nothing else teachers could do.

Respect

All teachers placed a high priority on being respected by students. It was evident each teacher felt his or her focus needed to be on the students because that is with whom they had direct contact. Connecting with parents was downplayed because it was either difficult to make that connection or there was a perception that parents did not want that connection.

When asked about disrespect, each relayed incidents of disrespect from other adults. Parents questioning coaching, condescending administrators, rude parents believing the student over the teacher, and colleagues undermining projects were specific examples of disrespect shared by each teacher. Teacher A mentioned occasional challenges by parents questioning playing time and additionally challenging his knowledge of the game of football as a coach:

> You know obviously, in coaching I've had altercations with parents who, you know, felt like their child should have been playing more and I wasn't playing them enough would come in and would challenge my knowledge, maybe of the game, because their kid's not playing and they feel their kid

should be playing…probably in coaching more than in the classroom setting.

Teacher B shared an experience when a student she disciplined for a hallway incident lied to her parent about what had happened:

> Yes, I had a parent one time who had some miscommunication between the student and themselves and immediately took to the defense, was defensive about it, came in and knowing how angry the parent was, I had asked for an administrator to sit in on the meeting. The parent was yelling at me, I mean his finger was in my face and, no matter what I had said to tell them what the situation was, they refused to believe ME. They were choosing to believe their child and I felt very disrespected because, as an adult and as a professional, I would never lie to another adult about things that transpired. And it turns out that the student ended up coming clean and the student wrote me an apology note, but I never heard a word from the parent. So I felt very disrespected in the fact that they didn't even give ME a chance to defend what may or may not have happened. They were just very, very, aggressive.

Similar to the potential communication gap noted with Teacher C's defiant student and distraught parent, assumptions of behavior were echoed here. The expectation that parents should know that a teacher would never lie or do anything to harm a student was assumed. Teachers consciously or unconsciously perceiving themselves in a position of heightened social status or power may have impeded constructive and collective problem solving in both cases.

Teacher C gave a variety of examples but focused on administration the most stating, "Oh, on a daily basis sometimes from our administration." The sense that district administration lacked respect for how teachers performed their jobs was emphasized:

> We've had a big time problem with respect in the district from the administrative side of things. To me respect is, I am the expert in how to teach math. If, unless you are also the expert in how to teach math, I tend to believe you're probably not going to come in and tell me I did it wrong. Yet we have had that occur in the past.

This added to the examples of teachers expressing not being respected as professionals by adults who were not fellow teachers. However, as shared in the next example, colleague power plays also created tension.

Teacher D shared his experience with developing a bullying prevention program when he was completing his Masters in administration:

> Probably about seven years ago when I finished my first Master's. My thesis was on bully prevention and I came up with what was a bully prevention plan…The staff was, like, yeah, this was extra work but it was worth but, we think it's what's best…I put all this work into it…and all of the sudden, the night before we do it, our union president collects all of our clipboards and everything and takes 'em and rounds 'em up and hides 'em. OK, and now he was a friend of mine, even more than that, he was union. He was in my department, he was a huntin' friend, we used to go do everything, and he just squashed me and said, 'That's against the union.' He knows we had all been workin' on this for like a month and now you're gonna wait 'til then to do it? I told him, I threw him up in front of the whole staff. That's the only time I ever felt really truly disrespected as a professional.

Teacher D felt insulted professionally and hurt, as he considered the union president a supportive friend. Concerns about adult needs overrode what appeared to be a collective effort toward helping improve student behavior.

The predominant focus on adults and disrespect may point to issues with adult culture and school climate. Dysfunctional communication between adult stakeholders may pose some challenges for American High School. How adults behave towards and speak to each other has significant potential to impact student opportunities for a nurturing, culturally relevant learning environment.

Students' lives outside of the classroom

Teachers were asked about what they knew about their students outside of the classroom. Numerous comments were made about hearing the good and bad about

students outside of school in a small community. The difficult lives some of the students have was mentioned by Teachers A, B, and D.

Teacher A:

> You know, quite a bit and part of it's being part of a small community… living in the community, I live in *Town*…I know students as far as their outside activities from dance to…goin' to church with some of my students…seein' them at the local, not per se, our church, but the other local soup line, to just seein' kids in sports, band. I just had one of my players open up and say that…I and another coach know him better than his own father does. His father lives in Florida and visited him once in four years and they don't talk or anything. And he comes from a very good family…well-to-do family in this town and Mom does a great job with Grandma and Grandpa but you wouldn't know that about him…So when you find that stuff out about kids yeah, there's that, a lot you know about your kids in a small town. Good and bad, you know… When they get in trouble you know about it…their personal life you find out about that pretty quick. So I guess you get to learn the good and the bad about 'em.

Teacher A summarized life in a small town; both good news and bad news can become everyone's business quickly.

Teacher B:

> Well, unfortunately, I think too much sometimes. I know that a large number of them leave this building and go home and have to be more adult than they are at school. I know that a lot of them, their priority is not school, their priority is survival. I know that a lot of them have homes where education's not valued, they have homes where they are taking care of themselves and someone's not taking care of them. And so I know that when they walk into my classroom that this may not be their number one priority and so that makes teaching them that much more challenging.

Students living in conditions that Teacher B found sad and unfair seemed to weigh heavily on her. This may have influenced how she taught them.

Teacher D admitted knowing much more about students since he moved into the community:

> Quite a bit 'cause I live in the community. I live a mile from here. You know I coached, I coach soccer boys and girls soccer. I coached wrestling, track, I

> was student senate advisor, I was class sponsor for several different groups. Oh, my relationship with them, there's a lot that takes place outside of here outside of the classroom. You know, and that's important especially in a small community. You go to the store you're gonna see ten former students at this point at least. You're gonna see them, I mean, at the cash register, they're gonna be baggin' your groceries…and you have to see parents. And at first it's, like, overwhelming, like, oh my gosh, I don't wanna go to the store 'cause you feel the pressure. I've gotta wave. I gotta say, 'Hi,' put on my fake smile, you know, you know how it works in there in a community like this. They're everywhere. I didn't move here 'til like my fourth year. And so before that there wasn't much that I truly knew about them, but I think I've made a conscious effort to know more about them and what's happenin' at home and that stuff.

While confirming that he knew about his students' lives outside of school because he lives in the community, he expressed a sense of discomfort in knowing that he was surrounded constantly by them.

Teacher C spoke about experiencing students' unknown talents in different co-curricular activities or while out in the community:

> Oh, I do know, because I live in the community, I know a lot about where they live. I know a lot about who they're related to. As I'm becoming older here, I start to discover, OK, you, you're this one's son or daughter… I also know a lot of them play sports. I like to go watch the sports. I used to run the musical. I haven't done it in the past couple years, but just seeing the kids in band and choir and different productions and sports you really see 'em in a different light. I help, hope help, coach baseball also, so to see how they interact outside of the classroom. I mean, there are some really neat kids that we have, some very talented kids that you would never know it, by watching them solve an equation, but you can watch them at the skate park and go, wow, you've got some serious talent.

This was the most joyful reflection. Teacher C's comments revealed his understanding that students have potential talents not necessarily evident in the classroom.

Considering that the principal had indicated that most teachers lived outside of the school community, it was unusual that each teacher in the study happened to be a community member. It was obvious that, because they lived in the community, the

teachers had a greater opportunity to see students in their "first space." Whether what was identified was positive or negative, a disconnection between teachers' perceptions of their students' worlds and their own was evident. There was an obvious sense of two different worlds coming together awkwardly in Teacher D's description. What was known about students in their "first space" seemed to remain disconnected from the "second space" of the classroom.

Teaching as a career

All teachers expressed enjoying working with students as a motivation for entering the teaching profession. Teacher A admitted to loving history, but working with the students drove him to teaching. Teacher B expressed a strong passion for science and the influence her own teachers had on her. Teacher C found he had talent in teaching math to others. Teacher D added that working with kids also came with good benefits and time off.

The teachers were asked what career they would choose if they could not teach. Although it is only one isolated data point, an inclination towards professions involving helping others may highlight a teacher's general disposition to want to help students. The teachers' choices revealed a bit more about their personalities.

A variety of alternate careers came up when teachers were asked what career they might choose if they did not teach. Teacher A indicated wanting to work in law enforcement to be a positive example in the community. Teacher B pondered working a very task-oriented business setting that added the advantage of being able to leave the work behind in the evening. Teacher C said he would love to be a musician. Teacher D stated he was originally going to be a stock broker and noted that he has his own

construction business along with teaching. His dream job would be to work as a physical therapist for his favorite football team.

Classroom discourse findings and interpretations

Teacher relationships with students

Interactions with students

Students maintained a traditional student role, being the recipients of knowledge, while the teacher dispensed knowledge and controlled the process in each classroom, as noted by O'Brien et al. (1995). Within this traditional role, students interacted with the teacher and with each other at different comfort levels. Although always in a subordinate role, students exhibited collegiality with the teacher and each other based on the relational tone set by the teacher.

Relationships appeared most relaxed in Classroom C, with joking and slang-infused banter being common:

> What's up?...OK 'cause your slope's one...the one she's doing it is. It snot [*sic*], it's not ever gonna be a slope, 'cause it just runs - it only rises if you go (snort). (see Appendix C, Observation C3, Segment 25)

Other teachers occasionally took the opportunity to joke with their students. Teachers A and D joked about deer hunting with their students. Teacher A emphasized his limited understanding of hunting:

> I moved the test up to Thursday 'cause I know what we're gonna face Friday. Friday is the first day of hunting, with guns, shotguns. I don't know a lot about it comin' from *Big City*, but sounds like a lot of you are gonna be gone just by what we talked about in this class. (see Appendix A, Observation A1, Segment 7)

Teacher D teased students about their approaches to hunting:

> Good luck hunting, guys. Bring me pics, and not just of somebody else's deer… (He's) putting you in a bad spot, just so you know. He said he's

> putting you in a real bad spot where no deer have ever been seen, where the wind is against you no matter where you sit. (see Appendix D, Observation D2, Segment 40)

As noted by Frymier and Houser (2000), students value humor as a positive disposition in their teachers.

Students in Classroom B were comfortable interacting with the teacher. A sensitivity on the teacher's part to a school-wide project on suicide prevention the previous year was evident in her checking into the tone of a side conversation that took place during Observation B3. Teacher B explained it in her interview:

> Last year we had a group of students in the building do a giant project, suicide prevention project, and so these kids have some background in that and it's talked about frequently in our building…they had banners, they signed pledges, they had signs, bracelets, so it's not something new in the discussion, but I wanted to make sure from what I was picking up on that discussion that it wasn't being talked about because there was a serious problem…then I noticed the student up front having an issue, so I spoke to her individually to see if she needed to leave the classroom and maybe talk to somebody. But once she, you know, chatted with her friend for a minute she seemed OK, but I wanted to make sure.

Teacher B honored the work students had put into the previous year's project and wanted to encourage their continued support of each other when issues arose. Listening to what students were saying and responding in a sensitive, supportive way had the potential to make Classroom B a safe place for all students. Creating safe places for students, as emphasized by Valencia (2010), and teacher empathy, as advocated by Hargreaves (2000) and McAllister and Irvine (2002), may significantly impact students' potentials for success.

Teachers espoused different relational roles. Teacher A took on more of a role of an established football coach and perhaps more of a father figure than the younger Teacher B. Students did not push the issue of not wanting to go take their make-up tests with

another teacher who "yells a lot" (Observation A3) – they knew they were heard but seemed to know that Teacher A would not speak negatively about a colleague to them. These interactions exemplified the dispositions documented in studies of teacher-student relationships that foster high achievement. Cornelius-White (2007), Frymier and Houser (2000), and Wubbels and Brekelmans (2005), while emphasizing different dispositions, allude to student perceptions of authenticity on the part of effective teachers. So, Teacher A could maintain the professional role expected by students but still empathize without appearing "fake" to them. Teacher B might not joke around with students, but they seemed to know that she sincerely cared about them.

Students in Classroom D appeared to have a tense relationship with Teacher D. Some of the same talkative and energetic students who were in Classroom C were quiet and reserved in Classroom D. Unsuccessful attempts at engaging students during Observation D1 led to comments such as, "You guys afraid to talk?" and "You look like you're having a good daydream, tell me about it. Not the daydream. Tell me about the…exactly…I'll just stand right next to you" (see Appendix D, Observation D1, Segment 13). At the end of that same observation, after students were given time to work, Teacher D announced, "Hey, hey, anyway, we have a new student, K##, so make him welcome in our class. Say, 'Hi,' right now. K##, did I say that right? K##" (see Appendix D, Observation D1, Segment 22). A few students yelled out a "hello" and went back to work. This was an awkward moment; it supported the obvious lack of a sense of community in the room. Lack of both positive affirmation and emotional empathy has been identified by Burns (2013), Clark (2013), Hargreaves (2000), Rauf and

Iqbal (2008), and Sherman (2013) as having a negative impact on student engagement and achievement due to the chronic stress it may cause.

A greater sensitivity to student issues was seen in Observation D2. Teacher D asked a student who had been unprepared and unwilling to participate to step out into the hall. They had a brief conversation with no major revelation as to what the issue was, but the student was given time to regroup before coming back into the classroom. Teacher D explained this in his interview:

> Like, I pulled R## out yesterday and 'cause he's just not been himself for the last two weeks and I'm like, 'What's goin' on man?' He used to answer all the questions, he's on top of it, he's active, he's positive, and all the sudden now, 'You're flippin' on me, what's goin' on?' 'I don't know what's goin' on.' 'I'm gonna give you some space if you need to talk let me know, stand out here 'til you're good to go.' You know, he doesn't come prepared with a pencil anymore he's, he's just not laid out. So I think getting to know them and just talkin' and letting them know, outside of I'm your teacher, you know, it helps out…Today, he brought his pencil. But he didn't come and talk to me yet. But it's just I don't know…I have a history with this family, not good with his other brother…(who) had a learning disability, but they didn't detect it and he just wasn't on top of it and the parent was mad 'cause he didn't make my soccer team.

Despite Teacher D expressing concern about this student, there was little indication that a solid relationship existed. An underlying negative relationship with the family most likely added another barrier to open communication with the student (Lareau & Horvat, 1999; McCarthy, 1999; Oxley, 2013).

It was obvious that Teacher D exhibited a struggle with maintaining an openness to building relationships. This was particularly evident through his story about his most challenging student:

> My first year, it was a student that was defiant, you know, she was just kind of wild as a White female and, she was a sophomore. It was my first year teaching so I had freshman Civics and I had sophomore Geography I was teaching. And, no matter what you did, she had something to say about it.

> And she was always kind of confrontational. And you know, I was a production manager and so I dealt with idiots all the time, so I was used to dealing with people, but then you had their job to put...over their head, so it was different. So it took me about three months and it still didn't get great but it got better…I started givin' her classroom assignments to do like passin' out paper…So I tried every strategy I could imagine at that time and it seemed to work out and, well, then the next year she was takin' US History and, well, I was teaching U.S. History, too, and well, I went in and she was on my list and I went, 'No, not two years in a row, somebody else can have her,' and so I switched her out of my class.

A working relationship had been developed with a difficult student and then it was cut off. Some statements here are disturbing: "Wild as a White female" seemed to carry racist overtones and "somebody else can have her" made the student seem like something that could (and should) be thrown away. Biases tied to racial and socioeconomic stereotypes are outlined in research by Banaji and Greenwald (2013), Moule (2009), Saperstein (2012), and Watson (2012). Whether conscious or unconscious, stereotypes about what was contrary to White behavior and the intellectual level of production workers were reflected in Teacher D's comments and actions.

Teacher D's authoritarian style continued to resonate in his comment regarding student respect:

> To be respected from a student, means a lot…they might not like you, but they respect you. I'd much rather be respected than liked, though I wanna be liked… You're gonna be better when you leave my class, so the respect is the biggest compliment I get years after is like, 'Man, you were tough but I did learn a lot.' I'm good, that's what I want to hear. And they say, 'You were mean.' 'Well how was I mean?' 'You made us do our work and if we didn't do our work.' 'So OK, keep goin', did I make fun of you?' 'Oh, no.' So, OK, that's the kind of respect…I think that, once you've been here for years…comes quickly because somebody says, 'Well, this is how *Teacher D* is,' so they walk into your classroom already with these expectations that it's easy to keep it going. Now that's what's easy for me.

Beliefs that students have to be made to work are identified in work by Haberman (1991) and McKenzie and Scheurich (2004). Students' lack of response to authoritarian

approaches, despite Teacher D's recounting of compliments after students leave school, is identified by McCarthy (1999), Toll et al. (2004), and Wiltse (2006). Supporting the findings of Gee (1996) and Moje (1997), Teacher D confirmed that his discourse may be neither embraced nor understood by his students.

Teacher A presented a much more student-centered reflection on respect:

> From the kids yeah, there's been numerous times when kids will come just after class or during lunch, come in and say, 'Hey, thanks, Coach, for what you've done,' or helping me out, or talking to me, or, you know, stayin' after school to help me. I have one student who comes in, she's in my honors class and struggles with her writing and her essays, and she'll come in and prewrite her essay questions and I'll look over them and she's appreciative. I think the kids really know if you care and if you try and may let you know that. I think kids, kids are they smarter than, you know, that we think. Maybe they don't care as much about world history, but they know if someone's honest and cares than someone who's full of it and just, you know, trying to push stuff off.

Teacher A's experiences confirmed the factors that other studies have highlighted as quality relationships with teachers that connect teachers and students in a "third space" (Moje, 1996; Pomeroy, 1999).

Reflecting this "third space," Teacher B shared a very personal experience:

> Unfortunately, earlier this year I was pregnant and lost my child… I found out on a Wednesday evening and I came to school Thursday and I had a conversation with each of my classes that I was going to be gone for quite a while and explained to them what my expectations were when I was gone, on where I was going to be, who their sub was going to be. And, almost every single one of my classes behaved in a way that I was very proud of, worked in a way that I was very proud of, and I felt, even though I'd only had them for a couple weeks in the beginning of the school year, I felt very respected, but I felt very proud that they respected me enough to act like that when I was gone, knowing the circumstances. And, so there was only one class I had that problem with, the class that you were in.

As suggested by Sosa and Gomez (2001) and Talbert-Johnson (2006), students respond empathetically when they feel a teacher is empathetic to their circumstances. It was not obvious that there was a strained relationship with Classroom B. It would have been

interesting to observe the other classes taught by Teacher B to confirm this.

Teacher C emphasized relationships that lead to what is good for students:

> Most of the time I feel respected simply because my position is the union president. I get a lot of respect from our assistant superintendent…also from our principal…they'll come to me and ask my opinion. To me that makes me feel like somebody respects the fact that I'm not just making things up and I'm not just going through the motions. I really honestly care about the kids. And I'm not going to do anything that isn't in the best interest of the kids. So, that's where I usually get it from. Every once in a while I get really good respect from the kids, too. At the beginning of the year I had one of my former students, she has a younger sister who she found out had me as a teacher. So she wrote me a little note and said, '*Teacher C,* you were the coolest teacher. Take care of my little sister, please.' So that was very nice.

After noting Teacher C's previous comments about respect, this comment may seem contradictory regarding administration. It would appear that conflicts about teaching methods and the subsequent perceptions of disrespect were tied to the superintendent. In the case of Teacher C in particular, beliefs about student relationships were closely tied to his interactions with other adults. The interpersonal contradictions that Teacher C experienced are elaborated upon by Kegan and Lahey (2001). Adult discourse plays a significant role in how adults work with each other and, as Heath and Heath (2010b) suggest, decision making is influenced by checks and balances against our own perceived identity. Accordingly, how adult interactions may impact working with students was clear as Teacher C's own feelings about honestly caring for students were often reflected upon as a system of checks and balances against the messages administration and parents were giving him about his work with students.

Student Participation

Participation was, for the most part, student-driven. Students who raised their hands were called upon. In Classroom D, students were occasionally called out to answer if

they were not paying attention or were assigned to go to the board and lead a review game or lead the current events discussion. Teacher B was observed noting whom she had called upon during one of the observations. No systematic cold calling to involve each student was seen in any of the classes (Green, 2014; Lemov, 2010). The one activity that guaranteed each student had to participate was the "I Have, Who Has" root word review game in Classroom B. Each student had cards and, if everyone played correctly, each student would have some match to call out and then invite another during the process. Teacher B recorded the time it took each class to complete the process each day. Students appeared to enjoy the timed competition against other classes and encouraged each other with collaborative strategies prior to playing during the two times this was observed. With every student having a voice in this activity, students were more engaged because they knew their participation mattered. Chenoweth (2010), Cheung (2009), and Kafele (2014) note that students who feel they have no voice, those most disenfranchised, thrive when given a chance to participate. This is echoed by von Frank (2013) and Zimmerman (2014) who emphasize that when students perceive that their input is valued they are more engaged.

Comments related to improving skills to prepare for continued learning were directed at all students. Verbalizing expectations of continued success for all students and the positive impact it can have on students has been documented by Chenoweth and Theokas (2011), Theoharis (2009), and Theoharis and Haddix (2011). College readiness standards were visible in Classrooms A, B, and C. Teacher A referred to note-taking skills the students would need when they went to college. As this was an honors course and included a couple of upperclassmen, that focus was not surprising. Teachers B and C

highlighted and referred to skills students would need when they took more advanced courses.

Teacher D pointed out that making them prepare chapter notes was important, but that he had to make them do it:

> All right, but what I want you to do right now is to check your notes, I want to see what you have and then add to it 'cause, based on what some of you did today, you're not good for tomorrow. At all…'cause I saw some of you with nothing to use on your test…and doin' the vocab, obviously you need me to make you do outlines, don't you? And, I'm so bad, but you know they're necessary. (see Appendix D, Observation D1, Segment 21)

In this case, students apparently had been given the option not to take chapter notes. In all cases, it was assumed that the students would internalize that doing and knowing these things was of benefit to them. In Classroom D, a gap between what teachers believe and what students internalize was evident (Gee, 1996; Moje, 1997). In this case, as opposed to placing supportive scaffolding in place to help students be more successful, perhaps an underlying expectation that students would not be successful was assumed. This type of negative expectation is addressed by Chenoweth and Theokas (2011) and Dinkins (2005).

There were opportunities in each of the classrooms to engage students more deeply and to connect their learning to their own lives. Many opportunities were lost, with teachers moving on after eliciting brief responses from students. For example, after showing a daily news segment, Teacher A had an opportunity to open deeper conversations on human suffering in our own country compared to that of another or discuss appropriate workplace behavior:

> We've gone through that on levels what has the United States gone through? Katrina, yup Katrina down in Louisiana we've gone through that. And, obviously, Hurricane Sandy, the storm came up on the coastline, not the devastation of this typhoon, but the type of sadness and damage. What's your thoughts on the NFL situation? What's that? Yeah, they

> needed a lineman last night. That's very good. (see Appendix A, Observation A1, Segment 11)

Similarly, during the presentation on the beginnings of universities in the Middle Ages, students had the opportunity to maybe compare and contrast what they knew with what happened historically:

> Tell me what you know about universities. OK, D1 colleges, Oxford, Universities, a place to study… OK you have to be very good to qualify. Very good you have to qualify that's excellent. All right. I'll tell you right now it's tougher now on you guys than it was when I went to college. OK. Because when I went to college this was a long time ago back in the 1990s there was a lot of skilled manufacturing jobs in the United States. There was still a ton of manufacturing jobs in our country and, not as many people went to college. (see Appendix A, Observation A1, Segment 23)

Instead, Teacher A went on to elaborate on his own experiences.

Teacher B attempted to connect photosynthesis and respiration to what students ate for lunch:

> So do you guys remember how I gave you the example of all of you ate a ham and cheese sandwich for lunch? And I asked you to tell me where the energy came from in the bread. Where did the energy come from in the cheese? Where did the energy come from in the ham? And we came to the conclusion that no matter what part of that it was the energy came from... the sun. Directly or indirectly the major source of all of our energy comes from the sun. (see Appendix B, Observation B1, Segment 7)

Connecting the cycle of energy to personal food choices, local crop growth and food production, and students' dietary sources might have influenced a deeper understanding of these cycles. The biochemical cycles in photosynthesis and respiration, organization and reorganization of molecules - while the details may be complicated, the concepts of cycles and organization are not foreign to students. Teacher B attempted to tap into that with another example:

> OK so let's imagine that I had I opened up a bag of M&Ms. And I have a bag of M&Ms in front of me. Does anybody sort their M&Ms? What do you sort

> 'em by, S##? By color. 'K or so let's say you sorted blue M&Ms to one spot, red into another, orange into another. Let's say that you made little piles that were rainbow colored like a blue, orange, red, yellow whatever, OK? This is kind of what's happening to carbon in this process is, I can sort those M&Ms into different piles but what if I started doing by five piles in different colors and pulled one from each color into another pile and so on and so forth. So what we end up with is just rearrangement of carbon throughout the entire cycle so it's a little bit difficult to imagine, but we're going to read first and put it into our notes and then we're going to take a look at the diagram the picture to try and help us make sense of it. (see Appendix B, Observation B2, Segment 36)

Difficulty in making practical connections with what students understood to more complicated reactions and cycles may have been influenced by the belief that topics were too difficult for students to understand. As advocated specifically by City (2014), Cuny (2014), and Fisher and Frey (2014), students are capable of engaging in deep, meaningful dialogue with appropriate support by teachers.

The project that Teacher C was introducing offered opportunities for mathematical discussions and personalized learning:

> Part of it's gonna be interviewing somebody about their first job. And they specifically say, and you'll get the project packet here today, they specifically say, interview an adult about their first job experience. You can pick whoever you want, OK? You're gonna discover that what you get told is probably gonna be kinda comical according to today's standards. Just off the top of your head, how much money do you think a person starting at McDonald's how much are they making an hour? (see Appendix C, Observation C2, Segment 5)

Interacting with another person about their work and earnings experiences offered an authentic adult connection. Having students look at a few different jobs would give them some perspective on where they might see themselves in the future:

> OK, now, part of what the project's gonna ask you do to is to ask you to calculate how much money you would make if you worked for one hour, two hours, three hours all the way up to ten hours. OK? You're gonna do that for two different jobs. OK, then you're gonna compare the two and you're gonna try to figure out if I wanna make a hundred twenty dollars how many hours do I have to work? (see Appendix C, Observation C2, Segment 8)

Extensive eventual discussions may have been diminished by Teacher C's beliefs about the value of projects. As emphasized by Green (2014), Lemov (2010), and Yennie-Donmoyer and Donmoyer (1993), teacher enthusiasm for the content plays a significant role in engaging students.

Teacher D had numerous openings for extended discussions or extended student exploration related to the standards he was covering. Company profits and where clothing is made had the potential to evolve into deeper discussions about social justice issues:

> How many of you own something Under Armour right now? OK, but you own, you own something of Under Armour ,so you've helped the stock grow… All right, of the sweatshops that you have like this, there's a couple of them in here I'll show you. These right here sweatshops and what was huge industry back then which it still is today is the garment industry. The textile. Right, your clothing. As we know, look at your clothing, we've done this before, look at your clothing, where was it made? Check it real quick. Somebody check the back of your tag, the person behind you, check it. To see where was it, where was it made? (see Appendix D, Observation D1, Segment 6 and Segment 17)

On the topic of immigration, after telling students that everyone is probably an immigrant from somewhere, students may have had the opportunity to tell their own stories reflecting on their own family histories rather than writing a fictional one:

> But we want to see things from the perspective of an immigrant. To the point that you are going to write a story with a partner about life your life as an immigrant. You're making it up based on the facts that you know from what you read in the text you have to make up a story creative, I mean interesting story and the thing is it's made up so you can be really, really creative and interesting. (see Appendix D, Observation D3, Segment 29)

Opportunities to infuse student voice presented themselves in each of the classrooms. City (2014) and Clark (2013) specifically highlight the importance of using classroom discussion to engage students and emphasize equity in participation and learning. Monopolizing on those opportunities may have been lost for a variety of reasons. A need

to adhere strictly to standards as covered by the text seemed to be a large influence. Controlling what type of answers students would give appeared to be important. As noted by O'Brien et al. (1995), even with attempts to encourage student voice, teachers defaulted to telling and controlling.

Built-in supports

Although it was observed only in Classroom B due to the period it fell, all classes had extended time on Tuesdays and Thursdays. The scheduled built-in time allowed for students to make up work and to graph their own grade progress. This school-wide effort showed promise in having all students take ownership of their work and revisit their own progress regularly. As indicated by Fisher and Frey (2012), if all teachers ensured that students were completing their work and advising and encouraging students to do better, extended time could be a positive intervention. A freshman mentoring program that awarded students with stickers on their lockers for passing all their classes, especially with Cs or above, was mentioned during Observation B1. Incentives for good attendance were noted in the school announcement during Observation A2. Students maintaining good attendance could win a "jump the line" pass to move to the front of the lunch line with a friend. Overall, at least in the four classrooms observed, poor student attendance, in general, did not seem to be an issue. These school-wide attempts focused on getting all students to internalize being in school and doing well while there.

Anticipations of performance

All the teachers encouraged students to ask for help if they needed it. Being student-initiated, this put the onus on the student to reach out. Teacher B, during two observations, gauged students' comfort with understanding material with a thumbs up,

thumbs down, thumbs to the side check. All students were expected to participate. Not all did. This at least gave a relatively non-threatening way for all students to give feedback on the progression of learning. However, until no student is allowed to opt-out of participation, as emphasized by Chenoweth (2010) and Cook-Sather (2010), all students do not have a voice.

Attempts to encourage a growth mindset were observed directly or indirectly in most classes (Dweck, 2006 and 2010). An example was identified during Observation C1 when a student was concerned about never having memorized multiplication tables. Teacher C stated:

> You said, 'I can't do it, no matter how hard I try'…but if you practice it enough…no, it's not bad, it just means you're just going to be slower at that stuff than some people that know it. Doesn't make you a bad person, just makes you slower. (see Appendix C, Observation C1, Segment 19)

While encouraging students to stretch themselves and expressing the belief that all students can learn, discourse in each class also had the potential to send a different message. Teacher A had a tendency to take an apologetic tone toward the work that needed to be done. During Observation A1:

> Let's cover section three of our notes and then, you guys, I'll give you probably about ten minutes to start your homework. Then you can start on your homework, yes, yes, you're going to have homework, don't cry. (see Appendix A, Observation A1, Segment 12)

Later, when they had time to work, "So I know, I know you got a little homework, suck it up. There you go. Homework is a part of life, very good" (see Appendix A, Observation A1, Segment 30). During Observation A3, some students were making up tests and others were absent. At the start of class, Teacher A stated:

> We're gonna start talking in our books about the next chapter and then we're gonna work on a map, so you don't have to take notes or listen.

> We're gonna work on a little map (see Appendix A, Observation A3, Segment 1).

After a student mentioned watching a movie, Teacher A continued:

> Yes, I did think of a video with Joan of Arc which is sort of a historical one. It wasn't the movie, 'Joan of Arc,' but what we'll do is hold off on that in the week of Thanksgiving. I think I'm going to allow you guys, 'cause we have Wednesday, Thursday, Friday off that week of Thanksgiving, on Monday and Tuesday I may bring in a video for you to watch. For that week leading up to Thanksgiving. So, that's why today I'd like to move on with what we're doing. (see Appendix A, Observation A3, Segment 4)

As addressed by Lemov (2010), espousing an apologetic tone for the work that needs to be done minimizes its importance to students.

Teacher B expressed concerns with the biology curriculum during her interview:

> I'm at much more an advantage teaching physics because the students tend to do demonstrations and hands on things more often. With the biology, the curriculum has become so detailed that that's a little bit more difficult.

Later, when addressing disengagement, Teacher B stated:

> With the biology we're using now, I'm not particularly fond of our textbook and, like I said, it's very deep detail and you can see what we were doing today, you know, the Calvin Cycle and working with chemistry-type things and so I can't blame them, but unfortunately, they lose their attention span very quickly with that type of material.

To help make sense of the complicated topic, Teacher B walked students carefully through the process and incorporated manipulatives into the note taking. During Observation B1, students were prepared for what would be covered over the next few days:

> And, again, we're going to be talking about the chemical processes specifically happening inside of ourselves that are going to break down food and give us energy, that ATP…This can be very difficult at times to understand. So we're going to do something a little bit different – pencil down, please – with this set of notes. If you guys follow directions, meaning when we're working together, you're paying attention, OK, and when it's reading time, pencils are down, I will provide these same types of notes for cellular respiration to kind of help

> you through the process. If you're finding that you'd rather take notes in your notebook and use this as your guide, you are more than welcome to do that because I know that some of you are very particular about keeping your notes in a certain order. So, if you'd like to keep your notes in your notebook, you're more than welcome to use this as your guide and continue to do it that way. It's up to you. But what I've done, and you can tell I've pulled pictures right from your text and put them in here so we can draw and write on them and things like that, OK? (see Appendix B, Observation B1, Segment 7)

From this, students may get the message that this material is so difficult that they will not understand it, but that, if they follow directions, they will at least get a resource to use as a reference. This was also, perhaps, Teacher B's way to respond to what was not part of her own beliefs. When explaining her philosophy she stated:

> With the politics in education with the idea that every student can learn to the same level and I think my philosophy has become more that my goal has to be reaching every single one of them in the best way possible.

During checks for understanding, it was obvious that not understanding the Calvin Cycle was expected:

> I'm not seeing many thumbs up, but that's OK because what we just did was pretty difficult and that's why we're going to look at this picture and try to make a little bit better sense of it. (see Appendix B, Observation B2, Segment 58)

After seven minutes:

> OK, I'm not seeing any thumbs down, which is a good sign. If your thumb is still to the side, that's OK because tomorrow we're going to take a little bit more time to review what's happening during the carbon Calvin Cycle before we move on. (see Appendix B, Observation B2, Segment 66)

Studies examining effects of deeper learning on student success, as reported by Devaney (2014), show that students are capable of understanding difficult concepts when they are presented through project-based learning or similar pedagogies that make content relevant to students. The potential to take students to a deeper understanding of content

while emphasizing interpersonal interactions is possible. Both were identified as personal concerns of Teacher B.

Working with the demands of reaching and moving students at all skill levels may lead teachers to encourage students in ways that do not accelerate their learning. Teacher C mentioned this specifically when discussing his classroom during the interview. Covering the basics and moving everyone at the same pace minimizes differentiation. Teacher C explained:

> I fully believe that homework assignments should mean something. Shouldn't just be I gotta have something to fill time…That's why a lot of my kids will get done early. That's fine and I'm HORRIBLE at having something for them to do when they're done. And I've been told that when they do evaluations and things and they're, like, we need something for the kids to do when they're done, some extra credit. I'm, like, I'm having a hard enough time getting the ones to do the regular credit, let alone the, oh, I wanna get to the extra credit, 'cause that's the fun stuff. And those kids who are struggling want to just jump in and do the fun stuff and then they've lost out on what I NEED them to learn. So, I haven't found a good balance with that.

Both struggling and advanced students may be missing opportunities to learn in a setting lacking differentiation and when the basics are considered the lowest level, boring information that must be presented. Underlying the inability to differentiate, similar to findings shared by Dinkins (2005), Green (2014), Jackson (2011), and Shields (2004), lowered expectations may have been held for all groups of students.

For disengaged students, enjoyment appears to come from activities that are not academically related. Teacher D touched on this during his interview when asked how he engages students in learning:

> Oh, all different types of strategies, it just depends on the class. I mean, like my first period class would be close to an honors class to where they wanna know, they're pulling it, they're throwing hands up , they're asking questions, they, I mean, it's easy to get them engaged. But a

> class like the fifth hour, you gotta throw 'em a bone, you gotta throw 'em a candy, a mind trap once in a while.

Expecting students to disconnect from academic content may become a self-fulfilling prophecy. When presenting the topic of "trusts" during Observation D1, getting students to jump into the discussion was difficult:

> It's happened in the world from the 1970s, there was this thing that was created to control the price of oil…anyone know from prior knowledge what that was back then…a lot of Middle Eastern and South American companies that got together and decided that we're not going to compete against each other to supply oil to all the countries around the world. We're going to unify instead of market price for oil and, therefore, we will all be rich. You remember, but you can't tell? You know what it starts with? Starts with an 'O.' Only two other people got it earlier today. OPEC. You heard of OPEC? We haven't talked about it yet. (see Appendix D, Observation D1, Segment 13)

With no student comments, the lecture continued:

> What do you…think that the government did? Well, take a guess. What do you think the government did because these big corporations were taking advantage of the consumers? H##. I said take a guess. (see Appendix D, Observation D1, Segment 14)

A push for "just give me something to work with" may become a message that knowledge and understanding are random; some get it, some do not. Despite attempts to get students to add to the conversation, Teacher D exemplified banking as proposed by Freire (1970). Ultimately, he held the answers. Classroom instruction focused on teacher control and talk (Haberman, 1991; O'Brien et al., 1995). This may have reinforced a closed mindset and may have impacted student desire to participate.

Anticipations of student performance were also reflected in two documents, the school mission statement and the annual accountability and accreditation report. These supplemented teacher interview statements and observation transcripts. The school's stated focus was:

> The mission of the staff, students, and parents of *American High School* is to provide a learning environment and to educate all students to their greatest potential. This will be accomplished through a mutual teaching-learning process so that each student may make a positive contribution to society.

Taking students to higher levels of achievement and helping them contribute positively in some way, some day, was the school's goal. The message to students appeared to be that, the learning environment at school will prepare them for when they move into their societal roles, whatever they may be.

This concept of contributing to society was echoed directly only by Teacher A, who stated:

> My educational philosophy is to produce competent, responsible students that can serve the community or serve society better…. They're well-rounded, they're critically thinking and that they're problem-solvers.

Getting students to this stage was implied by the other teachers. What was more overt in statements they made, related to their philosophy or otherwise, was that many students were behind academically and that their personal life experiences might be detrimental to understanding what it looks like to positively contribute to society. It was evident that the teachers had an internal struggle with feeling sorry about their students' life situations and the need to provide them with the content knowledge that they were required to present.

Dwelling on these concerns has a potential negative impact on how teachers work with students. This has been elaborated upon in the work of Chenoweth (2010), Chenoweth and Theokas (2011), Gleason and Gerzon (2014), Theoharis (2009), and Zmuda (2010). Teacher B verbalized this most clearly in two parts of the interview. When explaining what she knew about students outside the classroom, she said:

> I know that a large number of them leave this building and go home and

> have to be more adult than they are at school. I know that a lot of them, their priority is not school, their priority is survival. I know that a lot of them have homes where education's not valued, they have homes where they are taking care of themselves and someone's not taking care of them. And, so I know that when they walk into my classroom that this may not be their number one priority and so that makes teaching them that much more challenging.

Elaborating, she added:

> It changes the way you look at them and, unfortunately, sometimes it's hard because you feel sorry for them, but you have to focus on the fact that they're your student and you still have to focus on their learning in the classroom.

Defaulting to sympathy versus focusing on helping students develop resilience may be placing barriers between teachers and students and between students and academic achievement.

The learning in the classroom, as outlined in the annual accountability and accreditation report, was guided by state standards evidenced through pacing guides, curriculum guides, and curriculum maps. Observations and teacher comments showed a close adherence to the textbooks which were, possibly, the basis for the curriculum maps. Textbooks were not examined as part of the observations, but it should be noted that a copy of the map that students were using during Observation A3 referenced a textbook series with 1986 and 1997 publication dates. The teacher provided supplementary atlases and offered to look up information on the Internet for students. While espousing a commitment to preparing students and supporting their learning, providing students with current materials, at least in this social studies class, may not have been a priority (Kozol, 1991).

Supplements to the seemingly newer text in Classroom B included an animation of the Calvin Cycle which was shown to the students at a later date. As noted in the excerpt

from the class, however, even though Teacher B was not fond of the text, she made direct copies of illustrations from the text as the basis for her notes. The pressure of covering content standards reflected on state standardized tests may make a focus on the text a priority, consciously or unconsciously. This supports the development of opportunity gaps as outlined by Welner and Carter (2013). Balancing the need to cover what everyone needs to know, at least for the test; what they come in knowing, at a wide range of skill levels; and where they will go, a multitude of career paths, may create tension. Teacher B, in the interview, expressed it this way:

> And I think moving from the middle school level to the high school, as well, has changed my ideas because at the middle school level we don't focus as much on the curriculum because of how it's tested for the state. I guess I'm not really sure how to word it. That classroom environment, learning environment, you know, working in groups. And here that focus really shifts for these kids because they're all on their individual paths to graduation and whatever their plan is after so that each of them is being prepped for something different where they're going to go in the real world, so it's interesting to see now the change in these kids 'cause they're all headed in different paths and it's about preparing them for that.

The teachers indicated being compelled to prepare students for state testing and to prepare students to be productive citizens. They felt the pressure of getting the students who are most behind caught up while trying to engage those same students, as those students are the most disengaged. They alluded to conflict with these ends as each student was on a trajectory toward different post-secondary goals.

Teachers' expressed goals for students were compared with the instructional planning portion of the annual accountability and accreditation report:

> The majority of the adopted curriculum is developmentally appropriate instruction with attention being paid to cultural differences, learning styles, and individual learner abilities. Over half of the teachers in the school or cross-school programs are consistent in the use of developmentally appropriate instructional practice. This includes the use of strategies such as differentiating

instruction and providing active learning opportunities.

The report exposes potential gaps in equitable educational opportunities for all students throughout the school, as do the seemingly conflicted outcomes in goals for the students in these classrooms. If over half of the teachers are using developmentally appropriate instructional practice, there is a concern about what the others are doing. Seeing the outcomes as conflicted may be exacerbated by the underlying belief patterns expressed about the abilities of all students to perform at high levels. The importance of a collaboratively developed, shared belief system focused on equity is elaborated upon by Burns (2013), DuFour and Eaker (1998), Elmore (2004), Foster (1986), Fullan (2001), Schlechty (2005), Schmoker (2006), Skrla et al. (2004), and Theoharis (2009). A shared belief system focused on equity and high expectations appears to be missing.

Opportunities to connect with students

Relationships with teachers and the teachers' perceptions of students pointed to barriers that may be affecting opportunities to connect students to the curriculum. Teachers' expectations of students were expressed through their interactions with them. Albeit extreme, an example from Observation D1 highlights this.

As students were entering class Teacher D was interacting with a few different students:

> Notes...do you have something for me? I'll turn the heat up for you...
> hey. What are you doing? You guys have lost your minds. Right here.
> What are we doing? Besides losing our minds? Open up to lesson three.
> (see Appendix D, Observation D1, Segment 1)

No student misbehavior was observed at the time. The boys addressed for "losing their minds" seemed confused. The entire class fell silent with the comment. The immediate reaction highlighted the power of teacher words (Johnston 2004 and 2012). Students

were instructed to open to lesson three. As students prepared materials for the review, Teacher D changed the plan and incorporated one of the activities he indicated he uses to motivate students:

> OK, here's the mind trap, no talking...write down the answer. Do not share it with anybody else. Forward I'm heavy, backward I'm not. What am I? Forward I'm heavy backward I'm not. What am I? Get a piece of candy if you get this one. Everybody has to guess…everybody has to guess. Forward I'm heavy, backward I'm not. What am I? What, am I giving clues now? A living organism? No. I told you the answer. You just need to write it down, what I told you, and you've got it. Forward I'm heavy, backward I'm not…Oh, I just quit, throw my pen down, and be done. Everybody has to guess. Listen to what I'm saying. So, forward I'm heavy... backward I'm NOT. What am I? Do you have it? You are on the right track that's not the right one but keep goin' with the rest of the question. Any other guesses? It's a play on the words that I'm saying. So you have to write down the words that I'm saying and then it should pop out. Forward I'm heavy and then backward I'm not. Still not getting anywhere, E##? Write it down. I'm going to take a short time before we move on. If you write the sentence out, then you have the answer in that sentence. It's in there, you just have to do some rearranging. You have it? It's in there. You just have to do some rearranging, that's your clue. Must be a tough one. Cover it up. That doesn't even make sense. (see Appendix D, Observation D1, Segments 1, 2, and 3)

The unexpected change in plans continued to emphasize Teacher D's position of power. In the "engaging" activity, students were forced to work alone and were mocked for not understanding the hints:

> All right, let's move on since, since you don't have the answers. All right. Lesson three. Come on. I'm not gonna tell you. You know I'm not gonna tell you. I can do whatever I want. OK, so what we're going to do, we're going to quickly go through this 'cause you should have taken notes on it already, this is review over Lessons three and four. (see Appendix D, Observation D1, Segments 3 and 4)

Because students did not show promise in the "fun, engaging" activity, the lesson moved back to academics. Although Teacher D was smiling and laughing through this process, as well as employing a closed, nonthreatening body posture, the tense start set the tone for the activity. Students did not get the answer (it was given to them at the end of class),

Teacher D asserted himself as in charge, and then the class moved on, as if punished, to subject content material.

Maximizing time spent on learning was lacking in this class as well as others. Goodwin and Hubbell (2013) summarize the significant impact effective use of instructional time has on student achievement. With class starts and endings being very teacher-directed, instructional time was lost with students waiting for something to happen at the beginning and then not using time effectively to work at the end. When information was presented, numerous topics were presented in a short time frame:

> Lesson three…we're going to go quickly through this 'cause you should have taken notes on it…so, what we're going to make a connection with is what's going on today in business and what was going on back in the early 1900s…tell me a big business…what does it take to open up a business?... A corporation can do what?...Back in 2002, Under Armour stock was right here on this line…growth of oil and steel…Gates Foundation…OPEC… why can't we pick whatever electric company in the world…your Roosevelt, your Taft, your Wilson…the trust-busting presidents…what was it like to work in this time period…sweatshops…can we strike, teachers?...Taft-Hartley Act…Ronald Reagan…airlines. (see Appendix D, Observation D1, Segments 4 through 22)

Within approximately thirty minutes, a rapid review of topics was presented, infused with personal and modern business examples. Students should have taken notes over the information prior to coming to class, but it was obvious most had not. With no prior review of the material and a rapid fire overview that may have been confusing, some students may not have been any more prepared for the next day's test than when they started. An opportunity to go much deeper into a discussion with students on any of the topics was lost.

Teacher B, while maximizing content time the best, struggled with keeping her group on task during extended time. Time students had to catch up on work became down time

for some, creating extra management struggles for the teacher. In Observation B1:

> S##. (chatter) Shhh. B##, I have somebody taking a test. I'm not gonna keep asking you guys. (quieter chatter) Shhh. (chatter gets louder) OK, ladies and gentlemen, I need your attention please ladies and gentlemen I need your attention please. Hey, if at any point in time you do not understand what I'm saying to you right now, I just need you to raise your hand. This is the last time I'm going to ask you to please be quiet, I have a student in here taking a test. You're being rude, you all have something to do; you know the expectation is to bring something with you. I'm working on getting you new graph paper like this so you can continue to do your graphing for second marking period and you're also getting points for doing this today. OK, this is our last warning from here on you'll start losing points and leaving the room. Yes, sir. Yes, you can go ahead and add these either in front of or behind them. So take three of these and pass them on. I have more on the copy machine. Take three and pass them on. Shhh. (chatter) Shhh… (see Appendix B, Observation B1, Segment 24)

The majority of students did take advantage of the additional work time, or they did a good job of acting as if they did. It was observed during this extended time and the one other occurring during the observations students with IEPs had a chance to get additional help with their resource teachers. Students felt comfortable leaving when prompted inconspicuously; they knew they could do so if needed, or if the teacher knew specifically that the resource teacher requested that they do. As highlighted by Scheurich (1998) and Valencia (2010), the classroom was a safe place. Also, during the faculty meeting I attended, Teacher B had reported that graphing grade progress created a greater personal awareness and sense of ownership for students. This is supported by Fisher and Frey (2012). How teachers used that specific activity and extended time may have affected opportunities to connect with students.

Teacher introduction of activities had the potential to affect student engagement and success. During Observation C2, Teacher C, when presenting a project, made his opinion clear:

> 'Oh no, *Teacher C,* please not a project!! I hate projects!' Well, you know

> what, that seems to be the big push in education now. Everybody's going to project-based learning. It's a little more difficult in math than it is in any other subject for the simple reason that they tell you you're supposed to learn something by doing the project. My personal philosophy is that, if you don't know the information, you're probably not gonna discover it on your own. So you're probably not going to learn the math by doing the project, but this particular project you're going to learn about some other things and you're going to apply the math that we've been doing. 'Cause what you're going to be doing on this project is you're going to be investigating a couple of different jobs that you think that you might want to do either now in high school or, like, the first job you want to do when you get out of high school. (see Appendix C, Observation C2, Segment 4)

Interestingly, it was during this project roll out that Teacher C made a calculation error. A chance to make an assignment that might be engaging to some students seem a bit more exciting may have been diminished by Teacher C's overt statement. Similarly, as noted previously for Classroom A, an apologetic tone asking students to do work may have done the same. As summarized by Frymier and Houser (2000), a teacher's skill in communicating intended purpose, assuming both teachers wanted students to be highly engaged, is crucial in connecting students with content as well as with students personally.

During Observation A1, as students took notes, Teacher A explained:

> We only have four, five slides it'll go pretty quick. OK the style Gothic from the 12th, 13th centuries it came in. The architectural innovation began in the 12th century but it was not perfected until the 13th century. Gothic style really took form in the 13th centuries but it was introduced in the 12th century. I'm not going to ask you about that too much guys I just want you to know that for background knowledge. It's more important that you know what Gothic style is and identify it than when it came about. But it's important, it's more important that you can identify. And I do have a picture of Gothic style that should come up here. (see Appendix A, Observation A1, Segment 18)

After four minutes, "Take your time. Don't rush finish writing what you're writing and then I will show you the pictures of the flying buttress of the Gothic style church" (see Appendix A, Observation A1, Segment 21).

After seventeen minutes, which included discussion of college life:

> All right, let me pass out your homework to you. OK here we go let's do this quickly to make sure you know what you're doing. This will be due tomorrow when you come in. So I know, I know you got a little homework, suck it up. There you go. Homework is a part of life, very good. This over section four. We covered section three already. Hey, listen up, question was asked is this over section three or four. This is over section four, we covered section three today. This is over the next section. So when you come in tomorrow we can talk about section four. And you guys will have a little prior knowledge. Look at the directions, read each of the main ideas and answer the questions. (see Appendix A, Observation A1, Segment 30)

The pace was very relaxed for an honors course. Interestingly, in reviewing the GPA distribution for this class, it would not be apparent that students with higher GPAs were tracked into the course. While Teacher A might not have had any input as to how students were placed in the class, equity audits, as proposed by Skrla et al. (2004), may be useful if the school chooses to examine programming.

Students did not seem as concerned with getting a homework assignment as Teacher A's comment may have suggested. In fact, in Observation A3, a much more relaxed pace put Teacher A into classroom management mode: "Hey, what you don't finish is homework, so you wanna work on this. You guys have fifteen minutes left. So let's use our time to the best of our ability" (see Appendix A, Observation A3, Segment 31). At that point, most students were ready to move on, chatting and waiting for class to end. Students' disconnection from the teacher's intent (Moje, 1996) led to a shift in pedagogy (Haberman, 1991).

However, revealing high expectations for all the students, Teacher A did make a point of emphasizing skills students would need when they went to college:

> All right…you don't have to write what I have word for word…something you guys can work on as you get ready for college. You will take notes in college, do some note taking in college, and you want to be able to, you know,

> get the main idea I have up here in your own words. So you can study in your own words, all right? (see Appendix A, Observation A1, Segment 14)

In another attempt to connect a bit more personally with students, Teacher A related to students' understanding of extended families:

> OK, when we talk immediate, it's just your mom, your dad, your siblings, so if someone was injured and they went to the hospital and only immediate family can visit they're talkin' about their mother, their father, their brother or sister. Grandma and Grandpa, cousins, they wouldn't be allowed that… would be more extended family…And it's funny because we're seein' more people today live in extended families again. In the 21st century… What…have we gone through in the last six years? A recession, very good, a lot of people lost jobs. A lot of people are earning a lot less than they used to be earning so now they're depending on family. Fifty years ago there weren't as many extended families as we're seeing now today. So it's funny you talk about Africa and extended families way back when and now you're seein' maybe extended families coming back a little bit due to financial situations, all right? (see Appendix A, Observation A3, Segments 8 through 11)

But, just before emphasizing that African tribes enslaved each other he added:

> They talk about family and lineage. All right, family and lineage. You know, little bit different. Lineage is passed on by the mother in a lot of African societies, not the father. And they'll talk about that. So don't be <u>shocked</u> when you read that…they talk about it's passed on by the mother's name not the father's name in some African societies. (see Appendix A, Observation A3, Segment 13)

Students might have received mixed messages from these statements. At first, an understanding of many students' extended family living situations was verbalized. It was acknowledged as an economic necessity. Of interest was the nonverbal cue that was observed during these statements. When explaining that immediate families were the norm in the 20th century, Teacher A played with his wedding band (see Appendix A, Observation A3, Segment 8). He then connected modern extended families to the previously described simple culture in Africa. As compared with Greece and Rome, Africa was "different." The concept of lineage passing through the mother was expected

to be “shocking” to some students. Extended families and lineage being passed through the mother might be seen as deficient through these statements. As suggested specifically by Delpit (1995) and Howard (1999), teacher attention to the perceptions words create is significant in creating a nurturing classroom for all students.

Day-to-day interactions set the tone for expectations and reflected teachers’ own beliefs about their content, their students, and themselves. This had a direct impact on the learning opportunities created for their students. The gravity of the importance of creating opportunities for all students to learn was reflected in Teacher C’s story from summer school:

> His mom called the police and said I threatened his life. I was, ‘Really?’ Now, he was a Hispanic student who has traditionally not done well. Mom, well, works in the fields, came out of the fields, has a hard time with English. And what she really meant to say was his education IS his life and, therefore, by threatening his EDUCATION he's not gonna have a good life. I was threatening his life.

The distraught mother truly summarized it well. While her son may not have taken school seriously, she could articulate the mission of school precisely.

Themes revealing belief patterns

Themes revealing beliefs about teacher-student relationships, anticipation of performance, and opportunities to connect students to the curriculum arose from the interviews and observations. These included:

1. While students are more engaged when actively involved in their work, the basic curriculum cannot be covered that way.

2. Students would have the ability to be more successful if they did not come from a culture that promotes poor work ethic.

3. The way to teach good work ethic is through very structured, controlled, teacher-centered instruction.

Similar themes have been echoed in other research, most notably that of McKenzie and Scheurich (2004).

Teachers alluded to the need to tightly control the learning environment, making sure that the students struggling most understood the basic knowledge in their content area. Teachers believed that students needing the most help had internalized a poor work ethic and wanted their help the least. Teachers found it difficult to work with that mindset in the classroom. Paradoxically, the work teachers did as a result of these beliefs did not usually garner the student results they expected.

Discussion

How high school teachers speak about their work and how they speak to students about the work they want them to do reveals their conscious and unconscious beliefs. This work is directly affected by the classroom environment. As noted by Levine et al. (1993), "Cognitive activity is strongly affected by how people construe the social situation in which they find themselves" (p. 591). Teacher-student interactions can be revisited in a reflective way to help bridge gaps between what teachers believe about students, what they need to consider believing about students, and what they say. Work can begin, Johnston (2004) suggests, with a focus on teacher language. That focus, with a clear understanding of how deficit thinking influences our words (Valencia, 2010), may lead to a deeper understanding of the significance of what is said to and about students. Awareness of spoken and unspoken language, the power they hold, and the teacher's complete control of them may lead to language that is crafted to lift students up to achieve their full potentials (Jackson, 2011).

Reaching <u>all</u> students

Lyman and Villani (2004) suggest:

> Educators are among those without full comprehension of the complexity and blight that is poverty. Because colleges do not provide coursework on the issues of poverty, too many future teachers and administrators leave preparation programs with common societal attitudes and deficit-thinking stereotypes intact: they blame the poor for being poor, and they see children of the poor with eyes of pity. They look only on the surface and remain caught between the claims of justice and privilege. (p. 157)

Being caught between the claims of justice and privilege may be where the teachers observed in this study find themselves. Teachers want to help the students who may, in their assessment, come from backgrounds lacking in support and enrichment. They may see their role as righting the lack of opportunity their students face by exposing them to what might lead them to future opportunities. Yet, attempting to reach all students, seeing the true challenge of that work, and taking what they know will engage their students and incorporate it on a daily basis is eluding them.

The frustration of not being able to reach all students has had educators looking for a magic formula for a long time. *Just tell me how to do it right!* Wong and Wong (1991) presented the tools for "how to be an effective teacher." The call to have teachers create their own culture - one that emphasizes hard work, effort, and integrity, as in the best of what American culture has – may have been interpreted through the common societal attitudes and deficit thinking addressed previously. The focus on procedures, positivity, and practical classroom management has been concentrated into a remedy containing only one ingredient - control.

Control versus active engagement

Classroom management is the overall focus of Lemov's (2010) tools to "teach like a

champion." Despite commentary admonishing his approach as focused on controlling kids, there is some agreement that his forty-nine techniques are proven good management techniques. Most of the techniques are gleaned from solid research (Green, 2014). It may be true that very little standards-based learning happens in the midst of a chaotic classroom. However, when management becomes the top priority, a classroom can become adult-centered, authoritarian, and focused on lower-level thinking and responding. The classroom may become a place where time is not used efficiently because the teacher gets tired and needs to give himself or herself and the students a break. The effectiveness of classroom management is ultimately measured by the students' achievement on standardized testing scores. Therefore, it is not surprising that teachers feel conflicted between covering standards in a scripted way and finding that students are not engaged (Carter, 2013).

Student engagement, as the teachers in this study suggested, comes with activity and collaboration. As it can be hard to manage, the learned tendency of many teachers is to avoid it. Yet, as Scribner and Reyes (1999) suggest, culturally responsive pedagogy includes empowering students by letting them innovate, experiment, problem solve, and discover. The continued documented success of collaborative learning strategies supports this pedagogy (Carter, 2013; Devaney, 2014; Parker, 2014). Use of students' funds of knowledge should inform the instructional strategies implemented in the classroom. Direct connections with students' families support this work (Saifer & Barton, 2007). In such a setting, the "third space" of shared learning develops and can help teachers rekindle their own passions for their subject matter (McNeill & Pimentel, 2010; Moje, et al., 2004; Wiltse, 2006). Accordingly, Johnson et al. (2012) provide an outline

of research-based, culturally responsive pedagogical practices that have shown promise in helping all students achieve success in mastering rigorous academic content. Their work builds on the "baking a cake" concept proposed by Bryk et al. (2010). In schools showing high student engagement and achievement, all of the essential ingredients are in place: leadership, parent-community ties, professional capacity, student-centered learning climate, and instructional guidance. All the ingredients interact effectively to create a great school just as all the ingredients needed to make a cake must be present. If any ingredient is missing, there is no cake. Changing the interactions that take place in the classroom and outside the classroom can promote a change in beliefs (Johnston, 2004). Through this change in beliefs, perhaps teachers' content area passions can be rekindled, prompting teachers to view curricula in a different way.

Selling the content

When students find the subject matter boring, that message may have already been sent by the teacher. Some teachers believe that "the fun stuff" is the projects or the extra credit that comes along rarely. Yennie-Donmoyer and Donmoyer (1993) emphasize the need for teachers, especially secondary teachers, to "sell" their content to their students. While their work focused specifically on creating a culture of writers with at-risk students, their six factors, paraphrased here, are echoed through the literature on good teaching: utilizing an improvisational, reactive, modeling mode to deliver content; dramatizing the importance of the content; dramatizing the importance of the students' work; deemphasizing grading while emphasizing critiquing (formative feedback); focusing on the positive; and differentiating work. Similarly, Lemov's (2010) "without apology" strategy holds tremendous value here. Teachers may apologize for content

being dull or too difficult. Teachers may apologize for students not being able to reach a certain level of mastery. Educators, through their body language and words, send messages to students about the value of what they are teaching and whether or not they think their students can grasp the material, let alone master it (Jackson, 2011). High expectations for teachers and students are the norm in schools that help all students succeed academically.

Culture of high expectations

Accordingly, Lyman and Villani (2004), in outlining best practices found in high-poverty schools, highlighted the common core beliefs and cultural characteristics found in those schools. They draw on Scheurich's (1998) work. Five core beliefs, summarized here, are:

1. All children can succeed at high academic levels.
2. Schools are learner-centered.
3. All children must be treated with love, appreciation, care, and respect.
4. The racial culture, including the child's first language, is always valued highly.
5. The school exists for and serves the community. (Lyman & Villani, 2004, p. 111)

From these core beliefs arises a loving, caring, collaborative, innovative, hard-working, accountable culture with a strong shared vision. Johnson et al. (2012) include leading students to love learning. Goodwin and Hubbell (2013) add their touchstones for good teaching, organized in three broad categories: be demanding, be supportive, and be intentional. These dispositions, tied to research-based pedagogy, set the stage for student success (Green, 2014).

Intentionality, with a focus on true learning, instead of on a set of external drives that

are disconnected from the human life of the classroom, is what teachers may be searching for. The same attempts at external motivation that are aimed at teachers trickle down to teacher behavior in the classroom. Ryan and Deci (2000) suggest:

> The fullest representations of humanity show people to be curious, vital, and self-motivated. At their best they are agentic and inspired, striving to learn; extend themselves; master new skills; and apply their talents responsibly. That most people show considerable effort, agency, and commitment in their lives appears, in fact, to be more normative than exceptional, suggesting some very positive and persistent features of human nature. (p. 68)

The lack of intrinsic motivation exhibited by students and teachers results from continuing to engage in work that may have no value to them. Underlying anticipations of lower performance from both students and adults promotes inequity (Shields, 2004). The way the teachers in this study spoke about their work and the students they work with pointed to those lowered expectations.

Deficit revisited

Student outcomes continue to be influenced by underlying perceptions. Farkas et al. (1990) reveal teacher bias towards grading in which teacher perceptions of lower performance based on students' work ethic resulted in lower grades for certain students, despite their actual cognitive performance in a class. Students whose social status varied most from that of the teacher received lower grades. Schleicher (2014) points out the effects of perceived disadvantage on student performance. Referencing data from the Programme for International Student Assessment (PISA) he indicates that in countries that distribute wealth and education equitably, equity in schooling comes easily. In countries where disadvantage is perceived as prevalent, learning outcomes are tied to social background. In a few countries with truly significant disadvantage, such as Singapore and Korea, the perceived disadvantage by educators (specifically principals) is

significantly lower and students in those countries show a greater ability to perform better academically. Economic disadvantage does not predestine students to be learning disabled, however, educators' perceptions of advantage and disadvantage may. And, perceptions of advantage and disadvantage are often tied to race.

Perception of one's race may be affected by social status. In a longitudinal study of Americans, Penner and Saperstein (2008) highlight the fluidity of perceptions of race. Saperstein (2012) indicates that the experience of race in the United States and the perception thereof reveals a complex pattern incorporating advantage, disadvantage, and self-perception. These perceptions may influence how teachers speak about their students. With the direct reference to overt stereotypes tied to race being taboo, the reclassification of those same stereotypes under the guise of disadvantage may make the discussion less offensive. However, as suggested by Valencia (2010), deficit thinking continues to be a strongly held and historically perpetuated flawed reasoning. Whether deficit is tied to skin color or socioeconomic status, the issue of social justice and an equitable opportunity for success in school remains the same. Indeed, it makes the population of students who are "the other" even larger.

Missing parent-teacher connections

Although this study did not address issues related to parent involvement, it should be noted as important. When the majority of students are perceived as different from those teaching them, the gap between the world of school and the world of home widens. The gap between the teachers and their students' parents was evident. This is not uncommon. Schools tend to focus on what they can control. How schools interact with and influence students is under the staff's control. However, not attempting to bridge that gap makes it

wider and may fuel continued perceptions of deficit. Lareau and Horvat (1999) and McCarthy (1999) highlight the importance of connections with parents as a vehicle to erase deficit views. Even at the secondary school level, Oxley (2013) supports the concept that student achievement rises when teachers get to know their students and their parents on a deeper level. Mendoza-Denton (2010) uses an old Mexican saying to highlight the importance of listening to each other's perspectives. "*Hablando se entiende la gente* – people understand each other by talking" (p. 94). He reveals the obvious and simple notion that, in order to move beyond perceptions and the biases that come with them, we must understand others by interacting directly with them.

Chapter 5 – Conclusions and Research Implications

Conclusions

Teachers' perceptions of relationships with their students, anticipations of student performance, and opportunities to engage students in curriculum were analyzed in light of how those perceptions were exhibited through classroom discourse. A gap between teachers' beliefs and their discourse may be creating barriers between presenting students with a curriculum that is more engaging and, believing that, when an engaging curriculum *is* presented, students will achieve at higher levels. A willingness to directly connect with students' cultures, to understand them better, to improve student engagement may be missing as well.

These findings may represent the same conclusions that might be derived through similar observations in many other secondary schools in the United States. Friere (1970) emphasized the power teachers hold in the classroom long before Haberman (1991) noted the prevalence of a pedagogy of poverty. Yet, a focus on control and telling continues to exist, especially in high school classrooms. Revealing how teachers position themselves in relationship to their students may help change the classroom into a shared learning environment.

Entangled in an educational system that has changed very little for over a century, it is not surprising that teachers, despite expressing a desire to change their approaches to teaching, fail to do so (Pimentel & McNeill, 2013; Resnick & Resnick, 1992). When teachers understand that their altruistic reasons for entering teaching are not conflicted with what culturally responsive teaching is, they may become empowered to reflect on how they perceive and speak about students. With that understanding may emerge a

greater openness to more engaging pedagogical practices and a greater willingness to connect with their students' worlds. Indeed, as concluded by Edmonds (1979):

> We can, whenever we choose, successfully teach all children whose schooling is of interest to us; we already know more than we need to do that; and whether or not we do it must finally depend on how we feel about the fact that we haven't so far. (p. 23)

Teachers who care about their students want them to achieve; larger strides toward equity and student success in high school classrooms may come as a result of this desire.

How teachers talk about their work and their students outside of the classroom reveals their belief systems. How those belief systems mesh with what they actually do, tied to what external accountability measures dictate what they should do, is reflected in the classroom. Therefore, analysis of teacher discourse has the potential to reveal belief systems and influence behavior toward creating more equitable learning environments for all students. For example, Teacher A, when explaining upcoming state testing to his students, commented:

> That's why we didn't cover Greece and we didn't cover Rome and we didn't cover, like, Egypt, 'cause you guys, you were supposed to have covered that in, like, seventh grade, so my curriculum starts with the fall of the Roman Empire and goes on, which is crazy because then you're gonna have a standardized test your junior year…and they're going to ask you about Greece and Rome and maybe Egypt and the early river civilizations, and they're going to expect you to remember. (Appendix A, Observation A3, Segment 24)

Reflection on the disconnection between what students actually need and what teachers feel mandated to present has the potential to influence curriculum alignment.

In turn, if the reflection that is part of revising lessons can also include conscious questioning of how teachers can better influence relationships with their students and scrutinize the words they use to speak to and about them, this could become a powerful tool. In listening to what we say, we can hear what we believe. As Johnston (2004)

suggests, “we can start to change our classroom interactions by changing our words and dragging some of our beliefs along with them” (p. 84).

Examining teacher discourse in high school classrooms should contribute to the body of knowledge on how to best serve all students, especially those who continue to find barriers to achievement in our educational system. Documenting what teachers say and how they say it to students in the classroom provides answers to value-laden questions. What constitutes knowledge that must be passed on, what roles the students are expected to take in learning, and what teachers believe about students’ willingness and ability to learn are revealed. The creation of emotionally safe learning environments, as proposed by Valencia (2010), faces several hurdles. Deeply ingrained and often subconscious belief systems may strongly influence what is said and how it is said.

Analysis of teacher discourse, without attention to the affective domain and to concepts of culture, will do little to prompt changes in pedagogy. Hargreaves (2000) emphasizes the influence emotions have on both teaching and learning. Emotions are tied to who we are as cultural beings. The significant negative impact that deficit thinking can have on student achievement underscores this. Beginning with, as Valencia (1997a) describes, “blaming the victim” (p. *x*), negative stereotypes infect our minds and influence our work. Exposing and facing these “paralogical beliefs,” as defined by McKenzie and Scheurich (2004), is crucial in changing belief systems. Few opportunities to explore belief systems exist in many school settings.

This research may influence those who work with students on a daily basis. Ideally, it will benefit students most affected by thinking patterns and behaviors on the part of the adults who play a role in their education and future success. Perhaps this work will

inspire more interest in studies involving high schools, adding to an area of research that has yet to be explored extensively.

Reflection on the process

Listening to the voices of high school teachers in their classrooms and analyzing their experiences through their own words gave me insight into subtleties of the communication occurring on a day-to-day basis in high schools. Being able to take the administrator evaluator hat off and experience the classroom with the mindset of a student was a refreshing and sometimes uncomfortable experience. Hearing and "seeing" the words, indeed, "touching" each of the words through the transcription process, added layer upon layer of thinking about them. While every teacher may not analyze his or her words this closely, nor any administrator do the same, this work provides an intimate look into verbal and nonverbal classroom language. Perhaps it can prompt a deeper reflection about the work of educators. I know that I have become much more aware of language and how I speak about my own students and their families because of this work. It has created an automatic reflection trigger for me. There are times when I catch myself expressing these same biases and have to redirect my thinking and my words. Words and actions are powerful, and creating an awareness of that power will continue to be a part of my own work.

Implications for American High School

As American High School looks to continually improve opportunities for their students, this study highlights a few areas of consideration. Carefully analyzing curricula and fostering more engaging pedagogical practices has great potential. School leaders had plans to incorporate more project-based learning. Professional development and

professional dialogue towards that end may create a renewed excitement about their content for the teachers. There has been a significant change in leadership at the school district since this study took place. The district now has a new superintendent and the high school now has a new principal. The new superintendent was the American High School principal prior to the principal who assisted with this study. Whether these changes result in a different focus for the school remains to be seen.

The school has parent and community outreach systems in place. Connecting a few staff members to external organizations and to certain groups of parents is a step toward extending those practices down to the classroom level. With school-wide community events and some teacher ties within the community in place already, the school can build on these existing connections. There remains a perception that parents do not want to or cannot be a part of their students' education. Teachers' interview comments reflected this in different ways. Teacher A connected it to conference attendance and hinted at lowered parental expectations:

> Less parental support…attendance at parent teacher conferences has dropped and, yeah, I'd say it's changed that way culturally from parental support and maybe a commitment and drive to be successful.

A lack of commitment toward students' success was echoed by Teacher B:

> I know that a lot of them have homes where education's not valued. They have homes where they are taking care of themselves and someone's not taking care of them.

Teacher C emphasized the negative parental attitude toward his curriculum:

> Their parents give it to me all the time, 'Oh, I hated math when I was in school, I'm not going to be able to help them because I was never good at math,' and so the kids come in going, 'I'm going to dread this class.'

Teacher D suggested that the school was trying to help a student, but his parent did not

know what to do or just gave up:

> I had a meeting with his parent yesterday for the third time and administration 'cause we've been tryin' to help this kid, you know, and, she's like, 'He's eighteen, I don't know what (to do).'

It may be very uncomfortable for some parents to come into the school environment, as emphasized by Andre-Bechely (2005). Reaching out to invite parents in can be coupled with going out and meeting parents on their own terms, on their own turf.

The sense that there are teachers who care about their students and want them to be successful was evident at American High School. Teachers said things, consciously or not, that would instill hope in students. Teacher A shared his own and his siblings' experiences with college:

> I'll tell you right now it's tougher now on you guys than it was when I went to college…when I went to college this was a long time ago back in the 1990s…There was still a ton of manufacturing jobs in our country and not as many people went to college…When I got out of high school my dad worked for an electric company…and he could get me in there…You know I chose to go to college and I was the first one of anybody in my family to graduate college. Even my sister didn't, my parents didn't, I was the first one. And after I graduated, my little brother graduated, and my little sister graduated. So the younger ones got through. My older sister still never graduated from college. Not saying she couldn't, but back then there were jobs that you could go into other than college…make a pretty good buck and have your insurance benefits… But now the auto industry is shrinking... it's leaving the country…so now more people are competing…with you guys now to get a job. It's, like, the minimum is a four-year degree. Now that's the minimum. (Appendix A, Observation A1, Segment 23)

Teacher A was honest about the world of work his students would be facing. Without directly saying it, his tone suggested that he knew they would take on the challenges of college if they wanted to do so. Similarly, Teacher C did the same with a student concerned that she had not memorized multiplication tables:

> You know at one point in time you probably said you can't write cursive …or you said, 'I can't write the number two'…you said, 'I can't do it, no

> matter how hard I try'...but if you practice it enough…no, it's not bad, it just means you're just going to be slower at that stuff than some people that know it. Doesn't make you a bad person, just makes you slower. (Appendix C, Observation C1, Segment 19)

The message was, "You are OK. This is where you are and we will build from there."

In both situations, the teachers exhibited the trust, warmth, and dignity found in authentic relationships as noted by Cornelius-White (2007). Additionally, while honoring the dignity of where the students currently saw themselves, entrusting them with moving themselves forward was evident. This embodied what Moje et al. (2004) envisioned in their concept of "third space."

Teachers rarely hear what they say reflected directly back to them. Being able to understand the impact their words can have may show them how powerful their daily work is. It may give them hope. With that sense of hope, teachers can certainly become even more reflective and be willing to grow in their professional practice to help their students succeed.

Future direction of the work

Additional studies of teacher discourse in secondary classrooms might build on this work. Analyzing discourse in schools utilizing more nontraditional methods of instruction might offer an interesting comparison. Similarly, the nature of teacher discourse in a secondary turn-around school setting, both before and after reform, would be valuable. The true measure of reform may be how teachers speak to and about students.

A theme of deficit tied to disadvantage was unambiguous in this study. As revealed most notably by McKenzie and Scheurich (2004) and Valencia (2010), deficit thinking continues to be deeply embedded in our social consciousness. Further exploration of

deficit thinking in relation to socioeconomics may reveal patterns of discourse for continued analysis. Examples of discourse in high school classrooms could provide resources for schools to analyze their own work and stimulate discussion. Adding analyses of student voice and teacher-student discourse could build upon that.

A longer study could incorporate tracking student data over a period of time, linking that data to teacher discourse. For example, this study did not focus on or reveal any attendance-related issues. However, students who are chronically absent may be less successful academically. Absenteeism may indicate a lack of engagement with the school environment. If a student is not successful in school or feels that coming to school does not matter to any adult there, he or she may choose not to come. Other underlying reasons for absenteeism may reveal responsibilities placed upon a student that causes her or him to miss school – for example, to translate for parents, to recover from working late hours to help support the family, or to care for younger siblings. An analysis of attendance may reveal patterns specific to student socioeconomics or race/ethnicity. Student and parent interviews could add rich layers of data to the analysis. As noted by Andre-Bechely (2005), Delpit (1995), and Lareau and Horvat (1999), how a marginalized student views his or her connection to school may be very different from how school personnel view it. How teachers speak to and about this student may open discussions around interventions, support, and, perhaps, needed changes in discourse.

Conducting a mixed methods approach incorporating the SPEAKING Model (Matei, 2009) and a modified discourse analysis (Gee, 2011) on an even smaller scale is certainly possible. Whether it is done by a teacher herself or himself through videotaping or completed by an observer such as an administrator, instructional coach, peer, or

supervising university mentor, analyzing what teachers say and how they say it has incredible potential. Obviously, this can extend beyond the teaching profession as well. Ultimately, understanding that when what we say and how we say it aligns with believing in the strengths we each bring to our work, human potential is unlocked.

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Appendix Guide

The following modified Jeffersonian Transcription (Jefferson, 1984) conventions are utilized in the transcriptions found in Appendices A, B, C, and D:

{}	slow pace
<<>>	fast pace
??	unintelligible words
/	rising intonation
\	falling intonation
ALL CAPS	shouting
( )	pause (time)
<u>underline</u>	emphasized
::	prolonged sound (vowel or consonant)
xH	exhalation
**	code switch
:)	smile
:))	laugh
:(	frown
:|	no expression
:/	alternate expression, making a face
Y	high power posture, open body
|	low power posture, closed body

Any actions of particular note not included above are included in the notes, as well. Within the transcribed texts, ## is used to mask study-specific identities of students, adults, and places, while differentiating them for the reader.

Appendix A

Observation A1

A1	Timespan	Content	Notes
1	0:16.8 - 1:08.1	One minute here we go.	
2	1:08.1 - 1:13.5	Good morning.	
3	1:13.5 - 1:36.0	Yes sir.	
4	1:35.9 - 1:57.5	Here we go, listen up.	
5	1:57.5 - 2:29.7	Very good, perfect attendance, that's what I like, have a seat, here we go. Turn that in, you're OK, I'm going to collect that, so you're OK, I'm going to collect that, yes ma'am.	/
6	2:29.7 - 2:47.0	Canned goods, thank you thank you thank you, OK, canned goods drive, it's over on the fifteenth I believe. Three days. OK, some housekeeping, here we go, some housekeeping real quick.	/
7	2:46.9 - 4:15.9	Obviously no school today, no school yesterday, I wish not school today. Um, today we're gonna cover section three I'm going to give you a study guide for the test. Study guide run off, we're going to go over chapter twelve section three, it's a quick section, small section in the book. Got a guided reading worksheet for homework tomorrow we'll cover section four. Thursday we have a test. I moved the test up to Thursday 'cause I know what we're gonna face Friday. Friday is the first day of {hunting} {with guns}, shotguns. I don't know a lot about it comin' from C##, but sounds like a lot of you are gonna be gone just by what we talked about in this class. So with that, I'm not gonna do I'm not gonna have a test on Friday we're gonna have it on Thursday. And it works out, we're in line for a test on Thursday if you follow along. All right, so that's we've got going this week. So, uh, that's, that's the ?? this week. So you got the study guide you're gonna highlight your notes you got guided reading that's due tomorrow which I'll give you, I haven't given it to you yet. And then, um, we'll take the test on Thursday, OK. Friday we're gonna play Friday by ear. How many of you are gonna be gone? I think eight to ten of you raised your hand and said you'd possibly be gone on Friday. And if that's the case, we won't be we won't be driving [*sic*] into the next chapter, we'll probably do a review of the last. All right?	:) Y << >> :(
8	4:15.9 -	Today, here we go. Let's go. We're going to start with the	Y

	4:27.4	student daily news. And we're gonna talk about the daily news. What was big, what was big that happened in the world over the weekend?	
9	4:27.4 - 5:12.5	Go ahead. Go ahead. You know. (students comment) Yes, very good. Typhoon as tsunami, the Philippines. Nice. Here we go, the Philippines. Here we go. So um, damage it did, the amount of damage it did to those islands and the amount of casualties. Is pretty astounding. Um, yeah, ten thousand like C## said and just the amount of damage it's done. The U.S. has already, guys, we've already sent Marines there, um, we've already sent trying to take care of that. OK thought you we giving me candy, all right, fast piece of candy.	:)) \
10	5:12.5 - 15:37.5	OK. Yeah. ?? Here we go, listen up. Daily news, here we go. Then we'll get into our (2 sec) hit the lights there. All right, listen up!	/ | / :|
11	15:37.5 - 19:01.0	All right, let's uh, before we get started with, uh, world history which we're going to, don't worry, we're going to get rolling in a second, obviously you guys can see, excuse me gentlemen, you can see the devastation in the Philippines, what it's going to take to rebuild that what it's going to take to rebuild that and those people who lost almost all their family members. There were some of them saying there was no one living in their whole family. It was there it was part of that that devastation. We've gone through that on levels what has the United States gone through? (students comment) Katrina, yup, Katrina down in Louisiana we've gone through that. Um, and obviously hurricane Sandy the storm came up on the coastline not the devastation of this typhoon but the type of sadness and damage. What's your thoughts on the NFL situation? What's that? (students comment) Yeah, they needed a lineman last night. That's very good. The Dolphins played last night. Winning when I went to bed, but I didn't see the end. You know that stuff in the locker room, he's saying that that's acceptable. If it's not acceptable in society then I don't know how good it is to take place in the locker room. You understand what I'm saying? I don't know how good that is, how what's the word I'm looking for, how effective that is to treat your teammate a certain way and then just say that, say that that's how we do it in the locker room, that's just par for the course. That's the way we treat each other in the locker room. Obviously it's hurting someone bothering somebody it's probably not the best thing to do. And to say it's happening in the locker room it wouldn't be accepted in the workforce. If Mr. H## walked down the hallway and me and him if there were not	:| :)) Y :| Y

		students around and he and I walked down the hallway swearing, throwing slurs at each other you know it wouldn't be acceptable and it doesn't take place. And amongst teachers, walking down the hall and Mr. B## saying stuff to each other. It doesn't take place, you know it's best when there's a deterrent. Especially when it deters a team as much as it did. And finally, what did you think of Iron Man? (student comments) Good luck, why do you say good luck? OK very good, did you hear what N## said? We were all mesmerized by it. You know a real Iron Man. What's it gonna cost? All right. Let's do this.	
12	18:58.7 - 19:50.3	We got about 35 minutes left. Let's cover section three of our notes and then you guys, I'll give you probably about ten minutes to start your homework. Then you can start on your homework, yes, yes you're going to have homework, don't cry. (student chatter) You do. Chapter twelve section three. You got it. (chatter) Don't matter, yeah (chatting with kids).	/ :)
13	20:08.2 - 21:33.5	All right, uh, chapter twelve section three, uh, we'll cover section four tomorrow. Take the test on Thursday. Now uh, chapter twelve section three really going to talk about two to three things. It's going to talk about innovation in buildings and then it's going to talk about improvements in learning, it's going to talk about improvements in learning. And innovations in building that's what it's going to talk about. Short section. Open books up to page, open books up to page two forty five, two forty five. (2 sec) OK. Forty five all right uh , K## can you read on two forty five, it matters because (student reads).	Y :| Y
14	21:33.5 - 24:02.7	OK so right there it talks about the two things we're going to learn about. What was one of them that K## read? Architectural innovations with the church and what was the other one? Yes, intellectual revival with the universities. So that's what this section's about. That's what we're going to talk about. Here we go. So, architecture. This Romanesque style (quiet talk to student) the Romanesque style replaced the flat wood ceilings. They used to have flat wood ceilings. Now the Romanesque style is like barrel shaped. It's like shaped like a barrel, roof shaped like a barrel. To do that, you need a lot of pillars. See how there's a pillar here, pillar here, pillar here, pillar here, so this was a new style of architecture. Instead of having a flat roofs, you had the barrel roofs shaped like a barrel, but to do that you've got to have pillars going down the middle of the church, the standard. So church cathedrals were built in Romanesque style. Romanesque builders replaced the flat	\

		wooden ceiling with a {long rounded and arched vault ceiling} made of stone. Romanesque churches were dark because there were not a lot of room for the windows because of all the building because of the structure. (5 sec) All right? So that's the style all right? So this this type of innovation this type of architectural innovation that took place in the middle age. The Middle Ages. I'll give you a minute to put that down. And you guys work on paraphrasing. You don't have to write word for word what I have up there, you can paraphrase. Romanesque style replaced flat wooden roofs. And then you can say with barrel or arched vault ceilings. All right and then you don't have to write what I have word for word and then you can so that something you guys can work on as you get ready for college. You will take notes in college do some note taking in college and uh you want to be able to, you know, get the main idea I have up here in your own words. So you can study in your own words, all right?	:)
15	24:02.7 - 24:28.0	Um, I, the picture looks small and I know it's tough to see but you can see here is the vaulted ceiling the barrel this barrel shape part of the ceiling OK and then they to do this I didn't put this part in the notes to save writing to do this though they had structures.	
16	24:25.7 - 24:40.4	Does anybody know what they changed to? What was the next step in architecture? Very good, say it louder C##. Very good.	/
17	24:37.3 - 24:52.0	Gothic style. And Gothic style is going to change the way the church was built.	
18	24:43.2 - 26:25.8	Instead of having the pillars in the middle of the church and running down the center of the church, the pillars are now are going to get moved or the I shouldn't call them pillars but the structure that holds the ceiling up the roof up the roof up and I'm going to show where in a second. So they're going to take them outside they're going to take these pillars out to the outside of the church with the Gothic style. All right and, um, and I think Gothic style, um, the Gothic Dark the time period Middle Ages, Dark Ages the style and I'll show you the main the architecture of the dark ages the flying buttress and you're going to giggle and laugh that's what it's called the flying buttress. Yes. (student comment) OK, we'll move it back to four then. Well you didn't tell me before the bell. We'll work it out. OK. The next one is the, I'm sorry, does everybody have the notes? We only have four, five slides it'll go pretty quick. OK the style Gothic from the 12th, 13th centuries it came in the, the, uh, architectural innovation began in the 12th century but it was	/ :)

		not perfected until the 13th century. Gothic style really took form in the 13th centuries but it was introduced in the 12th century. I'm not going to ask you about that too much guys I just want you to know that for background knowledge. It's more important that you know what Gothic style is and identify it than when it came about. But it's important, it's more important that you can identify. And I do have a picture of Gothic style that should come up here.	
19	26:25.8 - 27:28.9	This is important the Gothic style cathedral is one of the greatest, um, artistic successes of the Middle Ages. One of the greatest artistic innovations of the Middle Ages is the Gothic style cathedral, the Gothic cathedral. It's one of the greatest artistic successes of the Middle Ages or innovations of the Middle Ages. Use your book used a different term your book described it as a, a the Gothic cathedral remains one of the greatest artistic triumphs of the High Middle Ages all right so that's a major innovation. We'll get to taking a look better tomorrow. They had two major innovations. The Gothic cathedral had two major innovations, two major advancements in architecture, you could say they had two major advancements in architecture the Gothic cathedral. (5 sec) Don't worry I'll fix it.	
20	27:28.8 - 29:21.1	There you go. (1 sec) Does anybody know either one of those innovations? Do you have your textbooks open? (students comment) That's what the chapter's about, that's what we read about in the beginning. The chapter's about architectural innovations and intellectual innovations so you're not wrong but (1 sec) but that's not exactly what we're (student comments) Yes, very good, so um, L## said it the round barrel vaulted ceilings are going to be replaced they're going to be replaced by these by these Gothic style - yes, C##, (student comments) very good OK, OK, the creation of ribbed vaults and arches were replaced the round barreled vaults so that happened the round barreled church ceilings that were barrel round now they're going to be ribbed and going to be pointed arches. (student comments) Sorry about that - they're going to be round, they replaced them with the pointed arches. They replaced the round barreled shaped ceilings with the churches with these ribbed pointed arches. That's the first one, that's the first change. That's why I have the number one in front of it replaced by the ribbed vault with pointed arches which replaced the barreled vaults. Now, the second one is what C## read, all right.	\
21	29:21.0 - 30:48.4	What C## read and he was absolutely correct. The second one is the flying buttress and it is a heavy arch shaped	

		support of stone built outside the walls of the church. They're built outside the church and I got pictures I'm going to show you. Once you get done with these notes I'll show you the pictures. So they're built, ah, they're built the structure the support structure is not in the church the support structure is outside the church. It is outside church. The support structure is outside the church. (2 sec) Then I'll show you pictures. Take your time. Don't rush, finish writing what you're writing and then, a then I will show you the pictures of the flying buttress of the Gothic style church. (30 sec) (quiet talk to student).	|
22	30:48.4 - 33:10.1	Show of hands, how're we doing, how many people are still writing. Everybody's done? OK, good. Let's take a look at some pictures rest your hands a little bit. Here we go so these are pictures of flying buttresses. This is the support outside the church. The support is coming off it of the, the outside of the church. The support is coming off it - (student comments it looks weird) yeah, it different, it's a different type. Look at the ceiling the ceiling the pointed we talked about the pointed, it's now pointed ceiling it's not barrel shaped it now points up to a specific point up at the top and you can see the arches on the outside on the outside of the church. So that is that is what we're talking about when we're talking about the Gothic we're talking about the flying buttress. Now on your test there's going to be a picture of the old style church and there'll be a picture of the flying buttress and you gotta look at them and you have to look at them and they're going to ask questions about them and you're going to have to, um, analyze the picture analyze the picture and answer the question. Now we've gone over it and we've talked about it and you have it in your notes. This was a big innovation in the Middle Ages. Now think about it that you know what type of innovations they're having and these are the biggest innovations? If this is the some of the biggest innovations in the Middle Ages, how big were the innovations in the Middle Ages? Not the biggest innovations, right? Was it the time of the most when you talk about Rome and you talk about the aqueducts of Rome, you talk about the coliseum of Rome, and you talk about those innovations architectural innovations and the Byzantine Empire and you know and their architectural innovations in the East and now in the Middle Ages this is like some of the biggest architectural innovations the church, there wasn't a whole lot of building and architecture that proves who had the power to build. (student comment) The church very good OK. Let's move on – universities	/

23	33:10.1 - 36:30.6	This is the second part of the section. The first part talked about, um, architecture and the second part is going to talk about universities all right. Tell me what you know about universities. (students comment) OK D1 colleges, Oxford, universities a place to study. Really? A place to study - I just repeated it. OK, you have to be very good to qualify. Very good, you have to qualify that's excellent. All right. I'll tell you right now it's tougher now on you guys than it was when I went to college. OK. Um, because when I went to college this was a long time ago back in the 1990s there was a lot of skilled manufacturing jobs in the United States. There was still a ton of manufacturing jobs in our country and um not as many people went to college. All right, um, there were jobs out there. When I got out of college when I got out of high school my dad worked for an electric company in C##. There's a big one called Commonwealth Edison and he could get me in there Commonwealth Edison when I got out of high school like eighteen, nineteen, reading meters. Walk around the city of C## and read people's meters. Um, and see how much electricity they used and report it off their meter. And then work your way up the company to a better job. Today they don't do that anymore. They don't have reader, meter readers anymore today that's all done computerized. But you know that was that opportunity at the time and it was all right it was like sixteen dollars an hour a paying job with benefits and you'd get in a major company and you could work your way up. You know I chose to go to college and I was the first one of anybody in my family to graduate college. Even my sister didn't, my parents didn't, I was the first one. And after I graduated, my little brother graduated, and my little sister graduated. So the younger ones got through. My older sister still never graduated from college. Not saying she couldn't, but back then there were jobs that you could go into other than college and you could have a pretty good you know you could make a pretty good buck and have your insurance benefits and in Michigan where the auto industry, so many people in Michigan went into the auto industry in the eastern half of the state because they were pretty good jobs with benefits with health care it was an honest day's work and you didn't have to go to college for it. But now the auto industry is shrinking and it's leaving the country some of the factories so now more people are competing more people are competing with you guys now to get a job it's like the minimum is a four year degree. Now that's the minimum. So now there's competition for it. So yeah that's	Y :|

		why I wanted to see what you guys. Now there's more to it than just universities. Obviously you've got the University of Michigan, Michigan State University, IU, U of I, ITT, Notre Dame. But there's also colleges. Yeah, there's also colleges. All right, um, the college I went to wasn't a university at the time. 'Cause it was small only like two thousand kids in it. It was small. Today it's a university but then it was a college. So we have colleges and universities. So learning is going to take shape in the High Middle Ages. This is when it's going to take shape. All right.	
24	36:30.5 - 40:53.8	All right the word university comes from Latin. It's a Latin word. Meaning corporation or guild. What type of guild do you think this would be? (student comments) Learning guild, very good, smart guild, somebody said learning guild, smart guild so that's what we're talking about. The word university comes from. Corporation, it's a learning corporation or guild it's what we're talking about we're talking about an opportunity. OK and it wasn't a whole lot different than it is today there was a whole lot of famous universities Bologna was the first in Europe it was in Italy. Bologna was the first in Europe the first university was in Bologna and it was in Italy and the University of Paris was the first in northern Europe. Northern Europe and then obviously, Oxford University in England which is one you still hear about today. Um, you know Oxford scholars, Rhodes Scholars, you know Rhodes Scholars presidents that go outside the United States and, uh, receive their degrees. (student question) That's a great question. She very well may have. She very may well have. Um, can I use you as an example? Ms. Merkel is getting her doctorate degree. That doesn't mean she's going to be a doctor cutting people up. That's why she's sitting here. She's going to be a Doctor of Education. She will be a doctor. That will be her title. After she gets her doctoral degree. A Doctor of Education. So going on your first degree you get is your Bachelor's or your Associated [*sic*] if you go over here to S## M## College you can get a two-year degree that's an Associate's. You can get a four-year degree which is a Bachelor's degree. You can go to school for another two to three years and get a Master's degree. All right. Um, there's all different Master's. My first, um, first is a Curriculum and Instruction and then you can get a Master's in like a, um, Administration and Ed Leadership and be a principal or have a role like that or superintendent and then you can go on and get a doctoral degree which is the highest. (student comment) Yes, very good, Dr. D##, our	Y / :(

		superintendent has a doctoral degree. That's very good, L##. OK, by 1500 there was over eighty universities throughout Europe, by 1500 there was over eighty universities. Now, let's just approximate. If we're going to say the Middle Ages - now you've got to go back - this was last week so you've got to go back. So what was the top time period for the Middle Ages - approximately, I'm not a big guy for dates but yeah. (student comments) Very good, 500 to 1500, 500 to 1500 excellent very good. 500 to 1500 is the approximate Middle Ages. So this is the end of the Middle Ages. Toward the end of the Middle Ages they have over 80 universities throughout Europe throughout the continent of Europe all right. Students study much of the same subject you study. All right so don't be bent out of shape. So don't be frustrated. I have students who say, "I still gotta go to school we still have to learn this stuff they were {learning back thousands of years ago." Hundreds of years.} Rhetoric, rhetoric is the art of speaking very good that's the art of speaking. Grammar, it's like speech class. All of you, hey, when you're a freshman in college to take speech. All of us in college take speech. Some of them call it Communication 101. At almost every freshman has to take speech. At least we did when I went to school, it was one of your early classes. You'd have the speeches three different type of speeches persuasive and what have you but you know the art of speaking rhetoric. Logic, geometry, music, we see today. Astronomy field of science, so those were the studies. And it was pretty accurate it took four to six years to go to college. You were there for about four to six years.	
25	40:53.7 - 42:51.9	Which is about the same as today, today it's about four to six years to get a Bachelor's degree. Is what it is - you got this stuff (to student) start writing here. All right. Yeah, a lot of students it's taking them five years to get through college. Yeah, um, you know there's a study, there's a study, you'd be shocked as to how many kids struggle their first year away from home at college especially university you know four-year colleges not just universities 'cause it's the shock of being away you know form home on your own making your own decisions you got to prioritize your time. You know Mom and Dad aren't there to say you need to be in at ten o'clock at night, you need to study do this mom and dad aren't there to kick your butt out of bed a seven o'clock in the morning so you can get to school by eight. You're in college you have to do that by yourself. And you're shocked by how many students struggle that first	:| << >> << >>

		year in college because of those types of things that they have to do by themselves that they maybe have never done before. They always had mom and dad kicking them out of bed, waking them up yelling at them pulling the sheets off of them. And then they get to college and they got to do it for themselves. When the alarm goes off, Mom and Dad, you know Grandma's not there to get you up. Your roommate might be sleepin', too - who's gonna wake him up? So that's the big thing about that's why that's why it takes a little bit more in college. Takes a little more discipline. Let me go through this real quick (to student). All right. The most studied subject was theology, the study of religion. The study of God. This is the last slide and then I can give you guys your homework. Then you guys will have at least ten, eight, ten minutes to do your homework. All right. The study of religion, God, theology.	Y
26	42:51.9 - 44:20.1	(35 sec) When you talk about religion what do you say - people that follow a religion have to have what? (student comment) Thank you. Say it louder. Now faith is something that you can't prove. Do you understand me? People of faith. You see what I'm sayin'? I can't prove that Jesus Christ existed. I can't. I cannot prove that. But, if you're Christian, you believe that, that's faith. All right? And now in this time period a new kind of thinking was coming on. Anyone know what type it was? (student comment) Scientific. Yeah reasoning, scientific. Prove it, show me and that's hard to do. 'Cause religion is so much faith if someone should believe it in your heart believe it in your head, you have faith in it. But then science says, I want proof, show me. Show me the proof and then how do you marriage those two up. How do you bring faith or reason and faith together? Yeah, C##. (student comments)	/
27	44:20.1 - 46:28.3	OK I got what you…some people say, those opportunities for space and all that may have been created by a, and this isn't a religion class although world history does tie into religion. So here's the big thing scholasticism, scholasticism and it was a phil… philosophical system that tried to reconcile faith and reason all right. So scholasticism tried to reconcile faith and reason. Faith and reason. Yes, definitely. Thank you. All right, so on your test when they ask about scholasticism what it tried to do to was take the faith of religion and tie it to the reason of science. It tried to make faith from religion and reason from science co-exist. Merge 'em together, make them work. 'Cause when you, from the science end of it you would look at religion and	

		say you can't prove it you can't prove to me you can't show me evidence and I'm a scientist and I want evidence I want proof I want to see it. Now from a religious side then I say you gotta have faith it's more than seeing it's faith. And how do you bring those two together and that was scholasticism, the idea of scholasticism. Those two together faith and reason. Its main goal was to harmonize Christian teaching with the Greek philosophy. And who were our Greek philosophers? (student comments) Aristotle, Plato, Socrates, yes - Machiavelli was a little bit later he was Italian but he was a little bit later. But we'll talk about Machiavelli and we'll talk about "The Prince." But, like you said Aristotle, Plato, and Socrates. So what they're trying to take the Christian teachings and marriage them up with Greek works of these philosophers. So that's what they're attempting to do.	
28	46:28.3 - 46:51.3	All right? (1 sec) Yeah, we're done. I'm gonna give you about six minutes. I'm going to pass out your guided reading worksheet. We'll go through the directions and talk about it. Yeah, pass in, let's do that first, pass in your section two.	/ /
29	46:51.2 - 47:53.7	I'll leave this up here so that everyone can get it. Thank you. (quiet chatter with students) Yeah. OK.	:| (collecting papers)
30	47:53.7 - 49:19.8	All right let me pass out your homework to you. OK here we go let's do this quickly to make sure you know what you're doing. This will be due tomorrow when you come in. So I know, I know you got a little homework, suck it up. There you go. Homework is a part of life, very good. This over section four. We covered section three already. Hey, listen up, question was asked is this over sec…three or four. This is over section four we covered section three today. This is over the next section. So when you come in tomorrow we can talk about section four. And you guys will have a little prior knowledge. Look at the directions, read each of the main ideas and answer the questions. Refer to your text. Main idea letter A…	/ \ ** /
31	49:19.8 - 51:46.3	Up through the Fourteenth Century it was the Black Death and it had disastrous effects. And it says you're going to have to read how the bubonic plague came to spread throughout Europe. Some of you may know already (students comment) well, but the rats, how did it spread and how did it come to Europe from Asia. When you read in the book you'll read what type of animal brought. Now what were the consequences of the Black Death? Well, many deaths you're right, but it gives you a percentage or a	<< >>

		fraction of how many people in Europe died. All right so it gives you a percentage or fraction. OK, main idea number two, many kings began to reject the idea of papal supremacy. Put that into your own words. Tell me what that means, raise your hand. By the end of the 1200s many European kings had begun to reject the papal claims of supremacy. (student comments) Yes, they rejecting, what about the pope were they rejecting? (students comment) The power very good, his power. So then they give you two, what caused the Great Schism and they, what caused it. Um, we got, sorry, main idea letter C- war and political instability rocked the Late Middle Ages. OK. Who initiated the 100 year war and how was it won? And then main idea D- the number of new rulers in Europe attempted to establish centralized power to the monarchy. They tried to reestablish the monarchy in England, Spain, uh, France how did they do that, what were they called? OK, and there is there is a back side ladies. (students laugh) There's a back side. OK, ladies and gentlemen. No, they do not as long as you can answer them so you can study, they do not have to be in complete sentences. Yes, hold on one second. OK, yes. There is extended period so you're out of here in three minutes. You can work on this in extended hour in third hour. Third hour. You do have extended period today. But hey you do have time now. You got three minutes left let's not shut down shop. Hey, let's go, let's not shut down shop. Well, what caused...	<< >> :) /
32	51:46.3 - 52:53.1	Hey guys, have a seat until we get going. Oh, I know you need to stretch. Come on. I'm going to meet with you. OK we'll meet with all of you one on one - during lunch or after school. We're meeting after school today with varsity.	
33	52:53.1 - 54:44.6	All right, let's work. Study guide. Holy cow. You guys would let me let you go without a study guide and then tomorrow you'd all be like Coach *Teacher A* didn't give me a study guide. No, test is Thursday. Today is Tuesday. What's that? No don't go. (chatter) Let's have a seat guys until the bell rings. Find a spot stretch out park it. (chatter) Here uh. (bell rings)	/

Observation A2

A2	Timespan	Content	Notes
1	0:00.0 - 1:06.7		
2	1:06.7 - 1:32.5		
3	1:32.5 - 2:10.7	We got one minute, one minute warning, waiting for all my students.	
4	2:10.7 - 3:40.5	?? OK, ladies and gentlemen, listen up please. Shhh. Gentlemen... OK, uh, I'm gonna give you about five minutes. Get your notebooks out. Make sure, uh, your information is organized and in your notebooks. Make sure that... (announcement) Not very good people. ??	xH
5	3:40.5 - 4:25.8	Shh. OK quiet please. So I will uh start the test start the test in about three, four minutes give you a chance to put your name and ?? on your notebook and take attendance and ??	
6	4:25.8 - 4:55.5		
7	4:55.5 - 5:19.6		
8	5:19.6 - 6:08.8		
9	6:08.8 - 6:52.8		
10	6:52.8 - 7:52.2	All right, ladies and gentlemen please clear off your desks. All right, pass up your notebooks. Uh, open them up to the… your name or staple your notes together those of you who staple. Include those notes. If I provided, include. Thank you. Now you know we're on a shortened schedule today because of extended third hour.	:|
11	7:52.2 - 8:50.7	Your notebooks…you started…looks good. You got two notebooks…all right more coming up. All right, please clear off your desks. Except for writing utensil.	:) handing out tests
12	8:50.7 - 9:09.7	Would you like to see a copy? Yes.	
13	9:09.7 - 9:52.6	OK, here we go. I'll get this test out as quick as I can. ?? You're welcome. Your essay question is up on the board. World History. Yeah, you write it on the back of the test or if you want to come up and get lined paper, you can get lined paper. Listen, explain in detail three problems faced during the High Middle Ages and three improvements of the High Middle Ages. Yup, yes.	
14	9:52.6 - 11:11.8	Could you do it in that order just so I don't get confused? ?? All righty, so take a look your multiple	

		choice questions worth two points apiece, your matching questions are one point a piece. OK. Um. You have a DBQ there - a data-based question. Dealing with what we talked about with the architecture. And then you have an essay question which is on the board. In detail. So provide, provide examples or details for your reasons. OK take your time you got the whole hour what well we got forty minutes fifty minutes for you to use your time. If you got any questions, raise your hand. I will uh I'll come to you. Any questions I'll come to you. J##. ?? Yes.	\
15	11:11.8 - 12:44.7		
16	12:44.7 - 15:07.7	Take your time; read it carefully.	
17	15:07.7 - 22:52.3		
18	22:52.3 - 27:04.9		
19	27:04.9 - 28:14.5	??	
20	28:14.5 - 28:54.1	About twenty five minutes left got plenty of time got twenty five minutes left. Double-check your answers. Make sure you didn't leave any blank. Check your matching I can read 'em. And if you have any questions raise your hand I can help.	
21	28:54.1 - 29:31.0	Short assignment on the board when you get done.	
22	29:31.0 - 33:26.5		
23	33:26.5 - 35:43.8		
24	35:43.8 - 40:54.1		
25	41:14.6 - 42:00.0		
26	42:00.0 - 44:58.3		:|
27	44:58.3 - 47:20.7		
28	47:20.7 - 48:30.8	??	
29	48:30.8 - 51:26.2		
30	51:26.2 - 53:00.7		
31	53:00.7 - 53:10.2		
32	53:10.2 - 54:02.7	?? OK. All right, why don't you, you got about a minute left, why don't you bring it out get your schedule out. Yeah, yeah, why don't you guys...??	

33	54:02.7 - 55:09.1	(chatter) I know we're going to be a little undermanned tomorrow we talked about that. One and two…I know… Yes, sir. I'll get them graded.	
34	55:09.1 - 55:26.1	All right, ladies and gentlemen, listen up please. Shh. Sounds like attendance may be even better than we assumed earlier with the first day of gun hunting you guys have... (bell)	

Observation A3

A3	Timespan	Content	Notes
1	0:00.0 - 1:56.7	You gotta make up...so let's do that, let's make that up, yes, you. ?? No, no I'll grade it over the weekend, I'll grade 'em over the weekend. ?? Um, we'll work on a map we have a map here to work on a map...map of Africa we're gonna start talking in our books about the next chapter and then we're gonna work on a map…so you don't have to take notes or listen...we took a test, let's make it up. ?? Yes …whose birthday? D##, happy birthday! ?? You...have a seat, I'll get you set...hey, when announcements are read I would like it quiet so you guys can hear announcements ...no we're gonna work on a little map.	
2	1:56.6 - 4:56.5	Hey when announcements start, quiet down, yes. (PA announcements) ??	
3	4:56.5 - 6:04.5	All right... (couple more PA announcements) OK, give me one second, I got a few students that have to uh, shh, have to make up a test, uh, from, from yesterday. No, we're not. We're gonna, I'm, we're gonna talk about what we're gonna do today. We're gonna start our next chapter in a little bit, it's a short chapter yup it's only two sections you're right…ok, so C##, J##, M##, come up and grab your test and, and G##, you guys can go to resource room to finish it. All right. I need your notebook for your notes all right. G##, it's Miss B## room, Miss B##'s room, C## all right. Right there you two. Shh. What. Sh. Sh. ("She yells a lot," say a couple of the kids.) She's in the English hallway guys.	
4	6:04.4 - 6:52.8	Across from...OK, sh, all right, uh, we are, obviously look around the room we have 1, 2, 3, 4, 5, 6 people out today and then with the 4 gone with, uh, making up their test finishing their test that thins us out a little bit. And <u>yes</u> I did think of I had a video with Joan of Arc which is sort of a historical one it wasn't the movie "Joan of Arc," but what we'll do is we're gonna hold off on that in the week of Thanksgiving. I think I'm going to allow you guys 'cause we have uh, Wednesday, Thursday, Friday off that week of Thanksgiving on Monday and Tuesday I may bring in a video for you guys to watch. For that week leading up to Thanksgiving so, um, that's why <u>today</u> I'd like to move on with what we're doing.	
5	6:52.8 - 8:14.3	So if you'd open your books to chapter thirteen, I believe it was page… I get confused I think it was between page two hundred, two fifty four, I think two fifty six, uh let's	

		talk about ...this is chapter thirteen correct... two fifty-six, that's what I thought two fifty-six. OK, um, and what it's gonna talk about this chapter's gonna talk about Africa, um, the beginnings the lesson one is about a quick overview it's a quick overview about Africa and what it was like for people in Africa living during this time period. So if you look, the reason I'm doing this is 'cause we're gonna do a map, you're gonna work on your map of Africa and I want to give you a little bit of an idea where you can find information. So, if you look, I'm sorry I said two fifty four, page two fifty-eight, um, I like go to page two fifty eight, please. I really like looking at "It Matters" because I think the book does a real good job of telling you why this section is important what you should get out of this section matters because. So look at that "It Matters" because the Earth's second largest continent, so of our continents Africa is second largest behind who? Asia, very good. Includes a dazzling array of landforms. African societies are based on extended family units.	
6	8:14.3 - 8:46.4	With most people living in rural villages. Through unique music and storytelling Africa's rich cultural heritage was passed from one generation to the next. So what do they tell you about Africa? What did Africa lack that maybe Rome had, Greeks had … OK, a writing system, very good, so they passed everything through stories and folktales, that's how things were passed from generation to generation. OK, and what else did Africa not have that maybe Greece or Rome or...a more complex government what else?	:|
7	8:46.4 - 9:17.7	Look at that r… well, we don't know how, it doesn't address their civilization yet but when what does it address how they lived? Go ahead, look at why it matters because...they… rural, simple. You know when you talk about you talk about the, uh, city of Rome and you talk about the Acropolis in Greece they were more structured there was more living conditions you know this was more rural, more simple, uh, extended family what is that what's the difference between extended family and immediate family?	Y
8	9:17.6 - 10:07.5	Yeah...OK, when we talk immediate it's just your mom, your dad, your siblings, so if someone was injured and they went to the hospital and only immediate family can visit they're talkin' about their mother, their father, their brother or sister. Grandma and Grandpa, cousins, they wouldn't be allowed that that would be more extended family. All right? And it's funny because we're seein'	

		more people today live in extended families again. In the 21st century. All right, during the 20th century it was a lot of immediate families. Why do you think today we're seein' more extended families emerge in the Twenty First Century now take a minute and think about it. Why are we seeing in the 21st century we're talking the 2000s more extended families especially in the last six years?	(playing with wedding band)
9	10:07.4 - 10:28.8	Seven years? Why are we seeing now more extended families with maybe grandmas and grandpas living with moms and dads or maybe a cousin or an uncle with his family living with Mom and Dad more extended...anybody have an idea why that might be? Yeah, you guys got it money and cheaper cost. What are we going what have we gone through in the last six years?	
10	10:28.7 - 10:59.8	A recession, very good, a lot of people lost jobs. A lot of people are earning a lot less than they used to be earning so now they're depending on family. You know Uncle John's down on his luck him and Judy and the kid they're, you know, he lost his job and so now he's gonna move in with his brother and her family and they're gonna put him up in their house. You know, and maybe Grandma and Grandpa are getting old or Grandpa dies and Grandma's old and can't afford to put her in a nursing home because of how expensive they are so now grandma's gonna come and live with our family and we're gonna take care of her so you're seein' more extended families now again.	:/
11	10:59.8 - 11:21.5	Um, then we did maybe fifty years ago. Fifty years ago there weren't as many extended families as we're seeing now today. So it's funny you talk about Africa and extended families way back when and now you're seein' maybe extended families coming back a little bit due to financial situations, all right? So yeah, so that very good, um so that's, that's why it matters because it matters. OK.	
12	11:21.4 - 11:59.4	Um, the impact of geography, very important on this map. Let's take a look at it. Um, it talks about the div...go to the second...oh I'll read the first paragraph and we'll talk about the second, after Asia, Africa is earth's largest continent, it stretches nearly five thousand miles from the Mediterranean Sea in the north to Cape to the Cape of Good Hope in the south. Africa is almost completely surrounded by two oceans and two seas. Um, as diverse is vast Africa includes several distinct geographic zones. On your map they're gonna ask you to label those geographic zones so you're gonna wanna hold on to this page because this page will describe the geographic zones	

		and it's a really good map the inset map, what is inset map?	
13	11:59.3 - 13:00.5	What does that mean, the inset map? No, do guys know what an inset, like if you got a map...look on page, look on page, uh, two fifty nine. See the little map inside the big map? That's, that's an inset map. It's a map they have set inside the big larger map. That shows your geographic zones right there. That shows your geographic zones, um, and uh, that you're gonna use for the map you're gonna use that for the map, OK? So we're gonna use that. Um, African society, flip to page two sixty real quick and we'll start our maps probably in four or five minutes and you'll have the remainder of the period to work with a partner on your map I'll have the colored pencils and uh you can work on it. They talk about family and lineage. All right, family and lineage. Um, you know, little bit different. Lineage is passed on by the mother in a lot of African societies not the father. And they'll talk about that. So don't be shocked when you read that that they talk about it's passed on by the mother's name not the father's name in some African societies.	(pacing back and forth)
14	13:00.4 - 13:46.6	OK, so they talk about that, OK. Also, big thing to learn. Look on the top of page uh two sixty-one. Slavery. Africans enslaved Africans, people. African people enslaved African people. Before the white settler came to Africa and traded with Africa, Africans would enslave other Africans. Tribes would fight tribes they would kill the men and take the wife and children to be slaves for other African tribes. It was a tribal war, yeah. The winner took the losers and made them slaves. So, slavery was a part of Africa for a long period of time before we started talking with the triangular trade slave uh with Great Britain and uh North America. Yes?	
15	13:46.6 - 14:15.4	…Yes, there were, yes, yes, they would trade they would trade with different areas like if T##'s tribe fought D##'s tribe it's D##'s birthday so D## gets to beat you, uh, he's going to kill you. Uh, the men take your children, your women make them slaves and then the ones that D## doesn't need he's gonna trade off. He's gonna trade them off. So that he can get other goods that his tribe or that his, his area doesn't have.	:)
16	14:15.3 - 15:21.9	See what I'm sayin'? So, yeah, that was done. That was done. So sometimes people think that slavery originated with the white, uh, you know colonists settlers going to Africa and grabbing that was part of their society before	

		um the triangular trade. So that they talk about that a little bit at the top of page, um, two sixty-one. All right, so, um, you have the map in your book, obviously you have the map in the back of your book, you all we also have our atlases have our atlases here for you guys...right up here, so you have access to all our atlases, I'll leave 'em right up here. So if you guys wanna use 'em, too, um. Now if you have a name and you don't know where that name is, where's the first place you look? Index, very good. Index and it gives you a page number. All right, and then you find it. If there is...because the maps that I use are not directly tied to this textbook all right they didn't come with this textbooks these maps are something I bought on my own historical maps so if there is something you can't find you know you come up to me and you can Google it on the computer.	
17	15:21.8 - 16:13.0	You know if there's something you can't find, in the atlas, you can't find in the textbook, then you come up and we can Google it on the computer 'cause it might be handful four, five things. There are, ok, so let's take a look at uh let me pass the maps out and then the rest the rest of your Friday should be a little laid back. You can work with a partner get this done have zero homework or if you don't finish it you have a little bit of homework ...All right...yes sir…yeah, let me get this started ?? after I get this started I can write you a pass...thank you M##. OK let me go over the map with you, hold on, freeze, freeze, have a seat, oh I'm sorry that's ?? thought somebody was sittin' there…go ahead, is this your stuff? Oh, OK.	Y Y
18	16:12.9 - 17:08.1	OK, let's take a look at this real quick. All right. OK. Thank you. OK number one, it says uh the latitude and longitude lines are drawn in ten yard, ten, uh, degree intervals label these on the west and south side all I want is, do make sure you know your latitude and longitude so make sure you label the lines of latitude and longitude. All right, it says with blue pencils color these bodies of water light blue. I don't care if you color them light blue, dark blue, green blue, uh whatever purple blue as long as I know that it's a blue color water it doesn't have to be exact. But there are a few of them. Mediterranean Sea. Lake Chad, the Red Sea, Persian Gulf, Indian Ocean, Atlantic Ocean, Lake Victoria, all right, so you got a few. It says label Europe and Arabia, so you can do that with pencil. All right, label the continent of Europe and Arabia with pencil. Remember write small. All right, it says with a blue pencil trace the course of the following	

		rivers and you can see there's about six or seven.	
19	17:08.0 - 17:28.7	With a dark green pencil color the area covered by the tropical rain forest with vertical stripes. So you use that inset map that I showed you showed you it'll show where the tropical rain forest is in Africa. See, it says tropical rain forest, tropical dry the pink and you're gonna label that with green pencil.	
20	17:28.6 - 18:10.8	It's both. It says tropical so both tropical wet and dry, so tropical rain forest. With a light green pencil color the area covered by the grasslands with vertical stripes. OK. With a brown pencil color cover the area with desert. All right and then Timbuktu, some cities, Zimbabwe all right and then, um, then there's some civilizations in which again you look in your index in the book it gives you page numbers for these civilizations, um, you know such as Ghana, all right? Somali so that gives you those, all right? So, you guys know what you gotta do you can work with a partner, colored pencils are up here, crayons are up here, if you need help, raise your hand and, uh, let's get started.	
21	18:10.8 - 19:42.2	All right, so let's get started. You're not looking to be gone the whole period, you know…hey, J##, happy birthday to you, I won't see you on Sunday. Yeah? ?? Thanks, I didn't know if you wanted one...	
22	19:42.2 - 22:01.3	?? ...fifty-eight...right on my desk...uh, right on ??....you guys can share colored pencils if, uh, if you have 'em, don't, don't hog 'em all up to yourself...	(1986, 1997 publication date on maps)
23	22:01.3 - 25:17.0	that's behind you...?? J ##, yeah, yup,...that is, that's very cheap...yeah, that is cheaper, yeah I did uh ?? few years back when I taught, uh, I would go for long weekends to Europe...it was like three days three days so it'd be like five hundred dollars, six hundred dollars with would be over Presidents' Day weekend it'd be like fly out on Friday like six at night and then by the time you got there in the morning and then you'd go non-stop for like forty hours and then you'd fly home...yup...so it's fifteen days long? Fourteen that's a good deal...uh that's good, how many people were at the meeting last night? Wednesday night ...but still that's good, yeah, no, when my daughters get older that's something we'd like to do. Right now they're too young and we can't leave them home for two weeks alone, and we can't...um, good question...uh, five, eight, and, uh, five, eight, and twelve… five, eight, and eleven ...good question, uh, they're that age ...maybe twelve, yup five, eight, and eleven so…and they wouldn't	:) Y Y (hands on hips) :))

		get they wouldn't get anything out of it the trip…and they would take away…so when they're older we can work something out, then it'll be too expensive and we won't be able to afford it off all of them.	
24	25:16.9 - 28:02.3	What, what did Mr. K## say? He wasn't there? Did you sign up then so he can call you down later? ?? Oh he ?? he's out today, I didn't know... you asked I could have told you. You have a map right? Yeah, World War II next semester. We still got to go through the Renaissance, the Reformation...it's uh, and after that we talk about, uh,, Absolutism, about absolute monarchs and how they treated people poorly and took all the power and after that we'll talk about revolutions and ?? the French Revolution ?? Civil war ?? and we'll get into it though yeah but it's definitely second semester started ?? not as exciting ?? and, but, you gotta be well-rounded you know I'm not expecting you to know everything from Africa but if you understand and where the different uh empires or different, uh ...sixth grades...in seventh grade though you had world history right…then eighth grade was American history…see that's why we didn't cover, that's why we didn't cover Greece and we didn't cover Rome and we didn't cover like Egypt 'cause you guys, you were supposed to have covered that in like seventh grade, so my curriculum starts with the fall of the Roman Empire and goes on which is crazy because then you're gonna have a standardized test your junior year, M## test, ?? and they're going to ask you about Greece and Rome and maybe Egypt and the early river civilizations and they're going to expect you to remember ?? I'm sorry – you, well, you do it all in the same week, you take the ACT the first day and then second day you take the M## and the third day you take the M## you take tests for three half-days in a row.	| :) Y |
25	28:02.2 - 29:30.8	The ACT is the first one, it's like from seven thirty to noon and then the next two days you go from like seven thirty to eleven and you take your M##...yeah, it was like I was just barely nineteen...uh, you know, if I could do it over again, back then I wasn't as serious ??, yeah, I mean it was, it was good enough get to me into college it was college with my grade point average and nineteen but it wasn't I went to a University of S## F## ...but my wife, she holds it above my head she got a thirty where I got a seventeen so then I never got ?? ....uh, University of S## F##, small college, small college.., J## I## ?? I got a scholarship to play football...four years…the only way I	

		could afford it...all done...working on the map...I got a map right here...yes.	
26	29:30.8 - 32:01.1	They very well may be, there's a big race speedway there now…there very well may be...yeah...what's that? What do you need? I got it I'm up...all right? ...??	
27	32:01.1 - 33:47.2	Shh, you guys, work in your groups...yes, sir…Colorado...well just recently Colorado had on the election ballot, uh, last Tuesday to break away and divide Colorado up and create a new state out of Colorado ...'cause they're like you know how you have like Denver, Colorado and then outside of Colorado you have more rural area, farm area, and the people in that area thought they were being neglected by the state government. The government was favoring like Denver the city and businesses, so the rural people said that their needs weren't being met for farmers and for uh, in the rural part of Colorado so they put it on their ballot to succeed and break. Now they knew it wasn't gonna happen 'cause they gotta get permission from the state and then the gotta get permission from the federal government and they know that's not gonna happen, but they, just by doing this by putting it on the ballot. It got news coverage that brought their problems out to the open and they weren't happy with what state government was doing so yeah so they did that just happened this year Colorado tried to, uh, it's not nothing's gonna come of it.	Y
28	33:47.2 - 35:31.5	That's ?? exactly, and those people thought that the state government's not meeting their needs, not helping them with farming needs and, um, money and, um, so they, they were upset and form our own state, break away from Colorado for our own state and they're just, just trying to bring awareness to their problems...mile high...yup...you're gonna do all your labeling first? It's funny, I walk around and some people do all the coloring first and some label and ?? first ??good ?? right there ?? Let me do this ?? What is it? And uh. ??	
29	35:31.5 - 37:50.9	Yeah. ?? The kids, kids like to watch ?? in the back ?? I know it's ?? how you guys doing? You doin'? ?? That's all right, I'll find out....	
30	37:50.9 - 40:03.4	?? did you find it M##? It's a long skinny lake. ?? Yes, Lake Victoria, yes....and now, now....the atlas will give you much, much better view than just the textbook that's why .... Yeah, that's it, Victoria Falls right...	
31	40:03.4 - 43:00.9	Yeah here's this this map will help you out more, more than ?? I would tap into an atlas if you guys need ...what's that? You don't like the geographic maps?...We	:)

		have to, ey, we have to get geography with history you have to have an understanding of place not just of history ...you may have been but you weren't but I was...that's ?? Grasslands? Says in your textbook, I'll show you. And, did you look at your inset map? ?? Yeah. ?? Here's a map....hey what you don't finish is homework so, um, you wanna work on this you guys have fifteen minutes left. So let's use our time to the best of our ability.	
32	43:00.8 - 46:34.0	?? Wait wait...?? Like this part here this part here is the grassland...no you're OK...Zaire? Where's your atlas? Good. Good good. ?? Pages....I'll be right with you....yup they'll even give you the coordinates...here I'll Google it - find it?...what was the country? ?? Show where it is.	:) :/
33	46:34.0 - 48:31.9	What's wrong? ?? You got about ten minutes left. Work, finish up.	
34	48:31.9 - 50:11.8	?? Shhh, guys keep it down, please, shhh....	:|
35	50:11.8 - 53:12.4	Here um, yeah it's now the Democratic Republic of Congo. ?? You don't have… ?? You got about seven minutes left. Do me a favor when we get to about two minutes left bring up the colored pencils look around the floor for other colored pencils...well, but if you do a lighter green and a darker green I can tell the difference between the two...well then, if you get a darker green differentiate between the forest and the grassland, I don't care what you use just differentiate…hat's fine, that's fine just put it in the margin so I know…guys we still got time left you got about five minutes so some people are still working. ?? but five minutes of class time we can get	:)
36	53:12.4 - 54:25.2	?? found a colored pencil on the floor...found another one on the floor...do me a favor ?? If you're done with the atlases please return the atlas. Let's have a seat until the bell rings. Guys, guys have a seat please until the bell rings...that goes right up there, thank you...start ?? have a seat…colored pencils on the floor please look around...?? enjoy your weekend...ah that's not a colored pencil, it's ?? They take their wear and tear….	
37	54:25.2 - 1:00:11.8	...Hey guys ??and?? take a seat please ...??...All right, maps are homework if they're not done....??...hey, what town did you want? what town? S##...?? next to N## B## ?? ...Shh, guys, keep it down please, you got two minutes left...hey C##..., have a seat, in a chair....we could've worked a couple more minutes people, my fault ....M##…? ...??..no, I, I saw it...me...how much did you guys have left on your maps? Not a lot? ...That's ?? ...OK... J## ... ?? at school ?? you're fine...you're	Y (hands on hips) :/ Y

		fine...you're hair looks good, your hair looks fine... did you ??...?? OK ?? washed out ??... you see ??...?? (bell)	Y

Appendix B

Observation B1

B1	Timespan	Content	Notes
1	0:00.0 - 3:48.6	Find a seat, have your notecards. (PA announcements) Quiet. (PA announcements continue)	:| (finger to lips) (half of students stand for pledge)
2	3:48.6 - 6:51.0	All right, good morning ladies and gentlemen. You are going to be playing your "I Have, Who Has" vocabulary competition game today. So, would you like a moment to quickly flip through your vocab cards? OK, if you're quietly studying, I'll give you a minute or two. Yes, it's a review week so you have seventy words you're reviewing just like last week's quiz. (chatter) Do you have your... your note cards.... (chatter) Do you have your notecards to study? Yes sir? Hmm?	:)
3	6:51.0 - 8:55.8	All right, as you're finishing up flipping through those root words cards, N## and N## are going to be coming around with your cards this week. (chatter) Go ahead and... N##, N##, grab those cards, please. (chatter)	:/ Y
4	8:55.8 - 11:08.2	OK, I have three extra sets raise your hand if you'd like one of them. See me if you need an extra set. (chatter) All right, I need to see all root word notecards put away. You can do them both at the same time or you can trade. So if somebody calls one of your other ones then you can... (chatter) All right. Ladies and gentlemen. All notecards need to be put away except for the pink and green game cards in front of you. Are we ready? OK. Here we go! "I Have, Who Has" game." R##'s going to start. On your mark, get set go. (students call out root words / meanings)	Y :|
5	11:08.2 - 17:01.8	(game continues) Shhh... Root word morpho. Root word. Therm? Hemo? W::wait, wait so I just need a root word. Carne. Wait. Wasn't it photo? Right. She called it photo. Shh. That was the end right? So OK did you guys see? Shh. Did you see how you were able to fix yourself in the end. M## noticed a mistake and she said, she said, "phyto" and called, "light," correct? OK and so you were able to correct yourself and finish the game. Your time was still in the lead for today. Five minutes and six seconds. So I need you to just do two things. Please pass up your notecards and open to section two on photosynthesis. (chatter) Chapter five section two.	:(| (emphasis on self-correction) :(Y

6	17:01.7 - 18:52.9	(chatter) D##, last warning today and then you'll...(to student quietly) I believe ninety six was the page. Yes, ma'am? Why don't you grab one off the cart there by the wall. M## I already got four... (chatter) OK page ninety six and there are some guided notes coming back to you so as soon as everybody's ready we can get started. Yup, I can...explain to you...	\
7	18:52.9 - 23:30.5	J##, page ninety-six, please. T##, page ninety-six, please. Page ninety-six. Page ninety-six, please. Yes. J##...J##, J##, you need to be appropriate or you're going to be moved today. (chatter) All right, ladies and gentlemen, I need your attention because I wanna explain to you what you see in front of you. It's a little bit different from what you've seen recently as we've done some work in our book. Last week we opened up to chapter five and we were working through section 1. Who can raise their hand and give me kind of a summary in your own words on what section one was about? Please raise your hands. G##? OK what's ATP? Well that's part of what ATP has to do with. But energy, you've got the key here. OK, so we've got energy, food, plants but remember back and if you want to you can flip your page back to section one. Raise your hand and tell me what was section one all about. We've got one key word here - energy - what else? In your own words. K##? Living things. Energy in living things. That's the title of the section, right? So do you guys remember how I gave you the example of all of you ate a ham and cheese sandwich for lunch? And I asked you to tell me where the energy came from in the bread. Where did the energy come from in the cheese? Where did the energy come from in the ham? And we came to the conclusion that no matter what part of that it was the energy came from... the sun. Directly or indirectly the major source of all of our energy comes from the sun. Well, now we need to take that a step further and say when that energy is taken in absorbed by plants, what happens? And your pencils should be down you shouldn't be starting your notes just yet. OK. That's what section two is all about. What is happening inside that plant when it absorbs that sunlight? And this can get quite a bit difficult. It's not as simple as, oh I have a pretty little plant and the sun goes in and it sucks up water up through the roots and it makes its own food. There's very <u>specific</u> <u>chemical</u> <u>processes</u> happening inside that plant that we need to talk about AND then when we got to the part when we said animals are going to eat those plants and when animals eat those plants	(J## jumps up to get pencil – ignored by Teacher B) Y

		they're going to take that energy and use it for themselves and we call that cellular respiration and THAT is going to be section three. And again we're going to be talking about the chemical processes specifically happening inside of ourselves that are going to break that food down and give us that energy, that ATP G## was talking about to do what we need to do. This can be very difficult at times to understand. So we're going to do something a little bit different, pencil down please…with this set of notes. If you guys can follow directions, meaning when we're working together, you're paying attention, OK, and when it's reading time pencils are down, I will provide these same types of notes for cellular respiration to kind of help you through the process. If you're finding that you'd rather take the notes in your notebook and use this as your guide you are more than welcome to do that because I know some of you are very particular about keeping your notes in a certain order. So if you'd like to keep your notes in your notebook you're more than welcome to use this as your guide and continue to do it that way. It's up to you. But what I've done and you can tell I've pulled pictures right from your text and put them in here so we can draw and write on them and things like that, OK?	:|
8	23:30.4 - 26:28.6	Questions before we get started? All right I need a volunteer to read for me the first paragraph on page ninety seven. Let's see here. S##, why don't you get us started? (student reads) Thank you very much. All right so this is where we're going to start this process together now you can pick up your pencils and go to your notes. Do you notice that where the same S## read, there was a title. The title was "Using the Energy in Sunlight." Where else do you see that title now? On your notes, right? So that's how we're going to help keep our notes organized and in that in that section in your notes using the energy in sunlight we can now enter the notes for what we should have important from the reading. So, it says plants, algae, and some bacteria capture about - who can raise their hand and tell me what you're going to put on that line? M##? Very good. Capture about one percent of the energy in sunlight. So the sun is massive out there in our solar system. It's got all this energy that it's radiating all of the time and plants are only capturing one percent of all of that energy. That's it. There's so much more energy around us that's radiating into different directions and being used for different things. OK. So plants, algae, and some bacteria capture one percent of energy from that light that reaches earth and	:((keeping track of who is called on)

		convert it to, hands please…A##?...Very good. (12 sec) And remember that when we're talking about chemical energy that's a type of stored energy OK it's storing it for when it's needed and it says, to finish it up, through the process of....N##? Thank you.	|
9	26:28.6 - 30:19.9	And then when everybody's pencils are down for that section we can move on. I'm going to give you time to do your notes you don't have to move ahead. (2 sec) Once everybody's done for this section...all right. The next part says that we have stages of photosynthesis and we know this already 'cause back when we were doing our cell organelles and we were talking about active and passive transport there were steps or stages that we would often time write down because we to things in a logical order. The same thing's going to happen for us here in photosynthesis. I'm still waiting for three pencils to go down so, as soon as you're done with that…and so this takes us through the process stage one this is what's going to happen and then stage two and stage three. Stage one is pretty simple, but when we get to stages two and three we find that it gets a lot more difficult. OK. So who wants to read for us under stages of photosynthesis? Let's see, who haven't I called yet... K## (reads) Need help with that? OK, C six CO2 which is carbon dioxidide [*sic*], whoa, carbon dioxide plus six H2O which is water. That arrow represents the chemical equations the chemical reaction that's happening so we need light energy for that and C6H12O6 which is our sugars our saccharides which are made from that as well as six O2 which is our oxygen molecules. OK. K##, go ahead. (reads) Perfect. Thank you. All right, so there was quite a bit of information in what K## just read to us. So we have a couple of things we're going to do here for our notes in this section. First one is what? Our stages we need to know what happened in stage one, stage two, stage three. So I'm going to give you guys a minute to enter that information into your notes. Remember that if you choose to reword something or abbreviate, they're your notes, so as long as they make sense to you.	Y | :)) (knock on door – note delivered) |
10	30:19.9 - 31:32.6	(pause) (whispering to student) Once you get done with the three stages you can stop 'cause we'll do a little work together.	\ |
11	31:32.6 - 33:21.9		
12	33:21.9 - 36:41.5	Can I see some hands if you need time for step three or stage three? Looks like a couple of people are just finishing that up. OK. Let's look, let's take a look together	

		at this photosynthesis equation and if you were looking where K## read in that very last paragraph for us it says the equation however does not show how photosynthesis occurs it merely shows how six carbon dioxide molecules and six water molecules are needed to form our organic compound of sugar and six molecules of oxygen. So it's almost a summary of the process of photosynthesis it doesn't show us what is exactly happening inside at the cellular level. So we, we can represent the process with the equation OK six CO2 and remember when we did our biochemistry and we did our chemistry what does this six out front mean? Have six…what do we call that? Six…what of carbon dioxide? Let's do hands 'cause I have too many people and I can't hear. A##? Thank you. The correct terminology is six molecules meaning there are six individual molecules of carbon dioxide. Now if you know what CO2 is you can stop there if you don't you might want to write carbon dioxide below it so you know what that means. Again, this is your notes so do what makes sense to you. You also need six H2O. I think most of you should know that's water. OK and again this arrow is what's going to represent for us a chemical reaction. And you'll learn that next year in chemistry, but you'll see it a few times in our class as well. Again above that is written light because that's the energy needed to make that reaction occur. OK, if we just have carbon dioxide and water is there going to be a reaction? No. We have carbon dioxide and water in this room right know and there's no reaction occurring between them so we need the light energy to make that happen and when we do have this chemical reaction with light energy we get two what we call products. The first one is C6H12O6 if you remember back to our biochemistry unit this is our, always the equation for sugars always no matter the type of sugar, OK, and we get again six molecules of O2. And the reason it's O2 is that's the type of breathable oxygen in the room that we have. OK? Let's go back here for a second if C6H12O6 represents all sugars that we talked about like glucose and our fructose and our galactose and our sucrose how can they all have the same equation and still be different? Raise your hand if you think you know the answer to that. How can all of those sugars each have six carbon twelve hydrogen and six oxygen but they're still different from each other? K##?	(J## up to sharpen pencil)
13	36:41.4 - 37:58.5	What do you mean set up? OK. The structure. Exactly. OK, so the structure's different. So the way that those	:)

		individual atoms are connected OK are different for each of those. So they're all made up of the same thing they're just put together differently. It'd be like I gave each of you six blue Legos and four yellow Legos and two white Legos and each of you made a different structure out of it. You have the same parts but you got different something different in the end and that's what happens with our sugars. So here you have the figure from the book and you see it's quite empty and there's really not much to it and this is what we are going to use as our visual representation to show us what's happening during photosynthesis. So it tells us we can use page ninety seven figure four to complete the picture and show our three stages of and notice it got left blank so you'll have to write in photosynthesis. OK, so again this is a visual summary of what's happening. You already wrote out a summary of stages one, stage two, and stage three and so now we can try to put that into a visual format to help us to see that better.	
14	37:58.5 - 40:22.2	All right, so, what's the very first thing we need? When we're looking inside the chloroplast OK of a plant cell in order for photosynthesis to occur and what's the very first thing that has to happen? Hands, please, I know so many of you have the answer. J##. Well we're gonna get ATP in the process but what's going to start that process? Z##? Thank you. OK, we need light so we're going to start off here with light and you're going to see the picture in the book um we represented that with an arrow OK coming in to that chloroplast there OK? Arrow coming in representing we have to have light coming in to start the process along. Now does anybody know what these little stacked looking things are they almost look like a stack of quarters sitting there. Anybody know what those are? This is a chloroplast that you're looking at here. OK. No, they're not. They're something new so that's why most of you are probably...that's a really good um, ...hands up please…that's a really good observation and S## because you had never heard NADPH before, right? That's a new word, did you guys see where S## got that from? Right here NADPH, OK, S## had never seen that word before so she thought, "I don't know what these are maybe that's what it is." It's not, but that's a very good observation. These are also, shhh, these are also something we have not talked about yet so later on in this section we are going to spend some time on that. Those are going to be our thylakoids, OK, and we're going to have stacks of them	

		called grana, OK, so we are going to get to that later on but notice that's coming in our key terms later on in this section. OK? So I want you to know if you look at that picture and it looks confusing to you, you have not seen those before. All right.	
15	40:22.2 - 41:13.4	In stage one we're going to use this section over here to represent stage one. Again I'd like to see hands up so we're not all talking at once. What else does this plant cell need besides light to start this process? N##. Well, it needs H2O, right? It needs water. And what we get, M##, right, is O2 so what we see happening here we use this little arrow to represent we also have H2O and what ends up happening is happening with those molecules is we get O2 from them OK that's all happening during stage one. The light, the hydrogen, I'm sorry the light the water come in during stage one.	
16	41:13.4 - 42:59.8	(2 sec) During stage two then, we can represent that right in the middle...we have two important things happening one of them you already know about and the second one is new to you. OK, the first one that you should know about is that we have ATP or adenosine triphosphate... remember how sometimes we put this little like, I don't know, squiggly thing around the outside of it 'cause it's showing that reminding us that there's energy there – D##, are you getting this down with us? Who can raise their hand and tell me what happens to ATP so that we actually get that release of energy? What happens to ATP, adenosine triphosphate? A##? Thank you. Perfect. It loses one of its phosphates because we have triphosphate and becomes adenosine diphosphate, ADP, so that's what we can represent here so you have an arrow from ATP to ADP and then raise your hand and tell me what can happen to ADP after that. Hand please. Z##? How? Yes, that phosphate group can reattach and we can go back to having ATP so we get a cycle. Get that S##? OK? You see that cycle represented by an arrow.	:)
17	42:59.8 - 44:50.5	Yup, so if we have an individual little phosphate that detached it can reattach to ADP later and make ATP again. OK? So the other thing that's happening in stage two that you guys know nothing about yet is that thing that S## brought up earlier. We have this thing called NADPH OK and again we don't know what that means because we've not seen that before but it's coming in this section. We're gonna have a very similar process where ATP loses a phosphate and regains it NADPH is gonna lose its hydrogen and become NADP plus. What does it mean,	

		raise your hand, if something is positive or negative, it is a... hands please...got a hand N## or you're not sure...OK. A##? Right what does that mean? What do we call it? That's water loving or water fearing and that could be why they're negative or positive but if we're looking at something that has a negative or positive charge what do we call that? It's a very short word and it starts with an "i." An ion. So it becomes an ion. So what we have here also is we have a cycle. When it loses the hydrogen and becomes an ion and then when it comes back and reattaches to become NADPH. OK again, this is new to you so we're creating a summary of photosynthesis to get you started.	:)
18	44:50.5 - 48:02.8	And in the last part, over here on the right, stage three, we're going to have something pretty important to this whole process because this is where the cell the plant cell is going to use that carbon dioxide that it needs and in stage three we can represent this again as a cycle and this is going to be called the Calvin Cycle it's going to have a very specific name it's so important we name stage three the Calvin Cycle and what we have from this process carbon dioxide comes in and then at some point we are going to get our organic compounds out of this process. What's our organic compound? Hands please. What <u>organic</u> <u>compound</u> do we get from photosynthesis? Hands please. What organic compound do we get as a <u>result</u> of photosynthesis? Z##? Nope, that's the one it's using. G##? No. Look at your equation, guys. A##? Look at your equation - what organic compound are we getting as a result, hands, please. H##... sugar. So that organic compound they're referring to and I'm going to write that down here in parentheses so you can see that is sugar. So if this picture still seems a little confusing to you OK that's OK because we have more to read about and more to learn about what's happening at each stage. And you'll notice here that section two is broken up into the stages. So for example, if you flip to page ninety eight we see...that page ninety eight is all about stage one what's happening just during stage one. And then we can go on to stage two and three later. OK. Is everybody comfortable with how you're doing the reading and then adding the information to your notes? All right, what I would like you to do we're on extended time so we're at about six minutes here before we switch over, I would like you guys to read for me over on page ninety eight <u>only</u> this part here through pigments and therefore in your notes you are going to do the notes	(visually scanning)

		on stage one all the way through pigments and when you flip over you're going to stop where you get here and you're welcome to write that on your notes if you want but we're going to stop and we're going to pick up on the production of oxygen tomorrow so I'd like you to quietly read and add to your notes and I'll let you know when it's time for us to change over to extended time period.	
19	48:02.8 - 55:38.0	(quiet whispers paper shuffling) Nope, you're set. ?? (chatter increases)	:((concentrating) :((scanning)
20	55:38.0 - 59:31.1	All right, ladies and gentlemen if you haven't quite reached that stopping point um that I showed you where production of oxygen make sure you get to that point before you get here tomorrow because that's where we're going to pick up when you get here tomorrow. Um, what we're going to do now that we've switched over to extended period is if you should have something on you to work on, perfect, if not you need to find something whether it's studying your root words because it's review week. OK and remember that on Tuesday or on Thursday you're going to have another "I Have, Who Has" and on Friday you're going to have a review quiz like we usually do, um, or maybe it is working on your math homework or writing or whatever it might be but you are going to graph your grades today and before we do that there are a couple of things I want to talk to you about so I need your eyes and ears up here please. N##, you with me? First thing is that you heard the announcement I hope that, um, there along with freshman mentoring and coaching program doing the stickers on the lockers for students who are freshmen who are passing first marking period and getting awards out as well so I have an award here for K## good job, good going. So you saw K## standing up before you last week when we did, um, stand up if you have As and Bs stand up if you have a C and above and you give your classmates a round of applause for their good grades. Today you are going to be graphing your grades in your binders for the <u>first</u> time second marking period. So I want to take a minute and so you know some of the changes you might see. Because now, when I give you your missing assignment report that has your percentage for your class this is your <u>second marking period</u> grade. OK <u>NOT</u> your semester grade. So just to make sure you're all familiar with remembering how that works, B##, are you with me? Your first marking	

		period and your second marking period are going to average the whole semester. So let's say first marking period you had a B. You ended the marking period with a B and you were doing well and all of the sudden you get this report and you have a D does that mean you have a D for the semester? No. That just means that's just where you're at for second marking period. And so you're going to have to sort of keep track of that. If you can get on Pinnacle from outside of class you should be able to access what the semester grade is. Any time I print a report for you guys with all of your classes it's going to give you the marking period grade OK. In order to do the semester grade we have to go in on an individual basis. So if you were to say to me, "Oh my gosh, Teacher B, I was passing math at the marking period and now I'm failing in the second marking period, what is the grade for the semester?" we can probably go in and find that. OK so when you get your missing assignment report, you have one week of marking period two and I have A LOT of people with missing work. So you should have something to work on, you should graph your grades and put your binder back when you're done and find something to do quietly. I do believe I have a student coming to make up a test, so I need to make sure you are not disrupting that person and remember this week we're starting extended period participation points. So you're getting points for being here and using your time wisely today. OK. Questions? All right. I need two volunteers for binders and let's see I let you hand out cards earlier so ?? eeny, meeny, miny, so I don't think you've done it in a while and, J##, I'm gonna come around with the missing assignment reports.	
21	59:31.1 - 1:01:18.5	OK. Is it the rubric quiz? J##? J##? Honey, quietly please. Honey, you just need to ... (chatter) (talking with individuals...) OK ladies and gentlemen I'm going to remind you one more time that I'm going to start taking off points people, people are testing. You need to quietly get your work done.	/
22	1:01:18.5 - 1:03:20.9	(chatter) What do I need to do to help <u>you</u>? (chatter) Shhhh. (chatter) No there should be enough space for nine for the semester there should have been eighteen lines. Would you double check for me count how many are across there? Go ahead and go ahead and um, hmm. Yeah, I'll make a new one. Ladies and gentlemen, um, A## just pointed out to me that your graphs in your, oh wait, your graphs in your binder are for first marking period and not	(student tipping chair back)

		the semester so if you'll hold tight for just a minute I'll throw a couple more on the copy machine and get you new ones so that you can start over fresh for the marking period.	
23	1:03:20.9 - 1:04:33.9	Yup, you'll have to wait until I get the copies it'll just be a few minutes. Huh? I don't know why that's doing that. Um, I would have to see I don't know if it's teachers who haven't entered anything yet and maybe that's why, so I'll have to take a look and see for now you can graph the ones that you have. (chatter) Shhh. (chatter) J##, J##, I need you to go stand in the hall for just a minute. (chatter) Shhhh. (chatter)	
24	1:04:33.9 - 1:07:40.8	S## (chatter) Shhh. B##, I have somebody taking a test. I'm not gonna keep asking you guys. (quieter chatter) Shhh. (chatter gets louder) OK ladies and gentlemen I need your attention please ladies and gentlemen I need your attention please. Hey, if at any point in time you do not understand what I'm saying to you right now I just need you to raise your hand. This is the last time I'm going to ask you to please be quiet, I have a student in here taking a test. You're being rude, you all have something to do, you know the expectation is to bring something with you I'm working on getting you new graph paper like this so you can continue to do your graphing for second marking period and you're also getting points for doing this today. OK this is our last warning from here on you'll start losing points and leaving the room. Yes, sir. Yes, you can go ahead and add these either in front of or behind them. So take three of these and pass them on I have more on the copy machine. Take three and pass them on. Shhh. (chatter) Shhh	
25	1:07:40.8 - 1:11:44.3	(chatter) Z## (chatter) Two more. Shhh. Do you guys have paper yet for graphing? M## (chatter) There's paper up here. Grab some paper and start graphing. Wherever you would like it. You can leave everything in there. Shh. No, I'd like you to get these going. Yes, ma'am. Yup, I'd like to get this handed out first this is kind of a priority and then we can. Thank you, M##. Is there three there? Yup, just like last time for your six classes. Make sure you put your hour and second marking period on them. You're welcome. Does everybody have three new grading sheets? So just like last time, first hour second hour third hour fourth hour fifth hour sixth hour. Graph the grades you have if you have a class that's missing for this week hopefully we'll have data for you for next week. You can put your missing assignment report in there. (very quiet	

		chatter)	
26	1:11:44.3 - 1:15:28.6	(quiet chatter) (very quiet) All right please raise your hand if you had a question or something I didn't get to yet. I'll come to you. (chatter) But you were assigned it on Tuesday or Thursday. Thank you. (chatter) Here's...you can lay it on my gradebook after you're done. Binders can go back on the shelf after you graph your six grades or what you have of those grades this week. Did you get the new sheets? So you need the new graph paper? R##, I think you have a good deal of makeup work you could be working on now. (chatter) I posted it last week, I can show it to you. (chatter) Those are the marking periods second marking period . (chatter) What... Is there anybody else who needs to make up the quiz from last Friday? Hands if you need my help or have questions. (chatter)	
27	1:15:28.6 - 1:18:02.2	(chatter) Just leave it...ok...what date? Shh. (chatter) You can always graph... (chatter) (chatter louder as things get put away)	
28	1:18:02.2 - 1:23:29.4	M##, K##, let's go. D## have a seat. (chatter) You may have some teachers who haven't entered grades yet so they're not showing up on the sheet for some reason. The holes... (chatter) (louder) OK a reminder that if you're doing what you're supposed to be doing on extended period days you're getting credit for that points for that so you need something to do on Thursday. Be prepared to use that time and since you graphed grades today we will not be graphing them Thursday. (chatter, getting more quiet, getting a little louder again toward the end) (announcement comes on PA) All right, ladies and gentlemen, tomorrow, listen up please, <u>hold</u> <u>on</u>. Tomorrow you need to have notecards with you so you can study your root words.	:) Y

Observation B2

B2	Timespan	Content	Notes
1	0:00.0 - 0:36.4		
2	0:36.4 - 3:29.1	(PA announcements) ?? (pledge)	:) :(
3	3:29.1 - 3:47.5	Did you guys catch that...tip? It was don't drink and derive. Not drive D R I V E, but derive. Does anybody know what that means to derive? UMHMM I don't I'm not sure N## quite pronounced that	
4	3:47.4 - 4:26.7	pronounced that as, as well as he was supposed to. De-rive is the word. All right, please put away all of your note cards. And I'm gonna have people come around with your "I Have, Who Has" game cards. Second hour had to forfeit their point this morning 'cause they made a few mistakes so you guys have a chance to earn a point against fourth hour. (student suggestion) Good idea, if you don't know your word talk with your neighbors. Let's do three for each please.	:))
5	4:26.7 - 5:07.5	They like, yeah, somehow they got lost and they called their own words and then ended up completely stumped so they had to forfeit their point 'cause… ?? While M## and M## are getting cards for each of you I'll give you a little reminder that tomorrow you have a quiz and who can raise their hand and tell me what the quiz is going to look like tomorrow? Who can raise their hand and tell me what the quiz is going to look like tomorrow? Who can raise your hand and tell me what your quiz is going to look like tomorrow? J## is that a stretch or a raised hand? OK	:)
6	5:07.5 - 5:10.0		
7	5:10.0 - 5:14.1		
8	5:14.1 - 6:05.8	Nobody can raise their hand and tell me what your quiz is going to look like tomorrow? M##! Hold on. Shh. Did you guys hear what M## said? Same as usual which is what? What's review quiz so what's the usual review quiz look like? Fifteen OK. Fifteen. ?? M## don't forget ?? please.	Y
9	6:05.8 - 6:54.4	(students review) ?? Make sure you have the same number of blue cards as you have pink. There we go. Could you give me one of your blue cards?	
10	6:54.4 - 7:37.4	And you're missing...give that to N##. All right, I need two people to give me one set for M##, please. OK. I need two people to give up one set of cards for M##.	Y

		Thank you. I got it, we're all set. Switch with somebody.	
11	7:37.4 - 8:26.5	(more review) OK, here we go.... All right, listen up. Couple reminders. Ladies and gentlemen, thank you. Before we start, a couple reminders. If you are helping your classmate, please do so politely. Just a polite reminder. OK yelling at each other is not going to help your game along. And you guys are doing well at catching up in terms of the competition so the more politely you help your neighbors play the game the more quickly you get done, the better chances of earning your point today.	:/
12	8:26.5 - 8:41.7	Here we go. Today I'm going to ask M## to get us started. Yup, you're gonna start with a root word. On your mark, get set, go.	
13	8:41.7 - 12:27.4	(playing game) Shh.	
14	12:27.4 - 13:34.4	Demo D E M O ... (continuing play) Vaso? Semi?	:) :(
15	13:34.4 - 14:15.7	You have the meaning passive any other ...no you already called that root word. Any other root words still face up? Nice job! Four minutes and fifty eight seconds. Go ahead and pass your cards up - five minutes and six seconds so you beat your time.	:)) :)
16	14:15.7 - 14:15.8	All right, quick you guys.	
17	14:23.9 - 15:04.9	All right, ladies and gentlemen, would you please get your notes out from yesterday. Thank you, sir. ?? You got ?? Notes from yesterday, who can tell me what page we're on?	
18	15:04.9 - 15:22.0	One o two notes from yesterday. B##, J##, one o two notes from yesterday.	
19	15:22.0 - 15:51.2	Nice job over here. Everybody's on page one o two. M## and K##, one o two notes from yesterday. Guys, we don't...	
20	15:51.2 - 17:04.6	OK. We're in the process of moving to section two talking about photosynthesis. And we spent some time going through three stages. Stage one we discussed how important it is that light starts all of these reactions here. So when we went, um, like if I go all the way back to the front page of my notes when we did the picture representation we showed again that light has to come into that leaf through the chloroplast to start all of these reactions along. And when it does we end up with the splitting of water which gives us the hydrogen ions um gives us the oxygen and it gives us that electron which	:|

		then moves us right into stage two which we discussed yesterday where we have these energy things happening ATP turning into ADP and NADPH turning into NAD+ but during this process like we discussed yesterday we have our electron transport chain. OK?	
21	17:04.6 - 18:06.0	And we talked about it yesterday I believe kind of like a hot potato. Just like we said that excited electron is gonna move from one place to the other, as if you had a hot potato you're gonna toss it right to the next person and we discussed where that went. Did I mention to you guys about looking at an animation? Yes. No. OK. If, uh, I do have a computer animation, I actually have two. And when I went to pull them up this morning, um, I have two issues, uh, the first one first video file animation file is it's using terminology you guys don't know yet that we're gonna talk about, um, a little bit later in this section and chapter and so I'm going to hold off on that animation. The second one is currently not working and that's why I don't know if you guys saw Mrs. H## come in remember she's our computer helper, um, she's working on getting that file working for us so that we'll have it for tomorrow, if not tomorrow then first time next week. So I will be showing you those animations and those pictures in, um, just won't be first thing this morning, it'll be later on, OK.	Y :)
22	18:05.9 - 19:14.6	So now that we know what's happening we can move on into stage three which is the storage of energy. What is that, um, chloroplast or that plant cell going to do with the energy now that it has it? So we are on page one o two storage of energy - go ahead - and I need a reader. Uh, K##, why don't you get us started today? (reading)	
23	19:14.6 - 19:35.7	Very nice. So we can start our notes off saying stages one and two are considered, N##? Very good. So we've already talked about this and we know for those first two stages to occur we have to have that energy from the sun that light entering the chloroplast.	
24	19:35.6 - 19:49.7	It's really important. If not, the process is not going to happen without it. OK. So we call it light dependent. It depends on the light energy.	
25	19:49.7 - 20:30.6	So that was just for stages one and two. During stage three we're going to see what's called carbon dioxide fixation. Who can raise their hand and give us a good definition for carbon dioxide fixation? Uh, N##, H##. OK very good! Transfer of carbon dioxide. If you know what carbon dioxide is you can write it as CO2, if not you'll write out carbon dioxide. To, and what'd you say	(mixes up student

		N##, or sorry not N##, N##? organic compounds.	names)
26	20:30.5 - 20:56.2	Thank you. Can anybody remind me, um, specifically what type of organic compounds created organic compound is created during photosynthesis? What's that H##? Sugar! 'K. Specifically sugar is the one we're going to end up with.	
27	20:56.2 - 22:02.3	Now, I wanna add a little something here that I would add to my notes if I read what K## had read to us that paragraph there, um, where it says stages one and two are light dependent because without the light they wouldn't happen. Is that true for stage three? No, that light has already started that process along so what did they call stage three? A dark reaction... or what was the other word they used? Light independent. So I'm going to add those to my notes and I tell you why because when we look at those animations later that are gonna show you, uh, in an animated form what's happening it's actually split up into two parts that animation is called light dependent and light independent or dark reaction so when we click those it'll show us what happens during stage one and stage two and then separately during stage three.	Y
28	22:02.2 - 22:13.5	So when you're looking back to your notes hopefully that will make sense of it.	
29	22:13.5 - 22:22.3		
30	22:22.3 - 23:26.6	You have what? Oh, all righty. Do you just want to hang on to it for now? OK. Thank you. All right, when everybody's pencils are down we'll be ready to move on and this is the tough part the Calvin Cycle that really difficult cycle that's got four parts to it and it's going to be hard for us to understand so we're going to look at it two ways. We're gonna look at it in words and in a picture and try and help us understand. Z##, are you ready back there? All right, so who wants to read for us about the Calvin Cycle? Let's see, A##, why don't you read just that little intro to the Calvin Cycle please. (reading)	
31	23:24.6 - 24:01.0	Very nice, thank you, so can we all find the Calvin Cycle in our notes to or in our book to add the definition into our notes? Yes, do you need help or can you do it on your own? Can you do it on your own? Go ahead and add the definition of the Calvin Cycle to your notes.... Thank you.	:)
32	24:01.0 - 24:08.2		
33	24:08.2 - 24:31.7		
34	24:31.7 -	And then when your pencils are down I'll know you're	

	24:49.7	ready to move on in this steps of the Carbon Cycle sorry Calvin Cycle.	
35	24:49.7 - 25:05.1		
36	25:05.1 - 26:24.0	OK? Need more time? OK. So now what we're going to do is we're gonna go this go through this one step at a time and it's going to be difficult because we're looking at carbon throughout the entire cycle and basically it's just changing, um, it's just changing from one place to another. OK so let's imagine that I had, I opened up a bag of M&Ms. And I have a bag of M&Ms in front of me. Does anybody sort their M&Ms? What do you sort 'em by, S##? By color. 'K or so let's say you sorted blue M&Ms to one spot, red into another, orange into another. Let's say that you made little piles that were rainbow colored like a blue, orange, red, yellow, whatever, OK? This is kind of what's happening to carbon in this process is I can sort those M&Ms into different piles but what if I started doing by five piles in different colors and pulled one from each color into another pile and so on and so forth so what we end up with is just rearrangement of carbon throughout the entire cycle so it's a little bit difficult to imagine but we're going to read first and put it into our notes and then we're going to take a look at the diagram the picture to try and help us make sense of it.	Y
37	26:23.9 - 27:07.9	OK so remember before when we have these biopictures in our books that a lot of time we'll read the step in our books and then we'll read the step in our pictures and we'll try to combine a good definition or a good, uh, phrase for our notes is what we're going to do today. So for example, step one in your book is right here, step one in your pictures is right here, let's take a look at both and come up with a good way to add them to our notes. So who wants to read me step one in the picture, er, a, in the notes - the book and the picture! G## (reads)	
38	27:07.9 - 27:40.1	OK, and in the picture…OK, anybody think they have a good way to add that to our notes? What makes the most sense to you from those two. K##? The one in the picture that says a CO2 molecule is added to the five carbon compound. Very good. Pretty simple.	
39	27:40.1 - 27:53.5		
40	27:53.5 - 28:01.0		
41	28:01.0 - 28:39.9	One of the things that I'm going to make note of in my notes and again it's completely up to you guys but I'm gonna write just a little bracket here and I'm gonna put	

		“see picture” just because it reminds me that as I'm reading over these steps when I go back to look at these steps and if I see that note to myself it's going to remind me that I need to look at the picture as well to make sense of those. ‘Cause sometimes what we just see in words isn't enough. So you can add that if you'd like to and in your notes the picture is on the very back page. Notice that if you flip to the back that's where you're gonna find it, um, or if you wanna use the one in your book that's on page one o two at the bottom of the page.	:(
42	28:39.9 - 30:10.0	Just so you know where to be looking for a picture representation. All right, who wants to do step two for us. N##? OK, and how about the picture? All right, is anybody already confused? Yes, all right, this is why we have to make sure that we word it as best as we possibly can and then go back and use the picture to help us out here. So what we're doing again is we're saying, well, three carbons, five carbons, and this many carbons and so it gets really confusing really fast. So, the way I worded this one in my own notes was I said six carbon compounds...split into three carbon compounds. Again, if I had a pile of six red M&Ms and I split it into two piles of three red M&Ms is kind of what we're looking at here.	
43	30:09.9 - 30:54.2	And then also during this step, we have phosphate from ATP…and those electrons from NADPH your other energy carrying molecule, oops, I forgot there NADPH ...are what form them...into the three carbon compound...	
44	30:54.2 - 31:04.9		
45	31:04.9 - 31:56.7	And so if we were to go and look at our picture here, I'm gonna go ahead and slide the picture under the camera really quickly if we were to go look at our picture we can see that during step two that's right over here. OK. We have six, three carbon compounds and they just show us an example of one of those, but there's six of them, you see that we have ATP...and that's releasing six phosphates to give us six ADPs so there we have our phosphates we need and the six NADPHs are gonna give us six electrons when it turns into NADP+ ... and we'll get our six electrons that we need for that process, as well. All that's happening during step two.	
46	31:56.7 - 32:29.4	?? need more time? All right, who's gonna read us step three from the book and the picture? S##? (reading) OK, how 'bout from the picture. (reads) ‘K very good. Does anybody think they know which is the best way for us to word this?	

47	32:29.4 - 33:20.3	K##? OK how it is in the picture and the other only thing I changed about that was it said organic compounds but I wanted to be specific so I put that those organic compounds were the starch and the sucrose, OK? So it tells us...one of the three carbon compounds...is used for and again instead of saying organic compounds you could say starch and sucrose...because you guys know better what those are...to store energy for later.	
48	33:20.3 - 33:49.3		
49	33:49.3 - 34:03.1		
50	34:02.3 - 35:23.0	Need some more time? OK let's finish it up and go to step four. Who wants to read for us? There, uh, let's see N## I don't think you have yet. (reads) Very good and what about the picture? (reads) OK very good anybody wanna figure out how we can put that best into words for our notes. The one in the picture? OK, I don't like, um, you guys can use whichever makes most sense to you. I didn't care for how it says regenerate so I reworded mine just a little bit differently but I did say the other... five...three carbon sugars...actually, sorry, we used compounds here...	
51	35:23.0 - 36:00.9	{...are used to make...the five carbon compounds...}that start the cycle...so we're all the way back to the beginning of the cycle again. And we'll take a look at what that looks like in our picture here in just a minute.	
52	36:00.9 - 37:17.5	...All right before we go to our picture, can we read that last paragraph finishing up the Calvin Cycle? N##? (reads) Very nice. What I'd like you guys to do is take a minute and, um, using what N## just read could you please try to fill in your notes for these last three bullet points for that important information then we'll go over it. So take a minute to look at your reading to fill that out.	:(:|
53	37:17.5 - 37:24.2		
54	37:24.2 - 37:53.4		:|
55	37:53.4 - 38:33.6	?? Bless you! When you're done with those three if I can see your pencils down so I know you're ready to move on.	Student sneezes
56	38:33.6 - 39:46.3	A##, are you getting this in your notes over there? A##? Thank you. All right, let's quickly review what you should have here. Who could help me out, raise your hand please - a total of – A##? three CO_2 molecules must enter the Calvin Cycle to produce...M##? Three carbon sugars that are used to make organic compounds these organic compounds provide energy for...M##? and ...very	

		good...OK and last bullet point here the energy used in the Calvin Cycle supply...M##, what should you be doing if you have an answer? Thank you, sir. Uh, let's see, K##? OK, and...thank you.	
57	39:46.2 - 40:02.5	Very good. All right, now, let's look to our picture for just a second and see if we can make sense of all of this from what we've added to our notes and that's on the back page of your notes.	
58	40:02.4 - 40:52.7	Too big for the other page, T##, put it on the back. ... OK, and I do a quick before and after, based off what you just added to your notes, I wanna see a thumbs up, a thumbs to the side, or a thumbs down on how well you understand the Calvin Cycle. Everybody show me thumbs up, a thumbs to the side, or a thumbs down...all right, I'm not seeing very many thumbs up but that's OK because what we just did is pretty difficult and that's why we're going to look at this picture and try to make a little bit better sense of it and then after that I'm going to ask you again for your thumbs to tell me how you feel about it. So here's one of the things that confuses me most about the carbon in the Calvin Cycle and the amount of carbons.	
59	40:52.6 - 41:21.2	When we're looking at this all I see is a bunch of numbers saying this many carbons this many carbons OK? We've got three carbon and six carbon and five carbon and they're throwing all these numbers and I need to make better sense of it so here's what I'm gonna to do. I'm gonna to take a pink highlighter so you guys can follow me through here. Let's see where these carbons are coming from and how many we have and maybe that will help some of you.	
60	41:21.1 - 42:12.1	So, we start here and I'm just gonna make I'm gonna write "start." OK, we start the cycle right there we finish the cycle right there and start over again but when we do we have five carbon sugars. How many of them? Three. So what I have is three, five carbon so I'm gonna write three times five carbons is how many carbons? How many carbons do we have total? Fifteen. So we're starting the cycle with fifteen carbon atoms, they just happen to be arranged into three sets of five if we go back to the M&M example, it's the same thing. I have fifteen M&Ms, I make three sets of five.	
61	42:12.1 - 43:16.9	?? are you with me? All right, when the cycle starts, you told me for step one that we need three CO2, OK, CO2 only has one carbon so we have three times, times one carbon how many are there? Three, OK? We're adding	

		in our fifteeen carbons and our three carbons to get to step two. So how many carbons should we have now? Eighteen, OK? Well, let's look at step two and see if step two shows eighteen carbons within here. 'Cause we're rearranging them now. It says that we're going to end up with six, three carbon compounds. So there's three carbon compounds we're gonna have six of those which gives us...eighteen sure enough we have eighteen carbons now they're just rearranged into piles of three basically.	
62	43:16.9 - 44:02.8	OK ...it's also during this step that we have to and since this doesn't copy well I like to outline the arrows, turn ATP into ADP giving us those six phosphates we need...and six NADPH...to NAD+ giving us those six electrons we need for this process. OK we still have eighteen carbons notice they're going to have a phosphate attached and they're going to need an electron in that step...good so far?	
63	44:02.8 - 44:40.8	OK, so again, here's our six, three carbon sugars as we go into the next part of the cycle and again our six times three carbon and you guys told me is eighteen carbons still OK...what happens in step three you told me was that one of those three carbons sugars is basically now going to exit the cycle. OK. One of them is going to exit into an organic compound storing energy. Who can raise their hand and tell me what those organic compounds we were talking about were?	
64	44:40.8 - 46:33.0	What are the organic compounds that are going to store energy? Z##? What kind of sugar did we talk about? Sucrose or? Very good. OK so those three carbons are going to exit the cycle to be stored as sugar we'll use them up later. Now, if we had our eighteen carbons minus the three that are leaving how many are we left with? Fifteen. We have fifteen carbons left going into step four, the final stage or step of the cycle. OK. Again in this process when we are going to rearrange our carbons again we have three phosphates we get when three molecules of ATP release them to make ADP and what this tells us is that in stage four our other five, three carbon sugars that are left over are going to regenerate into five carbon compounds. So guess what we get right back here to the start where we're gonna go from three, I'm sorry, the leftover five, let's scratch that and start over. The leftover five, three carbons which is…fifteen are going to rearrange themselves like rearranging the pile of M&Ms into three, five carbon sugars we still have fifteen carbons.	

65	46:33.0 - 47:33.3	OK, and look those are right here to start the process all over again. Then we're back to the beginning of the cycle and back to adding three CO2 molecules and so on. OK? Does looking at it this way and counting the carbons and seeing how we rearrange those help anybody? What they're gonna do remember how I told you the, like, pile of M&Ms if you split your M&Ms up and you said OK I have five piles of 3 OK so three, three, three, three, three, if you took those and rearranged them and made three piles of five that's kind of what those carbon molecules are doing...answering question maybe you want to pay attention...so in order to do that that's why they need that that phosphate from ATP again to rearrange their structures.	:| Y :(
66	47:33.3 - 48:29.7	That make sense? So they're kind of going to reattach into a different structure to make different compounds. All right, now that you've done this and kind of taken a look at what's happening in that cycle can you again give me thumbs up, thumbs to the side, thumbs down please. Thumbs up, thumbs to the side, thumbs down. OK, I'm not seeing any thumbs down which is a good sign. Um, if your thumb is still to the side that's OK because tomorrow we're going to take a little bit more time to review what's happening during the carbon Calvin Cycle before we move on. So here's what I would like you to do. We've got about four or five minutes before we move on. I would like you to please read your last paragraph in your notes from section two - factors that affect photosynthesis OK.	
67	48:29.7 - 48:48.2	And you have a couple quick notes to add to your note sheet on that. OK so you're quietly reading and finish up those notes and I'll tell you when we switch over to extended time.	
68	48:48.2 - 49:03.5	You're going to hang on to that.	
69	49:03.5 - 49:36.4		
70	49:36.4 - 50:09.4		
71	50:09.4 - 50:29.1		
72	50:29.1 - 51:45.5		
73	51:45.5 - 52:13.1		
74	52:13.1 - 52:35.7		
75	52:35.7 - 53:27.9	All right, it looks like everybody is all set, we'll go ahead	

		and switch over to extended period today. Remember that you were responsible for bringing something to work on whether that's reading, doodling for art, whatever your sketchbooks are, um, working on homework. I suggest if you have none of those to do you have a fifteen-question review quiz tomorrow. Study your notecards. You have absolutely nothing then you need to see me for the assignment to do today and you are getting points for being active during this time. OK, um, I've talked to a few of you about things you need to make up or go do, if you're one of those people then you can come up and quietly see me now otherwise you need to quietly get to work.	
76	53:27.9 - 53:37.1	If you are talking or not doing what you are supposed to be doing you lose your points for today.	
77	53:37.1 - 54:24.0	?? Do you have??	:|
78	54:24.0 - 55:10.3	So you're gonna go in about five minutes...	
79	55:10.3 - 55:32.2	N##, no but...that means you can go....	
80	55:32.2 - 56:03.1	J##, do you need something to do? OK, quietly please... this is...folder...	
81	56:03.1 - 56:37.7	Do you have one...OK...	
82	56:37.7 - 57:22.7		:)
83	57:22.7 - 57:55.1		
84	57:55.1 - 58:26.7	??	
85	58:26.7 - 59:12.1	??	
86	59:12.1 - 59:31.9	??	
87	59:31.9 - 1:00:05.1	(PA announcement)	
88	1:00:05.1 - 1:01:00.9	??	:) Y
89	1:01:00.9 - 1:01:24.9		
90	1:01:24.9 - 1:02:18.4		
91	1:02:18.4 - 1:03:27.7	?? D##, if you don't have anything to work on I'll ...OK ...first marking period this...you have the rest of your assignment… do you know where...	
92	1:03:27.7 - 1:03:56.1	?? do you need something to work on?....	

93	1:03:56.1 - 1:04:58.9	?? OK ?? all right??	
94	1:04:58.9 - 1:07:30.7	??working on?? OK ?? OK ??	
95	1:07:30.7 - 1:08:30.9	??	:(
96	1:08:30.9 - 1:09:22.6	?? get your stuff ?? shhh	
97	1:09:22.6 - 1:11:36.5	??	:)
98	1:11:36.5 - 1:12:46.0	What are you…? ?? do you have any work ?? grades ??	:)
99	1:12:46.0 - 1:13:21.7		:(
100	1:13:21.7 - 1:14:11.9	??	
101	1:14:11.9 - 1:15:12.3	Ten minutes…just take your stuff...	:)
102	1:15:12.3 - 1:17:24.5		:/
103	1:17:24.5 - 1:18:02.0		:)
104	1:18:02.0 - 1:19:19.5		
105	1:19:19.5 - 1:20:05.8		
106	1:20:05.8 - 1:21:06.2		
107	1:21:06.2 - 1:21:31.8		
108	1:21:31.8 - 1:21:59.5		
109	1:21:59.5 - 1:22:18.0		
110	1:22:18.0 - 1:23:36.5	OK, bell's gonna ring in a minute or two I want to thank you guys for working quietly and almost all of you being on task. Tomorrow make sure you have your notes with you and you're prepared for that review quiz. Fifteen randomly selected words from your seventy that you've had so far. And we're going to do a little review of photosynthesis tomorrow. OK? Anybody else have Science World for me? Thank you very much. We'll do grade checks again in your binders next Tuesday. You wanna find a seat before the bell, please. You wanna find a seat please. A##. Have a nice day.	Y

Observation B3

B3	Timespan	Content	Notes
1	0:00.0 - 0:51.8		
2	0:51.8 - 1:33.8	??	
3	1:33.8 - 1:49.9		:)
4	1:49.9 - 2:18.6	OK bell rang, please have a seat…root word review quiz right after attendance so look over your words really quickly quiz the person next to you for a moment.	:)
5	2:18.6 - 3:09.0	I'll have to look after attendance...	
6	3:09.0 - 3:39.6	OK I see 1, 2, 3, 4, 5, 6, 7 people looking over their root words…	
7	3:39.6 - 4:49.2	Is this a conversation we should be having now or later? Is it pertaining to last year's project? OK. Is it something that you...conversation that... ??	:/
8	4:49.2 - 5:47.9	Thirty seconds…you ready for the quiz, M##? Z##! I don't know where that came from! Wow! I apologize! ?? Z##! All right, ladies and gentlemen, would you please put away all of your notecards. You just need something to write with in front of you and we'll get started.	(called wrong name) :)
9	5:47.8 - 6:01.9		
10	6:01.9 - 6:14.6		:)
11	6:14.6 - 6:50.5	All right, ladies and gentlemen, I'm handing out the quiz so talking needs to stop. Can I have somebody please raise their hand and tell me what you should do when you're done? Thank you, A##. Thank you. OK, quietly, shhh, flip it over, doodle on the back, and I'll collect it when everybody's done.	
12	6:50.5 - 13:13.3		Y :/ | (9:00.0) :) (finger to lips at 10:00.0)

			| (10:22.0) :) (10:49.0) | (11:10.0)
13	13:13.3 - 13:38.4	Anybody else need more time for their quiz? OK, would you please make sure you have your names on it and pass that forward. As you pass that forward, there's going to be a pink piece of paper coming back to you and I want you to take out your notes from yesterday.	
14	13:38.4 - 14:22.4	And I need a volunteer to hand out glue sticks for me ?? thank you...all set? ...Were gonna do Calvin Cycle some more today…thank you…all right.	
15	14:22.4 - 15:16.1	So yesterday, you guys told me that when I asked you thumbs up, thumbs to the side, thumbs down, on the Calvin Cycle, I had a lot of people who, um, were thumbs to the side still, so we're gonna spend a little bit more time on that today. And I had a lot of students tell me, you know, I really need to see this kind of modeled out. I really need to see, um, how many carbon atoms or the structure of those carbon atoms at each stage. That's what we're gonna do today and we're gonna be working with these tiny little holes that I punched from paper for a long, long time last night 'cause I have a hundred twenty biology students. Please be careful with these 'cause I don't have a broom to pick them up so try really hard to not, like, sneeze into the cup or drop them on the floor or whatever the case might be.	:/ :) :(
16	15:16.0 - 15:45.2	So you're going to need a piece of paper, your glue stick, a cup of these to share, and something to write with. Yes, sir. No, there should have been ?? you guys have an extra piece of pink paper? Oh, OK.	
17	15:45.2 - 15:59.2		
18	15:59.2 - 16:25.5	Try, yeah… switch that one…the glue stick…sorry	:))
19	16:25.5 - 17:00.2	So as soon as everybody has what they need materials wise, glue stick, pink paper, we'll get started. No, there's still glue in there. Is it dried out? If it's dried out...on the bottom...put them...all right.	
20	17:00.2 - 18:10.0	OK, so, Mr. T## are you ready? OK…what we're going to do is we're going to show the structure of these carbon compounds at each stage and rather than in your book or your notes where it just showed you one we're going to actually use a carbon for every single one of those	Y

		structures. So here's kind of my finished product just so you, uh, can get kind of a sneak peek of what this is going to look like. S##, H## did you get to see this? OK so you are going to spend a little bit of time gluing down these little dots and it gets monotonous BUT I'm going to give you a hint that last hour came up with. They were using, may I, K##? Thank you. The eraser of their pencil to manipulate the little dots around on their paper. And they found it a lot easier, so just a little helpful hint on that. So what I'm going to do is rather than glue the dots down at every stage and use up all the dots, I'm going to start with just eighteen and I'm gonna move mine around on the paper just so you can watch kind of how the cycle goes.	Y
21	18:09.9 - 18:49.6	OK? So, first thing, um, is we're gonna start from the starting position. Whose shoes are those? OK, here. Put some carpet underneath it. Just kiddin'. Yup. Yup. OK, so we're going to start from the starting position um that we looked at in our notes and I notated that by just putting "start." A reminder that these are your notes so if you want to write (coughs) excuse me, if you want to write something up differently, by all means, you may do so, OK?	:))
22	18:49.6 - 19:34.9	So when we start the Calvin Cycle, what we have are three five carbon compounds. So here's where you're going to need to get out three sets of five of your little dots and start placing them on your paper. Now, some people choose to kind of swipe the glue across and then move their dots into the right spot. Some people actually said, well, I'm gonna glue one dot at a time. You do what's best for you but you're gonna do three sets of five. Yup, I would.	
23	19:34.9 - 20:07.0	I have it, uh, landscape orientation like this...it really probably doesn't matter as long as you leave yourself space... but I find it works best that way...and so again I'm just gonna move my dots around on the paper so you guys can watch as we go through but you're actually gonna glue yours down so it's a visual that you can take with you to keep.	Y
24	20:07.0 - 21:03.2	Yup, just glue 'em down when you're ready just so you have three sets five which gives us a total of what? Fifteen. So under mine, I just wrote in parentheses, fifteen carbons. Something else that I chose to do on mine, um, on the finish product I actually wrote little cs on the blue dots to represent carbon. You could do that after you get 'em glued down of when you get to a point	:/

		when you have a little extra time and, um, that's up to you. .. With an eraser? That's what you're looking for? Let me see if I have ...I know I had some cap erasers...	
25	21:03.2 - 21:17.4		
26	21:17.4 - 21:40.8	Give that a try… yup... So what I'm gonna do you guys is I'm just gonna kinda judge and look around and see, um, if it looks like most of you are complete with each step before I move on. If I get going too fast make sure you let me know.	
27	21:40.8 - 22:57.1	No, just so you get an idea of what those compounds might ...you never know if that mean biology teacher, what she's gonna ask of you...what? Me. She said… "Do they have to be absolutely perfect?" and I said, "You never know what that mean biology teacher's gonna ask you to do." Is the eraser thing working pretty good for most of you? No? Yeah. You know what I was doing yesterday was I was putting my finger right on the glue stick a little bit to get the dots to stick on my hand and then the paper. It can get messy. Probably depending on how much moisture is on your fingers, too. What?	:)
28	22:57.1 - 23:33.3	?? Yup, this is the start. Where the cycle starts there's always going to be three, five carbon compounds to start the cycle off, OK. I would. That's what I did on mine just so that it was a good in the finished product a good reminder that each of those are just one carbon.	:)
29	23:33.3 - 23:55.7	Now these compounds are also going to have phosphate attached and what I did to start was I just attached some to the right side of these five carbon compounds 'cause when we get back around and start the cycle over we're gonna see something happen, um, to the compound as well. But for now I just attached the phosphate to one side.	
30	23:55.7 - 24:40.7	Who needs another minute before I move on? You ready? OK, give you another minute. T##? I prefer you to actually glue them down if you would please so you guys can have that manipulate there. ...How many times did I hole punch the paper? That's a really good question. You see I spent a LOT of hours yesterday doing this. And the janitor walked in and he said to me, "Um, those aren't going to be on the floor are they?" And I said, "I really hope not." But, yes, I've been hole punching paper for quite a while. I had to take a break and go home.	:))
31	24:40.7 - 25:36.3	OK, I'm gonna go just little bit, a not a whole step	

		further, but just add something else in so if I get going too fast again, slow me down. But when we start the cycle, in your notes so if you're on page one o two where you grab your notes to look at to remind yourself what the cycle looks like, we always start and it said in step one we have three carbon dioxide molecules so, so three CO2. They add to the cylce here so I'm gonna grab three more carbons...right...clockwise...well, really this would be step one because this is our starting point, what we're starting with, and our step one is our carbon dioxide coming in. Now I did not write my steps on my paper that corresponded with the notes, um, but you may if you'd like.	
32	25:36.3 - 27:01.5	So a carbon dioxide molecule is one carbon and two oxygens, so I just kind of did my structure here showing two oxygens off of the carbon. And I had fifteen carbons here how many do I have here? Three. So I reminded myself here, three carbons. And what is actually happening in step one is from my starting position with these carbon compounds what happened was those two kind of attached together blended together into the next step. So I had fifteen carbons already and 3 carbons adding together to give me …eighteen. So if I could get you to look up here for just one second. This is what's happening here. The three carbons - I'm waiting for a couple more people's eyes to look up here for me - the three carbons from carbon dioxide are just going to kind of end up attaching here to these guys and then what they're going to give up over here is six - I'm sorry - I did that backwards – three, six carbon compounds.	:/ Y
33	27:01.4 - 27:23.7	So what I'm gonna do and you guys are gonna end up just gluing down new ones, I'm going to go ahead and start shifting my 6 carbon compounds right over here into this position. My eighteen total. So you can go ahead and start gluing yours when you get to that point. But I'm just going to move mine.	
34	27:22.0 - 28:06.4	OK…Where did I lose ya? OK, so I had three up here, I'm gonna draw them in, 'K, and I had fifteen over here. What would have happened to each of those did you see how I drug those down from here to here? The carbon from the carbon dioxide actually comes and attaches to the five carbons that we already have… that make sense. So now that we have a string of five, you're gonna have a string of six. And that's what we're gonna show over here.	
35	28:06.3 - 28:52.4	Let me show you my finished product…see how I glued	

		my dots? I'm moving mine so you guys can see how the carbon moves through the cycle, but I'm having you glue it so when you leave today you can still see what was going on at each step. Does that make a little bit more sense? OK. If I lose you again, stop me. But all the while I'm keeping track of the number of carbons that are going through the cycle because remember there's only a couple places there's one place where we add carbon which is right here and one place where we lose that which is later in the cycle.	
36	28:52.4 - 29:09.6	Three rows of six, three carbon compounds. Which by the way is how many? Eighteen. So I'm going to write that below my structures, as well.	
37	29:09.6 - 29:50.8	Maybe it would help you guys if after I move my carbons I go back and show where they used to be...	
38	29:50.8 - 30:32.1	You guys are fast gluers! Yes, ma'am. Hmmm? Um, I left room for a title so you can just put yours wherever on the page when you're done. ?? Yes, for phosphate, oh, those are Os for CO2. T##, are those yours?	:))
39	30:32.1 - 30:43.4		
40	30:43.4 - 31:32.1	Does anybody have their notes out from yesterday when we went through the Calvin Cycle? A##, would you, are you in the middle of gluing? OK, would you read me what happens during step two, please? That we had in notes...perfect. Are you guys ready for me to show that or should I hold on? OK, I'll hold on for a second, but if you were listening to what A## said she said that those three resulting six carbon compounds that's what you're in the process of gluing down now are gonna split into six, three carbon compounds. So that's what we're going to add next.	
41	31:32.1 - 31:46.2		
42	31:46.2 - 32:00.7	Nope, I'm gonna let you guys keep ‘em with your notes so you have them to ??	:)
43	32:00.7 - 32:07.1	Probably.	
44	32:07.1 - 32:18.4		
45	32:18.4 - 33:13.5	?? identical ?? OK...need help? It's hard to move those around and get them glued down...oh...OK...can you raise your hand if you still need a minute before I move to the next step? Everybody's ready? OK. Eyes up here for just a second and then I'll let you get back to where you're at. So just A## read us, these three, six carbon compounds are going to in the next step they're going to	:))

		split ...into six...three carbon...compounds.	
46	33:13.4 - 33:47.7	So what we're gonna do here, um, for my I think I'm gonna try to grab these I don't think it's gonna work is nope they're stickin' to my finger, rather than having three rows of six, I'm gonna have six rows of three. I'm just rearranging them. I still have how many carbons? Eighteen. OK. So for you guys you're still gonna need another eighteen to go into glue into sets of three now. I'm gonna move mine on down.	
47	33:47.6 - 34:21.5	Well, remember that our chapter is talking about how the plants are creating energy in the form of sugars and then the next section cellular respiration is going to focus on how animals use those sugars for an energy source…yeah, of course.	
48	34:21.5 - 34:33.8		
49	34:33.8 - 34:45.7	And so again in this step we still have our eighteen carbons.	
50	34:45.7 - 35:01.0		
51	35:01.0 - 36:06.2	How are you guys doin' on your little blue dots, think you're gonna have enough? What's that? Um, I was workin' on it after school 'til I left here yesterday at quarter after four and I punched a lot more this morning when I got here. And my hand's sore. Ask who? Well, I actually didn't plan on this but a lot of students said to me yesterday that they needed to see to see this structure laid out and I had a student had come over and show me on her paper that she had actually drawn the circles out and it helped her so I thought maybe if it could help you see them we could give it a try. Never done this activity before.	:)
52	36:06.2 - 36:31.5	Yup...still workin' on, gotta make sure I have enough to get through the day. One hundred twenty biology students, of course today there's quite a few missing. So that may, just...	:))
53	36:31.5 - 36:43.8	Opening day of hunting season…we have a LOT of people in our community that go deer hunting.	Stated to me
54	36:43.8 - 36:52.9		
55	36:52.9 - 37:03.5	OK, can you raise your hand if you still need more time on this step, please? All right, another minute or so.	
56	37:03.5 - 37:18.1		
57	37:18.1 - 37:21.8		
58	37:21.8 -	OK you'd think this would be therapeutic like popping	

	38:24.3	bubbles in bubble wrap but after a while it loses its fun. Just do a little at a time...yeah...she have a ?? All right, it looks like I see most of you ready for next step, so eyes up here for a second please. Here's a brief break in the gluing for you for a second here because what's gonna happen is we are calling this right now, um, carbon compounds. And they're actually going to go through a transformation here where they're going to go into what we call sugars. OK?	:))
59	38:24.2 - 38:46.9	So instead of just being what we're referring to the compound they're actually going to make that transformation into sugars. In order to do that and you can see this in your cycle in your notes or in your book on page one o two, this is where we have our six molecules of ATP. What happens to ATP when the energy is released?	
60	38:46.9 - 39:00.9	It becomes ADP what's that mean in...right from triphosphate to diphosphate so what's actually happening? K##? It is releasing energy. Why?	
61	39:00.9 - 39:45.0	Right, one of the phosphates breaks off. So, and just like I like to do this like your book does to remind myself that energy is released there. What happens is six phosphates are going to detach, one from each ATP. So we're going to end up with six phosphates that we can use and also that energy carrier molecule NADPH is going to transform into NADP plus and give us six electrons. 'K?	:/
62	39:44.9 - 39:58.7	And so you can kind of just draw an arrow from...your six, three carbon compounds through that part of the cycle...and I'll give you a minute to write that in.	
63	39:58.7 - 40:08.2	So this is essentially the part where we're transforming just a carbon compound into what we're going to consider an actual sugar.	
64	40:08.2 - 40:17.8		
65	40:17.8 - 41:19.3	Now if you're following along with your book or your notes you'll see the picture there writes out again that we now have six, three carbon sugars, so we could glue down again and glue more glue these six sets of three over again. I felt that was kind of, uh, monotonous for us to do that over again so what we're going to do instead is show what happens to those six, three carbon compounds, OK? Five of them...oops...five of our three carbon compounds ...are going to stay right within the cycle so we end up with five, three carbon sugars ...which five times three gives us? Fifteen carbons, OK?	:/ Y

		So we can move five sets of those over...are going to remain right in the cycle.	
66	41:19.2 - 42:09.8	Yup...I'll go ahead and finish that part up, though, so you guys can see what you're going to do. One…of your three carbon sugars...actually leaves the cycle and is used to make what? What kind of sugar? Starch and? Very good. Starch and sucrose. So we can actually show an arrow here where three of the one of those three carbons compounds is actually going to physically leave the cycle now	
67	42:09.8 - 42:25.7	…to become that stored energy for the plant. The other five are going to remain in the cycle and I'm going to show where they have a phosphate attached to them now because they're now sugars and they got the phosphates from ATP.	
68	42:25.7 - 42:48.6		
69	42:48.6 - 43:05.3		
70	43:05.3 - 43:05.4		
71	43:05.3 - 43:23.4	So how many sugars do I have over here with this or, I'm sorry, how many carbons with the sugar that's leaving the cycle?	
72	43:23.4 - 43:41.8	How many of my carbons are going over here to leave the cycle? Three. OK, so I have three carbons leaving, fifteen staying, I still have a total of eighteen just that now fifteen are going to remain and three are going to leave.	
73	43:41.8 - 43:54.3		
74	43:54.3 - 44:12.1		|
75	44:12.1 - 44:44.7	Nope this would have been where, um, I think step three in your notes where it is ...S##, what's it say? Perfect. That, I would if you were labeling the steps I think I would put three right here because that's where S## read one three carbon sugar is going to actually leave the cycle to use for starch or sucrose. Then the other five, three carbon sugars remain.	
76	44:44.6 - 45:11.6	Yup, just on three carbon sugar is gonna leave for energy storage the other five stay in the cycle. ...still have a total of eighteen it's just that three of them are leaving.	
77	45:11.6 - 45:21.1		
78	45:21.1 - 45:29.5		
79	45:29.5 -	Three under ?? three...yup it's the p for the phosphate	|

	45:57.5	that we got from the ATP.	
80	45:57.5 - 46:15.2		
81	46:15.2 - 46:33.1		
82	46:33.0 - 47:58.3	OK, hands up if you need more time? OK, ready for the good news? You're done gluing dots. All right, so we have five, three carbon sugars remaining in the cycle, eighteen total, three are leaving. What's gonna happen is right now we're just headed back to where we started because these five, three carbon sugars are going to basically rearrange ...into...the three, five carbon sugars we had to start. In order to do that we need ATP to break up again. So this time, three ATP...are going to break into three ADP...releasing three phosphates...that help us form...back into these five carbon compounds starting the cycle all over again. We're right back where we started....to begin with.	:)
83	47:58.3 - 48:16.9	Three ATP to three ADP with the release of phosphates for use to make those compounds.	
84	48:16.9 - 48:42.5	And again, I would take some time to write the little cs on your blue dots. So that, that reminds you those are standing for carbons.	
85	48:42.5 - 49:15.9	And then I'm gonna show you I'm gonna go up to my finished product here because I wanna to show you now kind of what we can do as we watch what happens throughout the cycle...you need a minute? Mr. B##. There's actually a hole in the wall up there and the sound comes through rather easy surprisingly. I can hear everything he's saying during my plan time when it's quiet in here.	
86	49:15.9 - 49:53.6	OK, so, if you look at where we start with the cycle we start with fifteen carbons. We get three from CO2 giving us eighteen and those eighteen are going to transform into six carbons and then into three carbons and we still have eighteen until we get to here and those three leave the cycle giving us fifteen again. So really all that's happening is we have fifteen carbons, we add three, rearrange, rearrange, get rid of three back to fifteen. Add three, they rearrange, get rid of three, we're back to fifteen.	
87	49:53.5 - 51:07.7	So all we're doing really throughout the Calvin Cycle is rearranging the structure of carbon compounds to create that sugar molecule that's used in the plant as food or storage. That's what we end up eating when we eat plant products and our body uses for energy which is cellular respiration section three coming up. So what's left for	

		you to do with this is, is if you wanna write your steps in there one, two, three, four that's completely up to you um....I would give it a nice neat title somewhere wherever you have space maybe it's in the middle maybe it's off to the side ...and we also wrote in last hour we decided to add to our title, “third stage of photosynthesis”, so if you go to pull this out of your notes when you're studying for the test or you're reviewing over what we've covered and you remember the Calvin Cycle the Calvin Cycle where did that come from? Um, that little extra part might help you remember that it's the last final stage of photosynthesis where we looked at what's it called when we're looking at using that carbon dioxide to make sugar? What is it called when we're looking at using that carbon dioxide to make sugar? Does anybody remember that from your notes yesterday?	Y
88	51:07.7 - 51:52.1	What is it called when we're using the carbon dioxide to make that sugar molecule? Carbon dioxide...carbon dioxide fixation OK? In your notes...from yesterday...it was…right at the beginning of stage three where we defined carbon dioxide fixation...so you might also want to add that in there, too. ‘Cause that's what we're looking at.	:/
89	51:52.0 - 52:17.8	I believe the book worded it as carbon the Calvin Cycle is a primary example of carbon dioxide fixation.	
90	52:17.8 - 54:23.3	All right, how many of you just by a quick show of hands feel like this really helped you understand what's going on a little bit better? Perfect that's the majority of the class. OK, so now, one last time, when it comes to the Calvin Cycle can I see thumbs up, thumbs to the side, thumbs down how you feel about it…no thumbs down, that's good, couple thumbs to the side still, um, if you're still having trouble and you need more review time with me, just let me know. But otherwise I hope that you can attach this to your notes to help you kind of understand what's happening through this process. Before we get ready to clean up I just want to chat with you really quickly about what we're looking forward to next week. On Monday, I'm not going to be here, um, I have a training in K## with the M## Department of Transportation and it's regarding physics curriculum ‘cause you guys know that I teach basic physics as well and so I'm going to be in K## training with them. Your substitute is supposed to be Miss S##. What she is going to do with you on Monday, shhh, listen up guys, just like	:/

		every other Monday, she is going to post for you your ten new root words so you're going to need your notecards or I will leave the plain white paper and scissors up front for you. Once you have your new notecards made for next week she is going to be giving you back your chapter three and four test.... and you're going to be taking some time to make test corrections. Because if you remember when I showed you guys your scores and your data from that on that test it didn't go as well for some people as it did for others so I want you to spend a little time on Monday looking back through your notes and your book and making corrections to your test finding where you made those mistakes OK so we can kind of learn from what we missed on the test. And then when I get back on Tuesday we'll wrap up photosynthesis.	
91	54:23.2 - 54:55.2	Um, and uh, get ready to move on to cellular respiration. Anybody have questions? OK. Here's what I'd like from you in terms of clean up. I would like for, uh um, someone at your table to bring me the little container of blue dots and then to return the two glue sticks over to the bin um for me. ?? I got some paper towel out over here so if you need to rinse your hands in the sink you may do so.	
92	55:11.3 - 55:53.9	?? I would just either, if you're keeping a notebook or folder, put them right after the notes we took yesterday from section two. If you want to staple them to your section two notes you may do so. Depends on how you're organizing 'em.	
93	55:53.9 - 56:33.6	Thank you. Look around for ?? Just find a seat for me please...move that, find a seat for me please.	
94	56:33.6 - 56:42.1		
95	56:42.1 - 57:06.2	You're not...no...I was thinking...?? they're not.	:)
96	57:06.2 - 57:15.8	(call from PA) Yes, ma'am (to PA). He's on his way.	
97	57:15.8 - 57:23.5		
98	57:23.5 - 57:36.2		
99	57:36.2 - 57:53.5		
100	57:53.5 - 58:13.3		
101	58:13.3 - 58:26.2		
102	58:26.2 - 59:06.6	?? have you ever seen that guy?? has...I think??	

103	59:06.6 - 59:53.8	Have a wonderful weekend. Behave yourself on Monday.	

Appendix C

Observation C1

C1	Timespan	Content	Notes
1	0:00.0 - 7:08.5	(chatter) Sorry, those who weren't here Friday, new seats... grab that chair... I need...three volunteers to hand out some stuff. (chatter) Listen please. While they're handing out papers couple of things we need to take care of. OK. First of all, we had some issues with Friday's assignment which I'm going to go over again. The process of graphing from a point slope equation because we had a couple of people well we had several people who messed up SEVERAL KEY STEPS OK? Yeah, remember everybody moved, everybody ?? OK? Second of all, today you're going to have the opportunity to either finish Friday's assignment, because some of you didn't finish it, or fix Friday's assignment, because most of you have something wrong. OK that's why we need to take care of that. If you happen to get done with today's assignment - are we listenin'? - OK if you happen to get done with today's assignment you can start on tomorrow's assignment because it's the exact same process. We're back on page three twenty and problems are up there and they're also on your assignment sheet. OK, so we're going to pick up with two through twenty six, the evens, tomorrow so basically we're going to finish off page three twenty by the time Thursday rolls around. OK? So you can start working on that stuff if you get today's all the way done. Most people did not finish the stuff from Friday, even though you might have a checkmark. OK, if you didn't get to the graphing at all, you didn't get a checkmark. Had to at least get to one graphing question Friday.	:) :) :) Y **
2	7:08.5 - 8:35.6	Yes? OK, she had a great question and most of you missed it. She says, so do we have to do it? Do we still have to do Friday's assignment? Here's the way the grade's going to work - if you got a checkmark on Friday's assignment and you just got it back you got the grade for Friday. In order to get the grade for today, you must completely finish the assignment for Friday. That means getting through forty nine. OK? Again, the problems are in up there on the board and on they're in your assignment sheet. You can get them from either one. OK? Does that answer your question? Good. What did we do Friday? Fantastic question! OK, Friday, we	:) Y

		took notes over section six point two which was how to do a slope intercept thing. Were you here on Thursday when we did the graphing calculator thing on here? OK, it's the exact same thing you just formalize it. You need to copy the notes from someone on Friday and you're going to work on Friday's assignment. Yeah, A## wasn't here either. All right, almost done.	
3	8:35.6 - 12:10.3	(chatter, laughing with students) Who we missin'? T##'s right here. S## (chatter) Not right now. (chatter) There's no worksheet tomorrow, worksheet's Friday. (chatter) (chatting with kids) ?? (chatter) You need your work back? Is it one of these papers? (chatter)	:)) :(Y
4	12:10.3 - 14:46.4	All right, here we go! All right, pay attention please so we can get this stuff fixed before you actually try to go ever onward. (chatter) There we go. OK. All right, everybody <u>stop</u> what you're doing, OK, pay attention up here so you can <u>see</u> <u>what</u> <u>we're</u> <u>doing wrong</u>. Almost everybody is making the same basically three mistakes. OK. I'm going to go over one more time so that we can fix the mistakes we're making. Let's take a look at the first type of mistake. Now this isn't any particular problem in the assignment, I'm just picking random stuff here. Here we go, I'm going to do y equals negative four x plus two. So I want to graph that equation. So is this in slope intercept form? <u>Yes</u>. How do I know that it's in slope intercept form? 'Cause it looks like *y* equals *m x* plus *b*. I have the *y* by itself. OK, what is the slope of this equation? Negative four. B##, tell me why is how do you know negative four is the slope? 'Cause it's the number in that's in front of the *x*, it's the coefficient of *x*, that number that hangs out in front. Now, what's the *y*-intercept on this?	/
5	14:16.0 - 16:38.4	<u>Two</u>. So tell me why it's <u>two</u>. Because that's the number that's hanging out there by itself. OK. That's the <u>constant</u>. So the number in front of the x that tells me the <u>slope</u> the number that's hanging out by itself that tells me the *y*-intercept <u>AS LONG AS</u> the <u>y</u> is by <u>itself.</u> If I have something else with the y I have to get rid of it before I can look at it and say this is the slope, this is the *y*-intercept. OK, that's not the problem we're having most of us are doing pretty good looking at an equation like this and negative four is the slope and two is the *y*-intercept. What we're having trouble with is figuring out how to graph this thing. Most of you are very good at telling me where to start. Where am I going to <u>start</u> on this thing? At positive two because it's the *y*-intercept.	

		So on my *y*-axis I'm going to put a dot at two. Almost every single person in here when I was looking at your papers everybody was doing it the right way. This is where our first mistake lies. Remember we said that if I'm going to have a slope I want it to be looking like a fraction so I know the rise and the run and several of you looked at this one and said, OK the slope is negative four, so I'm going to rise how much? I'm going to rise a negative four so I'm going to go down four and a lot of you went OK, one, two, three, four and put a dot and put a straight horizontal line OK. What is the run on this thing? I don't see a one, one here. Where on earth are you seeing a one? It just goes like that. That's good mathematical logic. It just goes like that. Ha! Wrong! OK. How do I make any number into a fraction? I put a one underneath of it no matter what it is. OK. So I can always take and I can put a one underneath that negative four. Now I have a fraction that tells me a rise and run.	:) :))
6	16:38.4 - 18:44.7	So as I look at this thing, the rise was negative four, you all had that right, but now what's the run? How far am I going to run? Now I'm messin' with people. The rise was negative four so how far am I going to run? One. Now, which direction? OK what's positive direction mean? To the right. OK notice the negative is on the four that's why we go down four but the bottom number whenever you add that one at the bottom that always means go one to the right because it's a positive one that you added. You're never going to add anything but a positive one below that no matter what your number is on top you're going to put a positive one underneath. So I'm going to go down four three four and to the right one so that gives me my second dot. Now you're going to find out next year in geometry, all it takes is two points to make a line. Some of you what you've been doing you've been saying yeah I'm not real comfortable with two points let me show some more points so then from this point you do another slope to it. So I'm going to go down four more and run one more and it's OK to do that there's nothing wrong with that it's a checkpoint. Because if you keep doing that I can now draw my line that connects those three points together. Here's the second type of mistake that we've been making. I warned you guys on Friday that your lines need to go ALL THE WAY across the graph. From one side to the other and put arrows at the end of both. Remember me saying that Friday? Absolutely! Some of you listened and some of you didn't.	**

		OK. So that means that I have to start on one side of my graph and go all the way to the other one. Some of you were just giving me this tiny part in here. OK make sure you go all the way across your graph.	
7	18:44.7 - 19:44.4	One side to the other. Go all the way. That's not good enough, you have to go all the way. Gotta go ALL the way. I know Mr. H## was OK with you going part of the way, I'm not, I'm not that OK with it. Well, why waste the paper? Might as well use it all up. That way you can see 'cause sometimes you're going to, you're going to have to use some of those other points. Not today you're not going to but eventually…all right, so, to fix our first mistake, remember, if there's no number on the bottom for that slope we need to make sure we add a one down there. That was the, that was probably the number one mistake that we were making. OK, make sure that you put a one underneath so that you have a rise and a run.	(continually scanning the room)
8	19:44.4 - 22:38.0	All right, second mistake that we were making...make sure that you can see it...well, let me do this one. Let's say that we have an equation that looks like y equals negative two thirds *x*, uh, let's go with minus four. (4 sec) This is probably the second biggest mistake that you made. So, somebody tell me, what is the slope on this equation? Negative two thirds, that's my slope right? How do you know that it's negative two thirds. Because...that's another good piece of mathematical reasoning because... 'cause it's next to the *x*. It's that simple. It's next to the *x*. So that's my slope, it's negative two thirds. Now, before I even graph this thing, what direction should my line go? If remember we talked about the man walking from left to right, if I have a negative slope what direction should that guy go? Up or down? As he's going from left to right...since it's a negative slope. He should be going down 'cause it's negative. OK? A lot of you, when you got to a slope that had a negative number were showing me lines that went like this and if he walks from left to right he's walking uphill. That's not a good thing if you have a negative slope. Your line had better look something like it's going downhill if you have a negative slope OK? I guarantee you, here's where we got into trouble 'cause as I looked at your papers you were very good at showing me what you did. Where's my starting point on this line, where am I going to start? At negative four, so I go down one two three four there is my *y*-intercept so I'm starting there. We're good at that. Then we looked at this thing	\ :)

		with a negative out front and it freaked us out. We said OK, it's a negative, so if I have a two for my rise, that's negative two for my rise. So which way am I going to go? I'm going to go down two. Then here's when we goofed up what's my run? OK, a lot of you took and said oh it's a negative so my run is also a negative three. So you went down two and to the left three. If I go down two and to the left three my line goes like this. What kind of slope is a line that goes like this?	
9	22:37.9 - 24:21.2	It's a positive slope. What did you just tell me the slope was? Negative, so I must have done something wrong. (7 sec) Yes. Here is where I told you guys I think it was, was I think it was Thursday was Friday up on the front board it's gone now. OK, remember if I have a negative in front of the fraction, where does that negative sign go? Where's that negative sign go? It can go on the top or the bottom but never where never on both. So that means the slope on this thing I could've made it, oops, two over negative three if I put it on the bottom or I could have made it negative over three if I put it on the top. Either of those are exactly the same slope. They both say negative two thirds. You're all looking at me ?? OK, they both mean the exactly same slope are you all in agreement with that? OK, so depending on which slope I use to graph will just tell me now which part of the line I'm looking at. It's all the same line one will give me one part of the line, the other will give me the other part of the line. So if I'm looking at this slope two over negative three, what's my rise? Positive two so which way am I going, so I'm going up two and now where? Negative three is my run so where am I going to the left so one, two, three to the left, that puts me right here.	
10	24:21.1 - 26:16.7	So now I can take and draw my line. What if I use the other slope? OK if I use the other slope I go back to the starting point and my intercept and I'm going to go down two 'cause that's my rise which way am I running? Positive three means which way? So I'm going to go down to but to the right three. See how they all ended up on the same line? This slope gave me the left hand part of the line this slope gave me the right hand part of the line. It's all the same line so it didn't matter which one I used. Now I will tell you this ninety nine percent of the time you're going to want to take the negative sign and put it up top. "Teacher C, you said that it didn't make any difference so why would I want to put it up to the top all the time?" Because later on, when we actually start doing	:(

		some stuff where you try to put a negative number into your fraction as the bottom number of a fraction, your calculator is going to spit it back at you and say error. These calculators do not like putting negative numbers in the denominator. They don't like them down here. So get used to taking the negative and putting it to the top. When you get to Algebra Two and you start doing more complicated things you're going to want to put that negative number to the top. Very, very, very seldom do you ever want to put it on the bottom. That's why I said ninety nine percent. OK. So always take it to the top. So now I've got my three dots so when I go to graph this one again remember I'm going to want to draw my line from one side of the graph to the other. Make sure we've got our arrows on there.	
11	26:16.6 - 29:26.0	?? paper ?? Yeah, no, just a little delay...I'm a robot...OK, so that takes care of two of our three problems. The third problem that we had was one that I told you guys about but you didn't listen or at least some of you. So, let's do this one let's do a nasty one, y equals point five *x* plus <u>twelve</u>. (2 sec) *Y* equals point five *x* plus twelve. First of all, what do you <u>notice</u> is different about this one from <u>ALL</u> the others that we've done? We got a decimal in there this time. Now there's two ways that we can take care of that decimal. OK because remember we want our slope to look like what? What does our slope look like all the time? What kind of number? Somebody said it over here. A fraction. OK. You always want the slope to look like a fraction. How can I make any number a fraction? Put a one underneath of it. <u>Including decimals</u>. I can put a one under that decimal, like this, and say it's a fraction. What's my rise? A <u>half</u>, so I'm going to go up a half of a unit instead of a whole unit. What's my run? I'm still gonna run one - which way? Right or left? To the right. I know you guys are looking at me like this to me that's my right that's your left. OK? So that's one way I can take care of that slope being a decimal. Anybody got an idea of what the other way is? (2 sec) How can I take care of that slope being a decimal? (2 sec) <u>Little louder</u> so everybody can hear you. OK, a little louder so everybody can hear you. Make it into a fraction. What is point five as a fraction? One half. So I could have called this thing y equals one half x plus twelve. They both can do the same thing for you. All right, now, that wasn't the problem 'cause most of you changed that to one half, that wasn't the problem.	:) :)) :)) :)) Y

		Here was the problem.	
12	29:25.9 - 32:07.6	OK, if my equation was y equals one half *x* plus twelve, most of you went OK where am I gonna start? At twelve so I go up to twelve and that puts me right there at the very edge of my graph. Where am I supposed to go now? What's my rise and run? Wait a second. What's my slope? One half. My slope is one half so what's my rise, one that means I go which direction, one? Is that a positive or negative? OK, hang on. Hang on. I'm supposed to go up one and to the right two. So if I start up here at twelve and go up one, uh oh, I've got a problem. I've run out of graph. OK this is where I told you guys, going back to this idea of having the negative can go on the top or bottom when it's a negative slope. Here's a positive slope and here's the only way you can ever put a negative on both the top and the bottom because negative one over negative two believe it or not still equals a positive one half 'cause I got a negative over a negative that cancels out to be a positive number. So I can use negative one over negative two to graph this thing because I can't use positive one positive two. OK? So from my twelve, I'm going to rise how much? If I'm using this one. Rise first. How far am I risin'? Down one now negative two mean run which way left or right? Left or right for a negative? Left. So I'm going to go over two to the left. There is my second point. If I want to do it again, I'm going to rise negative one and run negative two to the left. And again we go through and make sure we draw our line all the way from one side of the graph to the other. Now this time because it was a small part of the graph it's going to be a small line. It's when you have these big ones you want to make sure you go all the way across the entire thing. But I still went from one side to the other all the way from edge to edge.	**
13	32:07.5 - 33:33.9	All right, so does that make that a little bit clearer now? 'Cause those were the three big mistakes that I saw on last night's assignment. I'm sorry, on Friday's assignment. I don't remember what night I looked at them. No, it wasn't Monday I didn't do anything on...?? All right, so here we go. So today here's what you need to do for your assignment. OK, today you're gonna either fix the ones that you got wrong, which a lot of you had stuff that you had wrong so go back through Friday's assignment fix the stuff you had wrong PLUS, you're gonna go through and finish it if you didn't get all the way done with it. Friday. Even if you handed it in and got the checkmark credit for	\

		Friday make sure that you finish the entire thing today. That is your assignment for today to finish up the assignment from Friday and make sure they are all right. Yeah, we did one through twenty seven odd so we did twenty eight through thirty nine all and that was the graphing and then did we forty one through forty nine, the odd. A lot of you didn't get the forty one through forty nine done, that's the biggest part.	\
14	33:33.9 - 34:36.6	Yeah. (chatter) OK, hang on to that 'cause tomorrow's assignment ?? (chatter) Those are the... Finish writing.	
15	34:15.6 - 35:56.3	It's not a new one just finish writing...?? again. Oh, you know why? You know how to do those right? What's different? Exactly, it's not y equals so how do I make that look like this? So what's preventing it from having the y by itself? That minus two right? So how do I get rid of minus two? Yup. Yup. (chatter) Now before you write anything else, can I add negative three *x* and two together? 'Cause there's not *x*s, good. So now what do I write? Exactly what you wrote. You just told me I can, exactly. Now can you tell me what this…?? so each one of those you're going to do to get the y by itself by getting rid of the stuff that's with it. Can you go from there? Good.	Y :)
16	35:56.2 - 38:55.7	(chatter) We can leave this open now. (chatter) ?? That's right. ?? (chatter) All right, and how far did you get? Get all this done? Right. How did you?? Good. Now you can sit around and talk. I don't want to pay my taxes... (chatter) So what's the problem? Just what, an eraser? Even though it was in a bad order? I'm going to grab some real quick. (chatter)	
17	38:55.7 - 39:47.3	(chatter)	
18	39:47.3 - 42:54.4	(chatter) Uh...anybody else need an eraser while I have them out? The one that's listed as Tuesday is actually Friday's because we're fixing it. It's the same just different problems. That's tomorrow's, correct. (chatter) What's up? So...what do you think...you probably should do? You have a decision to make, right? I either have to get rid of the subtraction first or the multiplication first. Now think back to when we solved equations, which one do I get rid of first? Hmmm. Yup. Hmmm absolutely. You gotta do to one side what you do to the other. Right, but I can say that I did it even if I don't show that I did it. So, I just write it out like you have written I can't actually do it but I can say that I did it. Yeah. You said that you did it, right, you added six, but I can't show that I did that	

		‘cause I can't add three *x* and they're not *x*s. All right, so now I got one more step. Absolutely. By <u>everything</u>. Right, whatever you do to one side you gotta do the <u>exact</u> same thing to <u>everybody</u>. Now, split that up. So if I have three *x* divided by two what does that become? Sorry. Do we like the number in front of the *x* to be a one and a half? Or do we want it to look like a fraction? Turn the one and a half into a fraction. Exactly.	:|
19	42:54.4 - 45:07.0	You're going to be the one to kill me. Look at how you wrote your three halves. Your fraction bar. Yeah, ‘cause what does that really look like. It looks like three divided by two *x*. It does. What does that look like? It looks like three divided by two *x*. That's what it looks like to me. If you write it like this I know, now I know it's a fraction and I know this is this is not part of the fraction. Because later on when you guys get to Algebra next when you get to Algebra Two what's gonna happen is, like, you're gonna have *x* plus four divided by three plus *x* and you’re going to think this three plus *x* is together and what they really meant was *x* plus four divided by three plus *x*. So get into the habit of not making <u>slashes</u>. Start making them horizontal. I'm just telling you, now I know you understand it but to show somebody else that they're not going to understand and they're the people who are grading it. And when you go to take standardized tests... you know at one point in time you probably said you can't write cursive…or you said I can't write the number two... you said, “I can't do it, no matter how hard I try”...but if you practice it enough…no, it's not <u>bad</u>, it just means you're just going to be <u>slower</u> at that stuff than some people that know it. Doesn't make you a bad person, just makes you slower.	:) \ :))
20	45:07.0 - 47:17.5	Is that the one with the letters? <u>OH.</u> You realize I haven't answered your question yet, right? I just keep asking you guys questions. Ha, ha. So, you wanna get what? *Y* by itself. What's stopping it from being by itself. So how do I get rid of that? So now, what's the slope? What's the *y*-intercept? So what's the question? Yes, ma’am? All right, now this one's a little bit tricky. Oh you're on tomorrow's already. Wow, you're rockin' and rollin'. Cause we haven't talked about this yet. OK, so what happens here is ?? this is will need to be on this line remember the *x* value and this is the y value, so if I take that negative forty and place it with the *x*. If I multiply that out and add one I should get four as an answer. ?? Times negative two I'm taking that negative three...	:)) :)) **

		what's a negative times a negative? Positive. OK and what's six plus one. Seven. Is that four? No. So is that ?? on that line? No. Now, once you do that, if you say that ?? so, if I got that answer, my answer would be yes. ?? That's it. One second. MmHmm	
21	47:17.5 - 48:33.7	That's like the...you can always get rid of the adding and subtracting first. (chatter) You did it right, so write what you did. (chatter) OK, so what's the slope? (chatter) Yup. Why's ?? just because they're letting you know that sometimes in your slope-intercept form you don't always have all the numbers. They'll throw a variable in there that you have to calculate what...eventually, we're not anywhere close to that, so don't <u>panic</u> you just need to know that it's there.	| \
22	48:33.7 - 50:59.8	?? oh the rest of paper on the worksheet like question number four I think we just drew the number four...see I didn't see..?? horizontal.....from there this is where we go back...see that purple...guys, it's not time to clean up, you've got 'til nineteen. You've got another six minutes. That's a lot of stuff you can get done guys. All of you are not done…yup... tomorrow's assignment ?? Yeah... ?? That's right, that's right. You're going to turn Friday's assignment back even if you have the checkmark on it. Turn it back in once all the way done with it you get it fixed. Yes.	/ Y
23	50:59.8 - 52:16.7	(chatter) ?? Oh, they can find the slope and then they can graph when they find the *y*-intercept. (chatter) Yeah, all right. (chatter)	Y :)) :)
24	52:16.7 - 55:23.0	?? (chatter) It's all fun...you're fightin' ?? (chatter) You got all?? Fix the ones you got wrong? (chatter) ?? ?? Ladies. OK, I'm finishing it, you're done, don't do it again. Must be your mom's a very smart woman. All right, you got about a minute and a half left. Let's make sure the calculators get back on the cabinet please. Especially this table this table seems especially to not give calculators back. (chatter) She??	** :| :)
25	55:23.0 - 56:30.9	(chatter) ...somebody... (chatter) All right, we will see you tomorrow. Be careful don't run anybody…	

Observation C2

C2	Timespan	Content	Notes
1	0:00.0 - 3:46.1		
2	3:46.1 - 4:46.7	Yeah, I know, hang on. Just a second we're getting ready to roll. OK, first of all ....we are are rockin' and rollin' on the assignments ...(PA announcement on the Internet being down) I have no patience with technology. Zero. So, those of you who have turned your stuff back in OK you guys are doin' a pretty do::ggone good jo::b on it this time. OK. One thing that as we are doing these remember to graph your equations make sure that you are going from one side of the graph to the other. Some of you still are not doing that.	** :(
3	4:46.7 - 5:33.5	Do you understand what I mean by graph from one side to the other? Anybody not sure what I mean? Maybe that's a better question. So we all understand what I mean so there's no reason why I should give it back for you to fix your graphs. All right, now many of you yesterday finished up yesterday's assignment which is awesome that means you guys are starting to get ahead. So what I'm going to do today is I'm gonna to give you worksheet six point two which actually we're going to start tomorrow, but I'm gonna give it to you today so you can start it today because if you can get ahead of the game, mm, you're gonna be that much better off. The other thing I'm going to give you today is our first project.	
4	5:33.4 - 6:32.0	"Oh no, Teacher C, please not a project! I hate projects!" Well, you know what, that seems to be the big push in education now. Everybody's going to project-based learning. It's a little more difficult in math than it is in any other subject for the simple reason that they tell you you're supposed to learn something by doing the project. My personal philosophy is that if you don't know the information you're probably not gonna discover it on your own. So you're probably not going to learn the math by doing the project, but this particular project you're going to learn about some other things and you're going to apply the math that we've been doing. 'Cause what you're going to be doing on this project is you're going to be investigating a couple of different jobs that you think that you might want to do either now in high school or like the first job you want to do when you get out of high school.	Y :) Y

5	6:31.2 - 7:30.7	Part of this is going to be researching how much money you make at that job. Gentlemen? (3 sec) Part of it is going to be researching how much money you make per hour at the job. Part of it's gonna be interviewing somebody about their first job. And they specifically say, and you'll get the project packet here today, they specifically say, interview an adult about their first job experience. You can pick whoever you want, OK? You're gonna discover that what you get told is probably gonna be kinda comical according to today's standards. Just off the top of your head, how much money do you think a person starting at McDonald's how much are they making an hour? Probably minimum wage. What is it now? Seven dollars fifty cents an hour seven thirty five seven twenty five whatever it is.	
6	7:30.7 - 8:41.1	OK? You would think, wow, that's a lot of money. I could tell you my very first job when I was fourteen years old, I was bussing tables and washing dishes in a little tiny restaurant in W##. I made two dollars and fifty cents an hour. That doesn't seem like a whole lotta money per hour. 'Cause if I worked ten hours that was twenty two dollars and fifty cents. What did I forget to take out of there? Taxes. And part of what you're going to be doing in the project is you're also going to discover exactly how much taxes are really taken out. And you're gonna discover this guy by the name of FICA F I C A he seems to take a lot of your money when you take a lo ok at a paycheck stub. And this thing called F...I…T. and this thing called S...I…T. Federal income tax, state income tax, and you'll find out that you lose about twenty five percent of your paycheck to taxes.	
7	8:41.0 - 9:18.9	So out of my twenty two dollars and fifty cents that I made out of working ten hours, if I take away a fourth of that that's roughly about six bucks, I got to bring home eighteen dollars, seventeen, sixteen dollars - my fault, too bad I can't do math. OK, so I got to bring home about sixteen dollars if I worked ten hours that means the amount I really was making was like a dollar sixty an hour. Glad I wasn't living on my own at the time. 'Cause that's probably not enough money to live off from.	:| Y xH
8	9:18.9 - 10:07.8	OK, now, part of what the project's gonna ask you to do is to ask you to calculate how much money you would make if you worked for one hour, two hours, three hours, all the way up to ten hours. OK? You're gonna do that for two different jobs. OK, then you're gonna	

		compare the two and you're gonna try to figure out if I wanna make a hundred twenty dollars how many hours do I have to work? And, again, this is all spelled out in the project packet. OK, this project is going to be worth a test grade. That means this is not a regular assignment. OK, our normal assignments are worth five points. How much are tests worth? Quizzes are twenty five. Fifty. OK? So this is going to be a fifty-point project, OK?	
9	10:07.7 - 11:06.5	Don't take it lightly and don't wait until last day to try and do it. I guarantee you, you're gonna run outta time. This is more than a one-day project. It's not due until the end of chapter six which is December ninth. This is November fourteenth. Don't wait until December eighth to try to finish the project. <u>It's not gonna work</u>. And you can't afford to have a bad test grade for this project. It should be an easy thing because there's really not a right or wrong answer. As long as you do the research and you do what you're supposed to, OK? I'm not gonna have you present it to the class, but we are going to take your graphs and stuff and stick them out in the hallway so that people can see. So they can see different jobs. You don't have to put your name on the front of it so that you can't be identified but you're gonna put like the job title on the front and we'll go through that as we go along with the project.	
10	11:06.5 - 12:23.7	OK? So, two things you're gonna get today. You're gonna get the project packet, number two you're gonna get worksheet six two. What should be the very first thing I do today? Finish the stuff from yesterday. The page three twenty. If you haven't finished that, that's your number one job today. Finish page three twenty. If you are done with page three twenty then you move on to worksheet six two. And I'll tell you right now worksheet six two has <u>twenty four equations that you have to graph</u>. If I could only fit twelve on a sheet of graph paper, how many sheets of graph paper do I need? Two. So when you grab graph paper for the graphs grab two sheets, OK? Now, the other thing you're going to have to do today that we are still struggling a little bit with is when they tell you to graph, some of the equations today are not going to be in slope-intercept form. We had this problem third hour. And even though I said, you must always get y by itself before you can identify the slope and the *y*-intercept you always have to get it by itself - third hour didn't believe me.	Y

11	12:23.6 - 13:06.4	And then didn't believe Mr. D. Because he tried to tell them the same thing. And said, "Aw, Mr. D., you're lyin', you're wrong." OK? If my equation looks like this, y minus two x equals negative three is that in slope-intercept form? Why not? Why isn't it in slope-intercept form? Because it doesn't say y equals. Like this. It's got to look like y equals something *x* plus or minus something. OK? So I have to get rid of the minus two *x* by adding two *x*s to the other side. OK?	**
12	13:06.3 - 14:09.4	So I'm adding two *x*s to both sides and y equals a positive two *x* minus three. The biggest problem people are coming across is they're looking at this and they're saying oh yeah the number in front of the *x* is the slope so the slope is negative two. The slope's not negative two on this one. The slope is positive two. You can only identify the slope once the *y* is by itself. Don't try to do it before hand. Yes, ma'am. Oh, how did we get this out of this - great question. 'Cause this says negative three and I'm adding these two *x*s to it. Right? That's where the confusion comes. How did I get two *x* minus three out of that? Remember, this sign always goes to the number to its right. Correct? So that means this is a negative three. We're just used to writing the *x*s first. So this set of *x*s here is it a positive or a negative?	
13	14:09.4 - 14:50.2	Positive. So that's why this is still positive. I still have a negative three. So I have a minus three here. Absolutely, and we added two *x*s over here so they're gone and gave me a *y*. And I added two *x*s here. Now are you confused because you think it should say negative three plus two *x*? {Ohhh.} OK. I misunderstood the question. OK, let me fix the answer to my question. She said, wait a second, negative three plus two why won't I add those two together?	| /
14	14:50.1 - 15:13.8	Little louder. 'Cause they're not like terms. That's like saying I have three apples and I'm gonna add two desks to that. What is three apples plus two desks? It's three apples plus two desks. I can't put them together 'cause they're not like things. OK? So that's why this doesn't go together into one single thing, OK.	Y
15	15:12.8 - 15:49.5	I'm sorry I missed your question. I thought you were askin' something else. All right, hang on one second, let me get the papers out. Then I'll help you. <<I told you, I promised, I know.>> All right, so is everybody clear on what they need to do today? So everybody should have something they're working on - either finishing 320 or starting six two. Six two, the worksheet will be due	:)

		tomorrow. By the end of class. OK?	
16	15:49.5 - 17:00.6	?? OK ?? Those are like this thing over here. OK, those are worth two points. OK, now I have to find the slope. So I do *y* ?? two *x* minus *x*?? you did that already. Now I've got to find the *y*-intercept ?? you need the *y*-intercept right? You need that start but I don't know where that starting point is but I do know ?? this point and this point...up here I knew this point. So what I do is I graph those two points here and here and I draw the line so I cross the *y*-axis now I can see what the *y*-intercept is 'cause I see where it's crossing the *y*-axis, it's crossing at one and a half.	| Y
17	17:00.6 - 17:23.3	OK, so that becomes my *b*? The *y*-intercept. So what you're gonna do is you're gonna take your two points that are different than these two, you're gonna graph them on graph paper, draw that line and see where it crosses the *y*-axis. OK, does that help? You're gonna graph these two not those two.	Y :|
18	17:23.3 - 19:32.7	Yeah, all right, that help? OK. Sir? OK and this is gonna… ?? sheet of paper?? tell me what the slope is...always over one…be careful...just like that...number of...wait a minute...yeah the second part of three twenty you gotta do that first...yeah ...so twelve is a relative term? OK just graph those two. E##, put that away. You got stuff to do. What's up? Huh?	:))
19	19:32.7 - 20:33.0	?? five...the slope, I'm gonna use this. This is an example of that type of problem. ...two points, you're trying to find the slope so you need to plug in those values..?? yup....it's always that ?? the one way right now is that I'm going to graph those two points and draw a line...that's gonna be the *y*-intercept....yeah, all right, draw the line, make sure it crosses the *y*-axis, OK?	Y
20	20:32.9 - 21:55.3	Put that away...yup...right, solve that line over there...you got it? Yeah, it should be on my desk. ...No, this is ?? December ninth, , December ninth, you probably could...he could probably tell you all kinds of ??	
21	21:55.3 - 23:11.2	Yeah ?? Oh, I did ?? because what's ?? I didn't notice ?? No.	
22	23:11.2 - 25:01.6	?? Yeah…exactly the way it says, negative one third...?? ?? *y*-intercept is? *y*-intercept.	
23	25:01.6 - 26:09.1	Hmm? Um ??...it would be two over one... Internet's down...I did print out those sheets...that's OK, so if I'm going to write an equation, OK, I need the slope and the *y*-intercept right? So to find the slope between two points is what we did last week. ??	

24	26:09.1 - 26:55.0	Fantastic...there's my slope, right? Unfortunately, to find the *y*-intercept right now we don't have a way to find it, other than to graph those two points out here somewhere and then I connect the dots and wherever it cross the *y*-axis that'll be my *y*-intercept. You have to graph it. Don't graph this, you'll have to graph those two points. OK? That gives you the *y*-intercept. Graph the two points and draw the line and where it crosses that's your y-intercept. OK?	
25	26:55.0 - 27:56.2	OK so this...is this point on that line...so if I take...two times negative two...negative two times negative two...negative six...plus one ?? seven. Now this says my *y* value ?? seven ?? If it equals that ?? OK, so do that with each one. Plug and chug... OK, I don't like paying my taxes and I still have to go ??	|
26	27:56.2 - 29:12.8	Where? Which one?...no, you're finding the slope...you found the slope...graph those two points ?? doin' that part?? where is the point thirty-five? OK, put a dot there...and then this is your other one...connect your dots...now where does that look like…zero...writing the equation...now I got my slope and my *y*-intercept. Yes, ma'am?	|
27	29:12.8 - 30:19.4	?? oh, come on...wait a second, time out, let's go back to number one. Where'd your *x* go? Oh, I see what you did. You said *m* is this and you went to say *b* equals this? It says find the slope, which is *m*, and find the *y*-intercept. I think you're problem is the way you're writin' it down. I think you did the right thing I just think your notation, your writing is just messed up... so *m* means my slope, right, look up here in the equation y equals *m x* plus *b* it's almost like ?? ... is this the slope or the *y*-intercept? So then what's the *b*?	**
28	30:19.4 - 31:27.1	OK, so now as you look at number one, what's the slope? Yup. And what's the *y*-intercept? So you have the right answers. You told me *m* was one over one. You see what we called the *y*-intercept we called *b* value. So you want to say *b* equals two. Don't say plus *b*. Just say *b* equals two. So I'm getting two parts. Sorry. Yeah, so you, you it's just your notation that you're going crazy. Now remember I, I said at the beginning of class it's the *y* by itself...is it, really? How do I get rid of a plus...factor on both sides...so now I've got the *y* by itself, oops, you don't need a calculator for that and can I subtract one three from one third *x*s? Are they like terms? Nope. So all I can do is write it I can't do it.	

29	31:27.1 - 33:10.6	So give me your *y* equals...you can do it up there, down there, I don't care...start with your *x*, negative one ...yup. Now looking at this do what you did up here, so what's the slope? Yeah. So, yeah... now you got it...fine. Yes, sir. OK she's on her way! So where did do you start? Do I start at the slope or do I start at the *y*-intercept? Yup, so go where the *y*-intercept tells me...good...now where do I go? Oops, where's your negative? Where's the negative on what you wrote? Where's the negative? It's on just the one, right? Just the rise. But remember, we said, it can go on the top or it can go on the bottom but not on both. You chose on the top. Let's leave it on the top. Woop. Rise over run. Rise over negative one.	
30	33:10.6 - 34:32.5	That is rise over negative one. Hmm. Now I go positive three. ?? There you go! All right, now play connect the dots. All right? OK. What's up? I got <u>two</u> how many do you need? Perfect! 'Cause you really need to see?? So where does it look like where it's crossing? Yup. So now what's my slope? Yup and...perfect...just like that. You know there are ??	:))
31	34:32.5 - 35:59.5	Rulers!...OK my rulers aren't as cool as all the like Saudi Arabian princes and knights and stuff. ?? Wait a second...crosses the line...yeah, if it's in between where is it...if it's half way?? Yeah, it's probably half way. ?? You got six ?? Five, negative thirteen should be way down here...yeah you went up and over. ?? instead of over and up...you still gettin' this right? You are graphin' them. ??	:)) **
32	35:59.5 - 37:27.6	Did you grab paper? ?? we haven't covered that yet....?? it's due tomorrow....??	:)
33	37:27.6 - 38:34.3	It be like…you missin' me, sign something. ?? there you go.	:) **
34	38:34.3 - 40:01.3	Yeah...?? thirty four?...this morning...??...that would be a good idea. ?? I'm just snoopin'...you're fine, just 'cause a teacher looks at you doesn't mean you're doing something wrong…well, yeah that's true.	** :))
35	40:01.3 - 41:13.7	?? The nice thing is, you just have to...'cause they give you...	
36	41:13.7 - 42:48.6	?? Oh you're saying it's that negative four. ?? thirteen ?? there you go...	
37	42:48.6 - 44:34.3	??...you're not showing me...choose your seat, choose wisely, right now I'm not seeing you chose wisely...?? Wow…yeah, 'cause you weren't here, you two were...that's true...well then I'd have to...now is it easier to move two or four...it's easier to move four...I could move all three of you. Of course then the whole class	:))

		would be mad at you. 'Cause that means they lose their seats someplace. 'Cause there's just not extra seats. Got thirty two chairs and thirty two people.	
38	44:34.3 - 46:21.4	It's not easy to shuffle things...a lot easier than Geometry is...straight As...?? yes, I think??....??...exact same..??..put these??....waters??...so what's that mean?	:) Y :)
39	46:21.4 - 48:46.0	...have your choice...?? I haven't seen it. I haven't watched Saturday Night Live since the good shows in the eighties and early nineties. I, I don't it's just too late. We can leave this door open. What show, "In Living Color", oh yeah, with the Wayan brothers? Yeah, that's…Jim Carey…you done with it, awesome!	
40	48:46.0 - 50:03.5	Why did you change that? Now where is the slope, not the one half...write that down, slope equals this ??...??....looks like...??	:)
41	50:03.5 - 51:27.3	?? you have a hard time drawing ??...actually that's not a bad idea with ??...it's...??...do it that way every time then ??	:))
42	51:27.3 - 52:41.7	...'cause she had a whole bunch down there...?? uh huh, that's a tough test...yes ?? you're going to need two sheets of graph paper.	:)) :))
43	52:41.7 - 53:56.5	?? don't you dare write that down ?? gotta get ??...write...get the *y* by itself...did you get subtracted from the ??...on this side...those cancel out, *y* equals...	
44	53:56.5 - 55:52.3	tell me ??...all right we only got about two minutes left, make sure we get the calculators back on the cabinet...this worksheet's due <u>tomorrow at the end of class</u>. So you have anything else? That is the one, this is the newest one here. Yeah, yeah, this is the latest one this is the earlier one...absolutely, yeah...get your stuff put back up here. Make sure your calculators are up...??	
45	55:52.3 - 56:51.6	?? first day?? ...Guys, by the way, tonight, listen real quick, tonight tutoring is in Mr. B's room. Now that football's done he's in the rotation now. I normally do Thursdays but he took mine 'cause I did Tuesday, so if you're waiting around me, I'll still be here, but he'll be next door.	:))

Observation C3

C3	Timespan	Content	Notes
1	0:00.0 - 2:28.3		
2	2:28.3 - 3:16.8	...the grade thing...it's the second one down...apparently she's not gonna be here today either...	
3	3:16.8 - 3:59.3		
4	3:59.3 - 4:53.3	OK, listen up… Mr. D. has your grade sheets for this week. 'K, remember if there is a Z there that means I haven't seen it yet unless it says, like, need to finish or did not finish or something like that or it might say you need to fix the graph or something along those lines. 'K, so I'm also gonna be handing back the papers that were handed in this week. Remember, get those signed and brought back for your extra credit on Monday. If there is an X there, which some of you may have an X there, because you were gone the day we did the, uh, oh, the, uh, computer thing that we did up on the screen, the graphing calculator. OK, if you have an X don't panic about that, it means it's not counting for you or against you, that's excused. Don't worry about making that up.	Y
5	4:53.2 - 5:12.4	'Cause that's something we did in class together there's not really a good way for you to make that up. OK. Again, I have a couple of papers over there, um, that are, uh, orphaned papers that don't have a name so if you see on your grade sheet that there's a Z and you're like, "Teacher C, I know I turned that in," double-check and make sure you put your name on it.	
6	5:12.5 - 6:00.1	OK. All right, so today we need to finish up worksheet six point two so by the time you leave outta here today get that turned in. OK? Worksheet six point two that's due today. If you're done with absolutely everything you can start working on the project. OK? So you can use the computer and start doin' some research on finding some of those jobs and the amount you make per hour in those. OK? Don't let that project sit until December to start working on it, OK? Start working on it a little bit at a time, you'll be done long before December ninth, OK? Then you don't have to worry about it. You'll be all done. All right? So we got questions on what we need to be doin'?	
7	6:00.0 - 6:17.2	If you have Zs and you're done with worksheet six point two get those Zs turned in. 'Cause right now your grades are not looking so hot for some of you 'cause	

		we're not turning in the assignments. Get those turned in. All right.	
8	6:17.1 - 10:01.0	Change that to odds...just go back and do the evens...yes, sir? Yes, absolutely...I'd be a little scared if he was...yes, ma'am? Yeah.... That new seating chart messes with you...?? OK ?? Oh, from yesterday...finishing something you didn't start. Get two sheets of graph paper...?? Uh huh....yay! That's what we want…don't forget the ones on the back... ??	:)) ** Y
9	10:01.0 - 11:48.5	??...they like to split, you never get them straight and then they split on you ?? Hey...it looks like slime... back in the eighties they used to have the green slime...oh that's worse...now if you mix the two together, it'll look a lot like what my dog does when I let her out in the morning...see? ??	:) | :/
10	11:48.5 - 15:05.7	You know what...?? all the way across...?? Yes, ma'am? OK,..go back to...this...?? what's in front of the *x*...minus *x* what's the slope? Minus *x*…what is it? Minus nine. That's not a nine…yet...um...to an extent...there you go...?? right...?? I came in, ??	| :) :))
11	15:05.7 - 17:24.0	Good? ?? get you caught up? Yup, yup, get 'em fixed...those instructions ??...that looks like??...in, uh, fourth hour, then I know I gotta ??. Yeah they got an orange and a green and they got that color ?? uh huh...all right...?? calculate ?? that point is on that line ...it's not...I get four ?? reduce it. Is that reduced?	Y :) :/ (thumbs up) :| :|
12	17:24.0 - 20:00.0	...pay my taxes…sometime we have to do stuff we don't like to do...OK...*x*...??...the *x* is on.. zero *x*...zero...?? ?? No, no, it's not multiple choice. We used to call those super questions. You remember those days, right? ?? I don't want to...?? What number is that? What number is in front? ?? How many?? How many *x*s?? Zero, how do I make that into a fraction?	 :))
13	19:59.9 - 21:47.3	Oh, she's gonna lose! Uh, huh! Monday through Thursday? There you go. You got witnesses. Wait a second. They're all going to be turned in correctly, right? Finished, not just turned in. Turned in with points. Yup. You got it. Time out. No, that's the slope...*y*-intercept...don't know...so all my equations look like this, right? That's not the number in front. The number in front tells us where to go. ?? your negative six...I understand. That's we, we think these are out...?? Math's a rough sport, get hurt all the time, including pencils ??	:) :))
14	21:47.2 - 23:40.7	?? where's my multiplication...?? Beautiful, you got eight of them....?? Yeah, that'd be a wise choice...	|

		negative six, what'd you tell me the slope was...zero over? So I'm gonna rise how far? From that point...and run ?? zero run ?? So what's that line? Zero slope. ?? *y*-intercept...you have to write down the slope and in this case it's zero and you have to ?? *y*-ntercept ??	
15	23:40.7 - 24:44.7	No. You are such a liar! Yes...?? Use your graph...four ??...OK and you estimated where??...absolutely!	:(
16	24:44.7 - 29:22.6	Here you go ?? You gave me the top ?? That was good, though ?? Oh yeah, you do, now you're mad 'cause.?? Yeah? ?? 'cause right now we're graphing one equation, next year we'll start graphing two equations, they give you? See, is that cool? Yes, why do you act so surprised? That's the *y*-axis ?? slope ?? for this question ?? Where's it go? ?? last week...you know they're ?? ...?? that's what for me, like every six months, it comes out every six months and then ?? in a year...??	:) :))
17	29:22.6 - 32:55.5	...for you...?? and all?? K## ??...?? What's the slope? Not *x* but ?? What's this? Slope equals ?? So, look at what they're telling you ??	:)
18	32:55.5 - 35:18.6	I'm not one. ?? Kids don't think ??	:))
19	35:18.6 - 38:07.5	Oh, that's what I thought you said ?? done ?? yeah he ?? Some of it's pretty cool ?? Seven times is the maximum time you can fold ?? I'll have to see if I can find it. ?? they were questioning if it was a fold 'cause it was like straight up...it was really cool ?? Yup, you can ?? It was a little better...how you doin'?...which one are you on? OK, where did it cross the line? That's what you're missing. Yup. ?? Well, it's due today. Yup. Play connect the dots. ??	:)) Y :)) :))
20	38:05.5 - 40:34.2	Well it wasn't a simple IDK, it wasn't a simple IDK text?? That might be before their time.. They might not have seen the whole movie ?? I don't think I've ever seen it…I've seen like the back parts of it. ??	:)) :) :)
21	40:34.2 - 43:31.9	?? yes...yes...these? ...care for one? ?? first thing, write the equation, in slope-intercept form. So outta that ?? multiplication ?? exactly, so what's my question? Absolutely. OK so you got ?? Yes.??	:) :)
22	43:31.9 - 45:10.0	??	:)
23	45:10.0 - 46:06.0	?? he's got the basics of it...I know, but we gotta get this done, too, right? It's OK to take a little bit of a break but we gotta make sure we get it done. People been takin' a little break for a while, though! Now we gotta get back to workin'. Yeah, we gotta get this done. It's due today and now we're down to like fifteen minutes. Time	** **

		crunch now. Is that a question or stretchin'?	**
24	46:06.0 - 47:36.6	Where does it cross the *y*-axis? What'd you get for ?? one ?? here ?? my rise and run ?? Here, right? ?? three…that part's right ?? be negative three ??	
25	47:36.6 - 49:42.9	?? just makin' sure...you sound like me when I pay my taxes - I don't want to! ?? they're telling you ?? make sure you do both sides of six point one, there's two sides. ?? right here, right? ?? started ?? What's up?...OK 'cause your slope's one...the one she's doing it is. It's not [*sic*], it's not ever gonna be a slope, 'cause it just runs - it only rises if you go (snort)...	:) :)) :)) :))
26	49:42.9 - 51:35.6	?? what do you mean ?? I think you could ask ?? walk in…hand ?? oh yeah...?? Sometimes it's buy one get one free ?? That's good! There, not so much, though. Wait a second. You mean you completed the assignment or you're just done. Don't be lyin' to me again. You stopped ?? The virtual paper, so you wrote with invisible ink. I did my taxes that way once. You know what they did? Put me in jail.	Y Y (hands on hips) (high-fives student) ** Y
27	51:35.6 - 52:01.6	Come on, you can get this done. Yes! Do it. You got ten minutes!	:))
28	52:01.6 - 55:17.3	?? subtract ?? three?? These ?? right? Those *x*s?...so graph ?? That's not right. You know why? You know what this means? ?? conditions…yeah, I know...they shouldn't have? Wait until you get on the highway... then, speed limit is seventy and you're goin' about seventy four ?? People are just crazy that way....that's why ?? gets it?? Oh, you didn't get it?...um ??Let's go...turn 'em all in? Even today? Yeah, that's all. So that means Monday, this thing'll go up...wherever we are…fourth hour. That'll go way up.	:))
29	55:17.2 - 56:07.7	Yeah, I kinda had a feeling you might be. ?? Did they access on Pinnacle? Did they get on there? So I'll probably have them in tonight. So if you pull it up real late tonight or early in the morning. ?? They're not gonna believe it.	Y :))
30	56:07.7 - 57:37.8	?? Don't sit on the table. These legs pop off real easy and I don't want to see you impaled. Good. ?? I pictured you more as a hunter type. So they said ?? I'm sure that's probably where B## is. ??	
31	57:37.8 - 1:01:23.7	?? All right, we got about two and a half minutes left so let's make sure we got the calculators back on the cabinet please. Get your sheets turned in…that ?? See you're ?? You got it all done? See when you actually work on it...in a timely manner, beautiful! All right, next week we're gonna start up the next part. Have a good	Y Y (hands on hips) (high fives student) :)

		weekend!	Y

Appendix D

Observation D1

D1	Timespan	Content	Notes
1	0:00.0 - 2:55.0	Notes. Do you have something for me? I'll turn the heat up for you... (chatter) ?? Hey. What are you doing? You guys have lost your minds. Right here. What are we doing? Besides losing our minds? Open up to lesson three. Get ready, we have our projects, we're gonna to present, we're gonna wait until the end because we need through a little bit of review and finish up what you did not finish on Friday in preparation for your test. Have your notes out beside you and I have a mind trap for you... You did get a book, right? Page one zero eight. (chatter) No. OK, here's the mind trap, no talking...write down the answer. Do not share it with anybody else. Forward I'm heavy, backward I'm not. What am I? Forward I'm heavy backward I'm not. What am I?	(everyone goes silent) |
2	2:54.8 - 5:05.3	Get a piece of candy if you get this one. Everybody has to guess. ?? Everybody has to guess. Forward I'm heavy, backward I'm not. What am I? What, am I giving clues now? A living organism? No. I told you the answer. You just need to write it down what I told you and you've got it. Forward I'm heavy, backward I'm not. Oh, I just quit, throw my pen down, and be done. Everybody has to guess. Listen to what I'm saying. So, forward I'm heavy...backward I'm <u>NOT</u>. What am I? Do you have it? You are on the right track, that's not the right one but keep goin' with the rest of the question. Any other guesses? It's a play on the <u>words</u> that I'm saying. So you have to write down the words that I'm saying and then it should pop out. Forward I'm heavy and then backward I'm <u>not</u>. Still not getting anywhere, E##? Write it down. I'm going to take a short time before we move on. If you write the sentence <u>out</u>, then you have the <u>answer</u> in that sentence. It's in there, you just have to do some rearranging. You have it?	:| :)) :) :)
3	5:05.8 - 5:42.0	It's in there. You just have to do some rearranging, that's your clue. Must be a tough one. Cover it up. That doesn't even make sense. All right, let's move on since, since you don't have the answers. All right.	
4	5:41.9 - 8:09.7	Lesson three. Come on. I'm not gonna tell you. You know I'm not gonna tell you. I can do whatever I want.	:))

		OK, so what we're going to do, we're going to quickly go through this, ‘cause you should have taken notes on it already. This is review over Lessons three and four. On page one zero eight is the age of big business. So what we're going to make a connection with... what's going on today in business to make sense of what was going on back then at the early 1900s. All right, so somebody tell me a big business. ?? What's a big business today? Large. Walmart - that's a big business. Other ones, raise your hand, B##, Microsoft. Next, now we’re on the right track. Apple, good. Best Buy, it's an electronic company, it's still big, so somebody any other ones? You're talking about all the ones you're dealing with. Panasonic, now we're gonna start doing just electric companies, electronic companies any other ones? Sporting goods, so we're talking about all these, how ‘bout athletic companies? Nike, Under Armour, Adidas, all those are big companies and corporations, right? OK they're corporations and they're corporations that sell stocks. So we're going to get on these big corporations, so in lesson three we're going to turn to that first and talk about these people that were involved in the age of big business. What does it take to open a business? Let's go back to the beginning of the school year where we did a review of economics in here. So what was some of the, what does it take to open up a big business? What do you have to have? Three things. It's one of your vocab terms so it should be easy. A##, what is it? What does it take to open up a business? Land, labor, and…V##, what's the other one? Capital. So land, labor, and capital. So you need a building, you need the resources, you need all that, you need the people to work, you need the money to open the business, and you need money in order to run the business. All those different things.	Y
5	8:09.6 - 9:55.8	OK, what do you call me if I'm a person that opens up a business? C##. Entrepreneur. OK, what if I, this is something you have to have prior knowledge on, what, what type of business is it in which I own and operate it run it by myself. Like, I am one of these ‘cause I on the side I do aluminum side, vinyl siding soffit fascia windows, I do that on the side. I have my own company, it's called W## Rentals and Repairs. OK, so I do that. So what is it called? I am an entrepreneur, but what is it when I own and operate it by myself? This is something we haven't discussed. It's two words. First	

		starts with an “s.” Sole it's a tough one, this isn't... no...sole proprietorship. That's me. What happens if I have several people that work with me together like you guys just you worked and did your, uh, your brochures that you did we're going to present some those today and you did your brochures with a small group of people. What do you call that? A business that's run by a small group of people. It's not the big one and it's run by a board and it has several, you know, in many cases thousands of people working for them. What do you call that where you work with one other person? What do you call that? G##, what is it? What is it when you and D## work together? Yeah, what do you call a team of two people? Partner. OK, so what is it when you have a business? ?? Partnership. You guys afraid to talk? So you have a partnership. That's it. OK, and then what's the big one with a large number of people running and operating this big thing? B##? Corporation.	\
6	9:55.7 - 12:23.7	OK, so this is what we're going to talk about here and how these things work. What's the difference between a sole proprietorship and a partnership in that of a corporation? A corporation, you can do what? J##, what can you do in a corporation? Well look at your notes or look in your book…there where it says corporation. Many owners, but what can you do in a corporation compared to what you can do in a sole proprietorship? You get big. How do you get big? You can, but you can't just go, poof, I'm big. Right, Apple didn't start like it is right now, did it? Right, it started really small as a partnership not as a corporation but it expanded as it got bigger but a corporation you can buy what... stocks. So how does all that work? ??, how does stocks work? (student answers) OK, what kind of athletic gear do you think I like the most? Here, take a guess. Under Armour ‘cause you're thinking that's clear? Under Armour, so do you think I support Under Armour and their business growing? How many of you own something Under Armour right now? OK, but you own, you own something of Under Armour so you've helped the stock grow. All right, so let's look up here, I have a little, uh, just a little line graph in here and this represents Under Armour, I'm going to show you this. A friend of mine is a stock broker in V##, the guy I graduated high school with, and, uh, he's been a stock broker for many years now. His dad is a stock	\ \ :)

		broker, it's him and his dad work together doing this and, back in like 2002, I called him and said, “Send me some different stock prices. Send me, you know, something that's new that you think is going to go up and send me a stock of something that's been strong for a really long time.” So he sent me a variety of but, he pointed out two completely different ones. One is General Electric which is one of the oldest stocks that exists and then that was strong and it kinda stayed consistent at that price for a long time. Then he sent me the Under Armour stock and so the stock difference, the price for General Electric, was, like, ninety something dollars a stock. Under Armour was fourteen dollars a stock at the time.	
7	12:23.7 - 13:14.8	So we're going way back to 2002. Back in 2002, I'm going to say that the Under Armour stock was right here on this line. Right here. All right, that's Under Armour on this line here. OK, but as the years have gone Under Armour has went up so I'm going to say in 2002 it was 14 dollars ‘cause that's what is was, I remember. And so, he said, invest in it. I didn't listen to him. Probably should have, but regardless. And he's a stock broker, right. It went up. And can you see how high it went up? Over the years. And like, right now, it's in its low forties right now. OK, so we're going to say now, in 2013 that it's forty four dollars. Per stock. OK?	\ Y
8	13:14.8 - 15:27.6	OK and that's me buying into the company. So how much did it go up between 2002 and 2013? That one stock? What is it? Thirty dollars. So, had I invested back then and stayed with it, didn't sell it until this time period, I would have made thirty dollars on that one stock. Is that pretty good? Yeah. How many people just usually buy one stock, though? Not many. If you're involved in buying and selling stock, you're not usually doing one at a time. Can't make any money. OK, so how much money would I have made if I bought a thousand stocks of Under Armour in 2002? How much would it have cost me? It was fourteen dollars it's you can use your pencil and paper and I bought a thousand of them. That's fourteen thousand and if I bought a thousand of them how much did that cost me? Yell it out when you have it. A##, how much? If you're not writing down on that paper, I'm calling on you…L##, what'd you get? Three hundred thousand? What? Yeah, that's way over. Over by one zero. No, one zero. Not two zeroes. Well, let's go back	\

		and look at this. If I bought a thousand of these? What's a thousand times fourteen? Fourteen thousand. So it would've cost me fourteen thousand, one more zero, right? But I would have made, I would have sold it for how much? Forty four thousand? So what am I doing, I'm just adding a zero here. So how much would I have made? Thirty thousand - does that look better? OK, so that's what people do. So what does me buying stock do for the company?	
9	15:27.5 - 16:53.4	How does that help the company? How does it help 'em? I buy their stock, how does that help them? Give them more money to do what? To do what? Under Armour started this little Under Armour right? Right, it's the Under Armour I have an Under Armour shirt underneath here which is an undershirt. Right? It's so it's just an elastic shirt that keeps you warm or keeps you cool that's the intention of it in the beginning. Think about the name in general OK now look at where we're at with Under Armour. Everything. I mean it doesn't matter if you're a hunter or you're, I mean, it doesn't matter who you are, they have Under Armour something for you these days. It didn't get that way from people not investing, it got that way because people put their money in the company, the company grew and expanded 'cause they had more money to work with and it got to where it is now at the top of the athletic gear. OK, so the money that I made here is called what. This is where you need to refer to your book and see what you remember. What is it referred to as? Uh, what? A bond, not what is the difference from what I paid for it and what I sold it for as it happens in this case thirty thousand dollars. What is this difference known as? K##? The dividend. OK, so that's in your book as well. So the dividend is the money I made on the stocks that I bought there is the dividend.	\
10	16:53.4 - 18:37.7	Many of may have heard of it as a profit. It is a profit but in regards to stocks buying and selling it's the dividend that you make. All right, so understand that in the early 1900s when these companies like Nelson Rockefeller and Carnegie are selling stocks they're building up and then they can grow and then they can take advantage as we're gonna see in these other ones. OK. All right, now let's talk about that. The growth of oil and steel. Oil and steel was HUGE back in the 1900s because of what we were making right? Right, what, what pushed the steel industry to make it where it	

		was? Railroads and what else? Railroads, very important we understand how much steel we needed in order to run across the whole United States with all these railroads that they put in the 1800s. And what else? Guys, we're in the industrial period here, we're going into that right now, we haven't talked much about it yet but what is industrialization? You guys did inventions. Where did they make those inventions? Where at? Not a location of where yours was made or any that you came up with but where did they make these things? V##?...where do they make stuff today? Factories, right? So they make these things in factories. Well, what do they need in factories? Machines and materials and a lot of the materials they used came from steel and then oil became popular as well as that 'cause the United States was a large producer back then of oil because it had not been discovered or as seen as important, ah, yet at this time.	
11	18:37.6 - 19:57.0	But these two people here had a lot of power. They were referred to as, ah, philanthropists. They were millionaires which would be equivalent to billionaires today. They were the wealthiest people in the world at the time so they had a lot power. What is a philanthropist? Like Bill Gates is a philanthropist. He has the Gates Foundation. You guys heard of the Gates Foundation? And what's the Gates Foundation do? D'you say, E##? You're just a mumbler today! What? It's yeah, like a charity that they provide money for millions and millions of dollars and they donate to help out other people like children. You know, like provide computers and stuff and so they give a lot of grants to different things and education in a lot of places. Well, these people did the same thing back then, they had so much money they could send it out and, and provide it with other people. OK, so that's the good side of them. Now the business side of them said, "I wanna make more money." 'Cause can you ever be satisfied with making the same amount of money? Like they can give me a raise this year but I want another one next year. And then I want another one the next year and I'm not satisfied if I don't get one every year.	:) Y
12	19:57.0 - 20:37.2	So, usually I'm not satisfied, right? So what's that mean? But now you got an F, how's that? Ha, that would make me a good teacher right away. So what does that mean? Obviously, I'm not getting a raise every year, right, but in these cases we're talking about	:) :))

		people that get together with, like, Rockefeller and they have control of the market. OK, what do you call those people that get together, agree to charge high or low prices in order to run people out of business in order to control the market in a product...like steel or oil or whatever it happens to be.	
13	20:37.1 - 23:27.1	D##. You look like you're having a good daydream, tell me about it. Not the daydream. Tell me about the...exactly...I'll just stand right next to you. What is it where people get together...get on the right page...businesses do, large ones get together and agree...that they're going to work together to benefit their companies and not compete against each other. But become one, unify themselves. What's that called? D## ...trust...finally found it? Yeah, it's a trust. Now listen, in a trust they, they benefit themselves. Trusts are illegal today overall. OK. But what it is, is where you have, let's say, there's a few people that are the leading producers of steel but there's a lot of other smaller people that do it. The people at the top get together and they agree to charge low prices to the point to where the people who are at the bottom can't compete anymore. So what happens to the people at the bottom? Yeah, they get bought up by the big guys, right, and then what happens to the prices of whatever that product happens to be? It goes back up, right? So we see that happen. It's happened in the world from the 1970s there was this thing that was created to control the price of oil and anyone know from prior knowledge what that was back then? To where you have a lot of Middle Eastern and South American countries that got together and decided that we're not going to compete against each other to supply oil to all the countries around the world, we're going to unify instead of market price for oil and therefore we will all be rich. You remember but you can't tell... You know what it starts with? Starts with an "o." Only two other people got it earlier today. OPEC. You heard of OPEC? We haven't talked about it yet. We will when we get to the 1970s and still occur today. OPEC is the oil-producing exporting countries, they got together and said we're going to charge a certain amount for oil and to control the, the market price. Now has that had a huge impact on our oil prices? Yeah, since the 1970s we've had a huge issue with that and where people were lined up for miles and miles to get gasoline because it was limited	\ \ \

		and you could only get so many gallons and all that. Now, I wasn't there other than I was born and that was it so I don't remember it. Uh, but, it was like that, all right?	
14	23:27.1 - 25:20.9	Now what were they doing in order to control these trusts? What was passed in order to say that no we're not doing this, trusts are illegal? 'Cause you gotta understand it's taking advantage of consumers right in the end. OK, you pay a lower price at the beginning but at the end it was all you'd be paying a lot. So, ??, what do you, what do you think that the government did? Well, take a guess. What do you think the government did because these big corporations were taking advantage of the consumers. H##, I said just take a guess. You never know. D##, what you have? Monopolies are illegal, right? Except. A monopoly is different than a trust. A monopoly is one individual business or corporation that has a control of the market. And if, like, only one company produced automobiles and that's it. Then they could charge whatever they wanted...if you wanted an automobile. And so monopoly is <u>illegal except</u> in your, ah, electric, your gas, and the postal service, those things are legal monopolies. Why can, why can you not have competition between electric companies in D##? Why can't we get A## and have to have D## Electric and M## Energy, why can't we pick whatever electric company in the world wants to provide it to us? ...What? Well, there isn't, but that's a legal monopoly, they're allowed to, they are regulated by the government, but why can they not provide, you know, three different types of electric services in the city of D##? What would it look like in D## if they had three different companies running wires?	\
15	25:20.9 - 26:42.7	And electrical service in that? It'd be a mess, wouldn't it? OK, OK, so that's a reason why can, why can, I mean, why is the postal service allowed to operate like it does? I mean, they provide nobody else can bring our mail to us, can they? No, just the United States Postal Service does. Now what do they charge you? What do they charge you to bring mail to you? So when they bring your mail how much money do you give them? So how much do they charge you? <u>Nothing</u>? OK, do we pay for that though? How? Taxes, but it's also paid for if you send stuff which is limited to none. <u>All right</u>, let's move on. Anyway, what did they pass at the end of	

		lesson three on page one twelve? Last little thing here. They passed the Sherman Anti-Trust Act. In 1890 which said that trusts are illegal. Oh, and then the presidents after that, your Roosevelt, your Taft, your Wilson, ah, the three presidents became known as the trust-busting presidents. And they broke up those trusts and say they couldn't do that. Did the best that they could and then in many cases they regulated, controlled them so they did not take advantage of the consumer. Got it?	
16	26:42.6 - 28:14.0	All right, now we get to what it was like to work during this time period in the factories. In there, so what was life like, ah, during industrialization in a factory? Yes, hard. I would I want a specific example here, D##, what was it like in a factory? Dirty, good, that's one. What else? T##, what else? What? Sweaty. What do you mean by "sweaty?" You're right when you say you know when you're sweaty because it's what? It's hot or...it's not hot, it's cold, depending on the time of the year OK, and how many hours are you working? Twelve hours. How many days? Seven days. And how much are you making? Low wages, OK so those things existed like that in the United States back then. How about today? Is it like that today in the US? No. Is it like that anywhere else? Yes. OK and they refer to those places as what? What are they, K##? I heard your voice. Sweatshops. I'm just showing you some examples of some sweatshops that exist today. OK, I'm going to show you some pictures of what it looked like then compared to what it looks like now. Usually the difference is black and white compared to color.	/
17	28:14.0 - 30:28.9	All right, of the sweatshops that you have like this, there's a couple of them in here I'll show you. These right here sweatshops and what was huge industry back then which it still is today is the garment industry. The textile. Right, your clothing. As we know, look at your clothing, we've done this before, look at your clothing, where was it made? Check it real quick. Somebody check the back of your tag, the person behind you, check it. To see where was it, where was it made? (chatter) Check that, check that Adidas and see where it was made. C##, check this. Check that Nike. All right what do we have? El Salvador. Cambodia. Guatemala. Vietnam, what else? What other ones? Australia?! That's a unique one. What are some other ones, any other ones? Indonesia's a very popular one.	:)

		Bangladesh is a popular one, Taiwan, China those are our leading sales in regards to the garments and where things are made. B##. Mexico. Lot of T-shirts are made in Mexico. The ones that you can see through. OK, the ones they sell at football games you know it's like when I bought went tailgaited at N## D## football game went to the game and the... what do you mean, we won...and the...anyway, shh, listen, and they sold me a shirt, but it was cheap you don't realize when you're buying it but it was cheap and now it wrinkles really bad, you might as well not even wear it but, OK, when I've taken like three trips to Mexico with students and you go there and you get T-shirts for literally two dollars all the time but when I say see-through they are see-through and they not…the ones they're selling like that you know are you know two dollars but they're cheap. Now, here let's talk about this, these working conditions were bad, so what are we going to do about these working conditions?	:|
18	30:28.9 - 31:56.9	What do you want to do? If you worked in here, what would you want to happen? Raise your hand. What would you like to see different? Yeah - so you'd want the air to be cleaned up. OK, good. What else would you like? Air conditioning. Good. Me too, there's no air conditioning here. More money, what else? Safer working, so all these different things you're asking for is not too much is it? But are you gonna literally go ask yourself for that they're gonna go, yeah, here you go? So who's representing you in trying to get these different things? What's the organization that represents the workers to get these different benefits? Good. It's good to see you're awake, ??, you're answering here. Good, labor unions. And now labor union represents all of the workers there so labor unions are gonna start to come on to the rise at this point to try to get these, you know, what we see as common sense things, today. But as we know these things exist still to this day. Where there's a lot of disaster that takes place. And in 1903 there's this fire in San Francisco that killed over a hundred garment workers. During this time period.	\ :)
19	31:56.8 - 34:18.8	OK, last year we were doing a bargaining, collective bargaining exercise which we may do in here, uh, with, you know, with that saying, you know, the workers first and the, uh, managers trying to work out an agreement between each other. Right. That same time period	

		when we're doing this exercise in class in Bangladesh there was a garment factory that caught on fire, and you know several it was close to, uh, about a hundred people died in that fire many of them jumped out of the window to their death, this happened just last year. So it, those conditions still exist in other parts of the world here. So they don't have the labor unions like what we have there. So how would it work when a labor union and the owners get together and they try to work out an agreement. What's that known as? When they, so if I'm a union, and I'm gonna give you an example of how it works - collective bargaining – OK, see I'm on the bargaining team for the teachers in the D## Education Association so we bargain, recently like every year. And so this past year we just bargained and we ended in, uh, the end of June. And so that's a little late, it's getting close to the school year here to come out with an agreement so there were me and five like other people and then there was the administration, superintendent, assistant superintendent, the business manager, you know, the human resource manager, and a school board member on the other side that negotiated what was going to happen. What do you think that the teachers wanted? The number one thing? More money. Does that make sense? OK. Obviously because the cost of living goes up you would like a cost of living raise. Do you think we got what we asked for? Do you think they got what they asked for? No. They wanted us to take a pay cut. We wanted a raise. Well, that doesn't go together, does it? Hey, the end result was what we went in and asked for really was what we asked for at the very beginning but it took us six months to get to that point. 'Cause it went back and forth, back and forth, continuously. And then 'til we could be creative enough to come up with an agreement and with which we were all satisfied with. Not satisfied with, we were all unhappy with. That's how it should end up with in bargaining. So that's what you see happening as time goes on with these different, uh, with collective bargaining.	:)
20	34:18.7 - 36:03.0	Anyway, all right. Let's see what else there. What did they, what happens if, you know, we are not satisfied, we cannot come up with an agreement, the labor unions and the business owners <u>cannot</u> come up with agreement, what option do we have as workers? <u>Strike</u>. Can, can we strike, teachers? You can but then you can	

		get fired if you strike. And so why do you think they make it illegal for teachers to strike? They, sure they have striked in the past and just recently, I mean, not too long different people and, like, in the big cities what happens, are you going to fire every teacher? What happens if all the teachers in D## Schools go on strike? Like, tomorrow - you wouldn't have school - yay! - no, if go on strike that means you have to transfer to another school or you have to wait another year to sit in your school and you don't want that OK,…a strike breaker - are they just going to bring in a bunch of subs? Are there enough subs to cover our school district? There's not enough subs to cover us now when people call in sick. And so there's nowhere they're going to be able to do that. OK, anything of national interest you're going to not allow to strike with the Taft-Hartley Act- now listen to this, like, if you work for the airlines you're not allowed to strike, if you work for the, uh, railroad companies you're not allowed to strike 'cause that has a huge impact on the national interest. Imagine, and they have done this before and Ronald Reagan fired them where the airlines went on strike. So they went on strike in the 1980s and then he called them back to work. Imagine the president calling you back to work saying you have to come back to work or you're going to be fired. It would be it would be interesting.	\ (air traffic controllers?)
21	36:02.9 - 37:49.8	All right, so they had the strike breakers that came in and tried to break up the strikes and that caused a lot of conflict, a lot of fighting riots that took place as a result of that. So strikes are never, never good. OK, so what we're doing as we go on to Chapter Five is we're gonna expand into, uh, industrialization and how these changes then impact the future of the industry and then the working conditions we're going to talk about some other things which, uh, are in more detail than are in this chapter. <<So your homework is to study over Chapter, uh, Chapter Four you have your test I told you, you can use notes and this is the only time you're going to be able to use them 'cause I didn't make you do the outlines.>> All right now you can have anything in there except what? Vocab. You have the vocab and definitions you can't use anything you need to know those when you go in there. ... The, yes, just the...just the yeah anything that has yellow highlight over it you cannot have in your notes to use. All right, so I'm giving you the last bit of class right now 'cause we don't	

		have enough time to start the uh presentations we'll do those after the test tomorrow. All right, but what I want you to do right now is I want you to check your notes, I want you to see what you have and then add to it 'cause based on what some of you did not do today you're not good for tomorrow. At all. All right 'cause I saw some of you with nothing to use on your test in there and then you're going to have an understanding and like we talked about on Thursday and doin' the vocab obviously you need me to make you do outlines don't you? (students nod) And I'm so bad but you know they're necessary. Thanks, E##. Any questions? All right, on your own now.	
22	37:49.7 - 43:34.8	(chatter) Hey, hey, anyway, we have a new student, K##, so make him welcome in our class. Say, "Hi" right now. K##, did I say that right? K##? (chatter) Hey, check your notes. Listen. I'll come around if you have a question on is that allowed, not allowed. If you have a question, let me see. (chatter) Let's go. Good questions. (chatter) ?? Word, that's all...the only thing that I do not want to see in your notes is the <u>word</u> and then the <u>definition</u> with it. That's it. That's the only thing that <u>cannot</u> be in your notes if you use them. Other than that, everything else is fair game in that whole test. (chatter) No, that cannot. (chatter) E##, show me all your notes in your planner. (chatter) I still want you to look at that even though you're not going to take the test…to have you look at the chapter and so open up (chatter) ??(chatter) ??notes?? (rustling papers) ?? (quiet work, whispers) H##. ?? come here. (whisper) ??	Y :)
23	43:34.8 - 45:55.3	G##, go up to the board. G##. Take your book, OK. .. but I can tell you what to do. Pick a word, G##, for the ??pick one we did in lesson three and four. .....All right, put your books away…(rustle, drop) all right, no talking, very quiet, all right, so you can start, start on that side, D##, you three rows to ?? over here. Start with D##. ...guess, T##?... A##? …yes, no, E##, you don't get to guess more letters. You can guess the word. OK. Now you have to tell us what it is.	\
24	45:55.3 - 50:41.4	So, what's a labor union, though? Who gets together? Workers get together and do what? ...and what else? ..better pay...better, <u>good</u>, good job! Next...come out, E## ... here, come pick a word...over here...all right...??...hey...you...E##, over here...good...??...yes... next....good...C##...guess...no L## ...L##, you can guess	:)

		the word...OK...A##...A##, no one can hear you...grow up...E##...E## what is it? You don't know the definition you don't want to tell the word...next...A## ...we just did a whole ten minute little presentation on a line graph to show you what this mer…, word meant that was the whole purpose of that...one word...go ahead...what's the word...all right...you guys don't get to, it's over here...keep going, yes, you're right there...the money you make on the stock, I'll take the profit there. All right, listen up.	\ :)
25	50:41.3 - 54:36.8	You need to study over this stuff, some of you are not ready. All right, ?? All right, you guys can talk quietly. (chatter) J##... (chatter) ?? (chatter) Listen, sh...I'll give it to you if you're quiet... I said forward I'm heavy, backward I'm not. Backward, I'm <u>NOT</u>... ?? (chatter) (bell)	:) :) :) (some kids figure out TON)

Observation D2

D2	Timespan	Content	Notes
1	0:00.0 - 0:55.5		
2	0:55.5 - 1:41.5	Hey...G##?	
3	1:41.5 - 2:41.1	You should...OK, pass your assignment in have another sheet out for current events. C##, you can come on up. C##'s gonna do the current events today. There's notes already up there...?? All right, C##, ready? OK, you guys, get ready.	|
4	2:41.1 - 12:39.8	I start ?? (news running)	:| :| :|
5	12:39.7 - 14:52.0	(Student asks questions related to the news.)	:|
6	14:52.0 - 15:56.9	Anything else? OK, so what's the issue with Obamacare? Based on what they were talking about here…people don't like it? Do we know that? Based on perception that people have not signed up in the numbers they expected, we're not we're at like ten percent right now. Of their expectations. So what do you think Obama's thinking right now? Anyone, what do you think? I mean, isn't this one of the reasons in which the government was shut down for a long period of time and when this issue with what are we going to do with Obamacare trying the Republicans trying to get them to change and bring that back and now it's been given an opportunity, what's gonna happen when this temporary solution of the government shut down is over? Where are we going next? Are they going to come back and go, "See I told you it didn't work?" But is that enough time to determine if it's going to be successful or not?	:|
7	15:56.8 - 15:59.9	No, so it's gonna take a while. So what's the purpose of Obamacare?	
8	15:59.9 - 16:37.9	That's good, that's one thing. What else is supposed to happen if everybody gets health insurance? What do you guys think? (2 sec) Everybody which is Obamacare is putting pressure on the people, you know, a certain fee for the first year if you don't have it, second year, third year if you don't get to the marketplace and pick insurance you're gonna be	:|

		penalized. In four years. Financially penalized. So why, what's the benefit of everybody being insured?	
9	16:37.9 - 17:16.4	Could be. Why do people not go to the doctor? They don't have insurance. So won't people be healthier? OK. In the end, won't that save money in the end? 'Cause usually people wait 'til it's too late, they don't go in for the preventive care like your one year physical, like I have a physical, I'm leavin' sixth hour, I'm going to have my one physical right now. Why am I gonna to do that? To make sure everything's good, my blood work is good. What if I didn't have insurance and had to pay a couple hundred bucks for that? I wouldn't go every year. I might go every five years and during that time, all of the sudden, now I'm in poor shape and it costs more money to get me back to better health.	/
10	17:16.3 - 17:54.4	OK, but also, the more people that are insured will drive down the price of insurance. Isn't that the goal? Insurance costs too much money? Yeah, it does. It does cost too much money. You'll know. But remember Obamacare and the marketplace is not open to who? I already talked about it using myself as an example. Who's it not open to? Seeing as that I used myself as an example. Might not say teachers. If your place of employment offers you health insurance then you have to use it.	
11	17:54.3 - 18:32.8	I can't go there and get a cheaper, lower insurance, which I would love to do. If I could get an insurance that is equal in coverage but cost me half the amount of money, wouldn't I jump on that? Yes, but that option is not there. All right, so we'll see if I keep track of this and we're gonna see this throughout the school year 'cause it's gonna to continue to be an issue and continue to pop up and I know Obama's probably sweatin' a bit seein' it, wanting it to move quicker and you know he already had admitted you know at the beginning that the website was not moving like it was supposed to be moving. But we know technology has that problem, all right.	Y \
12	18:32.8 - 19:01.0	Blank sheet of paper that you have there in front of you. Here's the question we're answering right now, but I want you before you answer to listen to me what I'm asking. All right, our next essential question is why do people move? I'm not asking for the general movement of the body this I'm asking for the movement of migration as well as immigration. All	/ Y

		right that's what I'm asking for. OK, you guys got that?	
13	19:01.0 - 19:34.9	Get your paper. E##, have a seat and stay there. OK, now here's how you're gonna do it, you're gonna answer this with four complete sentences. First two sentences you're gonna explain the push factor in regard to why people move on, the next two sentences you're gonna use it using the pull factor. OK, if you did your outline, you should understand or have a better understanding of what the difference between push and pull in regard to movement of people is.	:|
14	19:34.8 - 20:10.8	So I'm gonna give you a really easy, generic example of push versus pull. OK, so why do people move? OK, the push movement here is that let's say that this room is on fire - what am I gonna do? I'm leaving. I'm leaving because, something not good is happening here, right? That's the push factor. I'm leaving, there's a reason why I'm leaving, that's the push. Now the pull factor is there's a box of doughnuts out there and I'm going to get them. Right? How many of you like doughnuts? Everybody, OK so would that motivate you to go outside in the hallway and get a doughnut?	:)
15	20:10.7 - 21:39.1	Yes. OK, do you understand the difference between push and leaving compared to pull and the reason why I'm coming? Two different things. OK so you gotta be very careful when you're explaining this of the why people move in here. All right, so I want you to write that paragraph. After the paragraph is written, I want you to underline the push factors like the simple, small little word or words that are here. And I want you to circle the pull factors. Everybody clear? When you're finished, raise your hand I'm gonna come by, I'm gonna check your circles and your underlines to see what you have there and then after that you can continue our move into lesson two of chapter five and those of you who did not turn it in you need to finish lesson one to get your point. OK, some of you got your outlines back and had something less than a checkmark or out of ten. And meaning you had a 6, 7, 8, 9, the reason being because now we're getting lazy. All of the sudden, now we're just writing the first sentence or summarizing the first sentence on the paragraph instead of the rest behind it. We're gettin' there, so go back there and look at what you're missing out of it now, some of you had some good outlines, OK, and if you did not have ten or a checkmark that	

		meant you were missing some things or too many things missing. Any question on what the paragraphs are supposed to be? All right, get that done. Raise your hand, I'll come around.	
16	21:39.0 - 23:22.0	Hmm? Do you have pencil? Yes...?? here now...??You may reference your outlines. If you have your information in there it should make it relatively easy.	| :)
17	23:22.0 - 26:01.6	?? Let's see what you have...??	(standing, sitting, standing in this time frame)
18	26:01.6 - 27:10.3	??	:/ :)
19	27:10.2 - 28:25.9	?? OK...let me clarify, you're only going to circle or underline the key factor like the word, small, like words, couple different words, not all of everything 'cause I'm seein' a couple of you guys circling like the whole paragraph...??	:| :) :| Y
20	28:25.9 - 30:01.2	??	:| :| (shaking head)
21	30:01.2 - 31:05.0	Good...tell me...tell me the...??	
22	31:04.9 - 33:29.8	??	:| (walks out into hall)
23	33:29.8 - 34:45.1	??...you just gotta ?? And once I've checked yours go on to lesson two and when everyone's finished we're going to discuss some of these...good...	(walks back in) :)
24	34:45.1 - 36:23.5	??	
25	36:23.5 - 36:54.3	??	
26	36:54.2 - 37:45.4	All right, heads up here, have your paragraph with you. Let's go, ??. OK, the push factors, the underlined ones that you looked at so look at your underlined words and so when I ask you to tell me the push factors that's all I want you to do is tell me the word or words that you have underlined that's it. The push is why did why did people move I mean the leaving part why did they leave where they're at? B##, give me one. Natural disasters. What did we see on the current event today?	Y

		The typhoon right? So are all those people gonna stay there? No many cases many cases people will leave and that's a national disasters happen all over the world that causes people to have to leave because it devastates all of their natural resources. They have nothing there left.	
27	37:45.4 - 38:41.3	N##? Economic hardships. Economic hardships like what? Loss of a job. That's a push factor. If I'm here and I lost my job there's nothing here for me what am I gonna do? I gotta go there. I gotta go there and find something better or what do I do here? Well, there's, there's nothing there. Yeah, I'm in trouble right? I starve or I'm unable to feed my family, clothes all of those things that happen. All right, what else do we have for push factors there? V##. Overpopulation. Good. Too many people, not enough resources. Laws. OK, the government there, you can continue to go on and on with specific kinds of laws and disagreements and we think back, like, you guys had American History last year what were many of the reasons that people left and came to the Americas?	\
28	38:41.3 - 39:16.4	Freedom of religion, that's another area and that's not usually the case these days, it's not that big of an issue as it was back then but there still are those countries that, um, that are very stern on religious practices. C##, why are they coming? In your mind, why are you thinking, why are they coming here? Where are they coming to? America. Do most people that leave their country percentagewise coming to America? Yeah, in our history more people come here than in in any other nation, they immigrate here. So why do they come to America?	
29	39:16.3 - 40:17.8	H##? Better opportunities. Like? Like, jobs, didn't we say people leave because they lost their job? And to find new jobs, so are jobs push and pull? Yes, so you're gonna see these things overlap. Next, D## ??, you had a pile of them. So give me another example of a pull, why are people here? OK, so let's go to the pull, that's a push, you just said. So, how about why people are coming to, like, in this case America or to another country? And we can see the situation that's happened in the last seven, eight years here in D##. People have left D## and went somewhere else, right? It wasn't that D##'s a horrible place to live but job opportunities weren't here. Am I right? So they went to other places so we can see this happening in our	

		community, too.	
30	40:17.8 - 40:52.0	Then, in other cases, you have people who have left other places that are worse than D## and come here. You know, it just depends on their abilities, what they can or cannot do. But what's another pull that would get people to come to one area? T##? Better pay. How about a promotion? OK, more money will get somebody to move different places around the United States, even the world. OK? And that happens all the time. People move because of promotions and better opportunities, more money, that's what you need to survive.	
31	40:51.9 - 42:00.0	What are some other reasons that you might go somewhere? Family, that's a good one. How many of you have moved where family is or family has moved to where you are, raise your hand. OK, see, I mean that's a <u>big</u> one right there. I remember I, I grew up in V## but I was born in N##. OK, so when I was five my parents moved to V## they just moved there randomly they just said hey we're gonna go to V##. No, my uncle moved to V## because he got a job transfer from N## to H##, V## and then they were hiring down there and there weren't many jobs so my dad said, "OK, I'm goin'." So we go to V## and we live there and I graduate from high school. So, I mean, that's why we moved to that location - my family was there and a guarantee of a job, so there's several different reasons. OK, so what we need to focus as we're going through this chapter is truly why do people move? Why are people leaving their countries around the world and why are they coming to the United States of America. 'Cause that's where industrialization has a huge impact with this urbanization, all these people coming in huge population increase in the United States so I want you to pay attention to that as we're going through it OK?	Y
32	41:59.9 - 42:29.3	'Cause that's gonna be the question there. You're gonna have to explain to me the push and pull factors, why people have moved, specifically, to the United States of America, not just in general like I just asked you. It's gonna have to be more specific, more specific once we get more into the content. Any questions on what you're supposed to do? All right, work on lesson two, it's not homework as long as you're working on it. Tomorrow we'll finish it up. Some of you, I know, will be gone tomorrow hunting, so raise your hand if	

		you're going to be gone hunting tomorrow.	
33	42:29.2 - 42:46.2	One, two, three…five of 'em- good luck on the hunting. But your assignment for Monday is lesson two and then you're good to go. I have a mind trap that I will share with you at the end of class, end of the day, once I see you working.	
34	42:46.2 - 45:14.2	Did you get it done? Yes..yeah, that's fine... tomorrow ??... reading…make sure...?? you're, you're late...on the next one.	
35	45:15.0 - 48:21.2	??	(yawn) :|
36	48:21.2 - 50:10.4	??	
37	50:10.4 - 51:16.4	All right, here's the question. I'm going to give candy away for this one. This is not near as hard as yesterday's so I should have several more answers for this. OK...in...Oakmobe, Oklahoma you cannot take a picture of a man with a wooden leg. In Oakmobe, Oklahoma you cannot take a picture of a man with a wooden leg. Why not? Write down an answer. So in Oakmobe, it's a city in Oklahoma, you cannot take a picture of a man with a wooden leg. Raise your hand when you have a guess. You have a guess. He said it's illegal. That's not the answer there.	\ :| :)
38	51:16.4 - 52:06.5	No. 'Cause you can never see them. No. Listen to the question. I mean you have to break it down. In D##, M##, you cannot take a picture of a man with a wooden leg. Ahhh. No. It's a good guess. She said, "They don't make wooden legs anymore." No. He said, "'Cause no one has a wooden leg." Listen to what I said, you cannot, forget the city, you cannot take a picture of a man, with a wooden leg. Get that nice pause?	:))
39	52:06.5 - 53:07.6	Here they go, here they go, I hope. Got one right. Are you just trickin' me, you got it? What do you take a, a picture with? What do you take a picture with? A camera not with a wooden leg. You can't take a picture of a man, that would be me, with a wooden leg. I need a camera.	** :)
40	53:07.5 - 55:05.5	Good luck hunting, guys. Bring me pics and not just of somebody else's deer. (PA announcements) Did you get going ?? ... C##, B##'s putting you in a bad spot just so you know. He said he's putting you in a real bad spot where no deer have ever been seen, where the wind is against you no matter where you sit. No he didn't.	:)

Observation D3

D3	Timespan	Content	Notes
1	0:00.0 - 0:39.0	Those of you that were absent, I need your lesson one on my desk. Everybody else, open up to lesson one and two. Your paper. No. No.	
2	0:39.0 - 1:29.3	Good job...yeah, we're, uh, watching ??. Lesson one ...just put it on the desk, I'll, I'll...all right, here, let's go, let's move. So we can get through this, uh, whole video. I want you guys to watch while you're working, will give you both at the same time. Have a seat. Have a seat.	:) :))
3	1:29.3 - 2:19.4	OK, all right, so what you're doing today, for many, it's going to be easy, you're just going to continue to be working on your outlines there 'cause Monday we're gonna start going over this stuff. So that's what I want you to work on. So lesson one most of you already have that done if not you're absent should have turned it in, OK, and then lesson two will be due by Monday. So have that done and ready to go. OK, we're gonna watch a video on the Statue of Liberty. OK. "Decoded" is a program by Brian Metzler and he's also an author that writes about conspiracy theories and ideas and he tries to find the truth of the information as best they can and then present that information too. And what we're going to watch is the Statue of Liberty because of what it symbolizes. The question is, what they're going to argue here is, what does it symbolize?	|
4	2:19.4 - 3:05.4	Is it good or bad or what's behind it? Who are the people who gave it to us, it should have been in your outline, E##, who gave it to us? France the proce…all the things that went with that. So, they're gonna come in with all kinds of what you're gonna see is people that speak on crazy ideas about the Statue of Liberty. 'K and what we <u>understand</u> from the time period we're, we're learning about now is that, uh, when people came to America in the late 1800s, early 1900s they saw, first thing they saw was the Statue of Liberty. Right. Why? L##? Yeah. But there were several other things that were lined up along the shore but why did they see this thing, why did they see this Statue of Liberty?	Y
5	3:05.4 - 3:59.1	'Cause it's what? How tall it is. And it was tall in comparison to what? Huh? Taller compared to...what definitely…the Empire State Building? No, it wasn't there. Yeah, because you see buildings weren't, weren't	

		built yet, right? Not until, this type here we're talking about, did it get bigger. All right, and so that's what you're going to see here. So the first thing they saw was the Statue of Liberty and it symbolized many things to many people so we'll see what that is as we go. So. You may work and watch this at the same time, if you finish, like some of you are on lesson two, then you can just watch this. Keep your heads up, pay attention or I'm gonna assign lesson three.	:\ \
6	3:59.1 - 4:19.0	K##, you wanna set in this chair and move the mouse once in a while? ??	
7	4:19.0 - 6:48.5	...finished too? If you're finished, I want to see it...?? Hmmm?	
8	6:48.5 - 10:11.0		(sitting)
9	10:11.0 - 13:25.2		
10	13:25.2 - 15:53.4		
11	15:53.4 - 18:08.8		
12	18:08.8 - 20:21.5		
13	20:21.5 - 21:15.2		
14	21:15.2 - 23:40.8		
15	23:40.8 - 25:37.8		
16	25:37.8 - 27:59.8		
17	27:59.8 - 31:01.7		:) :) :) |
18	31:01.7 - 33:54.5		:/ (looking at watch) (hand on chin)
19	33:54.5 - 36:07.3		:/ |
20	36:07.3 - 37:54.5		|
21	37:54.5 - 40:55.4		(stretch) :| :/
22	40:55.4 - 42:18.0		(hands on podium)

23	42:18.0 - 46:30.8		
24	46:30.8 - 47:28.7		(scratching ear)
25	47:28.7 - 48:07.9		:) (hands folded)
26	48:07.9 - 48:08.4		
27	48:08.4 - 49:22.8	So did your mind change at all from beginning to the end? All these kind of what seemed to be crazy ideas of the Illuminati, the secret society, that existed in order to control the United States or any government from behind the scenes kinda deal. What do you believe? What does the Statue of Liberty represent? J##, what does it represent to you? It didn't change at all based on watching that? No, K##...OK, what else. V##? What's it mean to you? OK, D##? Freedom, freedom, so why do we, and including myself, believe that the Statue of Liberty represents freedom? Where does that come from for you to say, oh, freedom?	(pacing) (hands folded)
28	49:22.7 - 51:03.1	Where does it come from? B##, where do you think it comes from? What are we studying right now? And so where they immigrated from could have been quite different but when they came to America the first thing they saw was...the Statue of Liberty 'cause it was large, it was big. And, and it's unique, it's not like you could see, you know, buildings sometimes look similar, nothing looks similar to this…um, in regard of a big statue like that. There are copies of where people have used during revolutions and things like that in China in Tiananmen Square in the 1980s the, uh, they were trying to protest for democracy and they made a statue and it was call the Goddess of Democracy that was to symbolize freedom. There and this is talkin' about Communist China. Still is Communist but it was the people within I mean many of them died as a result of the standoff. But none the less, I mean, it's a <u>symbol</u>. And then most people and in most cases we see is symbol of freedom, um, and which is what the United States is, a country of freedom.	(hands folded)
29	51:03.1 - 51:46.3	It goes to what we're talking about here. So on Monday we're going to continue going in to detail about this why do people move and specifically why do people move here to the United States. Because all of us unless you're one hundred percent Native American, are descendants of somebody somewhere else. Immigrant. But we want to see things from the perspective of an immigrant. To the point that you are going to write a story with a partner about life, your life as an immigrant. You're making it up	

		based on the facts that you know from what you read in the text you have to make up a story, creative, I mean, interesting story, and the thing is it's made up so you can be really, really creative and interesting.	
30	51:46.3 - 52:44.2	You know, kind of like L##'s story that she did on sharecropping, which one was that? OK, all right, yeah, so you can do that, you can even do it in a different, you know, ethnic tongue from somewhere else you know like L## did from a southern person's perspective. Severe southern person's perspective, I'm from the south and you're...you gotta go get deep in the woods to get that type of accent. Real deep. You gotta go to the swamps, right? You seen, you seen, the swamp show, what's that called? "Swamp People"? Yeah, what's the one that you really have a hard time when they say. Who is it? Troy, yeah, it's Troy. Yeah, he's pretty tough. All right, well you guys can talk quietly right now. You can go give me your assignment. ??	** :))
31	52:44.2 - 53:52.3	You have a good weekend. ?? which a lot of them?? E## ?? All right, give me, like, seven people, six people go up front. Yeah, you're good. One, two, three, four, five... anyone else? Heads down. Thumbs up. Oh, oh, now that...Go ahead. You can't put your head on a book 'cause that's cheating. You know the strategy. Heads down, thumbs up.	
32	53:52.3 - 54:26.6	Yes...pick the ones that don't wanna get picked, please. You guys are on it up here.	(student comments about playing this in third grade)
33	54:26.6 - 55:21.5	Almost got you...heads down.	:))
34	55:21.5 - 56:24.1	Start on the opposite time each time so, V##, it's you.	
35	56:24.1 - 56:59.5	??	:)) (some students don't know each others' names)
36	56:59.5 - 58:02.6	You can't ?? she did pick you last time, though... she picked you...heads down.	:)
37	58:02.6 - 59:30.6	Don't hit her hand so hard...there's only five...no, stay up, don't get to pick...L##...is that who you picked? Have a good weekend.	:)

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EDUCATION

Ed.D., Educational Leadership, Indiana University, 2015
Ed.S., Educational Leadership, Indiana University, 2004
M.S.Ed., Secondary Education, Indiana University, 1988
B.S. *cum laude*, Biology, Saint Mary-of-the-Woods College, 1983

LICENSES

Superintendent (IN Rules 46-47)
Building Level Administrator (IN Rules 2002)
Secondary Administration and Supervision (IN Rules 46-47)
Biology 9-12 (IN Rules 46-47)
Chemistry 9-12 (IN Rules 46-47)

HONORS

IASP District 3 High School Principal of the Year (2014)
IPFW Educational Leadership Award (2005)
Bishop Dwenger High School Teacher of the Year (1995-96)
NSTA National Certification in Biology and Chemistry (1994)
Kappa Gamma Pi
Kappa Delta Pi

MEMBERSHIPS

Indiana Association of School Superintendents
Association for Supervision and Curriculum Development
National Association of Secondary School Principals
Learning Forward
American Association of School Administrators

SERVICE

Allen County Education Partnership Board (2004-2008)
Editorial Reviewer, *scholarlypartnershipsedu* (2004-2009)
IPFW School of Education Advisory Council (2005-present)
Indiana-Ohio Regional Red Cross Board (2013-2015)
Northeastern Center Board (2013-present)
LaGrange County Opportunities for Success Coalition Steering Committee (2015-present)

EXPERIENCE

Interim Superintendent
Lakeland School Corporation, LaGrange, IN
January 2015 – present

Principal, Lakeland High School
Director, Lakeland High School Leading EDGE
Lakeland School Corporation, LaGrange, IN
July 2009 – present

Principal, New Haven High School
East Allen County Schools, New Haven, IN
August 2005 – June 2009

Assistant to the Superintendent
East Allen County Schools, New Haven, IN
August 2004 – August 2005

Interim Principal, Harlan Elementary
East Allen County Schools, New Haven, IN
February 2004 – June 2004

Assistant Principal, Leo Jr./Sr. High School
East Allen County Schools, New Haven, IN
August 1998 – February 2004

Assistant Principal, Bishop Dwenger High School
Diocese of Fort Wayne-South Bend, Fort Wayne, IN
August 1996 – July 1998

Teacher, Science Department Chair, Bishop Dwenger High School
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August 1991 – August 1996

Teacher, Frankfort Senior High School
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August 1990 – June 1991

Test Item Writer, American College Testing Program – Biology ACT
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Laboratory Technician, Indiana University School of Medicine, Fort Wayne and Indianapolis
January 1984 – August 1990

SPECIALIZED TRAINING / CERTIFICATIONS

Aspiring Women Superintendents Initiative
Indiana Principal Portfolio Pilot Project
Indiana School Guidance Leadership Project
Indiana Gold Star Counseling
Coaching for School Results Certified Coach
HUMANeX Interviewing Certification
Gallup Strengths Coach

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PRESENTATIONS

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Merkel, E. & Wilkins, C. (2013, July). Adaptability – One school's journey. Presentation at the New Tech Annual Conference, New Orleans, LA.

Moss, G., & Merkel, E. (2008, March). Critical narrative analysis of a school within a school program: Status quo vs. social justice. Paper presented at the meeting of the American Educational Research Association, New York, NY.

Merkel, G.J., & Gankiewicz, E. (1992). Conditions affecting the adherence of Cryptococcus neoformans to glial and lung epithelial cells. Poster presented at the meeting of the American Society for Microbiology, New Orleans, LA.

Biberstine, K.J., Gankiewicz, E., & Rosenthal, R.S. (1990). Peptidoglycan fragments releasedduring the interaction of intact gonococci with normal human sera. Poster presented at the meeting of the American Society for Microbiology, Anaheim, CA.

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