STUDENT REFLECTIONS AS ARTIFACTS OF SELF-REGULATORY BEHAVIORS
FOR LEARNING: A TALE OF TWO COURSES

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The rapid growth of online and blended learning environments in both higher education and K-12, along with the development of innovative game based, narrative driven, problem-based learning (PBL) systems known as Alternate Reality Games (AltRG), has led to the need to understand student’s abilities to self-regulate their learning behaviors and practices in these novel environments. This study examines student reflections and e-mails related to self-regulatory practices for learning across two different course designs for an Internet-based course in computer applications. Both designs leverage PBL but apply different levels of abstraction related to content and the need to self-regulate.

The study looked specifically at how students communicated about learning across these environments, what student communications indicated about student readiness for university online learning and how instructional design and methods of instruction shaped student expressions of learning and self-regulation.

The research design follows an ethnographic and case study approach as two designs and four sections are examined. Data was collected from student blog posts, email messages and semi-structured interviews. Atlas.TI was used to code the data using constant comparative analysis. A sequential analysis was applied using an a priori structure for self-regulation and post hoc analysis for emergent codes that resulted in the following categories: distraction, group experience, motivation, emotion, prior experiences, and time.
Results indicated qualitative differences between the two designs related to student communications for learning and self-regulation. Findings were reported for both the *a priori* and *post hoc* analysis. Additionally, two major findings are reported as emerging themes. These are presented and discussed as The Expectation Gap and Different Designs, Different Outcomes.
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CHAPTER 1

INTRODUCTION

1.1 Introduction to the Problem

With dramatic increases of online schools and courses across the nation, online learning in secondary and postsecondary education is positioned to become mainstream in the United States. In 2006, the University of Phoenix Online Campus, the largest degree granting institution in the country (U.S. Department of Education, 2006), reported a total enrollment of 165,373 students. Allen and Seaman (2008) of the Sloan Consortium reported over 4 million college students enrolled in fully online courses in 2008. In secondary education, The Sloan Consortium reported 1,030,000 K-12 students took in online courses, up 47% in two years (Picciano & Seaman, 2008). While this is tremendous growth in the online education industry, there is much we do not know about the efficacy of online learning. Questions related to course design, communication methods, pedagogical approaches and student readiness are just a few areas requiring additional research.

Taking the Vygotskian perspective that learning is a social process during which individual knowledge is constructed through social interactions and communications with peers and instructors (Vygotsky, 1978; Wink & Putney, 2002), the nature of these online communications must be better understood if we are to develop effective courses for these distributed modalities. At the same time, we must also better understand the role of student readiness for online learning from the perspective of their communicative and self-regulated abilities. This study explores aspects of each as they relate to students’ communicative actions in a differentiated online learning environment.
1.2 Statement of the Problem

While online learning is a growth industry for both secondary and postsecondary educational markets (Allen & Seaman, 2007; Allen & Seaman, 2008) the effectiveness of learning at a distance is not fully understood. Today’s online courses employ many different formats, including one-way and two-way interactive video, one-way video transmissions, as well as both asynchronous and synchronous audio and text chat communications (Barbour & Reeves, 2009). These communications are mediated by the computer, resulting in transformation, distortions and modifications in their meanings (Latour, 2005). If learning is a social construct supported by communicative acts, then the nature of these learning communications and interactions must be better understood.

Research by Barbour and Reeves (2009) indicates that students exhibiting self-regulatory traits have greater success when taking online courses. The nature of this self-regulation is captured in the various forms of communications in a typical online course. A better understanding of student self-regulatory learning practices and learning communications may be obtained through a systematic analysis of the artifacts of their activities in an online course such as course e-mail, blogs and forum posts as well as participant interviews. The course that served as the study’s research environment is unique in that it leverages elements of game play in the form of an alternate reality game (AltRG) blended with ill-structured problems characteristic of problem-based learning (Warren, Dondlinger, McLeod, & Bigenho, 2011). Students received little direct instruction, yet were expected to maintain a high level of engagement as they progress.
through the course. Prior teaching of this course indicated that student efficacy of self-regulatory skills are improved through this approach.

The specific research questions addressed by this study were:

1. How do students enrolled in different versions of an online course that demands different levels of abstract reasoning and self-regulation communicate about their learning?

2. What do these communications indicate regarding student readiness for learning at the university level - specifically online and blended learning environments?

3. How are student expressions of learning and self-regulation shaped by the instructional design and methods of instruction?

1.3 Purpose of the Study

The purpose of this study was to explore the level of student readiness related to self-regulatory practices for success in learning in an online/blended learning environment. The study sought to increase understanding of student readiness for university level online/blended learning environments by examining student's self-perceived readiness, self-regulatory learning practices, and ability to successful apply these skills. In order to achieve this, the study examined: (a) case study interviews conducted throughout the course, (b) student communications in the form of blogs, forum posts and e-mails, and (c) other electronic records of student activity captured from the learning environment.
1.4 Overview of Dissertation

The second chapter examines relevant literature related to online learning environments, constructivist learning theories, and problem-based learning. Also included is a discussion of the canon surrounding self-regulatory learning practices and descriptions of the different versions of the study environment that lead up to the current iteration used for this study.

The third chapter discusses the research methods of the study including the collection and analysis of data. Chapter 4 presents the results of the ethnographic exploratory case study and implications for future consideration. Chapter 5 presents a discussion of these findings and suggestions for future research.

1.5 Definition of Terms

*Actor network theory (ANT)*: Actor network theory or ANT was first developed by Bruno Latour as a philosophical explanation of how networks are formed and fall apart. In his theory, agency is assigned to humans as well as non-human actors. Actors and agency must be explicitly visible. Agency and hidden actors are not allowed. There is also no accommodation made for power differentials which results in a flat representation of the social (Latour, 2005).

*Alternate reality games (AltRGs)*: Alternate reality games use minimal technology to blur the line between reality and virtual by embedding the game directly in the players' life. The play space for an AltRG cannot be defined; rather, they are defined by the puzzle to be solved (Klopfer, 2008).

*Constructivist grounded theory*: Charmaz presented this form of grounded theory. She argues for the importance of focusing on the meaning, action and process of the
social phenomenon under study. The results of constructivist grounded theory are often presented as a story narrative rather than a statement of theory. The story, told by the researcher through their ontological lens, focuses on understanding of social processes (Hallberg, 2006).

**Directive communications:** These are written or verbal communications that make explicit demands or instructions related to student actions. These communications are used to move a student or the entire class in a specific direction or behavior.

**Grounded theory:** A powerful qualitative research method for collecting and analyzing data. The process involves continued collection and analysis of open-ended interviews, observations and communications. Originally, grounded theory analysis was to be conducted without prior review of literature or hypothesis. The continued analysis of the data would result in research questions and theory would eventually emerge. This theoretical approach to research was first discovered by Glaser and Strauss in 1967 and has since evolved into several forms of grounded theory (Charmaz, 2008).

**Metacognitive practices:** This is a self-reflective practice that requires the learner to monitor their current level of understanding and to determine if and when it is not adequate for the situation (Bransford, 2003).

**Problem-based learning:** Problem-based learning was a pedagogical outgrowth of the need for the academic medical community to help their students connect vast amounts of information to relevance. This curricular change started with the McMaster University Faculty of Health Sciences in the early 1970s. Over the next decade or more, multiple institutions developed several approaches to problem-based learning. The core of problem-based learning includes: (1) student-centered learning, (2) learning occurs in
small student groups, (3) teachers serve as facilitators or guides, (4) problems form the focus and stimulus for learning, (5) problems are the means of developing clinical problem-solving skills, and (6) new information is acquired through self-directed learning. This resulted in the development of educational objectives that were facilitated by problem-based curriculum: (1) development of an integrated knowledge base, (2) knowledge base structured around cues from patient problems, (3) the development of an effective problem solving process integrated with their emerging knowledge base, and (4) the development of self-directed learning skills as well as team skills (Barrows, 1996).

**Self-regulated learning:** The self-directive process in which learners employ different cognitive, metacognitive, or motivational strategies to transform mental abilities into academic skills (Hofer, Yu, & Pintrich, 1998; Zimmerman, 1998).

**Temporal communication characteristics:** The course under study is approximately 16 weeks long. One aspect of the study looks at the change in the nature of these communications comparing early course communications—blogs, forum posts and selected e-mail with later student communications. The goal is to identify changes in the nature of these student communications related to the focus of the study over time.

**Sequential mixed model research design:** This is an emerging mixed method research process where one form of research informs another. Mixed methods can be component or integrated designs as well as parallel or sequential. In this case, the methodology is sequential with qualitative informing quantitative or quantitative informing qualitative. This results in nine forms of sequential mixed model designs: (1)
triangulation, (2) complementary, (3) expansion, (4) iterative, (5) embedded/nested, (6) holistic, (7) transformative, (8) explanatory, and (9) exploratory. This typology was developed by Tashakkori and Teddlie in 2003 (Cameron, 2009).

1.6 Limitations

This study was conducted in an environment that is difficult to precisely duplicate. By requirement of the methods, the qualitative aspect of this study included the social constructivist ontological lens of the researcher, which limits the generalizability of the study without further testing and research. Also, the fact that this study is localized to a single segment of a single university population also localizes any generalizability. Further limitations result from the multiple teachers teaching different sections of the course resulting in different communication styles within the different course sections providing an element of uniqueness to each section.

Limitations threatening the validity of the findings also originate from the different comfort levels and prior experiences of teachers using the narrative based, alternate reality game environment. The level of teacher buy-in is expected to have had an effect on the communications within that section of the course as well as the efficacy of the course design. Since the teachers openness and effectiveness at teaching in these narrative-based AltRG learning environments is not assessed prior to teacher section assignments, control for this variability is not possible.

The difficulty in duplicating this study with other narrative-based course designs is an additional limitation. Each course design provides unique expectations, social norms, and forms of communication within the context of the discipline, course narrative, students, and teacher. It is impossible to control for the qualitative differences
in communications in all of these areas. A specific variability that threatens the validity of generalizability is variation in a student’s English language proficiency as well as native language proficiency. This study does not directly address this variability. However, from prior experience in teaching these courses, it is believed that this may be an important variable to examine in future studies.
CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

The purpose of this study was to examine the issues of student readiness related to self-regulation and their ability to successfully complete university work in an online/blended learning environment. The learning environments covered in this study included two versions of a course that have been designed using problem-based learning methods and different levels of direct and indirect instruction related to content and development of self-regulatory behaviors.

The study addressed the following research questions:

1. How do students enrolled in different versions of an online course that demands different levels of abstract reasoning and self-regulation communicate about their learning?

2. What do these communications indicate regarding student readiness for learning at the university level - specifically online and blended learning environments?

3. How are student expressions of learning and self-regulation shaped by the instructional design and methods of instruction?

This chapter explores the underlying theories, concepts and design principles necessary to address these questions. This chapter includes sections on (1) constructivist learning environments, (2) problem-based learning, (3) games and play for learning, (4) teaching for self-regulation, and (5) evolution of course design under for this study.
2.2 Learning and Social Constructivism

At the core of any instructional method is the belief that the method will actually facilitate learning. This begs the question: What does it mean to learn and how does learning actually occur? Answers to this question are important for this study as the study looked at two learning environments that incorporate different levels or blends of instructional methods for both the content instruction as well as instruction surrounding the development of self-regulated learning skills. I believe any conversation about learning should also include a discussion regarding understanding. Wiske describes understanding as “[T]he ability to think and act flexibly with what one knows” (Wiske, Rennebohm, & Breit, 2005, p. 40). She goes on to tell us that learning facts serves as a foundation for understanding but that learning facts is not learning for understanding. Learning for understanding is what we can do with our knowledge and not just the mental model. This would imply that students must act with the knowledge they are receiving or constructing.

From the social constructivist perspective, “Teachers and students together construct the knowledge of the classroom through their interaction, blazing their own educational paths” (Wells and Chang-Wells as cited in Wink & Putney, 2002, p. 65). Vygotsky adds the concept of working in the zone—that is the zone of proximal development or ZPD (Vygotsky, 1978; Wink & Putney, 2002). The learners are challenged to struggle with concepts that are just beyond their reach to comprehend independently but with carefully guided help or scaffolding, they develop understandings through newly constructed knowledge. Vygotsky believed that maximum learning occurred when learners were working within their personal ZPD (Wink & Putney, 2002).
As learners progress with their learning, the conceptual models experienced in the zone become more complex while scaffolding decreases (Kozma, 1994; Wink & Putney, 2002).

In his book *And What Do YOU Mean by Learning*, Sarason states that “Learning [is] a very complicated process. Learning is a process that occurs in an interpersonal context and is comprised of factors to which we give such labels as motivation, cognition, affect, and attitudes (about self and other). These factors are always part of its process to some degree; their strength is never zero” (Sarason, 2004, p. 37).

Dewey (1938) proposed that experience was nature’s teacher and that experience must be taken into account in what he called progressive education. The job of the educator is to continue the work of nature by providing opportunities for students to experience learning in meaningful and relevant contexts. Piaget proposed that students construct knowledge about the world around them as they progress through a series of stages (Flavell, 1963). Fischer expands on the work of Piaget by proposing a series of steps that a student passes through which contains skills and schemes by which they come to know the world (Bjorklund, 2005). Bjorklund goes on to point out how Fischer differed significantly from Piaget by giving greater significance to the role of experience as a teacher. Bruner adds to this constructivist construct by proposing that as students acquire new information that contradicts or builds on existing knowledge, they move through transformational stages as they manipulate their knowledge to fit new tasks and experiences. Students evaluate the fit of their knowledge manipulation as they apply it in novel tasks (Bruner, 1977).
In his seminal work *The Process of Education*, Bruner presents four themes related to the process of teaching and learning: (1) The importance of making structure central to teaching, (2) Readiness for learning- students may be taught the foundations of any subject at any age, (3) Intuitive thinking is an essential feature of productive thinking, and (4) The importance of motivation to learn in the learning process (Bruner, 1977). These themes form the basis of constructivist learning and problem based learning models used by the designers of the learning environments included in this study.

Looking at the themes of intuitive thinking and motivation to learn, this researcher is reminded about the difficulty of creating learning environments and experiences that will be meaningful for every student as students come to class with different backgrounds, interests and experiences (Langer, 1997). One way to address this problem is to help students make the material and the learning meaningful to themselves (Langer, 1997). This introduces the concept of developing self-regulated skills for personal learning, which also plays a role in the design of these learning environments.

The *Broken Window* learning environment and its predecessors incorporate a constructivist approach to their design (Warren & Dondlinger, 2008) requiring students to learn through social interactions with the material in a situated context for application of what they are learning while helping them develop the self-regulatory skills necessary to be successful as an independent learner. This is also true for much of *The Project* version that served as the comparison course in this study. The designers utilized the theoretical construct of social constructivism in the form of problem-based learning.
(PBL) to frame many of the learning experiences in these courses. This then requires that we take a closer look at constructivism and problem based learning.

2.3 Social Constructivism as Problem-Based Learning

Problem-based learning is a social constructivist pedagogical approach that was developed out of the need for the academic medical community to help their students develop cognitive connections between vast amounts of information and relevance for their lives (Barrows, 1996). This approach was first developed by McMaster University Faculty of Health Sciences in the 1970s and has since been incorporated into the pedagogical approaches of multiple institutions and instructional designs. At the foundation of problem-based learning are six core concepts: (1) student centered learning, (2) learning occurring in small student groups, (3) teachers serving as facilitators or guides, (4) problems form the focus and stimulus for learning, (5) problems are the means of developing clinical problem-solving skills, and (6) new information is acquired through self-directed learning (Barrows, 1996).

The ill-structured problem is at the core of designing a problem-based learning environment (Jonassen, 1999; Savery & Duffy, 1995). Ill structured problems have unstated goals, possess multiple solutions or no solution at all, have multiple criteria for evaluation, provide uncertainty regarding concepts, rules or principles necessary for a solution, provide no general rules for describing or predicting outcomes, and require learners to make and defend judgments about the problem by expressing personal opinions or beliefs (Jonassen, 1999). Problem-based learning has the ability to help students develop creative problem solving skills. Such skills often transcend the disciplines where they are developed (Kuhn, 2005).
Learning environments employing problem-based learning constructs decontextualize information from course and text sequence and contextualize the learning around these ill-defined problems. This creates the opportunity for students to learn in more authentic contexts allowing them to transfer information between knowledge centers rather than relying on clues from course sequence (Bransford, 2003). By situating the learning in the context of a problem, students will develop solutions in a context that will help build patterns they can draw from when faced with additional novel problems. This is similar to the way “expert’s knowledge is organized around important ideas or concepts…lead[ing] to conceptual understanding” (Bransford, 2003, p. 42).

2.4 Games for Learning

As we consider games for learning, we must first consider what makes a game. How do we define what makes a game? Games include an element of play and play can include elements we call games (Salen & Zimmerman, 2004). Depending on perspective, you can view games as a subset of play or play as a subset of games. Over the years, many theorists and researchers have tried to define what makes a game. Some of the elements that have shown up in these attempts include: free play-enter game space voluntarily, uncertainty, suspension of belief, governed by rules, conflict, interactions with players and non-players, representation of reality, defined goals or objectives (Salen & Zimmerman, 2004). However, Salen and Zimmerman combine similarities of each of these attempts to offer the following five elements for defining games. For the purposes of this study, games are systems that allow players to actively and voluntarily interact with the system and other players in an artificial conflict.
that is bounded by a set of rules that define what the player can and can’t do as they work to achieve some quantifiable goal or outcome which if achieved, determines the winner of the game (Salen & Zimmerman, 2004).

2.4.1 Importance of Play in Learning

Frank Smith (1998), a researcher in the fields of language, thinking and learning and author of *The Book of Learning and Forgetting* illustrates the nature of play in learning in another way. He presents two views of learning (and forgetting).

**Table 1**

*Two Views of Learning as Presented by Smith (1998, p. 5)*

<table>
<thead>
<tr>
<th>The classic view of learning is</th>
<th>The official theory of learning is</th>
</tr>
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<tbody>
<tr>
<td><strong>Continual</strong></td>
<td><strong>Occasional</strong></td>
</tr>
<tr>
<td><strong>Effortless</strong></td>
<td><strong>Hard work</strong></td>
</tr>
<tr>
<td><strong>Inconspicuous</strong></td>
<td><strong>Obvious</strong></td>
</tr>
<tr>
<td><strong>Boundless</strong></td>
<td><strong>Limited</strong></td>
</tr>
<tr>
<td><strong>Unpremeditated</strong></td>
<td><strong>Intentional</strong></td>
</tr>
<tr>
<td><strong>Independent of rewards and punishment</strong></td>
<td><strong>Dependent on rewards and punishment</strong></td>
</tr>
<tr>
<td><strong>Based on self image</strong></td>
<td><strong>Based on effort</strong></td>
</tr>
<tr>
<td><strong>Vicarious</strong></td>
<td><strong>Individualistic</strong></td>
</tr>
<tr>
<td><strong>Never forgotten</strong></td>
<td><strong>Easily forgotten</strong></td>
</tr>
<tr>
<td><strong>Inhibited by testing</strong></td>
<td><strong>Assured by testing</strong></td>
</tr>
<tr>
<td><strong>A social activity</strong></td>
<td><strong>An intellectual activity</strong></td>
</tr>
<tr>
<td><strong>Growth</strong></td>
<td><strong>Memorization</strong></td>
</tr>
</tbody>
</table>

The first is the classic view where the learner is learning without a specific awareness of the learning taking place. This is accomplished through what he calls the *joining of clubs* where we can identify with the other members of the club. In this classic view of learning, learning is accomplished through the interactions with other members of the club and through a sense of belonging (Smith, 1998). Contrast this with what he calls the official view of learning and forgetting. Here, learning is intentional and is based on
effort and individualistic hard work (Smith, 1998). Table 1 illustrates the contrasting characteristics of these two views as presented by Smith.

2.5 Teaching and Learning Self-Regulation

Self-regulation is a self-directed process transforming mental abilities into academic skills through a cycle of cognitive and metacognitive processes (Zimmerman, 1998). The viewpoint of a self-regulated learner is that learning is something they do for themselves rather than something that is being done to them by the teacher or system (Zimmerman, 1998). Self-regulation theorists have proposed an open-ended cyclical process involving three major phases: forethought, performance or volitional control, and self-reflection (Zimmerman, 1998). These three phases can then be realized through behaviors that address each phase. These behaviors illustrate the practice of self-regulation in a student’s learning. Strategies used by self-regulated learners can be broken down into: (1) cognitive, (2) metacognitive, (3) motivational, and (4) domain-specific (Hofer et al., 1998). Cognitive learning strategies identified as important to academic performance includes: (1) rehearsal, (2) elaboration, and (3) organizational strategies. Metacognitive and self-regulatory strategies influencing academic success include: (1) planning, (2) monitoring, and (3) regulating (Hofer et al., 1998).

Students identified as self-regulated learners tend to identify correctable causes to their failures and claim personal competence with their successes (Zimmerman, 1998). Zimmerman points out that “Skillful self-monitors know when they are performing well and when they are not, and they use this vital information to alter their performance without waiting for social assistance from others or for adverse external outcomes to eventuate. In contrast, naïve self-regulators fail to monitor their performance
systematically but rather rely on general awareness or fragmentary information to keep them apprised of ongoing efforts” (Zimmerman, 1998, p. 8). The ability to monitor personal thinking and academic behavior is a core trait of the self-regulated learner. This gets at the concept of self-knowledge or self-efficacy. Students must become aware of their abilities and exhibit accurate judgment of their abilities. They need to know when to get help and where to get appropriate help (Hofer et al., 1998).

As students transition from high school to college, they may suffer a tangible drop in performance as indicated by grades. This may be caused by an entrenchment of “cognitive and behavioral repertories through habitual use and relative success in [the students] previous 12-13 years of elementary and secondary schooling” (Hofer et al., 1998, p. 61). This disconnect may be caused by increased confidence in their ability to self-regulate as their admission to college indicates some level of success in self-regulatory capabilities in their past (Hofer et al., 1998).

Studies examining the effectiveness of teaching self-regulated learning via college level courses have found that stand-alone programs or Adjunct Courses delivered as intervention programs are less effective than integrated approaches where student’s strategies in different contexts and across content areas and academic tasks (Hofer et al., 1998). Additionally, there are similarities between students and their professors regarding the need to change behaviors and motivation. These similarities include (1) Identifying and recognizing that there is a problem, (2) Admitting they need help to deal with the problem and finding resources, and (3) Actively seeking help and making personal investments to change (Talbot, 1997). “A teacher who is intrinsically motivated to learn has a good chance to get students to seek the intrinsic rewards of
learning” (Czikszentmihalyi as cited in Talbot, 1997, p. 2). Additionally, students attribute their successes to being talented or hard workers while they often place blame for their failures on teachers who they believe ask too much from them or have not done enough to help them succeed (Talbot, 1997).

Zimmerman provides a context for evaluating self-regulation by identifying behaviors that can be observed in learners and linked to self-regulated learning strategies. These include: (1) self-evaluating, (2) organizing and transforming, (3) goal-setting and planning, (4) seeing information, (5) keeping records and monitoring, (6) environmental structuring, (7) self-consequating, (8) rehearsing and memorizing, (9) seeking social assistance, and (10) reviewing records (Zimmerman, 1989).

2.6 The Evolution of a Course

This section looks at the way the specific study space developed and evolved over time. The study space was defined as a computer applications course at a mid-sized university in the southwest. This undergraduate course is known as Computer Applications with the designation of LTEC 1100.

In 1995, the Boyer Commission on Educating Undergraduates found that their colleges were under serving undergraduates in that they were not developing the necessary skills to think critically about information they may encounter after graduation. The designers of the LTEC 1100 course curricula cited the following passage from the Boyer Commission Report as an important area of weakness that still exists ten years after the report was published.

Many students graduate having accumulated whatever number of courses is required, but still lacking a coherent body of knowledge or any inkling as to how
one sort of information might relate to others. (A)ll too often they graduate without
knowing how to think logically, write clearly, or speak coherently…(t)he university
has given them too little that will be of real value beyond a credential that will
help them get their first jobs. (Boyer, 1995; cited in Warren, Dondlinger, Jones, &
Whitworth, 2010, p. 40)

At the same time, the university embarked on a quality enhancement program
where they actively sought to address issues surrounding the undergraduate
experience in large lecture based courses where enrollments were greater than 150
students or greater than 30 in courses requiring computers labs (Warren et al., 2010).
Through this process, the CECS 1100 (later LTEC 1100) course was earmarked for a
course redesign. The goals for the redesign included increasing small group activities to
make the classes appear smaller, greater student engagement through meaningful peer
interactions, and enhanced development of student critical thinking and problem solving
skills. It was believed that this would lead to increased student satisfaction resulting in a
decrease in the drop/fail/withdrawal rate (Warren et al., 2010).

2.6.1 Original Course Format

This course was originally designed to cover over 750 learning objectives related
to using a computer and the Microsoft Office Suite. Warren et al. (2010) learned that
students were frustrated by the repetitive nature of these objectives as many skills were
repeated for each application under study. Students also reported a lack of relevancy
with the material being used in what was largely a skill acquisition course (Warren et al.,
2010; Warren & Lin, in press). The course was taught in a blended format with face-to-
face classes being used to emphasize skills that were being covered in the online
portions of the course. This version of the course used the SAMS 2003 computer aided instructional materials and focused on the acquisition of specific skills that could then be tested through multiple choice online assessments and rigid computer performance tests. The course format was largely based on the "acquisition of surface level skills and memorization" (Warren et al., 2010, p. 41).

The redesign team identified four main problems in the old version of the course that they wanted to address through the redesign.

- Reduce the number of repetitive functions that were learned as students moved from one application to another.
- The computer-based assessments were too rigid providing only one or two correct ways to complete a task rather than allowing for multiple ways to accomplish the same task.
- The students lacked life experiences that would relate to the examples that were being used by the current curricular materials. This led to a decontextualization of the material that was being covered.
- The lack of useful feedback from the computer-based instruction. (Warren et al., 2010)

This formed the basis for the first version of the redesign known as The Door.

2.6.2 The Door - Design Principles

As the design team embarked on the redesign titled The Door, they focused on trying to address the four underlying problems identified in the prior version of the course. This version would reduce the number of learning objectives from 750 to 150. The course would be evaluated each semester to identify and incorporate any changes.
necessary to reflect the dynamic nature of the computing environment. It was also decided that the course should focus on larger learning projects using the software and skills being studied rather than decontextualized skill acquisition assignments. Finally, it was determined that the students should provide formative and summative feedback to the instructors through assignments that warranted the use of rubrics for assessment rather than multiple choice tests (Warren et al., 2010; Warren & Lin, in press). The team chose to utilize problem-based learning methods (PBL) and game elements (Figure 1) as the framework for the redesign and the way to address the problems identified in the earlier version (Warren et al., 2010; Warren et al., 2011; Warren & Lin, in press).

![Merging PBL & Game Elements](image)

**Figure 1.** Conception of similarities between PBL and game structures (Warren, Dondlinger, McLeod, & Bigenho, 2011).

PBL has a long history of helping students develop problem solving and critical thinking skills while providing context for the learning. This is addressed later in this review. The design team leveraged Yokoi’s theory of lateral innovation as they looked at the development of the game elements for this new version of the course (Warren & Jones, 2008). Lateral thinking refers to the non-linear creative or critical thinking
process that allows for multiple solutions to a problem (Warren & Jones, 2008). Yokoi also used a design philosophy he called lateral thinking of withered technology. The basic idea was that older technologies had matured making them less expensive and more accessible to the public. This would lead to lower development costs and fewer issues with accessibility (Warren & Jones, 2008).

This led the design team to look at withered or mature technologies for their design along with lateral thinking for a game design philosophy. One such game genre that fits this description is known as alternate reality gaming (AltRG). These are often narrative problem-based games that used the fabric of the web known popularly as Web 2.0. These games often utilized internet spaces frequented by many students and spaces that would be easy for students to adjust to based on their current experiences in similar spaces elsewhere on the Internet (Warren & Jones, 2008; Warren & Lin, in press).

Working from design principles of Savery and Duffy (1995), the design team elected to incorporate the following instructional principles in the design of The Door:

1. Anchor all learning activities to a larger task or problem
2. Support the learner in developing ownership for the overall problem or task
3. Design an authentic task
4. Design the task and the learning environment to reflect the complexity of the environment they should be able to function in at the end of learning
5. Give the learner ownership of the process used to develop a solution
6. Design the learning environment to support and challenge the learner’s thinking
7. Encourage testing ideas against alternative views and alternative contexts
8. Provide opportunity for and support reflection on both the content learned and the learning process (Savery & Duffy, 1995, pp. 3-6)

2.6.3 The Door – Revised Design

The information regarding the specific design of The Door came from the Instructor Job Aid for the course and the work of Warren et al. (2010). The Door was the first version of the course redesign for CECS 1100 and took the form of a two tiered narrative alternate reality game (AltRG). The entire course took place using problem-based learning activities embedded into an AltRG. Students interacted with fictional clients who were also characters in the second tier or game element of the narrative. As students were presented with tasks their clients provided, they were also presented with game elements through clues related to this second tier of the narrative. These puzzle items helped to move the students through the course and engaged them in creative problem solving.

In the spirit of Yokoi’s lateral thinking, there were no clear solutions but rather many plausible solutions that could be applied to each problem (Warren & Jones, 2008). All student work was completed in small groups thereby increasing the level of interaction between peers in the online environment. While the course was largely Internet based, it was usually taught in a blended format where students could work on specific skills for problems they encountered in the online environment. There were a total of six learning scenarios or problems that student groups had to address during the
course. The learning objectives were embedded in each of these problems providing context for each objective.

The instructor played the role of the puppet master. This included playing different characters at different points of the course where the characters served as “gatekeepers, judging the quality of student solutions and preventing them from moving to the next problem until the last had been adequately addressed” (Warren et al., 2010, p. 45).

2.6.4 Broken Window Designed Using Lessons from The Door

As CECS 1100 became LTEC 1100, Broken Window was a fully revised version of the curriculum based on what was The Door. Unless otherwise noted, the information for this section is drawn from the design document and job aid for teaching the Broken Window curriculum (Warren, 2008). This version of the LTEC 1100 curriculum was first taught as a single section in the spring of 2008 and the course was renamed LTEC 1100. The design incorporated both student as learner/player and student as designer. Where The Door curriculum required the students to play through six different game scenarios over 16 weeks, Broken Window required students to play a two-tiered narrative game during the first 6 weeks as they learned the basics of working collaboratively across distances, develop necessary self-regulatory skills needed to be successful in the remainder of the course and learn basic computer skills that will be used in the second part of the course.

This version of the course utilized a theoretical construct of learning and teaching as communicative actions as proposed by Warren (2008b) and Warren, Najmi, and Wakefield (under review). Drawing from the work of Jürgen Habermas on the theory of
communicative action, students would need to communicate through various actions: (1) strategic, (2) constative, (3) normative, and (4) dramaturgical (Habermas, 1984).

During each unit, students were expected to: “Communicate effectively in a manner that allows for successfully completing personal objectives [strategic action], communicate the validity of their truth claims in a manner that allows for peers and client to accept this validity towards allowing design action [constative action], communicate with peers and group towards a goals of understanding norms, roles, for functioning as a team in the course and in the real world [normative action], and communicate through self-expression that allows for others to critique based on elements of individual and group identities that emerge from the communicative process [dramaturgical action]” (Warren, 2010, p. 2).

Students in Broken Window played a 6-week alternate reality game that presented core content relevant to both computer applications and literacy concepts (i.e. Internet security, e-mail communication), and creative problem solving. Both of these were elicited through ill-structured problems embedded in the game narrative. Students worked with a layered narrative where they were asked to solve a problem involving missing associates at the Havenwyrd Institute as well as develop a presentation for the United Nations on water borne disease that was to be completed by the Havenwyrd Institute but now must be completed by the students. The first narrative involves game elements that require students to hit specific benchmarks each week while the second narrative requires them to utilize their computer skills to develop a simple product for a client. The need to reach specific benchmarks was included in this version as students learning through The Door curriculum were often spread apart by
almost 6 weeks at any point in the course. The need to hit these benchmarks requires
the students to engage more frequently in the course material and was designed to help
keep the students progressing through the course at a deliberate pace.

Figure 2. Havenwyrd Institute web page. This is where the AltRG known as Broken
Window begins.

Like The Door, many elements of the course environment were distributed
across the web utilizing such spaces as Moodle, Blackboard, Facebook, Twitter,
WordPress Blogs, and character email accounts. The course started in Blackboard for
introductory pre-testing and information that led students to Moodle where most of the
course organization could be found. Moodle led students to the Havenwyrd Institute
web site where the game narrative begins (Figure 2).
Students are directed to explore this page and should stumble upon the Havenwyrd Blog which is linked off the left navigation of the main menu on the Havenwyrd Institute site. This served as the front door to *Broken Window* and becomes the central point of information distribution for the first six weeks of the course. Through the blog, characters left clues such as this image of a man and half of a security card (Figure 3).

**Figure 3.** Entry found on the Havenwyrd Institute blog. This site served as clues for students as they moved through the learning environment.

Clues related to the game and learning tasks were released through this blog site. These included hidden images such as through found in Figure 4. Here students would discover hidden messages if they clicked on certain parts of the image. In this example, students would click on a computer screen in the coded image to reveal an e-mail message that provided important information that students would need for both the game and for that week’s learning task.
At the end of part one of *Broken Window*, students submitted their presentation and a written report for the U.N. addressing the problem of water borne diseases. They also submitted their final Havenwyrd report indicating their final understandings of what was going on with the game. True to problem-based learning, there was no clear
solution to this game so students were evaluated on their ability to develop a plausible solution to the game problem.

At the end of this part of the course, students were shown “behind the curtain” of *Broken Window* as they evaluated the design documents and resources used to teach the first 6 weeks of the course. The focus then shifted from student as player to student as designer. Students worked from weeks 7 to 16 designing and building their own alternate reality games around a U.N. Millennium Development Goal (i.e maternal health, universal education). They were to create an artificial conflict and develop a narrative that served as the first tier controlling the flow of players through the game. They also developed a set of learning objectives that served as the basis of the second tier of narrative and learning tasks. The remainder of their time in the course, they work in groups designing and developing a two-week alternate reality game that addresses their learning objectives and selected U.N. Millennium Development Goal.

2.6.5 Student Self-Selection-*Broken Window and Computer Aided Instruction*

This version of the course was taught only once during the spring 2010 semester. The source for the following description comes from the design documents and instructor job-aid (Warren & Bigenho, 2010). It was identified in earlier versions of the course that some students might not be ready to complete a course that was designed with high levels of abstraction and requirements for self-regulation. Therefore, this version of the course actually presented students with a guided choice between three versions each with differing levels of abstraction (see Figure 6).
Figure 6. Characteristics of the three versions of the course serving as the study environment.

As indicated in Figure 6, Version 1 was the most regulated and concrete representation of the course. This version drew heavily from computer-aided instruction...
(CAI) with explicit directions regarding tasks and course expectations. It also consisted of explicit timeframes for all work to be completed along with explicit consequences for missed deadlines and uncompleted tasks. This version required the student to complete specific readings, online skill training and a two-page report each week. It also required a blog post based on a reflective prompt provided by the designer. Near the end of this course, all students in version one completed a single problem-based learning (PBL) task requiring them to utilize skills acquired during the class along with greater freedom in self-regulated learning.

Version 2 was similar to Version 1 in that it was heavily system and instructor directed and involved similar computer aided instruction, blogs, training tasks, exams and reports. However, the number of PBL tasks increased to three providing greater opportunity for students to work on ill-structured problems requiring greater self-regulation and creativity.

In both Version 1 and Version 2, the problem tasks comprising the PBL tasks were taken from an earlier version of what was known as The Door and were been decontextualized from the course narrative. Version 3 of the course was the full version of Broken Window as described earlier.

During the first week of this course, students learned about the three different versions, took a pretest on the knowledge and skills that would be presented during the semester as well as took tests on their understandings of the three different versions of the course. At the end of the first week, students followed a rules based process to select the version of the course they would complete over the remaining weeks (Figures
Figure 7a. Course selection process.
Figure 7b. Course selection process, continued.
2.6.6 The 2015 Project

Unless otherwise indicated, the source for the information on *The 2015 Project* design comes from the instructor job aid developed for delivering this version of the course (Warren, 2010). During the last time that the *Broken Window* version of the course was taught, it was determined that students were “cheating” on the game by using existing solutions posted on the Internet and accessing versions of the course that were not sufficiently secured. As a result, there was a need to develop a course that could have a longer shelf life while addressing issues related to developing self-regulatory skills necessary to succeed in less directed courses and experiences beyond college. This has since led to development of *The 2015 Project* design in which the game element remains open-ended allowing for multiple solutions as necessitated by PBL methodology. Yet, the solutions could not be compromised from semester-to-semester, as variability is built into the course through student choice.

This version of the course was designed utilizing a theoretical construct of learning and teaching as communicative actions (LTCA) as proposed by Warren and Stein (2008). Drawing from the work of Jürgen Habermas on the theory of communicative action, students would need to communicate through various actions: (1) strategic, (2) constative, (3) normative, and (4) dramaturgical (Habermas, 1984). During each unit, students would be expected to: “Communicate effectively in a manner that allows for successfully completing personal objectives [strategic action], Communicate the validity of their truth claims in a manner that allows for peers and client to accept this validity towards allowing design action [constative action], communicate with peers and group towards a goals of understanding norms, roles, for
functioning as a team in the course and in the real world [normative action], and communicate through self-expression that allows for others to critique based on elements of individual and group identities that emerge from the communicative process [dramaturgical action]” (Warren, 2010, p. 2).

Similar to *Broken Window*, the course was broken into two parts. Part 1 lasts approximately 5 weeks while the second part covers weeks 6-16. However, the focus of the course was more *scripted* in the beginning as students were directed in developing basic self-regulatory skills through instruction. During this time, students also read through the first ten chapters of the text where they were “exposed to general computer literacy concepts including hardware, software, multimedia, ethics and communication” (Warren, 2010, p. 2). The activities in weeks six through sixteen change focus as students begin work with MyITLab, a computer aided instruction (CAI) application focused on MS Office skills. Additionally, they also began work on *The 2015 Project* where they “develop[ed] solutions to weekly challenges posed by the U.S. crises related to education, child health, gender equality and poverty” (Warren, 2010, p. 3). Students selected one of four general themes from the U.N. Millennium Goals and worked in groups across sections to develop solutions and create a presentation using the skills they had been developing during the semester. As this project crossed sections, an Internet forum environment was used for students to collaborate (Figure 8).

The course was designed with high levels of scaffolding and direct instruction during the first 5 weeks decreasing over the remaining weeks. The focus of direct instruction shifted from self-regulation to computer skills during weeks 6 through 16 and problem-based learning for the 2015 problems. The *2015 Project* version was taught
for the first time in fall of 2010 while one section of LTEC 1100 course remained in the 

*Broken Window* format.

*Figure 8.* The 2015 Project forum environment that facilitated cross-sectional collaboration on U.N. Millennium Goals.
CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

This study examined student self-perceived levels of readiness related to self-regulatory practices and behaviors as reflected in their communications generated in the alternate reality game course known as *Broken Window*. The study sought to better understand student readiness for learning in online and blended learning environments with the hope of developing an instrument that will help students better determine their ability to succeed in these types of learning environments at the university level.

The study followed ethnographic and case study methods including case study interviews of faculty and students, grounded theory analysis of interviews and student generated communications captured through class blogs, forum posts, e-mail exchanges and assignments where students have assigned agency related to their success and self-regulation. The qualitative analysis was expected to lead to the discovery of theoretical constructs that can be examined in the light of existing theory surrounding self-regulatory learning practices.

Specific research questions include:

1. How do students enrolled in different versions of an online course that demands different levels of abstract reasoning and self regulation communicate about their learning?

2. What do these communications indicate regarding student readiness for learning at the university level- specifically online and blended learning environments?
How are student expressions of learning and self-regulation shaped by the instructional design and methods of instruction?

3.2 Philosophy of Inquiry

At the core of all research live two questions: what is truth and how can we come to know it? Questions of ontology (what is true) and epistemology (what can be known) have been a particular focus of argument among researchers over the last 200 years (Gribich, 2007). The question of what is truth is at the heart of determining valid knowledge in the social world (Kvale, 1995). Three philosophical constructs form the basis of classical criteria for determining truth: (1) correspondence, (2) coherence, and (3) pragmatic utility (Kvale, 1995). Correspondence relates truth statements with the objective world, coherence criterions to the internal logic of the truth statement, and pragmatic criterion with the practical utility of the knowledge statement. While these criteria are not mutually exclusive (Kvale, 1995), they have lead to several epistemological traditions through which claims of truth can be made (Gribich, 2007). These claims are framed in the dichotomy of objectivism and relativism. At the heart of objectivism is the belief that there exists a truth that can be known independent of the observer. This is the idea that there is a single version of truth that can be known. This as a permanent framework through which the nature of knowledge and truth can be known (Bernstein, 1983). This is contrasted with the counter ontology of relativism where knowledge and truth are framed in the context of culture (Kvale, 1995) where “knowledge is sought through a rational argument by participants in a discourse” (p. 24).

Epistemological traditions impacting the canon of qualitative research include: (1) positivism/empiricism, (2) critical emancipator positions, (3)
constructivism/interpretivism, and (4) postmodern and post-structural. These epistemologies have evolved over time resulting in different qualitative and quantitative research methodologies (Gribich, 2007). The question of method is then rooted in their personal ontological and epistemological views. Positivism has been the basis of quantitative research and is often at odds with qualitative research. Glaser and Strauss proposed a qualitative method based on symbolic interactionism, social process and pragmatism as a way to systematically discover grounded theory (Hallberg, 2006). Hallberg goes on to explain that “the ontological assumptions behind symbolic interactionism include [the idea] that meaning is constructed and changed via interactions between people and that people act on the basis of the meaning they ascribe a situation” (p. 142). After Glaser and Strauss published, they went on to work independently and grounded theory began to evolve in different directions. Glaser held to the classical view of grounded theory while Strauss joined with Corbin and reformulated grounded theory to reject the positivist position and argue, “reality cannot be fully known but can always be interpreted” (Hallberg, 2006, p. 145).

Charmaz then shaped grounded theory from yet another epistemological perspective- constructivism. “Constructivism assumes that there are multiple social realities simultaneously rather than the one and only real reality” (Hallberg, 2006, p. 146). A constructivist approach to grounded theory “places priority on the phenomena of study and sees both data and analysis as created from shared experiences and relationships with participants and other sources of data” (Charmaz, 2008, p. 130). Constructivist grounded theory can be contrasted with that of the classical view of grounded theory which takes an objectivist approach grounded in the positivist tradition
that there is an external truth waiting to be discovered (Charmaz, 2008). Charmaz goes on to explain that the “constructivist view assumes an obdurate, yet ever-changing world but recognizes diverse local worlds and multiple realities and addresses how peoples actions affect their local and larger worlds” (p. 132).

As a researcher and educator, I believe that knowledge is constructed through social interactions and that there are many truths that are rooted in and shaped by culture, perspective and experience. My epistemological lens is largely that of a social constructivist/contextualist. I find agreement with Charmaz in that there are multiple truths. I do not agree with Glaser’s view that prior literature be avoided as you seek to discover truth. Rather, this knowledge should be acknowledged as it shapes the data, analysis and theory that emerges. The researcher cannot be separated from that which is being studied.

The study environment involved an online computer applications course designed to leverage learning affordances offered by alternate reality games (AltRG). The current version of the course, Broken Window, and its predecessor The Door were both designed from the epistemic view of social constructivism. Broken Window has been redesigned to leverage the implicit development of self-regulatory behaviors. Additionally, another version of the course uses elements of the AltRG but makes explicit requirements regarding the development of self-regulatory learning practices. The study environment involves interactions with the learning environment, other students, and instructors resulting in the creation of communicative artifacts as students move through the course. It is for these reasons that qualitative research methods were
employed using constructivist grounded theory and content analysis as the primary method of data collection and analysis.

3.3 Research Design

The study utilized qualitative methods that involved case study interviews of students, constant comparative analysis of interviews and student generated communications captured through class blogs, forum posts, e-mail exchanges and assignments where students had assigned agency related to their success and self-regulation. Finally, the qualitative analysis lead to the discovery of theoretical constructs that were examined in the light of existing theory surrounding self-regulatory learning practices. There was also an evaluation of pre and posttests as well as student engagement matrix's as captured through digital traces left by students as they navigated the course.

3.4.1 Setting

The study was conducted at a medium sized university in the southwest United States with an undergraduate population greater than 35,000 students. All participants were drawn from a course that was currently serving as a learning environment under study. This learning environment was an undergraduate online/blended computer applications course that was required for students from all disciplines.

3.4.2 Participants

Participants in this study were selected from multiple sections of an undergraduate computer applications course taught by four to five different instructors and the course was delivered predominantly online. The students represented a cross section of the undergraduate population comprised of freshman, sophomores, juniors and seniors from multiple disciplines. The university undergraduate population consists
of 49% Caucasian, 11% African American, 11% Hispanic, 5% Asian, and 24% other (UNT, 2010). Participants in this study signed informed consent statements at the start of the course. Students were assigned to a course section through the enrollment process of the university while course instructors are assigned to sections by the departmental coordinator who manages the six sections of the course. The student population in the course consisted of traditional students as well as returning, non-traditional students. Each section of the course has approximately 30 students creating a potential participate pool of approximately 150 students.

3.5 Conditions

The study was conducted in two different versions of a computer applications course that has been undergoing modification designed to help enhance the learning experience and ways of addressing the teaching of self-regulated learning behaviors. Students were placed in multiple section of the course through the university registration process. One section of the course was taught using the Broken Window curriculum where lessons in self-regulation are implicit and embedded in the curriculum while the other sections were taught using the new version that explicitly teaches self-regulatory behaviors. Students did not select which section of the course they attended. Specifics about each course environment are discussed earlier in chapter 2.

3.6 Study Space Boundaries

During the course, the students communicated through various electronic means leaving behind digital traces. This study reviewed student communications across four sections and both versions of the course. These communications included student course blogs, forum posts, student/teacher e-mail (when available), and student assignments. The boundaries of these communications are formed by the student’s
participation in the course and the tools and activities provided in the course space. Communications that fell outside the defined space of the course space and activities were not considered in this study as they were outside the defined space for the course. This defined space was well within the field of study and fit the role of this researcher as participant observer, instructor and researcher. This method of boundary definition helped limit the scope of the study which was a challenge when communications are artifacts distributed across multiple spaces of the Internet (Hine, 2009).

Additionally, students were selected at the end of the course for confirmatory interviews based on preliminary analysis of their blogs, email and forum posts. These case study interviews were conducted in a semi-structured format and where analyzed following constructivist grounded theory methods (Charmaz, 2008; Hallberg, 2006). The students were selected from the pool of available students across both versions of the course.

3.7 Procedure

The study commenced at the start of the semester and ran for a full term of the course. Blog addresses for all students were collected and monitored for posts that spoke to the research questions being addressed. Within the two versions of the course, students were required to maintain a blog, make forum posts and submit specific assignments. The specific assignments, blog prompts and forum topics varied between versions of the course. All communications in the form of blogs and forum posts were collected for later analysis. Assignments and specific e-mail exchanges were also considered for analysis within the defined scope of this study. It was noted in past versions of the course that students embedded off topic comments that spoke to
self-regulation, agency and or communicative actions within their assignments. Assignments with these characteristics were also considered for analysis and inclusion in the study.

Communications were analyzed according to the procedures explained in section 3.10, which covers Data Analysis methods. Students were also selected as interview candidates from the pool of participants.

3.8 Data Collection

Student communications related to this study were collected from targeted course sections throughout the semester-long course. All students post the URL to their course blog, which was then collected from each instructor. This was used to create a master list of all student blogs. These were then entered into an RSS aggregator allowing the researcher to monitor progress with the blogs. This helped with early analysis of emerging themes and the development of needed modifications and possible interview questions. This also helped with the selection of students that were asked to participate in case study interviews that were analyzed following constructivist grounded theory constructs (Charmaz, 2008). At the end the semester, each blog was preserved by printing it to a PDF document allowing for continued analysis after the course.

Forums were monitored for emerging themes throughout the semester in each section of the course. At the end of the semester, forum threads were printed to a PDF document for preservation and further analysis after the course. Section instructors were encouraged to forward student/teacher communications that fell into specific topics under study. These included communications related to power relationships,
metacognition and self-regulated practices. Faculty were encouraged to submit student assignments that contained examples where the student went off topic to discuss aspects of self-regulation, agency and communicative actions.

Additionally, the learning environment provided a rich source of data that was used to create participant profiles. Blackboard was used as the LMS for The 2015 Project version of the course while Moodle was the LMS for the Broken Window version. Both of these tools facilitated the tracking of students as they navigated the course over time. This data included temporal characteristics as well as frequency of use and views of all materials presented through the LMS. This data was used to help develop user profiles for each participant, which was then compared to findings through analysis of other course measures as well as provide a baseline profile for entire course.

3.9 Interview Measures

The study included several students who took part in the case study interview portion of this research project. These participants were interviewed at the end of the semester.

All participant interviews were recorded using a digital recorder then analyzed using Atlas.TI. Portions of each interview that were salient to the study were then transcribed for further analysis using a constant comparative method. Interview questions were first framed from the emic perspective-seeking to capture what was meaningful from the actor’s perspective. These questions were be open-ended allowing data to emerge from the interview without framing from the researcher. This was followed by questions from an etic perspective where questions were drawn from
observations and analysis of communications from the course. Appendix A contains examples of interview questions that were used in this study. These were adapted from (Charmaz, 2008) following a constructivist grounded theory approach.

3.10 Data Analysis

Several methods of analysis were employed in this study. Qualitative data generated from the communication artifacts and interviews were evaluated following grounded theory methods as well as content analysis protocols. This sequential protocol started with grounded theory to minimize the effects of the researcher forcing existing frameworks and theories on the data. This was followed by content analysis using existing coding structures for self-regulated learning.

3.10.1 Data Analysis: Grounded Theory

Transcripts from all communications and interviews underwent constant comparative analysis with multiple coding passes. All transcripts and communication artifacts were loaded into Atlas.TI for coding and additional analysis. Attempting to avoid the confusion that can result from microanalysis coding (word by word, line by line), this study employed key point coding allowing concepts to emerge from the data (Allen, 2003). Key point codes were then compared to discover emerging concepts central to the research questions. Concepts were then compared with the goal of discovering broader categories that emerged from the data. Finally, the emerging categories were examined for connections leading to emerging theory.

This differed from Glaser and Strauss’ classic grounded theory where they originally let the research questions emerge from the field of data, and followed more in line with the epistemic perspectives of Strauss and Corbin’s reformulated grounded theory and Charmaz’s constructivist grounded theory where interpretations and
interactions between the researcher and participant were considered (Arcidiacono, Procentese, & Di Napoli, 2009; Hallberg, 2006).

3.10.2 Data Analysis: Self-regulation

The focus of this approach was to identify communications that spoke to the self-regulatory practices of students across two versions of the course. As each version applied different levels of regulation to the student, students operated at different levels of self-regulation. Students often recorded aspects of their self-regulatory practices within the communications under review in this study. These communications were subjected to a content analysis protocol. The communications were entered into Atlas.TI then coded against a specific a priori list of self-regulatory traits as first identified by Schunk and Zimmerman (1998). These self-regulatory practices encompass what they referred to as phases of the academic learning cycle (Table 2). The list was hierarchical with level 1 codes embedded within level 2 codes. Level 2 consists of three phases or codes: Forethought, Performance/Volitional Control, and Self-Reflection. Level 1 subprocesses or codes were embedded in the three level-two codes as learning strategies (Zimmerman, 1998):
Table 2

**Cyclical Phases and Sub-process of Self-regulation (Zimmerman, 1998, p. 4)**

<table>
<thead>
<tr>
<th>Forethought</th>
<th>Volitional Control</th>
<th>Self-reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Goal setting</td>
<td>1. Attention focusing</td>
<td>1. Self-evaluation</td>
</tr>
<tr>
<td>2. Strategic planning</td>
<td>2. Self-instruction/imagery</td>
<td>2. Attributions</td>
</tr>
<tr>
<td>4. Goal orientation</td>
<td></td>
<td>4. Adaptivity</td>
</tr>
<tr>
<td>5. Intrinsic interest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Zimmerman (1989) defined these strategies by associating behaviors that could be observed through acts of communication (Table 3). These defined the a priori coding structure for the content analysis of course communications and interview transcripts. This list was augmented by theoretical constructs that emerged from the grounded theory portion of the study.
### Table 3

**Self-regulated Learning Strategies for Coding (Zimmerman, 1989, p. 337)**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-evaluating</td>
<td>Statements indicating student initiated evaluations of the quality or progress of their work.</td>
</tr>
<tr>
<td>Organizing and transforming</td>
<td>Statements indicating student-initiated overt or covert rearrangement of instructional materials to improve learning.</td>
</tr>
<tr>
<td>Goal-setting and planning</td>
<td>Statements indicating students setting of educational goals or sub-goals and planning for sequencing, timing, and completing activities related to these goals.</td>
</tr>
<tr>
<td>Seeking information</td>
<td>Statements indicating student-initiated efforts to secure further task information from nonsocial sources when undertaking an assignment.</td>
</tr>
<tr>
<td>Keeping records and monitoring</td>
<td>Statements indicating student-initiated efforts to record events or results.</td>
</tr>
<tr>
<td>Environmental structuring</td>
<td>Statements indicating student-initiated efforts to select or arrange the physical setting to make learning easier.</td>
</tr>
<tr>
<td>Self-consequating</td>
<td>Statements indicating student arrangement or imagination of rewards or punishment for success or failure.</td>
</tr>
<tr>
<td>Rehearsing and memorizing</td>
<td>Statements indicating student-initiated efforts to memorize material by overt or covert practice</td>
</tr>
<tr>
<td>Seeking social assistance</td>
<td>Statements indicating student-initiated efforts to solicit help from (1) peers, (2) teachers, (3) others</td>
</tr>
<tr>
<td>Reviewing records</td>
<td>Statements indicating student-initiated efforts to reread (1) notes, (2) tests, (3) textbooks to prepare for class.</td>
</tr>
<tr>
<td>Other</td>
<td>Statements indicating learning behavior that is initiated by other persons such as teachers, parents, other students and all unclear verbal responses.</td>
</tr>
</tbody>
</table>
CHAPTER 4

ANALYSIS

This analysis consisted of data collected from two different versions of a course as taught by two different instructors. One instructor taught both versions of the course while the other instructor taught two sections of *The 2015 Project* version of the course. Participants were selected from each section representing a cross section of the students in the courses. Eighteen students representing four distinct sections of the course generated the data. Data for this analysis comes from the course blogs maintained by each student as well as selected emails. Three participant interviews were also included as data. There were 40 documents in the analysis and three hours of interviews.

The two versions of the course had different requirements regarding the use of the course blogs. While each version of the course provided specific blog prompts designed to help students focus their reflections, *The 2015 Project* version of the course was more specific and prescriptive regarding weekly blog posts. There were 18 assigned blog posts in *The 2015 Project*. The *Broken Window* (BW) version of the course was less specific and less regulated. Students were required to blog each week about their experience in the course. Early in the course, the students were provided with specific prompts but they were always encouraged to explore their reflections beyond these prompts. The prompts were less explicit or completely open-ended in the latter weeks of the course providing greater opportunity for students to respond extemporaneously. Students were to complete a minimum of 15 blog posts during the
course. Table 4 provides specifics about the average lengths of posts for each participant and the percent of required posting completed by the end of the course.

Table 4

*Participant Profiles and Blogging Activity*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Class</th>
<th>Ranking</th>
<th>Words/Post</th>
<th>% Req Postings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthur</td>
<td>2015a</td>
<td>Sophomore</td>
<td>445</td>
<td>83</td>
</tr>
<tr>
<td>Betty</td>
<td>Bwa</td>
<td>Senior</td>
<td>316</td>
<td>67</td>
</tr>
<tr>
<td>Brady</td>
<td>BWa</td>
<td>Sophomore</td>
<td>113</td>
<td>93</td>
</tr>
<tr>
<td>Helen</td>
<td>BWa</td>
<td>Sophomore</td>
<td>397</td>
<td>100</td>
</tr>
<tr>
<td>Kim</td>
<td>2015a</td>
<td>Sophomore</td>
<td>158</td>
<td>78</td>
</tr>
<tr>
<td>Ken</td>
<td>BWa</td>
<td>Freshman</td>
<td>170</td>
<td>47</td>
</tr>
<tr>
<td>Raquel</td>
<td>2015a</td>
<td>Senior</td>
<td>229</td>
<td>111</td>
</tr>
<tr>
<td>Cory</td>
<td>BWa</td>
<td>Sophomore</td>
<td>217</td>
<td>40</td>
</tr>
<tr>
<td>Scott</td>
<td>BWa</td>
<td>Junior</td>
<td>155</td>
<td>47</td>
</tr>
<tr>
<td>Mark</td>
<td>2015b</td>
<td>Sophomore</td>
<td>47</td>
<td>50</td>
</tr>
<tr>
<td>Martha</td>
<td>2015b</td>
<td>Junior</td>
<td>153</td>
<td>50</td>
</tr>
<tr>
<td>Mac</td>
<td>2015b</td>
<td>Junior</td>
<td>116</td>
<td>67</td>
</tr>
<tr>
<td>Tom</td>
<td>2015b</td>
<td>Freshman</td>
<td>89</td>
<td>94</td>
</tr>
<tr>
<td>Tim</td>
<td>2015b</td>
<td>Senior</td>
<td>157</td>
<td>78</td>
</tr>
<tr>
<td>Mason</td>
<td>2015b</td>
<td>Sophomore</td>
<td>204</td>
<td>61</td>
</tr>
<tr>
<td>Beth</td>
<td>2015b</td>
<td>Sophomore</td>
<td>232</td>
<td>106</td>
</tr>
<tr>
<td>Christy</td>
<td>2015b</td>
<td>Sophomore</td>
<td>150</td>
<td>89</td>
</tr>
<tr>
<td>Margo</td>
<td>2015b</td>
<td>Sophomore</td>
<td>204</td>
<td>72</td>
</tr>
</tbody>
</table>

*Note.* 2015 references *The 2015 Project* while BW references *Broken Window*. The two instructors are indicated with the letters (a) and (b). Participant names are codes used for analysis.

The initial analysis resulted in 173 codes. Of these, 23 categories were a priori from the work on self-regulation by Zimmerman (1989, 1998) and were supported by codes generated during open coding. Additionally, 153 new codes emerged from the analysis post hoc. Both a priori and post hoc codes are addressed in this analysis. The analysis resulted in 1298 quotations from eighteen blogs, twenty-two emails and 3 hours of interviews producing over 60,000 words of text.
All documents were loaded into Atlas.TI for analysis. This allowed for a priori codes to be applied to the data as well as open coding. During open coding, codes were generated as they emerged. Early in the process, a second researcher independently coded a sample of the data. Codes were compared for agreement and consistency. This process resulted in the creation of additional codes and the removal of those where there was little agreement.

Memos were produced during analysis and were assigned to codes, documents, quotations and suspected findings. Code density and relationships between codes were explored using Atlas.TI’s reporting features. Codes were then combined into code families. Relationships between code families were then explored producing the emerging categories presented in the following discussion.

4.1 A Priori Code Findings

The a priori categories used in this study were defined by Zimmerman (1998) and have been used in studies addressing students and their ability to self-regulate their learning environments and actions. These a priori categories were used in the analysis of codes generated during open coding and the distribution of the quotations, based on supporting codes for the a priori schema of self-regulation, between the two instructional designs is presented in Table 5.
Table 5

Distribution of Quotations Assigned Supporting Codes for a Priori Schema of Student Self-regulation

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>Supporting Codes</th>
<th>Quotes</th>
<th>Broken Window</th>
<th>Project 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORETHOUGHT</td>
<td>29</td>
<td>277</td>
<td>94</td>
<td>183</td>
</tr>
<tr>
<td>Goal setting</td>
<td>2</td>
<td>41</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td>Strategic planning</td>
<td>10</td>
<td>93</td>
<td>26</td>
<td>67</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>9</td>
<td>72</td>
<td>26</td>
<td>46</td>
</tr>
<tr>
<td>Intrinsic interest</td>
<td>6</td>
<td>60</td>
<td>23</td>
<td>37</td>
</tr>
<tr>
<td>Environmental Structuring</td>
<td>2</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>VOLITIONAL CONTROL</td>
<td>14</td>
<td>92</td>
<td>71</td>
<td>21</td>
</tr>
<tr>
<td>Attention focusing</td>
<td>1</td>
<td>26</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>Self-instruction</td>
<td>7</td>
<td>41</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>Self-monitoring</td>
<td>6</td>
<td>25</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>SELF-REFLECTION</td>
<td>32</td>
<td>269</td>
<td>119</td>
<td>150</td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>16</td>
<td>163</td>
<td>61</td>
<td>102</td>
</tr>
<tr>
<td>Attributions</td>
<td>5</td>
<td>69</td>
<td>32</td>
<td>37</td>
</tr>
<tr>
<td>Self-reactions</td>
<td>8</td>
<td>23</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Adaptivity</td>
<td>3</td>
<td>14</td>
<td>11</td>
<td>3</td>
</tr>
</tbody>
</table>

4.1.1 Goal Setting

The distribution of quotes with codes linked to goal setting was equally divided between the two instructional designs: *Broken Window* and *The 2015 Project*. In both Course designs, students recorded their goals and items linked to goals in their course blogs. However, the nature of these postings did differ in the details included and the focus of these posts. In *The 2015 Project*, students were guided with specific questions to address. This served as a guide that helped students focus their responses. In *Broken Window*, the blog prompts were more open-ended and did not specifically ask students to establish and share their goals. In short, they were asked to look back at the work they had done the prior week and evaluate their progress then make plans for
what they will do differently to improve their learning outcome. Students in *Broken Window* generally focused on time management and increasing the amount of time they dedicated to exploration of the resources and game elements. They seldom made reference to the word “goal.” In most cases, the statements were general and lacked the specific elements of goal making. The following quotes were typical of those from students in *Broken Window*.

   Brady: Over the next few weeks im [sic] going to do basically the same thing I believe that I have made real progress over the last few weeks and can’t imagine how much more progress I will gain these next few weeks.

Brady indicates that he is pleased with his progress and will continue to work the same way expecting the same or better results. Compare this with Ken who indicated a need to actually get online more and start exploring the learning space to increase his understanding. This tacit goal is an indication that he realizes he must engage in the learning environment if he is to understand the material.

   Ken: But I plan on getting on more just to explore and just find more evidence to make sense of things.

Scott, who was also in the Broken Window version found that like Ken, he needed to spend more time in the course space to make progress.

   Scott: In the next weeks coming up I will spend more time looking at this work to try to get a step ahead then where I am at right now.

Students in *The 2015 Project* version of the course wrote longer posts related to goals and include more details. They also made specific use of the words: plan, planning, goals, and goal accomplishment. They also mentioned how they went about setting goals. This was likely because of the scaffolding included in the blog prompts in
The 2015 Project. The following samples are typical of students in The 2015 Project version of the course as they wrote about goals.

Kim: I am someone who always likes to plan things out ahead of time. I like to have a point where I know things are going, so I can achieve them in a timely manner. My goals that I set are ones that I know I can reach, even if they are difficult ones that may take some extra time. For example this semester I am planning on reaching a 4.0, which is something I have never done. I am going to achieve this by studying hard, finishing all of my assignments and doing my best on test. I hope this will lead me to success.

Kim provides a structure in this post indicating her desire to plan ahead as well as how she sets her goals as attainable. This was then followed with a specific grade related example and the steps she saw necessary to achieve the stated goal.

Raquel, also from The 2015 Project used a similar format for stating her goals. Again, this points back to the prompt used to stimulate this reflection from the students.

Raquel: I usually set goals that I can reach because I usually use logical rationalization before I set it as a goal. No point in setting yourself up to fail, right? Most of the time I am pretty good at planning as to reach my goals. I keep a planner, calendar, and sticky notes all for reminders. I even set alarms occasionally to warn me when a task is coming up that I need to complete. At times I have been unsuccessful, but it is usually when I am lacking in motivation to finish the task or forgetting to write something down in my planner. Most importantly, I am not afraid to fail by trying to reach my goals... "Behind every successful man there’s a lot of unsuccessful years." Bob Brown.

Like Kim, Raquel indicates the importance of setting goals that can be attained and offers some basic strategic steps she takes to successfully meet her goals. However, she also indicates that there had been times when she had not been successful and links this lack of success to a lack of motivation. This would indicate the importance of motivation in the successful completion of goals.
Finally, the quote from Mason indicates some excitement in successfully completing the stated goal of completing Module 4 but also indicates a failure for other goals.

Mason: My goal this week was to complete all of Module 4 which I did! However, my lack of organization and motivation hindered my earlier goals of completing all of Module 3. I need to work on setting aside specific times to work on online homework and getting more focused. Lack of focus has been a struggle of mine since I haven’t been taking my A.D.D. medication. To improve myself for the future I will set aside two hours each day to complete my homework assignments and will get back on my medicine.

This failure to meet a stated goal was attributed to a lack of organization, use of time, and like Raquel, a lack of motivation. Recognizing this failure, he set a specific time related goal for the following week to help him improve his work in the class. He also noted the need to begin taking his medication used for A.D.D.

Students in Broken Window tended to focus their planning on trying to understand the learning environment and what was going on in that space while those in The 2015 Project looked toward the completion of modules and assignments. Motivation and use of time were two factors that were important to individuals as they planned. Also, the need to make sure goals were realistic and attainable seemed important to these students.

4.1.2 Strategic Planning

Quotes related to strategic planning were more frequent in The 2015 Project version of the course than in Broken Window. However, there seemed to be an interesting difference in the way students wrote about what they had accomplished and how they were going to improve through their strategic planning. Students in Broken
Window frequently referenced specific aspects of the course where they had or would engage with increased frequency in the future. These were often game elements and characters in the game narrative. The following quotes were typical of those from

Broken Window related to strategic planning.

Brady: I have confronted Javier about his involvement [sic] with Coda Omega, and waiting for a response. Also im [sic] scouring the websites looking for the other half of siri’s twitter [sic] picture. I have started [sic] research on the water born diseases and finding out how dangerous they are.

Brady speaks about Javier, Coda, and Siri as individuals he engaged with in writing or in person. However, all three of these were characters in the narrative that forms the framework for the AltRG Broken Window. He talks about how he explored resources offered by Siri and his expectation of a response from Javier based on his query.

In this next quote, Helen laid out her plan for success as she talked about her process of recording all that she saw as important as she explored the learning environment. To her, this kept her aware of all that was going on in the environment. Her use of the word “happening” in the context of this quote indicates that she was aware of change in the learning space and her need to keep a record of these changes.

Helen: Talking about the game I have been taking notes every time I open a page but this is because I have to do it in order to don’t get lost and keep track of every single little thing that is happening.

Contrast the two quotes above with this from Cory. Here, Cory indicated he spent time, a little time, looking at the Havenwyrd blogs, which served as the front door to

Broken Window.

Cory: I got on Monday-Friday I spent a little time looking at the Havenwyrd Blogs but did not really understand what to do with that until today it finally hit me invite Coda Omega to be your friend.
Cory indicates a lack of understanding about what was going on in this space or what he should do. He offers no indication that he has a plan. However, he does indicate in the end that he realizes he should interact with Coda, a character in the narrative.

Students in The 2015 Project tended to focus on processes related to completing work. They would reference their plans for time management and the need to balance social life, work, and school schedules. They also spoke more about general aspects of the course such as MyITLab and note-taking rather than specific interactions and elements of learning. The following quotes were typical of those from The 2015 Project as related to strategic planning.

Martha indicates that the computer was central to her work and that the ability to organize, take notes, and complete projects and other class work were important tasks accomplished with her computer.

Martha: I have everything saved to my computer for classes and notes projects. I put them in folders that way I have it on hand with me everywhere I go. If we didn’t have technology I would have alot [sic] to carry around. It helps me alot [sic] with my school and work load, and I would be lost without it.

Contrast this with Mac who focused on the need to balance various aspects of his life: social, school and work. While he realized the need to examine this aspect of his life, he offered no plan or “hopes” a solution will present itself.

Mac: I’m still trying to manage a social life as well, and with school and work it’s getting harder and harder. But hopefully I’ll find that healthy medium really soon.

Beth provides additional detail in her post as she indicates specific aspects of the course where she is focusing.

Beth: This week I focused on working on my letter. Because I have been completely lost with the letter, I tried to get input on what to do to make my letter better and more interesting and then I focused on trying to improve it.
I added more information into my letter and I am looking for pictures to put in my letter for this weeks [sic] assignment. I also just did MYitLab [sic], which was very easy this week. For this next week coming up I just plan on striving to make my letter the best that it can be.

4.1.3 Self-efficacy

There were nearly twice as many references linked to self-efficacy in *The 2015 Project* version of the course than in *Broken Window*. This was likely due to the specificity of embedded scaffolds in blog prompts included in *The 2015 Project*. Universal to both designs was the general lack of confidence in student ability with technology. Students made statements that indicated they felt they were poor technology learners or were not comfortable using computers. For some, this was a source of fear as they were enrolled in a basic technology course- Introduction to Computer Applications. Those in the *Broken Window* version of the course also made reference to their abilities with games. This was likely because it was the only version where they were playing an AltRG game. Students in both sections also referenced their self-perceived abilities in working with people. The following quotes come from both sections and are typical of those made by students in reference to self-efficacy.

Raquel was in *The 2015 Project* and these first two quotes indicate her self-perceived abilities with technology and people.

Raquel: I believe I am fairly good at solving problems dealing with people. I actually have a lot of people tell me this, too. I don’t really have a strategy or process because it feels really natural. I just put myself in the receiver’s shoes. In dealing with problems involving computers or technology, I am not very good. I get frustrated very quickly.

Raquel acknowledges that people can be difficult to work with and that she has developed skills that help her in this area. She also reports confirmation in her people skills as supported by other people in her life. She indicates that this comes naturally to
her. However, she indicates that technology is not one of her strengths and that is it often a source of frustration. She expands upon this in the next quote from Raquel.

Raquel: I have a love hate relationship when it comes to technology. I don’t know how to use most technological things, so I try to stay as basic as possible. Email when must, taking notes on paper, no Internet on phone, etc.

Here, Raquel indicates her awareness of the necessity of using technology but only wants to for those things that are absolutely necessary. It should be noted that there is a distinctly different approach for Raquel when it comes to dealing with difficult people compared to difficult technology. From the perspective of Raquel, this is an important difference related to self-efficacy. However, later in this analysis, Raquel offers a tacit perspective on dealing with difficult people as she has difficulties finding an editing partner for a group project.

Christy, also in *The 2015 Project*, saw herself as a leader. Placing this quote in the context of Christy expressing her frustration with others in her group not contributing or participating in any of the online discussions, she was thankful one member of her group did engage in the assignment.

Christy: I’m a definite leader and speak-my-mind kind of person. So I naturally came up with some ideas for the video and luckily another guy in the group had a voice too.

These next two quotes come from students in *Broken Window*. Cory focused on his lack of enjoyment of video games. He makes an assumption that most college students like to play games and that he is different in his lack of video game experience.

Cory: I have to be honest I am not like most college students I do not play video games hardly ever. I like playing sports because I am good at them and I like playing some video games to escape at that moment such as a long road trip, or something of that nature.
Additionally, Cory contrasts the play of video games with his enjoyment of playing sports. Clearly stated is that the joy in sports comes of his ability to play them. He sees himself as good at sports. However, he does indicate that he finds joy in the escape of video games. For Cory, the joy in sports comes from his ability to play while any joy in video games comes through escape.

Helen saw herself as behind with her computer skills when she entered the university.

Helen: The worst part was that, when I got into the university I had not computer skills at all. I had to learn from the bottom and start building up my knowledge with computers since in Mexico I never had the access to use it.

For her, the lack of access to computers during her time in Mexico placed her at a disadvantage.

4.1.4 Intrinsic Interest

Quotes related to intrinsic interest were equally distributed between the two versions of the course. The general themes related to intrinsic interest were also similar across both sections of the course. Students seemed to indicate greater interest and even enjoyment when they had a personal interest in the topic. They also indicated that the work was difficult when the interest was not there. Many seemed to gravitate toward topics related to their major or what they hoped would be their profession after graduation. The following quotes were typical of those related to intrinsic interest.

This first quote from Mason speaks to the importance of intrinsic interest as a motivator in school. With a recent change in his major, he finds himself without the motivation to continue with his education. It is interesting that he does not indicate what his new major is or why he made the change. He also does not indicate that he has any
plans to address this lack of interest and motivation. This clearly speaks to his lack of ability to adjust to change and self motivate to change his current situation.

Mason: I recently changed my major and lost all interest in school. Sometimes I feel like I have no clear direction and it’s certainly not motivational.

Comparing the previous post form Mason with this one from Brady who was in *Broken Window*, there is a difference in perspective. Mason wrote from a negative perspective—the lack of intrinsic interest—while Brady focused on his interest in games.

Brady: I love video games. I have been a “gamer” my entire life. I play xbox 360 [sic] and fantasy [sic] football.

Brady wrote this passage as he was addressing the learning environment in which he found himself engaged. For him, great joy came from games and there is a sense of excitement in his words. This excitement played out in other areas of his writing as Brady played *Broken Window* as well as developed his own game during the second half of the course.

Helen, also from *Broken Window* found her intrinsic interest in her future work as a teacher.

Helen: At the same time I know that is going to be really beneficial for me since I will be becoming a Teacher in the future and I will need to have more skills than knowing how to open a white page and write something out. Helen also connected with the assignment for she was working on as it had connections to her personal interests in Costa Rica. Her choice of words about mentally traveling back and forth to Costa Rica indicates a high level of engagement based in interest in the work she was doing.

Helen: All these week I have been traveling back and forth to Costa Rica, not specifically physically but mentally. This week I discovered that when you feel attractive into a subject you get so connected into it. That these
converts into a world where you feel addictive into it that each day you want to learn more, and more.

Finally, Martha, from The 2015 Project talks about how she chose her working group for The 2015 Project assignment. Her desire to be a teacher in the future was her motivation for joining the education group on the forum.

Martha: I want to be apart [sic] of the Education group. I am becoming a Teacher, and Education is everything to me.

4.1.5 Environmental Structuring

This category was unique to The 2015 Project sections of the course. This was likely because students had a specific blog prompt that asked about how they prepared their learning environment to maximize their learning. Most students talked about the locus of study as well as the elimination of distractions. Students also talked about their requirement for food, drink, dress as well as their preferences for music. The following quotes were typical of students talking about how they structure their learning environments.

Beth was very specific about her learning environment indicating that she had to have everything in place before starting. She addresses the acoustic environment as well as temperature and furniture. She makes specific mention of clothing and the need to have something to drink while studying.

Beth: Usually when I’m getting ready to do some reading or learning, I have to have everything in a certain way. I’ll start by putting on some music, usually something light, like acoustic adult contemporary or something like that. I also need to have a drink with me so I grab a Dr. Pepper or Orange Soda, maybe some hot chocolate during the winter time. Temperature in a room is key for me, it can’t be too hot or too cold or else I can’t study, and it takes me a while to find that median. I usually wear some comfortable clothing like dorm pants and a t-shirt, or in the winter time a hoodie. Then I sit at my desk, in my highly comfortable chair, and well… study.
The next two quotes come from students who focused on the elimination of distractions.

Kim: My learning environment is located in my apartment in Denton. I will be sitting at my kitchen table with my laptop and no distractions at all. I want to get my assignments completed as early as I can so that things do not pile up on me. I feel like being comfortable in my apartment will help me complete assignments.

Tim: I will be doing all of my LTEC assignments in my bedroom at my apartment. It should be a fairly quite place to do my work because I don't have a TV or anything to distract me, and I can close my bedroom door to keep from being distracted by my roommates. Usually my roommates aren't here anyway. I have my laptop and printer on my desk, and I have also set aside a notebook and some pens to take my notes for this class.

Both Kim and Tim address the need to eliminate distractions from the technology that surrounds them. Additionally, Tim clearly attempts to eliminate social distractions that might come from his roommates while Kim makes a tacit reference to being at a table without any distractions. In both cases, this was the priority for preparing their working environment.

4.1.6 Attention Focusing

Attention focusing as an a priori category was most prevalent in the Broken Window course design. This was not surprising as the course elements were embedded in a narrative game requiring students to unpack the content and tasks from the narrative. The students had to examine the course and game elements for relevance and prioritization. Students would often make mention of specific characters they had been following in the narrative and the need to take action with some of them. Others made it clear that what they had been doing was not taking them as far as they wished and made specific plans to look at other areas of the course during the week. Overall, refocusing included new social interactions, looking at specific characters from the
story, exploration of resources made available through the course sites and artifacts left by characters from the narrative. This first example from Ken illustrates how the students would write confirmatory statements indicating their understanding of what was going on at that time in the class.

Ken: So far in ltech [sic] we are helping Walter find his lost associates that have been kidnapped by c0d4; a mysterious group of people orchestrating chaos in the world around us. They have kidnapped most of his workers and are threatening to take another one if he doesn’t stop doing research.

Betty indicates in these next two quotes the areas where she is planning to focus her efforts. The first quote indicates that she identified the research related to water borne diseases as her area of focus.

Betty: I think I’m going to redirect my focus this week to the actual research and see what that gets me.

As the course progressed and the need to change focus became evident, Betty shifts her focus to game elements presented by Babette, a character in the narrative of Broken Window. Since the students were tasked with the creation of an AltRG, she indicates the need to begin exploring resources that were provided.

Betty: I’m going to spend some time reading all of this information from babette [sic] this week and maybe interacting with some of the ARG sites you’ve given us.

This next quote from Helen is characteristic of students who were connecting with specific characters, clues and game elements embedded in the course narrative. References to artifacts placed in the course blog and interpretation of these items indicate a high level of engagement and processing. Helen is well engaged in the narrative as indicated by her references to Siri, Catherine and Chinua, all characters in
the course narrative. She indicates that her plan is to get more information from the three individuals.

Helen: Another thing that has kept my attention is the blogs that had been posted this last week there is a picture of a men, and this man doesn’t look friendly at all. But where I am trying to get is that during this week’s three ladies where mention more Catherine Felwood [sic] that is the Administrative Assistant, Siri Tanaka that is the Asia Havenwyrd Research Associate; United Nations Disease Specialist and finally Chinua Tetembe-Wilson that is the Africa Havenwyrd Associate; U.S. Center for Disease Control: African Research Envoy.

When attention focusing emerged in *The 2015 Project*, it was associated with the level of effort the student had put in during the week. The following from Martha was typical of attention focusing in *The 2015 Project*:

Martha: I need to manage my time alot [sic] better than what I am doing now. Whatever I thought I was handling good is not the best thought. I need to sit down and organize all my homework better than before.

Here Martha indicates issues with her time management and organization and tells us that she realizes she must make changes in these two areas. She also indicates some level of surprise in that she thought she was doing well with her assignments but realized she could do better.

4.1.7 Self-Instruction

Evidence of self-instruction was about three times more prevalent in *Broken Window* than in *The 2015 Project*. This distribution pattern makes sense in that *Broken Window* was designed to incorporate elevated levels of self-instruction. Tasks were embedded in narrative and the learning was embedded in the context of tasks that were also wrapped in the narrative. By design, *Broken Window* had little direct instruction. The following quotes were typical of those related to self-instruction and the learning process and come from students in *Broken Window*. 

66
This quote from Brady comes from the first half of the course when the students are required to engage in self instruction related to the water problem that was being worked on by the Havenwyrd Institute. Here, Brady indicates that he is starting this process.

Brady: I have started research on the water born diseases and finding out how dangerous they are.

This next quote from Ken marks a moment that a student learned about appropriate use of language in email through his interactions with Walter, a character in the narrative. Ken sent a very poorly written message asking for information from Walter. The message included “text speak” and lacked all formal structure appropriate for the message he was sending. Walter replied with what Ken described as a stern message. The impact of this exchange was evident in a change in his future messages. He also shared this experience with the rest of the class during one of the face-to-face sessions.

Ken: I have communicated with Walter and received a very stern email in the process hahaha (sic) but I mostly have been communicating with my group to make sense of this.

The next two quotes indicate that students were turning to both character agents for learning as well as their peers. Here, Scott references how he is learning about events in the learning environment through a character named Siri.

Scott: Siri is keeping us connected with clues on Twitter. She has also informed that there is a bearded glasses man that is following her around.

Cory indicates that he feels his understanding is improving as he talks with his classmates.
Cory: I am asking questions to other classmates to help understand the information some of it has not really helped me yet im [sic] still trying to figure this out but I think im [sic] getting better each week.

This next quote from Helen is of a different nature. While the students above were focusing on specific aspects of the game and understanding of the tasks, Helen wrote about how she has been learning through failure. In this case, the failure to understand what was happening. She clearly indicates that she has been talking with her peers and has learned that others also have questions about what is happening. This seems to have served as a motivator as she realized that she was not alone in the class. In the end, Helen was one of the strongest students in both the playing of Broken Window and with her work on her group’s version of an AltRG.

Helen: I have learned that sometimes is better to failed [sic] and learn from our mistakes, mistakes that will make us stronger persons. For example when I have a feeling of overwhelmed, a feeling where I do not find the exit to my work. I just remember that I am not alone in these boat [sic]. I look around and see that I am not the only one having problems with all the class.

4.1.8 Self-Monitoring

Self-monitoring was over twice as prevalent in Broken Window than in The 2015 Project. To be successful in Broken Window, a student must keep track of the characters they had been interacting with, the information they had discovered and to whom the information was associated. While this was made explicit in the embedded tasks, students still struggled to keep these records and it was through game play that the importance of this task became evident. Students in The 2015 Project had direct instruction through MyITLab and their textbook reading and assignments. They were also assigned specific self-regulatory tasks related to using a calendar for planning out their work weeks and the completion of assignments. This reduced the need for self-
monitoring in *The 2015 Project* to grades on assignments and progress through the assigned material. This can be contrasted with students in *Broken Window* who were constantly being challenged to monitor what they thought they knew about the events in the narrative and the associated learning tasks. The following two quotations were typical of those related to self-monitoring. The first comes from a student in *Broken Window* and illustrates how the student was required to piece together information from multiple sources to create new knowledge on which they were to act. The second comes from a *The 2015 Project* student and illustrates the degree to which they were monitoring their performance in another class and how that relates to how they were doing with their schoolwork in general.

Ken: Right now I’m in the process of piecing information together to pin the situation on Walter and the staff he has working with him in this scam. I have received emails that have allowed me and my group members to get into Catherine’s emails so this should help us out.

At this point, Ken has decided that Walter is in on a scam and that he believes the new clues related to email in Catherine’s account will help him confirm his suspicions. This level of self-monitoring is related to the solving of the ill-defined problem that formed the basis of the narrative and associated tasks.

Contrast this with Arthur from *The 2015 Project* who focused this long post on the mechanics of learning in one of his other courses. This quote indicates a focus on grades as a form of self-monitoring.

Arthur: So far, I haven’t missed a single lecture, which is a huge step forward [sic] since last semester. I’ve submitted all my course work on time, and today I just found out the score to my first BIOL 1112 exam. You ready for it? First, let me start by illustrating the beginning of class: As the professor walks in, the class hushes and he smiles, a stack of graded scantrons [sic] in his hand. He says verbatim with a slight southern draw, “The class average is 65, so y’all did pretty good.” Pretty good? PRETTY
GOOD???: The number 65 and ‘pretty good’ was never meant to be said in the same sentenced. At that point I was frightened. Last Friday, I estimated I had made somewhere between a 78 and 96- both exceptionally above the reported class average. Was I in for bad news? I braced myself as the TA slid the scantron [sic] onto my desk. To my surprise I made an 86, and with a curve of 5 points, I ended up with a 91! I am so happy with the grade!

Arthur continues by addressing his self-efficacy related to biology and links his recent success to changes in his time management and studying.

Arthur: Biology has never been my forte, and it just goes to show that a little planning, a little time-management, and studying will go a long way! However, staying on top of my reading assignments has still been a struggle. I have so much material accumulated from all my classes, I need to plan specifically how many pages per day to read. I should also stop waiting until the last minute. I always seem to find better things to do than schoolwork, and its [sic] a hard habit to break!

In other posts by Arthur, he attributes some of this success to the required self-regulatory assignments from The 2015 Project.

4.1.9 Self-Evaluation

Self-evaluation was approximately twice as prevalent in The 2015 Project than in Broken Window. This was likely due to the specific nature of the blog post prompts in The 2015 Project. Students in The 2015 Project were provided regular scaffolding as it related to self-reflection and evaluation through these prompts. However, there seemed to be a difference in the content that was included in the reflections from each course design. Similar to what was found in self-monitoring, students in Broken Window were more inclined to evaluate their problem solving process, the quality of a project or the way they went about working and how they changed their process based on the effectiveness of their approach. It is important to note that students in The 2015 Project also addressed some of this but that they were provided specific prompts while in
*Broken Window*, the prompts were less specific and prescriptive. The next three quotes were typical of self-evaluation as it appeared in *Broken Window*.

Ken: It seems like I always keep getting distracted by other stuff when it comes to doing my ltech [sic] assignments. I will be on the computer doing them and then next thing you know I’m doing something else on the computer. Wether [sic] it’s other school work or just playing on twitter it seems as if I have a hard time getting the work done. I have learned that I get distracted easily when it comes to do my blogs on my computer so I have started doing them on my phone. This has kinda [sic] helped me because them I could use my computer for searching for information instead of trying to do it all at once. I spent most of my time at the havenwyrd [sic] blog site waiting for more updates and simply trying to make sense out of what’s going on compared to what I already know.

Ken focused on how he was easily distracted when he was on the computer. This self-evaluation led him to make a change in his approach to completing assignments through his blog by using his phone. He believed that this was an improvement because he removed the distraction of Twitter and other social media when he was working on his blog entries.

This next quote from Brady is an example of a student evaluating the work that they had done and how it made them feel. In this case, he was pleased with the game his group was producing.

Brady: Our game is going good. We have a great story going on its just we are trying to figure out how to let people play it.

Betty provides another perspective of self-evaluation in this next quote by looking at the degree to which she understood what was occurring in the learning environment. She starts by evaluating what she knows about different characters:

Betty: I’m still pretty unsure what exactly is going on 😐. I think Leonard left some good information in his proof of life message. I was kind of difficult to make out exactly what he was saying there at the end but he said that her was lost and that were should find Chinua. Someone knows the time and place, but I’m not sure who.
Betty then talks about the actions she has taken including a specific reference to e-mailing some of the characters and reading and recording what she has learned from the Havenwyrd blog.

Betty: I’ve been trying to use the associates as a resource. I’ve e-mailed a few of them at this point. I’ve met with my group and shared information. I’ve been keeping up with the Havenwyrd blog and reading all the information that I received and taking notes using Microsoft word as a tool.

Betty ends her reflection with an evaluation of her success with the game element codes and a plan for where she will focus her time in the following week.

Betty: This second wave of information was a bit overwhelming. I tried to make sense of the first blog by decoding the numbers using some of the cipher links provided, but so far I’ve been unsuccessful. I think I’m going to redirect my focus this week to the actual research and see what that gets me.

The next three quotes came from The 2015 Project and were typical of the content that was linked to self-evaluation and self-reflection. Most of the quotes linked to self-evaluation were related to general performance in the course and how what they have been learning was perceived to be helpful outside of the course. There was little evidence that students reflected on their problem solving process in The 2015 Project version.

Martha indicates that she found her course work increasing in difficulty as she progressed through her educational career. Martha was a junior at the time and this was written and the course this was posted in was a lower division computer applications course.

Martha: I am starting to realize the closer I get to graduation the harder and more time consuming my classes are. I need to be better prepared for next semester for sure.
Mac also referenced being prepared but described it as organization techniques. In this quote, he attributes success in his courses to the organizations techniques he learned at the start of the semester in *The 2015 Project* design. The first six weeks of the course were highly regulated for the students requiring them to set up calendars, break down assignments and generally develop planning and self-evaluation skills. Mac attributes his success to this experience.

**Mac:** Much of the organization techniques I learned earlier in the semester have helped me out a lot.

This next quote comes from Tom who appeared to struggle with how to improve. He talks about how he has done all the work and that it was not too difficult for him yet he has had difficulties with the practice tests throughout the course.

**Tom:** So far in this class I feel like I have done all the work on the computer that is due for each week. I don’t find this to be hard, it is helping me learn more about the use of computers. I guess one thing I need to work on it knowing 100 percent about the different types of computers out there, I think knowing this will help me when it comes down to by a computer. One thing that I haven't reached is knowing that I will do well on the final test, after taking that practice test I didn’t do very well on it so I just nervous about it.

Tom also indicates that he believes the information will be useful for him in the future but seems unclear on how to improve his performance. He appears focused on grades as his measure of success and has taken action to improve by engaging in the checking for email and newly posted grades. This indicates a lack of understanding of basic practices that might be employed to reasonably expect improved results.

**Tom:** I know that it will just get better with the amount of work I am putting in for this class. I log in everyday just to make sure I don't have any new emails or grades.
Between the two course designs, The 2015 Project produced self-evaluative reflections that focused more on the mechanics of the course and closely aligned with the blog prompts. Self-evaluative posts from Broken Window, while less frequent, focused more on what was understood and how they were going to increase their understanding the following week through a strategic change.

4.1.10 Attributions

The presence of attributions was equal across both versions of the course and the content of the quotations exhibited few variations across sections. Students generally attributed their success, failures and learning to external entities such as other students, the bookstore, course transfers, learning management system, instructor and available time. The following quotations were typical of those from across all sections of the course.

Helen: I will admit that it was very hard to manage my time since they [sic] were a lot of activities that I suppose to do every single week.

This first quote from Helen references time as an issue and her ability to manage the time. Helen was a sophomore in Broken Window and did not have embedded lessons in time management. While she recognized that time was hers to manage the difficulty was with all of the activities she was involved with and the time she needed to dedicate to each. This student was taking a full load, worked part-time, received tutoring, was active in the youth ministry at her church and planned a wedding and married during the semester she took this class. Helen had a very busy schedule and took ownership over her responsibility manage her schedule.

Contrast this with Martha who indicate in the next quote that she had difficulties on some of the assignments and attributed her failure to a lack of time and effort to log
into Blackboard. While she takes ownership over some of this failure by referring to her lack of effort, she also references a lack of time without the acknowledgment that she had control over managing her time.

Martha: I have already messed up on some assignments due to lack of time and effort to log into blackboard every single day.

Margo offers another perspective on attribution by linking her success or failure to the popularity of the topic she had chosen for her 2015 project. She makes a claim of fact related to prior research related to maternal health, her topic and believes that the lack of prior research in this area makes it difficult for her to complete the project. This statement indicates a lack of engagement by the student as this topic has a rich history of prior work and is very accessible on the Internet. Margo attributes her lack of success with *The 2015 Project* to a false claim of fact thereby removing responsibility from her shoulders.

Margo: *The 2015 Project* has also been an obstacle for me, because i [sic] feel like it is an issue that is not really popular yet, so I could not find all the information I would have liked. I think because the specific issue of maternal health has not been studied and recorded on for only a short time and information is limited at times. Other than that I enjoyed this class.

Brady: I have also not been able to get the book since the bookstore has been out for two weeks every time i [sic] go in there.

This last quotation from Brady was posted at the start of the semester and references a time in the course when a student was deceptive in reporting the reason they did not have a book. The instructor followed up immediately with the bookstore only to learn that they not only had them in stock but that they had been in stock for approximately one month. By making a false claim about access to the book, Brady was
able to attribute earlier difficulties in the course to issues created by elements from outside the course.

While students freely made attributions in both course designs, they seldom took ownership over their failures and attributed these to other agents with agency over them. These agents were usually other students in the class, the instructor, outside influences, and course environments and methods.

4.1.11 Self-Reactions

While self-reactions were twice as prevalent in *Broken Window* as *The 2015 Project*, it was not well represented across either course design when compared to other categories of self-regulation. There was one notable exchange in *Broken Window* where a student was having problems with attendance, not working with his group and falling behind. This led to a series of email exchanges between the student and instructor and eventually an athletic coach and assistant athletic director. As the student fell behind, he submitted a paper that was plagiarized from Internet sources. The instructor notified the student of their grade of zero and notified the assistant athletic director about the group and attendance issues along with the plagiarized paper. The following quotes came from a group of communications related to this case and illustrate the outside regulation that was needed as the student’s self-reaction placed him in academic jeopardy. In an email to the assistant athletic director and student from the instructor:

William: Ken has not checked into the online environment in over 9 days. He is required to check in 5 days out of every 7 for attendance.

Here the instructor has notified the athletic department that Ken, a track star at the university was not attending class. This message was from an email that was sent at
the request of the athletic department as they were trying to keep Ken on track academically.

This next quote was also from an e-mail to the assistant athletic director from the instructor and indicates that Ken was not only missing from the online environment but had not shown up for the face-to-face session where he would work with his group on a project.

William: Ken did not show up at last night’s class. His group indicated that he did not do any work during the past two weeks since our last face to face and left them to complete all of the tasks.

Charlotte, the assistant athletic director responded to the instructor that they were working with Ken and that he was working on his project. This indicates the direct intervention of non-voluntary assistance from outside the course by those who also had a vested interest in Ken’s success.

Charlotte: his coach and Myself [sic] have him right now. He had absolutely NO excuse for missing class last night. He is working on the team project right now and know that we had a stern talk with him. So you should definitely see a big turnaround.

At around the same time that the above message arrived in the instructor’s mailbox, he received the following message from Ken challenging the instructor about his claim that Ken was not showing up to class. Ken sent this message to the instructor without copying his coach or athletic director. This message was sent prior to his meeting with them when he learned that they had course records from the learning environment that indicated his actual time online in the course environment.

Ken: Hello [Instructor] this is Ken and my academic advisor told me that she got a email from you saying that I had missed classes and haven’t been showing up and I was wondering how that could be and I have been going to class and everything.
Later in the semester, Ken contacted the instructor about his grades. This next quote indicates that Ken believed that he should have higher grades than he had received and wanted to meet with the instructor with the expectation that this would be “straightened out” in his favor as Ken believed that he was doing what was needed to pass. It is also important to acknowledge his need to introduce himself to his instructor.

Ken: Hello, my name is Ken I’m in your LTEC 1100.023 class I was wondering if we could meet so we can discuss my grades in this class please email me at your earliest convience [sic] so we can get this straightened out. Thanks in advance.

Around this same time, Ken submitted a paper that was plagiarized. This paper was checked through Turnitin.com and the report was sent to the athletic director and a grade of zero was posted for Ken. After Ken had met with his coach and the assistant athletic director, he sent the following message which does not indicate a claim of responsibility but rather a poor reflection on him. This was an image he wanted to repair. He does however, indicate the desire to start to engage in the class.

Ken: Good Evening, [Instructor] This is Ken and i [sic] was emailing you regarding the paper that i [sic] had recieved [sic] a 0 on that talked about preventable diseases. I realized that this situation has given you a bad perception of me and i would like to change that. I have attached a new version of my preventable diseases document to show you that I am not that type of person and that I am more than capable of being a good student I am prepared to put in the work to improve my grade by helping my group members and turning in my assignments on time.

Ken showed a short period of increased engagement but as the semester was coming to an end and projects were due, Ken had stopped working with his group and coming to class online and face-to-face resulting in the following message sent to his coach and assistant athletic director.

William: Ken has not checked into the online class space in over 7 days and it seems he has left his group hanging again. It seems he is not learning
from past lessons. This is not how teamwork is done and not acceptable. He will not get credit for the group work if he has not been an active group member throughout the process. As he must still take the final, complete the final blog post, comment on projects by other student groups, complete the group presentation project, there is a real chance that he will not pass if this work is not done. We are down to the wire and he has had more chances than most.

While Ken did engage in the end of the semester work and was allowed to complete the course, his self-response to his situation was largely destructive in nature and he only passed because of the incredible scaffolding that was afforded him. In the end, it does not seem as if he learned to adjust his own responses as there were people all along the way who were willing to pick him up and make sure he his work was done. While there were other examples of self-response in the courses, they were largely due to the reporting of grades or adjustments made in their approach to the course based on self-reflection reported earlier.

4.1.12 Adaptivity

The self-regulation category of adaptivity was poorly represented when compared with prior categories of self-regulation. However, it was three times more prevalent in Broken Window than The 2015 Project. Those that were coded for adaptivity were relatively weak examples and there was little consistency within the context that students wrote about adapting to their environments or situations. The following two quotes were likely the best examples from the set. In each case, the student made a change in their process or way of doing things to address a specific problem they encountered. One involves a shift in study time and location while the other involves a change in technology used to complete some assignments and address issues of distraction.
Ken discovered early on that he was easily distracted when he used a computer. This quote was referenced earlier in the context of self-monitoring. Ken adapts his use of technology to address what he saw as problem- distractibility by the computer. In this case, the computer had agency over Ken when it came to where he focused his attention and managed his time. What is missing in his adaption is the reality that he was enrolled in a computer application course which implies the necessity of using a computer to complete his work.

Ken: I have learned that I get distracted easily when it comes to do my blogs on my computer so I have started doing them on my phone.

Arthur adapted to a change in his commute as a result of a change in his residence. This shift necessitated a change in his locus of study as the commute was long and took up much of the time he would have used to study.

Arthur: You see, right now I commute to school. It takes about half an hour to forty-five minutes depending on the traffic to make it in time for class. This inconvenience has led me to establish my study time in various areas in and around campus. The library is a favorite and so is Big Mike’s Coffee shop- both have free Wi-Fi and are open twenty-four seven.

Both students indicated a change in their process based on the perceived need for change. One student made a change that increased his ability to study and still commute while the other student failed to recognize that his change to move away from using the computer was contradictory to the purpose of the course and would ultimately make the course more difficult for him to complete successfully. This is also evidence that students will not always make adaptive changes that lead to better results.

4.2 Post Hoc Categories

The following categories emerged from open coding conducted through constant comparative analysis.
4.2.1 Distraction

The category “distraction” is composed of nine codes where students indicated sources of distraction and the ways they dealt with distraction. There were fifteen specific references to distraction from seven of the participants across the study. The majority of these were found in The 2015 Project sections where students were specifically asked to write about how they prepared their learning environment. In the Broken Window version of the course, there were no specific student prompt for distraction. In this case, students who wrote about distraction did so without influence from the course or instructor.

The supporting codes were generally categorized as “distracted by technology”, “distracted by social interactions”, and distracted by “environmental factors” such as noise and clutter. The following quotations were representative of students writing about their distractions by technology and how they addressed these issues:

Ken: It seems like I always keep getting distracted by other stuff when it comes to doing my Itech \[sic\] assignments. I will be on the computer doing them and then next thing you know I’m doing something else on the computer. Wether \[sic\] it’s other schoolwork or just playing on twitter \[sic\] it seems as if I have a hard time getting the work done.

This first example comes from a student who was taking the Broken Window version of the course where there were no specific prompts requiring students to write about their learning environment or personal learning distractions. In this quote, Ken indicates that he was easily distracted by access to “other stuff” when he was working on the computer. In this case, the student recognized the issue he was having but was already enrolled in a course where close to 80 percent of the course would be delivered
online requiring extensive use of a computer and Internet access. Additionally, the subject matter was computer applications.

Kim: Sometimes when I am trying to be productive in class I get distracted and get on Facebook and become unproductive.

This example comes from Kim, a student in *The 2015 Project* and illustrates the connection between self-discipline and distraction. Students in this class sat at computers during the face-to-face portion of this blended course. This student stands apart from the first example in that Kim indicates that she is easily distracted with access to social networks when she is on a computer during the face-to-face class meetings.

Mason: Most of the time Xbox is a hindrance to my daily life due to it is [sic] an unproductive use of time.

This example from a student in *The 2015 Project* illustrates how the entertainment aspects of technology that are not associated with the computer used for class work can serve as a distraction. Technology referenced by other students included televisions, and cell phones.

This next quote from Beth was typical of passages that related distractions to social interactions. Beth, a student in *The 2015 Project*, illustrates social source distraction as well as their response to how they managed themselves.

Beth: I know my roommates hours of classes so it makes it easy for me to have my own time to focus on just my homework without having any background noise.

Beth recognized that she was easily distracted by noise and interactions with others. She made it a point to know her roommates schedule allowing her to decrease these social distractions.
The next quote from Martha is a great illustration of how the category of distraction was also linked to time management, environmental structuring and strategic planning.

Martha: You could call me OCD about that, it just bugs me when things are messy when I am trying to study. I get distracted easily, and if I [sic] see something in the corner of my eye. [sic] I have to clean it right then and there.

This quote was typical of those that referenced distractions from their general surroundings. It also serves as another example of how the references to distractions were often linked to attempts to modify their environment to address their distraction.

While students in both versions of the course wrote about distractions in their blogs, there were more entries addressing distractions from The 2015 Project version. These entries also tended to be longer and provide greater detail related to the cause of distraction and what they were doing to mitigate the distraction. The following quote was typical of how students wrote about how they changed their practice to address their distraction.

4.2.2 Group Experience

The category “group experience” emerged from a collection of 20 codes grouped into the following code families: group communication, group dynamics, and group value. Both versions of the course were required to work in groups. However, each version differed in their approach to group work. This difference was evident in the blogs across sections. Broken Window required group work throughout the entire course with a significant change in approach to group work after the first six weeks. While working in groups during the first six weeks, students could still be successful by remaining largely independent. However, the nature of assignments and expectations changed for the
second half of the course as the only way an individual could be successful was to function within a group.

This differed from *The 2015 Project* version of the course in that students were required to work in loosely defined groups that crossed sections of the course. In many cases, these groups were only groups in name in that there was little accountability to the group in this course design. Additionally, the only time students wrote about their groups in *The 2015 Project* was when prompted by their assignment while in the *Broken Window* section, students often talked about the dynamics and progress of their groups. The following quotes are examples of some of these reflections and illustrate the differences between the course versions as well as group communications, group dynamics and group value.

The first series of quotes were generated from the blogs of three male students who were members of the same group in *Broken Window*. They had difficulty planning face-to-face meeting times because of where each member lived. They also had a group member who was a student athlete and found his schedule difficult to work around. Additionally, there were issues of deception by this group member. This first quote illustrates how one member understands the importance of communication about schedules when working as a team.

Scott: The most important thing to work with peers from a distance is knowing what their schedules are during the week. For instance [sic] I had a kid who was on the track team for UNT and another kid that has a family and lives in Fort Worth. So it was hard to find time to meet up with all of them at the same time.
This next quote from Brady demonstrates the tension in the group generated by the difficulty they were having finding common times and locations (face-to-face or online) to meet.

Brady: I am a little worried about my group however. I live in Fort Worth and they both live on campus. It is very hard to meet face to face with them and when we do it isn’t [sic] really helpful I [sic].

Brady goes on to express his frustration with one member of their group.

Brady: One of are [sic] teammates has dropped the ball and is not helping us at all. Hopefully he starts to come around.

Ken, the group member in the above quote referenced as to “dropping the ball” went on to write in their blog:

Ken: I [sic] learned that if you dont [sic] do your part in certain situation it shows bad on the part of others and it doesn’t [sic] make you look like a good person to work with, the most challenging thing with my peers was getting in contact with them so i could tell them what i had done or to see what they needed help with. Working made things easier to complete.

Ken indicates that he realized he was not working well with his group and that they had already formed a negative opinion of him as a team member. Ken also had attendance problems adding to his difficulties with in working with his group. One member of his group, Scott, shoes the instructor a series of text messages on his phone from Ken that were prompted from his attempt to engage him on the group work. Ken had responded with the following text message?

Ken: forgot I was taking the class lol [sic]

This generated an exchange of email between the instructor and the athletic department where he was getting outside assistance. This is the same conversation that was addressed in detail earlier under self-reactions. This is best illustrated by the following
from an e-mail that was received by the instructor from the Assistant Athletic Director where she writes:

This next collection of quotes were also generated by a group of students in *Broken Window* and illustrates a contrast with the above collection in that this group consisted of two females and a male with one female being from Mexico and English was her second language. This is important in that there were multiple times in her blog and interview where she referenced language issues and cultural differences as factors affecting her experience and the working of the group. Additionally, there were tensions in the group that eventually led to one member disengaging from the group and class.

This first quote comes from Betty, a student who entered the class late. She was assigned to a group at the time she enrolled and reached out to her group for help. However, she found that this group was struggling to make sense of what needed to be accomplished.

Betty: I honestly didn’t spend as much time on the game this week as I did last week. I had a couple of quizzes in my other classes and they made priority. I got a little frustrated when I looked at all of the information I had to sort through for the game and I pushed it to the side. I don’t feel like I know anything and that’s frustrating. My group members didn’t seem to know much about what was going on when we met during the week. The blind are leading the blind right now. I’m going to spend some time reading all of this information from babette [*sic*] this week and maybe interacting with some of the ARG [*sic*] sites you’ve given us.

In this quote, Betty admits her lack of engagement during the week attributing this failure to the work she was doing for other classes. She then expresses her frustration in the work that needed to be accomplished to understand what was happening in the course. This led her to reach out to her group only to find that they were also at a loss as to what was happening at that time in the course. Here she saw
her group as a resource that might be able to help her make up for her lack of engagement during the week.

Helen, another member of the group with Beth illustrates the advantages of group work from her perspective as well as the difficulty she was having with the language. During the running of this course, in her blog and later in interviews, Helen shared about her difficulties with English and how it factored into her experience as a member of this group. This aspect of this quote makes a connection to a latter category-prior experience

Helen: It is really interesting when my team has the time to get together because we share different toughs [sic] for example I might look at a picture and think that it has allot [sic] of clues but I might not know what kind of information can I get from it, [sic] when my other group member might not think that is interesting but after they see it from the perspective or the point I am looking at it is easy for them to determine what is interesting about it or where kind the clue be hidden [sic]. The main point here is to get as explicit as we can in here having too much information and resources to get from is not wrong, or but the key here is team work because I might have two pieces of the puzzle and the rest of might team mates can have the rest pieces to be able to build it up all together [sic].

Helen clearly saw her group as a possible resource and that different perspectives were an advantage in problem solving. In contrast with Beth, she did not see the problem as having too much information but that it was important to work as a team leveraging the different perspectives of the group to make sense of the information before them. This quote was generated during the third week of class. This is important in that this quote also serves to benchmark the quality of her writing near the beginning of the course and will be contrasted with her writing near the end of the 16-week course.

This next quote is the only one provided by the third group member related to group work. However, it is the first indication that tension might exist in this group. Cory
indicates that he might not like the individuals he was working with but related that to “the real world” and therefore saw the value of continuing with the group work. He also believed that the value of a group was in communication where they were asking questions of each other and exchanging information. This is an important point in that the work presented by each individual in this group during the first 6 weeks of the course showed little evidence of collaboration by this individual indicating that students may write what they believe or want you to believe but that it may not match the reality of their situation.

Cory: In class I believe we are learning how to work together in groups even with people we might not like cause [sic] that is how the real world is and you have to learn how to communicate. I am asking questions to [sic] other classmates to help understand the information some of it has not really helped me yet im [sic] still trying to figure this out but I think im [sic] getting better each week.

In reading this quote, a large number of grammatical errors were apparent. English is this student’s first language. While there were many grammatical errors in the work of other students in this group and other groups, this is important in that Cory often complained during class that he did not understand what Helen from Mexico was saying because her English was poor.

This next set of quotes came from Betty and Helen, the first two members presented from this group, and illustrate how the group’s dynamics played out over the 16-weeks of this course. There is evidence of increased tension between Betty and Cory. There is also concrete evidence that Helen’s writing was improving as the following quotes attributed to her came from her blog and were written near the end of the course. She also makes reference to “the real world” and that there was value from different perspectives and culture within the group. In her blog entries, she never
mentions the tension between the other two members of her group. However, this did come out when I interviewed her and asked her specifically about her experience in the group and the group dynamics.

Betty: Helen and I have worked really well together we have a nice give and take going, but Cory on the other hand has shown me a side that I don’t enjoy. I won’t tell you how I really feel about him 😊 but we’ve had some problems.

Betty opens by indicating success in working with Helen but that she had strong negative opinions about Cory. She indicates that there is an exchange of ideas between her and Helen. She then provides her case against Cory and how he worked in the group.

Betty: To date he hasn’t contributed much of anything, but I’m hoping that if I continue to keep an open mind he’ll turn things around in the home stretch.

The lack of contributions from Cory were a problem for Betty but she maintained she was still open to future interactions. However, in this next section she indicates that they had several confrontations including a public one that occurred during a face-to-face meeting. This public display of disrespect by both individuals indicates just how dysfunctional they had become.

Betty: We’ve had several confrontations…(the initial conflict happened in one of our F2F meetings, SORRY!)…I’ve begun to feel like he would rather I do just everything for him. He’s got a “tell me what u [sic] want me to do type attitude”, but when I give him what he wants I’ve found that up to this point he doesn’t produce. He’s irresponsible and undependable.

Betty steps outside her perspective and tries to imagine what this must look like from the perspective of one of her professors. She clearly indicates that she understood what was trying to be accomplished through the instructional method and how students in
general want to be told specifically what they need to know. This was linked to her interpretation of what she felt Cory was looking from both herself and Helen.

Betty: I can imagine what some of my professors may feel like. We as students sometimes expect teachers to tell us exactly what to study and how to study it when it comes to exams. We like to be spoon-fed everything instead of having to take responsibility for our own learning.

As the class was listed as an Internet based class with at least 50 percent of the course work expected to be in the online environment, group work meant looking for ways to collaborate across distance and time. Betty indicates that Cory did not like any of the ways they were finding to work remotely as a group. Again, she links this to her understanding that this class prepared her to collaborate remotely in the future.

Betty: He complained about our preferred method of collaborating, but took no action to change things. I think this class has equip [sic] me with some tool [sic] I didn’t have before. You’ve shown us many tools including some that allow you to collaborate at a distance.

Betty indicates what she believed to be the issue for Cory- self-regulation. Through email and exchanges during face-to-face sessions, she worked to regulate Cory’s learning habits where he was unwilling to do so himself. She also indicates the recognition that she could be a self-learner with an overly broad statement about learning anything from the Internet.

Betty: Instead of Cory just taking matters into his own hands and taking charge of his learning I spent that class time doing that for him. It was foreign to me as well but you’ve shown me that anything I want to learn to do that involves technology I can learn it on the internet [sic]. When software changes as it will I’ll be able to adapt and change with it as long as I continue engaging and take responsibility for my learning.

Finally, Betty indicates that while frustrating, she did see the value in her experience on several levels related to working with others in the future.
Betty: This has been a frustrating experience but collaborating with others is something that we all must do. Not just in school but In [sic] our careers. It may not sound like it but I’m thankful for this not so fun-filled experience.

This next quote came from a blog entry made near the end of the course. Here Helen clearly illustrates her frustration with Cory for his lack of effort and engagement while expressing the positive nature of the working relationship with the Betty. While this is the first time this tension showed up in her writing, this tension was evident in the face-to-face sessions as mentioned in this quote. Later in the course, Cory completely disengaged from the group and course sitting in silence with his body turned away from the other group members as an apparent effort not to engage them in the work. Ultimately, Cory walked out on the group and the class accepting that his grade would suffer tremendously with this action.

Helen: Many people have problems working in groups at [sic] any classes, but to be honest I really do not mind working in groups. Of course I had bad experiences working with groups in other classes before. However I have learned throughout my life that in the future when I get out into “the real world,” I will have to be working in groups all the time. I have learned that is better to take it from the positive side and think that you are networking from people all around the world. People that is [sic] different from my culture that has different ideas and point of view about life.

Helen provides another example of a student making the connection of group work in class to what they will be doing when they get out of school. It is largely positive in nature and while still containing grammatical and syntax errors, illustrates the growth in her writing. This entry came from week 7 of the course.

The next entry from her demonstrates the student’s understanding of the importance of locus of communication for their group. This entry was posted during week 11.
Helen: During this week we set up a day for us to meet all together in order to continue with our group project, because every single member of our group realize, that it is the best way to communicate every opinion from each one.

In trying to better understand the dynamics of this group and the different approaches to dealing with conflict within the group, I asked Helen to talk a bit about her experiences in the group beyond what she shared in her blog. The following quotes were taken from this interview. In this first one, she described her personality when it came to dealing with difficult people.

Helen: One thing that helped me is that I am this kind of person that doesn’t get mad quickly. I’m like really calm. I’m like, if they say something wrong to me, I mean, I don’t mind. I just like, “Ok. Thank you” and keep going.

In reference to her most recent group experience in *Broken Window*, she described her role as one of referee between the other two members: Cory and Betty. She helped to regulate interactions between Helen and Cory as they were not able to find a way to do so individually.

Helen: Sometimes I would be like the referee. That is how I felt all semester long….“tell him I said this.” “Tell her I said that.”

Helen made few excuses for how she did each week. During the semester, she managed to do well in this class and reported that she did well in her other classes. During this semester, she was active in the youth ministry at her church, held down a job, received weekly tutoring for this class, managed to plan a wedding and get married. This short profile for Helen provides context for her next interview quote addressing how busy she was and contrasting that to Cory’s reason for not contributing to the group work. This quote also serves as a strong example of the level of self-regulation demonstrated by this student in the areas of time management.
Helen: Cory was saying,” Oh, I have things to do”. Everyone has things to do…I mean, he works. His excuse was always “it is because I work”. I work. She works. I think that if you studying, you always have to make priorities for your school…I was able to manage everything because I never had time for myself.

When asked about her past group experiences compared to this one she replied:

Helen: In all the times in all the groups, there s this person who most of the time doesn’t work, this lazy person and this person that like, tries to do what she can. I think that in all groups, all the time it will be the same thing. There will be people that will just not work at all and some people that work more. But I think that those people that work more it’s because they used [sic] to get good grades.

The following is a summary of a longer section of the interview with Helen and offers a glimpse into the progression of this specific group. She described using Wiigio, an Internet tool for collaboration to help with managing their group interactions. Realizing that they were not actually getting work done with this tool but instead were talking about what they needed to do, they switched to face-to-face meetings. However, this presented a problem as not everyone in the group could meet so they went back to working online. In the end, Cory was not participating so Helen and Betty went back to face-to-face meetings, as “he was not helping in either case.”

Looking at the distribution of posts related to group experiences across the 16 weeks of blogs, students freely offered insight throughout the course and not just when they were prompted to share about the work in their groups. They also wrote in detail about the interactions between group members and their self-perceived efforts. This serves as a major contract between the blog entries in Broken Window and those from The 2015 Project.

The next series of quotes all come from The 2015 Project. What appears clear in these posts is a general lack of accountability to the group or even a real sense of
group. As mentioned earlier, these groups were formed through student self-selection around topics from *The 2015 Project* content and group membership crossed sections and even instructors. In most cases, students wrote about their group experiences only when prompted in the weekly assignment. In general, the dynamics in these groups were less complex than those formed in *Broken Window* and stand in contrast to the narrative just presented.

This first quote comes from a student who did well in the course but was taking it for the second time because he failed during his first attempt. He attributed this failure to his lack of maturity and focus on his schoolwork. This quote was written based on a prompt around week 4 where students were to share past experiences working in groups. After sharing extensively about how he enjoyed working as a member of a production team with a film unit in California documenting several rock stars and their concert life, Arthur offered the following reflection of group work related to school

Arthur: As for school-group projects, I cringe at the idea. Why should my grade ultimately rest on someone else’s ability? The only way to remedy this is to have a clear description of the work each individual is required to contribute, then if someone does drop the ball, there is a clear trail leading to the culprit. If responsibility is too ambiguous, then the blame inevitably falls on the group as a whole. I will do my absolutely [sic] best to uphold my end of the bargain, and that’s the best I can do- for myself as well as for the rest of the group.

Arthur clearly states that he does not like the idea of working in groups in school because this type of work links his grade to the efforts of others in the group. The contrast between group work in school and work was interesting in that he spoke of the importance of doing your part as a member of a work group. He did assign accountability between members of the group but not evaluation of the work being done. The fact that he links his grade or evaluation to the work of others was more
explicit to him when it came to group work in school. Here, he proposes that accountability in school group work be made explicit so that it would be clear which members of the group did not contribute essentially delinking the grades in the group. In the end, the assignment of a grade seemed to be an issue.

By week eight, this same student found himself two weeks into a group project and expressed his frustration and confusion over group communications, members and group objectives:

Arthur: The formulation of the Working Groups is not working. I feel lost in the dark, disconnected, uncertain. Once a group is established, then a coherent topic must be agreed upon, and then responsibilities must be divided within the group? I'm just making a speculation. I don't really know the details. I've been in contact with one other student, but so far, the exchange between ideas hasn't stimulated any "eureka" moments or direction for the project.

This sense of working independently with little to no interaction and collaboration by other group members continued through week 9 until he posted the following in week 10:

Arthur: I'm getting excited about the 2015 forum. Some threads have sparked good conversation, and I feel like I'm starting to connect with some of the other members in my Working Group. It's still going to be quite interesting to see how the project comes together. It seems like every person in the forum has found their own little corner of the woods in the vast expanse of environmental sustainability. The consensus is that we see the world heading in the wrong direction; however, some have invested in solving deforestation, some air pollution or water pollution, some thinking about alternate energy source, and here I am stuck on changing the current socio-economic paradigm into a system more functional than the current one.

At this point, it seems that the group dynamics had gelled and there was a sense of excitement in his words as he expressed the variety of ideas that were produced through this group. Arthur also points to the diversity of ideas coming from the group
and saw this as a strength. He does however draw a contrast between the topics that others in the group selected and that which he was “stuck” with. The use of the word “stuck” seems to indicate agency over Arthur rather than choice.

Other students in this version expressed frustration in their peer’s seriousness about their work. When students were asked to find an editing partner and participate in peer editing of their work, she offered the following about her frustration in the course and working in groups.

Raquel: I’m only slightly bitter about this course if you can’t tell. Maybe because I can’t find a dad-gum editing partner that gives a flying flip about school!!

Yet another student offered the following when prompted to talk about her past group experiences. This is a good example of students recognizing the difficulty of working in groups and how each individual must be accountable to the group. While in less detail then the specific stories shared through the Broken Window blogs, Beth generally speaks to the same issues related to students who use the group to accomplish work for them:

Beth: I’m not particularly a fan of working with groups because group work almost always ends up bad for one person in the group. I am a strong believer that no matter what, every member of the group should put in equal participation on the project and most of the time that does not work out. There is almost always that one member that does a half job because they just don’t really feel like participating. There is always someone in the group that when you meet for group meetings, they just want to joke around and talk as opposed to getting work done.

Beth indicates a need for a sense of equality. This sentiment echoed throughout most student posts related to group work regardless of course design. Nearly every student at some point made reference to people in their present or past group work not doing their fair share. Yet, only two students indicated that they were the ones who had let
their group down by not doing their work. When looking at the number of utterances across both course designs, referencing group work, *Broken Window* provided the richest narrative and expression of group dynamics. The tacit approach of *The 2015 Project* did not seem to develop a strong sense of group.

4.2.3 Motivation

Motivation emerged as a category from 10 supporting codes resulting in 53 quotations. The supporting codes are grouped according to locus of the source of motivation and any shifts of this motivational source. At the top level are Intrinsic and Extrinsic sources of motivation. These two were further categorized by social, subject and grade. Additionally, evidence of motivational shifts were recorded indicating that students may have started a project motivated externally by grade, ease or difficulty of the subject matter only to later indicate an increased intrinsic interest in the material. Of these, external and intrinsic motivation was equitably represented with grades representing the greatest extrinsic motivator. This first collection of quotes was typical of students talking about the importance of their grades as a motivator

*Brady:* Receiving low grades on my first few reports has made me analyze every detail going on and I believe I’m starting to make some progress.

Brady indicates he was surprised by the grades he received on early assignments and that this served as motivation to increase his level of engagement related to the quality of work he was completing. Past grades clearly had agency over his future work. As he gave no indication that he was expecting low grades, he was forced to re-evaluate the quality of the work he was completing since he must have thought that his work was of quality warranting a higher grade.
In this next quote, Kim indicates that she had set a specific GPA goal for herself setting up GPA as her motivator.

Kim: [This] semester I am planning on reaching a 4.0, which is something I have never done. I am going to achieve this by studying hard, finishing all of my assignments and doing my best on test. I hope this will lead me to success.

This student indicated they set a grade-oriented goal for themselves for the semester and that this served as the source of their motivation to work hard in all of their classes including completing all of their assignments. Similar to the Brady quoted above, this next student found her motivation through the hope of good grades. This quote was from her first entry in the course blog at the start of the course:

Raquel: [My] expectations for this course are mixed. I feel like it’s going to be hard but am [sic] expecting to make a good grade. Well.. I guess hoping more so.

This particular student had prior experience in this course, as this was her third attempt at completing the course. Near the end of the course, she offered additional information regarding other sources of motivation including the role of her instructor in her successful completion of the course. In her final blog post she writes:

Raquel: Again, this is Raquel from [University]. Hope you enjoyed my class reflection. Thanks for all your help [Professors Name]; couldn’t have gotten through the course without ya [sic]. 😁

Rachel was interviewed at the end of the course where she also indicated that being a graduating senior served as a motivator. Having had two unsuccessful attempts at completing this required course, she had to complete it in order to graduate at the end of the semester. The clear deadline for success was a motivator she did not experience in her first two attempts at taking the course.
This next quote is from a student who wrote extensively about grades and how they served as a motivator as well as provided linkage to her joy in the class and the resulting stress when she found that her perception of her work was not in line with that of the instructor. This quote shows how the extrinsic motivation of grades can be linked to self-perception and emotion.

Beth: So far in this class, I’m undecided on how I believe I am doing. At first, I thought this class was very easy. I really enjoyed it and I actually thought that I was going to get an A in the class. I did every assignment, with the exception of maybe one or two, and I studied for the midterm, even though it was open book.

Beth talks about the class being easy and that she had completed all assignments. However, she does not indicate a level of quality related to the completion of the assignments. There seems to be a sense that simply completing an assignment is enough to expect a good grade. Next, Beth shares the moment she realized her efforts were not enough for an easy A and the effect the low grades had on her emotions.

Beth: The thing that turned my mind about my grade in this class was the midterm. I thought that I had aced the midterm, and when I got it back I had failed it with a 50 some percent. I mean, seeing that grade kind of crushed me and now that I did so horrible on the midterm, I almost feel stressed out now to strive to get an A or B in the class and I’m so nervous that I’m gonna [sic] miss another assignment, or not do the 2015 project correct. I just hope that I am able to get the grade that I believe that I deserve.

Beth indicates agency of low grades over her manifesting in stress and the feeling of being crushed. This placed a sense of urgency on the need to perform well on the remaining assignments which increased her stress. She closes this quote with a statement that seems to indicate that she feels she deserved higher grades. This does not indicate that she stopped to reflect on why her grades were low but rather and how
she could improve them. However, this quotation from Beth serves as an example of a shift in student focus in the course as a result of the grades earned.

This next quotation comes Helen who was from *Broken Window* and who was on scholarship. During an interview with the student, she indicated that she was surprised by the structure of the course and the amount of required reading. She found the course very difficult, as English was her second language. When asked why she did not drop the class when she noticed that the class was not a typical lecture course, she offered the following:

Helen: For my scholarship, I had to maintain 15 hours. And if I drop off that class, I will be under 12. So, I would not be able to, like, be able to try for that scholarship next semester.

Helen provides the first look at motivation that was not directly related to grades. In her case, the extrinsic motivator of a scholarship requirement kept her in the course.

This next quote continues to look at motivation that was not grade related. Here students generally linked their motivation in the course to the level of interest they had in the subject matter, topic of discussion or nature of the assignment. The following quote was typical of most of these occurrences and indicated they were changed by their experience in the course. Betty starts out stating that she had little intrinsic interest in the topic their group was focusing on in *The 2015 Project* assignment but that the experience of working through the assignment increased her interest in the topic

Betty: I originally felt little to no excitement about this topic. I would have picked something like poverty, maternal or child health since my passion lies with children and the things that directly affect their well-being [sic]. One of my group members seemed to really like the topic of Environmental Sustainability and felt this would be the easier route to go so I put my feelings aside and jumped on the bandwagon. Turns out it wasn’t such a bad idea. It’s grown on me and I think it’s a really important issue that we must start to look at and handle with a sense of urgency.
Betty indicates that her experience of learning more about a topic increased her interest in the topic and drew her into the work. In this case, the process of learning about a topic had agency over her view of the topic changing her perspective.

4.2.4 Emotion

Emotion emerged as a category with links to motivation, prior experiences and general experiences in the course. This category is composed of 12 supporting codes resulting from 40 quotations. The emotions represented in the data include joy, stress, pride, overwhelmed, frustration, rewarded, excitement, confidence, bitterness, and success. The majority of these quotations came from The 2015 Project. The following were typical examples of how these emotions related to aspects of student life and the course. This first one illustrates several different sources of frustration. Frustration was the emotion that showed up the most throughout the data and could be linked to several different sources. This first link provides a social link to frustration as Raquel clearly expresses her frustration in not being able to find an editing partner for one of her assignments:

Raquel: Maybe because I can’t find a dad-gum editing partner that gives a flying flip about school!!

Frustration was also frequently linked to student experience with the CBI portion of the course known as MyITLab. This next quote illustrates the general feeling toward MyITLab as expressed by many students through their blogs as well as commentary during face-to-face sessions:

Margo: Looking back on this semester and all that I have done in this LTEC class, I have hit a few obstacles over the semester that I can remember. The one thing that i probably got frustrated with the most was the myitlab. It was very time-consuming which did not bother me too much because it is homework and it is school, so that was not my biggest problem. My
biggest problem was that I had to do exactly what the software wanted me to. There is several ways to get the same results on all of the Microsoft offices, and if I tried to line a picture or text it had to be perfectly aligned on the vertical and horizontal ruler; needless to say it drove me nuts!

Margo’s experience seemed to be a common theme with most students in The 2015 Project version of the course, as they all had to complete multiple lessons through the MyITLab software and indicated difficulties satisfying the specific expectation of the software as to how a specific task was to be completed. This frustration is illustrated by a student being asked in MyITLab to copy and paste an image to a specific location in the software. MyITLab would only accept one way for that task to be counted complete. A student could perform an operation that would accomplish the task but the software would not count it correct and complete because it was not completed as expected by the software.

Contrasting this with Broken Window, the students did not have a MyITLab requirement and received little to no direct instruction. Students in Broken Window also talked about frustration but it was usually linked to group work as discussed earlier and to the novelty of instructional method linked to the game and lack of direct instruction. The following was typical of the way students expressed their frustration with the method if instruction and how one student came to realize adjustments they would have to make. This first quotation speaks directly to the student’s frustration related to the information that was embedded in the game elements and their inability to deal with it during the week. It also indicates how the student started to plan their use of time for the following week and how they would change their approach.

Betty: I honestly didn’t spend as much time on the game this week as I did last week. I had a couple of quizzes in my other classes and they made
priority. I got a little frustrated when I looked at all of the information I had to sort through for the game and I pushed it to the side. I don’t feel like I know anything and that’s frustrating. My group members didn’t seem to know much about what was going on when we met during the week. The blind are leading the blind right now. I’m going to spend some time reading all of this information from babette this week and maybe interacting with some of the ARG sites you’ve given us.

The next week, Betty indicated her lack of experience as an independent learner and how she did not use all of the resources available to her. Again, frustration was linked to the approach to a course that lacks direct instruction and places the learning in the context of a game. Betty also expresses disappointment in her performance during the week. However, she does indicate that she was starting to see how she could approach the material in the future and that she believed she did have the necessary skills to be more independent as a learner. It is important to note that Betty did very well in the course and became a leader in her group as she applied what she discovered about herself as an independent learner as well as the nature of the course design.

Betty: Last week was an interesting week in this strange little world I’ve began to discover. I don’t think there was a lot of preparation that went on per say. I had a little trouble in the with [sic] the second report that focused on using excel. It posed a greater challenge that [sic] I had originally imagined it would. I’ve never really been forced to use this application and I found that I became frustrated and unsatisfied with what I produced and as a result fell behind in my tasks for this class.

Betty indicates that she was frustrated by the tool she was trying to learn at the time- Excel. However, she starts off by indicating that she did not really prepare for the week. This lack of strategic preparation would indicate that there might be difficulties later but that did not seem obvious to her. Betty then goes on to explain how she went about learning what she needed to complete the assignment.
Betty: The only source of help I used was my textbook and that didn’t help as much as I hoped it would. What I didn’t do was reach out to my group members.

Betty used only one of the resources she had available to her. She did not work with her group members and does not make any reference to help outside of her text book. This next passage from Betty is the first indication that her group was going to have difficulties.

Betty: Our communication came to a halt with the task that came in week two. When we met there was so much information that we needed to begin to explore on our own that our collaboration just stopped.

Group meetings this week were not effective. She realized that none of the members of the group had done enough reading in the course to effectively help each other and that this was going to be an important aspect to being able to collaborate and complete assignments. This lead Betty to then talk about her abilities as an independent learner.

Betty: I’m not as independent of a learner as I’d like. I see how much of an advantage that would be when I work to complete a task in this course. If you spend all your time sitting around waiting for someone to show you what to do or how to do something you don’t get a lot done. This week was a great example of that very thing. I spent most of my time in this class the last couple of weeks being frustrated with Microsoft Excel. Creating the report using something other than word was truly challenging for me.

Betty then connects her low performance with her approach to learning and takes ownership of the situation. She also indicates that she believes she has the skills to improve. This turned her view from a negative perspective to a positive outlook.

Betty: Instead of being an independent learner I guess I just gave up cause someone wasn’t there to tell me exactly how to figure things out I’m a little disappointed in my performance over the last couple of weeks, but I feel like I have the tools now to change that so I hope to find some improvement by the next report.
Students often talked about stress in context with the amount of work that was required and linked to feelings of being overwhelmed or to grades they were receiving in the course. This latter example was explored earlier in relation to motivation. One quote that links grades and stress came at the end of a quote related to motivation. Here the student talks about the stress they feel coming out of a particularly poor performance on the midterm and the expectations they set for themselves moving forward.

Beth: seeing that grade kind of crushed me and now that I did so horrible on the midterm, I almost feel stressed out now to strive to get an A or B in the class and I’m so nervous that I’m gonna [sic] miss another assignment, or not do The 2015 Project correct.

At the end of the course, Beth indicated feelings of success with the course and expressed feelings of joy about taking the course indicating a link between these two emotions (Figure 8).

Beth: So far in this semester, I feel that I have done my work to the best of my abilities. Every assignment that has been assigned to us, I have worked on hard and made sure that it was turned in on time. I have put in all my effort into this class as much as I feel that I can and therefore I feel like so far, the work that I have completed has been good. I feel that I should deserve the grade that I feel that I have achieved so far in this class. I can honestly say that this class has been enjoyable and that I have learned a lot about computers, and now know more about them than just facebook [sic] (43:2)
This next example illustrates the excitement a student felt as the course came to a successful completion. This comes from Raquel who was experiencing her third attempt at completing the course. While excited that the course is over, she acknowledges the learning that came from the course:

Raquel: Heck Yes! Although I am super freakin’ excited that the class is DONE, I have learned a lot along the way.... . I am extremely pumped about this being one of my last tasks.

This same student also offers a glimpse at the link between pride and confidence (Figure 8) when she states:

Raquel: I feel like a beast in Microsoft. (39:10)

The last emotion addressed was unique to one student in the class with a particularly compelling story linking culture and past experiences to pain and decisions.
she made during the course. This student was in *Broken Window* and expressed that she had to work harder than others as English was her second language. This student was born in Los Angeles but moved to Mexico as an infant. She moved back and forth between the United States and Mexico throughout her educational career but English was always her second language. She also indicated that she was often the only Hispanic in her classes when she was in the United States. She is an American citizen who is struggling with being personally pulled between two cultures. It is important to note that this is the same student referenced earlier who received outside tutoring with the reading and work for the class.

Early in the semester, this student distinguished herself from her peers with the quality of her weekly blog postings. When the instructor approached her about being able to share her work with the other class members as an example of the quality of work that was expected from everyone, she was honored—"Thanks but no thanks"—asking that her work not be highlighted to the rest of the class. During her interview, she was asked to explain her desire not to have attention drawn to her work and she indicated that it was linked to past experiences where students and teachers both made fun of and criticized her when she would read aloud.

Helen: You know, like in elementary, they make you read aloud in front of everybody. When I tried to read…people would start laughing. Or, even one time, I think I was in 7th grade, even the teacher started laughing. And she was like," just sit down. You will never get better." She told me. So, those words were what pushed me, like, really down.

This example is particularly important as some of these same feelings and experiences did play out with another member of her group who, while not laughing at her, made a point to indicate his inability to understand her writing or what she was saying. Yet, her
work was an example of the quality of work all members of the class should strive to achieve. This quote serves as a link to the emerging category of "prior experiences" discussed in the next section.

4.2.5 Prior Experiences

Prior experiences emerged as a category from 10 supporting codes related to students sharing about past experiences and how that related to the work they were doing at the time of their current performance or attitudes. Several examples linking to prior experiences have already been shared. In section 4.24, a student told how her experience with teachers and other students laughing at her difficulties with the English language had a negative impact on her self-esteem and her decisions relating to sharing her work with her peers today. She also indicated that the confused cultural background created by moving multiple times between Mexico and the United States has created somewhat of a cultural dilemma for her and that it has impacted her work in school.

Other examples shared in section 4.22 related to prior group experiences. The following is another example of a student who had negative experiences with groups in the past and had an expectation that her teacher would solve the group dynamic issues for her. In this case, the student made it clear that taking the problem to the teacher had no effect and that it was the teacher’s responsibility to resolve these issues. Seeing that this was not going to happen, she took the approach of backing off the work she was doing to illuminate the work effort she had been putting into the group work.

Martha: I am skeptical of groups sometimes. I was always in the group where I did all the work. I would complain to my teacher about it and nothing was ever settled. I got tired of being that person who always did the work and
only got partial credit. Finally I stopped doing it and put little effort into it, then had people realize wow she really did do all the work.

Students often talked about their past performances and the difficulties or successes they had in their schoolwork. With The 2015 Project, students occasionally indicated the difference the course made in their performance this year. This included both increases in performance in this specific class as well as success in other courses where the success was attributed to work they did in this class. The following is typical of this type of attribution.

Arthur: This semester is definitely going better than this past fall’s, and I’m reluctant to say that LTEC 1100 has actually been a determining factor. Being required to create a calendar and having assignments such as these has forced me to adopt better planning strategies.

Here the Arthur points to specific activities and requirements in The 2015 Project that had a positive impact across other areas of the student’s academic life during that semester. He seems to indicate that the explicit teaching of self-regulatory skills as presented in this course improved his overall performance in school.

4.2.6 Time

Time was a category that emerged from 20 supporting codes resulting in 107 quotations. While clearly associated with Zimmerman’s schema for self-regulation, I wanted to highlight specific aspects related to this study. As a topic, students from both versions of the course made frequent references to time as they proceeded through the class. These references were usually linked to one of the following: social life, family, work, other classes, and this specific course. When specifically linked to this course, they most often were in reference to MyITLab or the game elements of Broken Window. What follows are examples of some of these references.
This first quote comes from a student in *Broken Window* who was a non-traditional student. This student has a young daughter at home and recorded the following in his blog.

*Brady:* Time is a crazy thing. I have a 2 1/2 month old daughter that manages to steal most of my time, in a good way.

Students with families have additional pressures on them as they try to complete their course work. This same student wrote the following several weeks later indicating that his daughter was sick and that one of his group members was not helping with their group work:

*Brady:* Its [sic] been awhile since I last posted. My kid has been sick and its been kinda [sic] crazy the past couple weeks. I believe she has acid reflux but we are still trying to figure everything out with her. On my ARG that my group and I are doing is starting to come along. One of are [sic] teammates has [sic] dropped the ball and is [sic] not helping us at all. Hopefully he starts to come around. Well I hope all is well and I will keep everything updated about my little one.

Brady adds a lot of detail about the trouble his little girl was having and seems to be writing to someone. It is not clear if the audience was himself or the instructor. In other interviews related to this question, most students indicated that their blog writing was directed to the instructor as the blog was a required element in the course. Brady also contrasted his efforts with his group and the troubles with his sick daughter with those of another group member who was not doing his part to advance the group.

Students also linked their social life to issues related to how they used their time and the effect it had on their work in the class:

*Kim:* As most people know, I am the Social Chair for my sorority Delta Gamma and I get important emails daily about events that are about to happen, or need to be planned.
This became a theme for Kim as she referenced her work as the social chair for her sorority throughout the course in multiple blog entries and during face-to-face sessions. During her interview, she indicated she was challenged by how she divided her time between her studies for this class and others with her social work with the sorority. However, her work with her sorority also provided motivation for some of her learning in The 2015 Project because she saw direct application of what she was learning to what she needed to accomplish with her sorority.

Cory: In my personal life I had a lot going on starting with two test today September 27th, then my friend turned 21 over the weekend so we spent a lot of time up at fry street. I spent time on this class but the test were [sic] more on my mind I regret to say.

In this last example, Cory indicates his priorities related to work in other classes. In this case, the test for another class was more important this week than the work that was assigned in this class. He also indicated that the social significance of his friend turning 21 was also more important the course work. Cory later recorded the following indicating his understanding that online and blended courses take time requiring the individual schedule time in their personal schedules to work on course assignments.

Cory: I learned over the past two weeks that I have to really take some time out of my day for this class and act like it’s a class period I usually do it during lunch during that week.

When it comes to time spent working on this specific course, students in both versions of the course reported that they worked long hours completing the necessary work. The following is from a student in The 2015 Project version. Again, this course was a basic computer applications course that focused on the basics of Internet use and the Microsoft Office Suite.
Margo: This class is by far is my hardest class. It is the most time consuming and tasking class. I could try and handle my time management better. I need to be better about where I am spending my time and what days I do it.

From *Broken Window*, a student indicated that time management was the greatest issue. In his blog, Ken seemed to link this to the structure of the online aspects of the course where work was expected to be completed but the time for completion was regulated by the student. Speaking about online courses, Ken offers the following:

Ken: This can be a blessing and a curse in that you have the freedom to decide when you do the work but then it is easy to forget since there is no set schedule.….The hardest thing i [sic] saw i [sic] had with the class is time management and managing when i [sic] would get on when i [sic] had free time.

This next student from *The 2015 Project* also seemed to be surprised by the amount of work in an online course and the time and discipline needed to complete such a course.

Martha: Little did I know that online classes are allot [sic] of determination and hard work.

Overall, students seemed to indicate difficulties managing the way they used their time and there seemed to be a disconnection between course expectations related to online course work and the expectations of students for such a course. Additionally, students did not seem to understand the university expectations related to hours of work associated with the number of credits they were attempting. For many, it seemed that the face-to-face times were viewed as sufficient as there was often an increase in online activity immediately preceding one of the face-to-face sessions but a steep decline in activity following the session.
CHAPTER 5
DISCUSSION

5.1 Introduction

With the analysis of the data complete this chapter focuses on specific findings and their implications for teaching and learning in online and blended learning environments. The research questions that served as the foundation for this study explored the differences in student self-reflective communications as produced in two different designs of the same course. The boundaries for these questions were framed by the ways that students wrote and spoke about their self-regulatory practices and managing their learning experiences. A second question looked at these same communications and explored evidence of student readiness for learning in online and blended courses at the university level. Finally, a third question focused on the ways that student expressions of learning and self-regulation were shaped by instructional design and methods of instruction.

Within this chapter, general findings addressing these questions are presented and discussed in context with existing literature as presented in chapter 2 and the connected findings emerging from the analysis. Additionally, two emergent themes are presented which may have larger implications for future course design as well as other courses presented in a blended or online format.

5.2 Findings

The analysis of the existing documents and interviews have generated general findings from both the a priori framework for Zimmerman’s (1989, 1998) behaviors of self-regulation as well as open coding through constant comparative analysis. For ease
of referencing, these findings are presented with the same structural order found in the analysis in chapter 4.

5.2.1 A Priori: Self-Regulation

Of the self-regulatory behaviors presented by Zimmerman (1989), all showed up in one form or another in this study. However, two were poorly represented and provided little information for further analysis. These were student adaptivity and self-reaction. In the case of self-reaction, those who did provide content that was coded for self-reaction generally changed their behaviors in negative ways resulting in the construction of lies shifting ownership of a problem. This manifested itself in each course as students engaging in plagiarism and a public proclamation that not having their book was the fault of the campus bookstore. Additionally, the reporting of environmental structuring was largely unique to The 2015 Project and as such, will not receive treatment beyond those reported in the earlier analysis.

Self-regulatory behaviors that provided rich context in the analysis included: goal setting, strategic planning, self-efficacy, intrinsic interest, attention focusing, self-instruction, self-monitoring, self-evaluation, and attribution. Each of these is discussed in context of the research questions, existing literature and with each other.

5.2.1.1 Goal Setting and Strategic Planning

These two self-regulatory behaviors were well represented throughout the study. While strategic planning was more evident in The 2015 Project, the nature of the way students talked about both goal setting and strategic planning between both courses was of interest. There was a distinct difference between the two course designs in the way students went about these two behaviors. In The 2015 Project, the regular prompts related to these behaviors generated consistent reflection on goals and how they would
go about achieving them. However, these students tended to focus on specific tasks that needed to be completed and how they would allocate their time in the following week. While students from both course designs also tied goals to grades, this was more prevalent in *The 2015 Project*. Additionally, students in *The 2015 Project* course tended to use words like plan, planning, goals and goal accomplishment while those in *Broken Window* were less explicit in their use of this language. This was likely because the prompts in *The 2015 Project* often included goal-oriented language. Overall, students in *The 2015 Project* provided more detail in their posts related to these two behaviors.

One area that received the focus of both versions of the course was the way students would plan the use of their time. This often seemed reactionary and may have links to student’s perception and expectations for online and blended learning in a university course. This is explored in more detail later in this chapter.

The level of detail provided and frequency of occurrence of students expressing their goals and strategies through *The 2015 Project* course was supported in the literature. In a way, the specific prompts served as a model and scaffold for students as they proceed through the course. It was a reminder of the need to have goals and ways to accomplish them. Similar results were reported by Hofer, Yu and Pintrich (1998) in a study exploring ways to teach college students to be self-regulated learners. Lan (1998) reported that students who increased their self-monitoring increased their use of other self-regulatory practices. The scaffolding provided by the regular prompts in *The 2015 Project* likely served as frequent reminders to examine their progress while making plans for future work.
Shifting now to the focus of these goal and strategic planning reflections, a definite pattern emerges that was likely linked to course design. Students in *The 2015 Project* focused their planning on the specific tasks that they wanted to accomplish and how they were going to set about doing so. This included which lesson tasks they would focus on for the week i.e. *MyITLab, The 2015 Project, assignments*. This was qualitatively different from the *Broken Window* student’s reflections. Here they focused more on an assessment of what they thought they knew and where they believed they should spend their time the following week to increase their understanding of what was going on in the course. The reflections in *The 2015 Project* were strategic about task completion while those in *Broken Window* focused on their process for increasing understanding. While both courses were designed with elements of PBL (Warren, 2010) and employed an emerging theory for teaching and learning - LTCA (Warren, 2008b), the application of these concepts was very different between the courses. *Broken Window* required students to actively engage in a narrative where their tasks and learning were embedded in an alternate reality game. For students to succeed, they had to attempt to understand the context of the assignments in relation to what was happening in the story. The nature of this ill-defined problem pulled students into the world of the story and game. The effect of this level of engagement was evident in the focus they gave their goals and strategic planning. Rather than writing about their need to complete a specific task or spend more time on a task element, they spoke of where they thought they would need to spend their time to increase their understanding of the learning space and the embedded task. This was similar in nature to what Bruner (1977) proposed when he spoke of students evaluating the fit of their knowledge
manipulation while applying it to novel tasks. This was at the heart of experiential learning as proposed in his work, *The Process of Education*. The constructivist nature of *Broken Window* and the underlying theories informing its design provided an environment that moved student reflection beyond the tasks getting them to begin to question and reflect on their understanding.

5.2.1.2 Self-efficacy and Intrinsic Interest

The self-regulatory behaviors of self-efficacy and intrinsic interest are interesting in the context of this study. Like goals and strategic planning, there were distinct differences between the two courses in the frequency of reporting about self-efficacy. This was likely linked to the scaffolded design provided by the nature of the prompts in *The 2015 Project*. However, students reported about their interests equally across both versions of the course. Where self-efficacy and intrinsic interest gets interesting is when you consider what students were reporting in relation to the topic of the course—computer applications—and the nature of the instructional environment—online blended learning environment.

Universal to both course designs was the student’s lack of confidence in their technical abilities and interest in taking a computer course. Many wrote about how they were only taking the course because it was required for their major. Some even suggested that their programs should drop computer applications as a requirement. Students freely offered a window into their entertainment uses of technology but admitted a lack of ability when it came to using technology for productivity and learning. Keep in mind that this course is a computer applications course offered in a blended online format where the majority of the learning experiences about the use of computers
take place through the use of computers and the Internet. Even when students reported high abilities in some area, they often limited these abilities when applied to the use of computers and other technology.

The level of reporting about poor technology skills and lack of interest in computers while taking a computer course delivered primarily via the Internet begs the question of student readiness for taking a university level course in an online environment. It also indicates a low level of metacognition and self-assessment prior to signing up for the course. Additionally, it raises the question of student expectations for online courses in general. This line of thinking is explored later in this chapter as an emerging theme I call the Expectation Gap.

Students do indicate that they recognize the importance of intrinsic interest as a motivator and when given a choice in topics for their projects, write about how they selected topics and provided solutions related to their majors, past interests, experiences and visions for what they want to do in the future. While students seemed to appreciate the ability to select topics of interest, they often missed the connection of the project to the learning in the course. This was prevalent in both versions of the course but more so in *The 2015 Project*. This was likely because the course design placed the students in a familiar space during the first six weeks as they were provided specific direction and instruction. While this continued for the remainder of the course, week six introduced *The 2015 Project* assignment that ran in conjunction with the rest of the course. Students reported having a difficult time making the connection between *The 2015 Project* assignment and what they were learning.
While students in *Broken Window* also struggled with a disconnection between the course experience and what they were learning, most revealed a shift during the course where they were able to place the learning in context with the experience of building their own alternate reality games. This was supported by the literature on problem-based learning. The authentic context in which the problem is presented provides an experience similar to how expert’s knowledge is structured in context, and around past experiences, ideas and concepts increasing understanding (Bransford, 2003). Some students also indicated that while not actually interested in the topic, they did see the utility of transferability to other classes and future work. This too was supported by the literature where problem-solving skills developed in context of authentic problems can transcend the disciplines in which they were developed (Kuhn, 2005).

5.2.1.3 Attention Focusing and Self-Instruction

Both attention focusing and self-instruction were more prevalent in *Broken Window* than in *The 2015 Project*. This again goes back to the underlying design of the two courses and the power of an embedded narrative as a motivator in a course. The lack of computer aided instruction in *Broken Window* explicitly placed the responsibility for learning in the hands of the students. While *Broken Window* did not utilize *MyITLab* for direct instruction, students were provided with a collection of resources to assist them in their learning process. These were often embedded within the narrative. Additional resources were provided by the instructor and characters in the narrative as students shared about their learning experiences. This was in contrast to *The 2015 Project* course where most of the content learning was provided through direct
instruction — *MyITLab* — leaving self-instruction to *The 2015 Project*. As discussed earlier, students struggled making a connection between *The 2015 Project* assignment and the learning they were doing through *MyITLab*.

Exploring the content of the posts related to attention focus, students in *Broken Window* spoke of the need to make contact with specific characters in the narrative and the content they left behind. Similar to what was discussed earlier regarding goals and strategic planning, students in *Broken Window* were focused on aspects of the learning environment and learning experience where they felt they would best increase their understanding. When attention focusing did show up in *The 2015 Project* version, students were focusing on specific tasks, time allocations and organization. They seldom spoke about shifting focus to increase understanding.

Going back to the question of instructional design shaping student expressions of learning and self-regulation, it seems that when direct instruction decreased, there is an increase in self-instruction as well as the need for students to regulate their focus toward understanding rather than completion. While the students did not necessarily appreciate this, it is at the heart of the ill-structured problem found in problem-based learning and was at the core of the theoretical construct forming the foundation of *Broken Window*.

Drawing from Habermas’ (1984) Theory of Communicative Action, Warren (2008b) developed the theory of Learning and Teaching as Communicative Actions (LTCA) forming the basis for *Broken Window*. The course design specifically leveraged the four actions of Habermas’ theory in the context of design for learning. These were strategic action, constative action, normative action and dramaturgical action. While
strategic action was prevalent in both versions of the course, they were qualitatively different as discussed previously. Students in Broken Window provided more evidence of constative action, as there were more opportunities for them to communicate their versions of the truth and to evaluate the validity of other claims. This was greatly reduced in The 2015 Project as students were more involved with directed instruction through computer-aided instruction and failed to make the connection of The 2015 Project assignment with their learning. There was also more communication in the form of normative and dramaturgical action in Broken Window as students were presented assignments in an embedded context and the successful navigation of the course required negotiation of group norms, and claims of validity by peers and characters in the narrative. While these were also embedded in the latter half of The 2015 Project, there was the problem of students not making the connection to that project and their learning.

As discussed earlier, students did not fully appreciate the need for self-instruction and as a result, may at times view this as a poor instructional model and poor teaching. This does get at the question about student readiness for college level courses and student expectations for a course based on prior learning experiences. If students have no prior experience in independent learning and the only model they were familiar with was the delivery of information through lecture, it could be argued that they were not ready to take a college level course that required this level of self-instruction through problem-based learning.

5.2.1.4 Self-Monitoring, Self-Evaluation, and Attributions

All three of these were present in both versions of the course. Similar to the prior
discussions, reflective posts that were linked to these three traits were qualitatively different between the two versions of the course. Students in The 2015 Project focused their self-evaluation on general performance and relevance of what they were learning related to future use beyond the course. There was little evidence of self-monitoring and evaluation related to metacognition, the understanding of material and their problem solving process. The posts appeared more like a checklist of efficiency: How do I spend my time? How can I improve my organization? How am I doing on completing my assignments? This is additional evidence that course design shapes the learning experience and the ways that students communicate about them when they engage in self-regulated practices. Elements of each design, as discussed earlier, help to shape these communications. The lack of critical thinking related to furthering understanding in the more regulated design of The 2015 Project is a cause for concern. It seems that students in these sections found it difficult to move beyond the course prompts provided to them.

5.2.2 Post Hoc Findings

The use of open coding through constant comparative analysis resulted in six emergent categories as reported in chapter four. These were: (a) distraction, (b) group experiences, (c) motivation, (d) emotion, (e) prior experiences, and (f) time. This section explores each of these in context with other findings as well as existing literature presented in chapter 2.

5.2.2.1 Distraction

While distraction was covered in depth in the analysis, the following is worth further discussion. Students reported distraction from various environmental, social and technological factors. The last two are of particular interest in this discussion. Taking
technology first, distractions as a result of students interacting with different technologies has interesting implications related to the subject of the course—computer applications. Additionally, the combination of social and technological aspects related to the *Broken Window* design is of interest. Similar to the earlier discussion around intrinsic interest, students reported increased distractibility with technology and various social media. Since the course was a computer course and most of the learning environment was distributed across the Internet, this placed the students in a learning environment that many described as inherently distracting, requiring students to engage in strong self-regulated behaviors.

For example, students in *Broken Window* were asked to interact with characters through Facebook, Twitter, the Moodle LMS, Second Life, and even World of Warcraft. Some groups actually used Facebook as a way for their group to share information and plan their project. However, is this something that course designers must consider when planning to use these environments for learning? What makes this interesting is that students in *The 2015 Project* were asked to specifically talk about their environmental structuring, use of time and distractions while those in *Broken Window* offered this information at various times throughout the course without prompting from the instructor or the course environment.

5.2.2.2 Group Experience and Prior Experiences

Group experience was covered in great depth during the analysis and will receive a minor treatment here. Additionally, there was an emergent link between group experiences and prior experiences. Students often reported their group experiences in
the context of past successes and failures with groups. Over-all, students reported negative experiences with prior groups.

There was clearly a different experience reported by students from the two versions of this course. The design of *Broken Window* utilized groups throughout the entire course and the only way to successfully complete the course was to engage in-group activity. By design, this was different in *The 2015 Project* version. As a result, the instructional design of each course clearly shaped the student experience and their resulting reflections. What is of particular interest for this discussion is the general feeling of surprise students expressed when they learned there would be group work in an online course. While the course met periodically face-to-face, the only way to effectively complete work was to engage your group through online tools. For *The 2015 Project*, groups even crossed sections of the course making it impossible for them to collaborate during the face-to-face meetings. While many students indicated their understanding that working in groups was important for future work, it was not what they expected. For some students, the requirement was in opposition to why they were taking an Internet-based course.

As the analysis indicates, group dynamics were complex incorporating various tensions including: (a) time conflicts, (b) language and cultural barriers, (c) personality conflicts, (d) group members not working, and (e) lack of group leadership. While these dynamics were present in both versions of the course, they were more common in *Broken Window*. This again points to the implementation of LTCA theory underlying the course. The environment was constructed so that students would have to function as a group throughout the course and engage in different forms of communication to be
successful. This is in contrast with The 2015 Project where student reflections indicated a low level of connection to their group either as a source of tension or accomplishment, despite the inclusion of communication tools provided to support interaction.

5.2.2.3 Motivation and Emotion

Motivation and emotion were linked together in the analysis and have clear ties back to intrinsic interest and self-efficacy discussed earlier. By far the greatest motivator was grades. This was connected to emotions like joy, pride, stress and frustration. Students also reported stress and frustration linked to the amount of work they were being asked to complete each week. This connection provides further need to discuss student readiness for college and specifically online courses. Additionally, this also feeds the expectation gap. Students taking either of these courses found them different from any other course they experienced in their past. The resulting expressions of stress and frustration indicate a gap between what they thought was a reasonable workload, proper course structure and instructional method and those in the course in which they were enrolled. This was most prevalent in Broken Window where students struggled to understand the role of game play in learning and the high level of independent learning.

Frustrations were also generated unintentionally through the computer aided instructional environment known as MyITLab. Students frequently indicated their frustration with the lack of flexibility in the tool’s ability to accept what they saw as valid process answers. When they were asked to complete a specific task in MyITLab, they may offer a workable solution that MyITLab rejects because it was not the solution it was looking for or because the student did not perform the task within the program’s
accepted tolerances. This created an interesting dichotomy between the PBL aspects of the course where there was no one right answer or any right answer and a tool that demands a single right answer when any one of five possible answers would have worked. The rigidity of this approach is in conflict with the underlying constructs supporting PBL. When viewed from the perspective of LTCA, the machine has the correct, valid answer and the student must be shaped to meet this answer through non-acceptance of the validity of the student’s action. When computer-based instruction (CBI) enters the instructional environment, there is one truth and you will learn this truth because the computer software is only capable of strategic or imperative communications. This serves in stark contrast with the PBL and constative LTCA aspects of the course, which view truth as constructed through social construction stemming from human communication towards goals. Further, the CBI’s single-minded view of truth also opposed transfer of learned skills outside of the course environment.

5.2.2.4 Time

Students spoke about the use of time and time demands equally across both versions of the course. While time was a frequent topic and was often linked to family, work, social life and other classes, the focus of this finding is on the conversation of time surrounding this particular course. Both versions of the course generated quotes linking student’s use of time to the version of the course they were taking and usually in a negative context. For *The 2015 Project*, students shared complaints about the amount of time *MyITLab* took, while those in *Broken Window* focused on the time spent on the game elements. In both cases, students felt they were spending more time on this computer applications course than on any of the other courses in which they were
currently enrolled. Some went so far as to indicate that this particular course was one of
the most difficult they had ever taken both in time spent and nature of the content.

Knowing the content and the amount of time these courses should have taken
makes this a difficult statement to understand. However, viewing these statements from
a perspective of actor network theory (Latour, 2008) helps to frame this statement and
place it in context. In this case, the actor is the student while the course serves as
agent. Their claim that the course was the hardest they have taken implies that the
course had agency over them, making this the most difficult course and it must be taken
at face value. The same goes for the amount of time reported to complete the weekly
tasks in each version of the course. Students reporting they spent more time on this
course than other courses without specifically indicating the amount of time spent on
any course are again indicating course agency over them. They may be spending the
same amount of time or even less time but from the ANT perspective, this claim must
be taken at face value, which then leaves the question of why this course had agency
over the student actors in the areas of time and difficulty. This leads back to the
research question about student readiness for college and specifically courses where
the majority of the learning experiences are distributed in the online environment,
depend on ill-defined problems as a methodology and demand high levels of self-
regulation and independence in learning.

5.3 Emergent Themes

With the analysis complete and major findings reported, two general themes
arise from the data. In considering the research questions again in context of this
analysis, it is clear that students freely, whether prompted or not, wrote about their

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learning experiences and self-regulatory behaviors in their course communications. Many differences were reported between the two courses in the way students wrote about these experiences. Additionally, it is clear that the instructional design of each course played a large role in how students wrote about their learning and self-regulation. It would appear that students focus more on the process of learning and understanding when asked to reflect on each week without a list of specific prompts while those with directed prompts focused their attention on the completion of tasks and related strategies. Throughout the analysis and developed in the findings, there were two threads that were common in most student reflections and are the basis for the two emergent themes to follow. I call these two themes the Expectation Gap and Different Designs, Different Outcomes.

5.3.1 Expectation Gap

The Expectation Gap emerges as a plausible explanation for the course agency on the students as they reported the course as being most difficult, time consuming and unusual. There are four elements contributing to this expectation gap. They are time, instructional method, expected workload and course environment. The intersection of these four elements constitutes the ingredients of The Expectation Gap. Each of these elements is addressed in detail in the following narrative.

5.3.1.1 Time and Workload

Time and workload are inter-related and will be discussed together. Students frequently spoke of the amount of time needed to complete the weekly work in the course, which is directly related to workload. Additionally, they would frequently write about the tension of not having control over their use of time in completing the course. This was usually linked to ongoing projects that required they interact with other class members.
members outside of class time and the weekly submission of work. Both of these also have connections to student perceptions leading to expectations for online courses.

Focusing first on time, students felt they were spending more time on this course than others they were taking or had taken in the past. However, how much time do they feel they should be spending on the course? Some students felt that if the course was not in their major, they should not be expected to work as long outside of the class meetings. How much time does the university expect students spend on a 3 unit course?

Since this class was primarily an Internet-based course, this would mean that they expected little work outside of the 1.5 to 3 hours they met face-to-face every week or every other week depending on the course section in which they were enrolled. Students made similar statements about the number of hours they were spending on a course that was required but not directly related to their field of study. Another theme related to time expectations was how students viewed the level of the course. Many reported that they believed a freshman level course should not require as much work and time as upper-classman courses.

The University Board of Regents (2011) stipulates in their policy statement on credit hours for undergraduate education that students should expect a minimum of 2 hours of outside work for every credit or contact hour. This course was a 3-unit course. Using this policy as a guide, students should expect to work a minimum of 9 hours per week including both contact hours and outside work. The policy makes no distinctions between traditional lecture based classes, online or blended courses. Course level was also not considered in this policy indicating that all courses at the undergraduate level
are expected to meet these minimum requirements regardless of whether they are lower division or upper division courses. Additionally, the policy makes no distinction between core courses, within major or outside of major courses. All courses are expected to meet this minimum standard for hours of work outside of contact hours per unit.

This gap between the university expectations and those of the students related to time and workload created student tensions in the course. These tensions were evident across both versions of the course. Preconceptions regarding locus of control over use of time also showed up as a factor adding to this expectation gap. These expectations were related to their understanding of online learning and will be addressed in the next section.

5.3.1.2 Course Environment

Many students reported that this was their first Internet-based course while others had prior experience learning online with other courses they had taken. One student reported that she was taking three other online courses during the term that she was enrolled in *The 2015 Project* version of computer applications.

Regardless of whether students had prior experience with online learning, they all seemed to have vision for what an Internet-based course should be. This vision usually included references of personal control over use of their time. For many, Internet-based meant that they could complete work on their own schedule. It also meant they would not be working with other students in groups. Several students went so far as to state that these were even the reasons they signed up to take the course via the Internet. These frequently held visions for online learning was an additional
factor increasing the expectation gap between what they thought they should be doing and their reality.

Most of the students had only experienced traditional courses so their experience with learning environments was that of a traditional lecture approach. They were used to being told what they would need to know and they perceived that most of the learning took place in the classroom. This seemed to translate to the blended class where they did not feel they should work much outside of the face-to-face sessions. The difference in expectation set by the university, designer and instructor were in stark contrast with those of the students fueling the expectations gap.

5.3.1.3 Instructional Method

Finally, the expectation gap was widened by the disconnection between what students felt a course should be and what they experienced. Students in the Broken Window version of the course spoke of how they thought they should be taught how to use the Microsoft Office Suite rather than playing games. There was usually strong resistance in the beginning of the course by most students. While most students eventually came around and engaged in the uniqueness of the course, some simply stopped working. The difference between what they thought a college course should be and what they were experiencing were so different that they would rather stop working than change their view of how things should and could be. This was particularly evident with group interactions in Broken Window.

Students in The 2015 Project also had difficulties understanding the instructional methods. However, these were less pronounced and generally linked to The 2015 Project assignments. These students had difficulty making the connection between the
contextual learning through application and actual learning of material. They often reported that they saw *The 2015 Project* assignments as being above and beyond the learning they were doing in *MyITLab*. While frustrated with the way *MyITLab* worked, they understood the concept and were familiar with this instructional approach. *The 2015 Project* assignments were novel to them and as such, added to the expectation gap.

5.3.1.4 Implications of the Expectation Gap

Clearly, students had a different expectation for time, workload, learning environment—online learning and instructional method than what they experienced in this course. This speaks directly to the question of whether students are ready for learning at the university level and specifically within online and blended learning environments.

It would be desirable to work towards closing this gap prior to entry into the university and specifically before taking any online courses as students have expressed in this study that they believe that online courses take less time, require less work and perhaps are even easier than traditional classes. This was clearly not the case and more must be done to educate students prior to enrollment in such courses. This should be taken up at the university level through improved academic counseling around online learning. Additionally, more could be done at the department level as students enroll in these courses. While there are many existing instruments exploring student readiness for online learning, students must be encouraged to explore these tools on their own prior to enrollment. This expectation gap could also be narrowed through student education about online learning, self-assessments and improved academic counseling.
Additionally, more could be one at the K-12 level to prepare students for college level work by applying direct instruction to self-regulation practices. By increasing these skills at an earlier age, we can expect to see increased performances in both K-12 and higher education. As online learning continues to increase in popularity in the K-12 environment, we should also see students become more familiar with unique aspects of this type of learning. However, we will need to see an increase in the use of PBL in K-12 before we see acceptance by students in higher education. When PBL is more the norm in K-12, the increased levels of abstraction possible in higher education will be less foreign to these students because of the skills they developed in K-12.

5.3.2 Different Designs, Different Outcomes

This theme is directly related to the research question looking at how course design, and instructional method shape student metacognitive reflections related to self-regulation. Throughout the analysis and discussion of findings, clear differences formed along versions of the course. This theme will be called Different Designs, Different Outcomes and is supported by the evidence that instructional design does shape metacognitive focus.

5.3.2.1 Instructional Design Shaping Metacognitive Focus

The course design of both courses had problem-based learning at the core of instructional method. However, the design was informed by Warren's (2008b) theory of Learning and Teaching as Communicative Actions. While both courses had LTCA as a theoretical framework, it was not employed equally across both designs resulting in very different interactions and communicative actions across the courses. Students in The 2015 Project were explicitly taught elements of self-regulatory learning practices and were engaged in direct instruction related to computer applications. While PBL was a
part of this course, the fact that students failed to make the connection of the project to what they were learning hindered its effectiveness as a learning experience. This could be compensated for by having the instructors help students visualize the applicability of the assignment to the content they were studying and skills they were acquiring.

Students in *The 2015 Project* also had fewer interactions with their peers and reported little sense of accountability to their groups. Many actually reported difficulty even seeing what they were doing as group work. This version of the course had high levels of strategic communicative system and instructor directed action but it was focused largely on task completion and time management. Since much of the course employed direct instruction related to both self-regulation and computer applications, students focused their challenge of truth claims on assignment appropriateness and the appropriateness of time usage as discussed in the expectation gap. Interactions were largely between the course environment — Blackboard — and *MyITLab*. The students and the structure of *The 2015 Project*, while present and required, minimized student-to-student interactions. In the end analysis, this design produced metacognitive reflections focused on the mechanics of completing the course rather than questions leading students to deeper understandings about themselves and their experience in the course.

Data analysis indicates that students in the *Broken Window* had a very different experience from those in *The 2015 Project* as reported through their self-regulatory reflections. While these students also spoke about the mechanics of the course, they frequently engaged in reflections that indicated they were challenging validity claims made by themselves, other students, and characters in the course narrative. Many
reported acting on what they thought was true only to find that other students or characters in the story took them in different directions. One telling example of the power of the communicative actions at work was when a student had emailed a character in the story. The students’ message was poorly written with misspellings, dropped capitalization poor sentence syntax and slang. This produced a rather harsh response from the character about the informal and colloquial use of language in their communication and that the character could not be bothered to respond if the student would not take the time to address them properly and with respect for the seriousness of the situation — people were missing and lives may be at risk. This student made a point to share this with the class during one of the face-to-face sessions. In the end, this student engaged the learning environment from the perspective of understanding rather than one of task completion. This level of engagement was far more evident in the reflections produced from students in this version than with The 2015 Project.

5.3.2.2 Implications for Different Designs, Different Outcomes

With the outcomes being so different between these designs of the same course, it is important to clarify the expected outcomes from the course. If the desire is to stimulate higher level thinking that is expected as part of a university level course, then the course design should draw the students into an open narrative with themselves where they are challenging what they believe to be true. However, this level of thinking may feed the expectation gap that was discussed earlier as the data did not indicate that this was what the students were expecting or desired. Therefore, students lacking the skills and drive to engage at this level may find that the more prescriptive course would be more useful for their development. One version of the course, mentioned in
chapter two but not part of this study, had students go through a process of learning about different versions of the course. With some rules and guidance, they then selected the version they would complete. While this was only tried once, it seems that this might be modified and tried again to help students learn about the nature of the courses they would be taking. This would help match students cognitively with a version of the course as well as potentially address issues related to the expectation gap.

5.4 Limitations

As with all studies, there are always limitations. This study is no exception. The greatest limitation in this study is likely the lack of generalizability of the findings based on the uniqueness of the course designs. While some of the findings may be useful and informative to other instructors and instructional designers, the findings are largely specific to the experiences surrounding these two versions of the course. The findings that likely have the greatest generalizability are those linked to the discussion surrounding the expectation gap.

The scope of this study was limited to two versions of a course taught by two instructors and does not accurately account for the role and impact of instructor—student interactions on student reflections related to self-regulation. While the focus of this study was on student communications related to self-regulation in course designs with differing demands on abstract reasoning and self-regulation, another approach would be to explore the nature of the instructor’s epistemic perspective related to theoretical structures used in course design and resulting outcomes. Additionally, instructor experience, style and personality may be factors in some course outcomes.
The study was conducted at a single university making this a unique population of students participating in the study. The population for this study should not be considered a cross section of students and findings would likely vary should similar studies be conducted across student populations in other areas at other institutions.

5.5 Future Research

More must be done to understand the nature of student-held expectations for university level work as well as for online and blended learning. University students have completed twelve years of schooling preparing them for admission to a university; however, it does not seem to have prepared them for successfully meeting the expectations of university-level work. This is not a new concept as past studies have found that students attribute their success to talent and hard work and their failures to teachers who ask too much (Talbot 1997). Students who enter college have already experienced success in the academic world but are shaken by the difficulty of completing work at the college level (Hofer, 1998). Clearly, our work here is not finished.

The difference in the nature of the student reflections on self-regulation between the two courses in this study was a bit surprising. Future studies could focus on parsing the nature of reflective prompts and their resulting reflections. What level of scaffolding is optimum for producing reflections that focus on improving student understanding while still guiding them through the reflective process and encouraging them to explore other areas of self-regulation and self-reflection?

Finally, LTCA theory is emergent and should be further explored as a construct supporting instructional design. It is clear from this study that the different implementations of LTCA between the two course environments produced very different
course experiences and outcomes. Understanding these differences in context with the elements of LTCA — strategic, constative, normative, and dramaturgical actions—will help to advance this theory in future designs.
APPENDIX

INTERVIEW QUESTIONS
Interview Part 1

Question 1

Tell me what you did this week in your class.

Question 2

What do you feel is important for me to know and understand about your
experience in class this past week?

Question 3

What questions do you think I should ask you regarding these experiences?

Follow-up from three lead questions

The first three questions will result in a series of questions that will be asked
as the opening of the interview. This will provide a line of questioning that will
reflect what the participant believes is important about their experiences in
the class.

Interview Part 2

This part of the interview involves questions that focus on specifics of the
study’s research questions.

Topic 1: Differences in student responses to different levels of abstraction and self-
regulation

Research Question 1

What are the significant differences between students in the way they
communicate about and for their learning in different versions of an online course
where each version is designed with differential demands on abstract reasoning and self-regulation?

Lead-off question

What do you believe were the major learning objectives this week and how did you prepare yourself for the learning tasks and experiences?

Implicit/Covert

1. What were the other demands on your time this week?
2. How did you prioritize your responsibilities for the week (both class related and responsibilities outside of class)?
3. Tell me about your approach to planning to complete the tasks of the week?
4. How do you decide where you need to focus your efforts each week?
5. What is your process for determining what you know and what you need to explore in more depth?
6. How did you change your approach to the work of each week as you progressed through the course?
7. How would you describe your experience in independent learning and how does that compare with your experience in more explicit learning environments?
8. As you look back over the course, where there moments when you were surprised by what you were asked to do- did not seem “school like”?

Topic 2: Student readiness for learning in online/blended learning environments

Research Question 2
What do these communications indicate regarding student readiness for learning at the university level- specifically online and blended learning environments?

Lead-off question

What have you found to be most difficult about this online course?

Implicit/Covert

1. Tell me how you learned to handle conflict in group interactions?
2. Tell me about your experience working with others on collaborative projects in other courses?
3. What have you done to address the aspects of the course that you find most difficult?
4. How do you decide where you need to focus your efforts each week?
5. What is your process for determining what you know and what you need to explore in more depth?
6. What do you think about using technology to collaborate with others across distances?
7. How would you describe your experience in independent learning and how does that compare with your experience in more explicit learning environments?
8. What is your general approach to solving open-ended problems?
9. Were there any times during the course where you felt lost or confused?
   a. What was your approach to increasing your understanding of what was going on in the course?
Topic 3: Student self perception of readiness

Research Question 3

How does student self-perceived readiness for learning in the online environment compare with their performance activities and self-regulatory behaviors and communications as they proceed through an online course?

Lead-off question

How do you feel about your preparation for taking an online course?

Implicit/Covert

1. How do you compare your abilities to plan your week compared to your peers?
2. What do you feel are your strongest qualities?
3. What personal qualities do you believe contributes the most to your success in the course?
4. What do you believe is your greatest liability to success in this online course?
5. How would you describe your general level of abilities to work with others on collaborative projects?
6. How would you rate your abilities to work with technology and how did that relate to the technical demands of this course?
7. Can you tell me about personal skills you possess that you have found useful in completing the work for this course?
8. How would you rate your ability to independently search out solutions to problems you encounter in courses you are taking?
CLOSING QUESTIONS

1. Is there anything that you might not have thought about before that occurred to you during this interview?

2. Is there anything else you would like me to ask you or feel I need to understand?

3. Is there anything you would like to ask me?

Additional questions will flow from the analysis of prior interviews, observations from the classes and analysis of communication artifacts emerging from the field of study.
REFERENCES


