AN EXPLORATORY STUDY OF THE ROLE OF TEACHING EXPERIENCE IN MOTIVATION AND ACADEMIC ACHIEVEMENT IN A VIRTUAL NINTH GRADE ENGLISH I COURSE

By

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To my husband, Bob, and children, Alex and William

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LIST OF ABBREVIATIONS

ADDIE	Four phases of a specific instructional design process: Analysis, Design, Development, Implementation, and Evaluation
ARCS	John Keller's four ARCS motivational constructs include Attention, Relevance, Confidence, and Satisfaction
CIS	Course Interest Survey, a validated survey developed by John Keller to assess students' perceptions of the levels of ARCS motivational constructs within a course.
FLVS	Florida Virtual School
ISD	Instructional Systems Designer
SDL	Self-directed learning
TPSS	Training and Performance Support System
VBA	Veterans Benefits Administration

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Virtual K-12 schools are growing rapidly in the U.S., providing students the opportunity to learn at their own pace. Lack of motivation has been cited as a major cause of failure to succeed by distance education students (Kim & Keller, 2008; Moore & Kearsley, 1996). To address this issue, distance educators need to identify what specific factors motivate learners in a virtual environment to perform. Because instructors are crucial to the success of virtual students, distance educators also need to identify characteristics of virtual instructors which effectively motivate students.

There are two main purposes of this study. The first is to identify whether or not there are significant differences in John Keller's ARCS (Attention, Relevance, Confidence, and Satisfaction) motivational constructs in virtual ninth grade English I students based on instructor experience. The second is to investigate the perceived instructional practices that contribute to motivation.

Virtual ninth grade students who had completed 65-99% of the English I course were surveyed using Keller's Course Interest Survey to measure which ARCS constructs motivated them to perform. The response rate was 18% (n=78). English I

instructors were also surveyed to obtain ARCS perceptions. Quantitative statistical procedures were utilized to analyze data. Qualitative data was also gathered and organized in themes.

Outcomes indicated that both novice and experienced teachers were effective in motivating students. While there were no differences in Attention and Relevance scores based on instructor experience, students who had experienced instructors had statistically higher Confidence and Satisfaction scores than students with novice instructors. It was posited that Attention and Relevance may be driven by course design, while Confidence and Satisfaction may be instructor driven. Students perceived the most motivating factors were instructional practices including timely, constructive feedback, flexibility, and frequent instructor-student communication.

Distance educators can use the knowledge, skills, and abilities of experienced educators to design effective facilitator training focused on strategies for building student confidence and satisfaction. The skill of feedback should be modeled and practiced. Educators may increase motivation by considering Keller's ARCS constructs when designing and facilitating virtual curriculum.

CHAPTER 1
INTRODUCTION

This capstone project is divided into five chapters: introduction, a literature review, methodology, results, and discussion and implications. The first section, the introduction, includes my professional background, a literature-based description of my well-defined niche, where the niche fits within the broader field of educational technology, the purpose and significance of my project and the conceptual framework under which this project was developed. The second section, the literature review, is a critical and comprehensive evaluation of previous research on my capstone topic. It establishes the reasons why I selected my research topic and how the project will contribute to the field of educational technology. The methodology section covers the methods which will be used to conduct the capstone research. Results of capstone research are presented in the next section. The final section of the capstone discusses implications, suggests directions for the future, and raises questions based on the capstone research.

Professional Background

My professional background includes diverse experience in a variety of learning environments: face-to-face, blended, and virtual. In my fifteen years as an educator, I have had the opportunity to teach both adult and adolescent learners in these three very different learning environments. Entering my career as a traditional face-to-face classroom teacher in a public high school, I instructed tenth, eleventh, and twelfth grade learners in language arts. In this role, I designed and facilitated curriculum for a variety of instructional levels ranging from “regular” to Advanced Placement. Specialized courses I developed during this time frame included a course in eleventh grade

Environmental Literature partnering with Rollins College and a two-credit American Studies course.

During this development phase as an educator, my focus was on the design of learner-centered, project-based curriculum centered on engaging students in the learning process. Rather than simply reading about nature, for example, I took students on field trips to nature areas, greenhouses, and state parks so they could experience nature for themselves. Students created journal entries, poetry, and short stories based on their own observations; these activities made the content meaningful to their own lives. After analyzing Walt Whitman's "Song of Myself," learners were challenged to create individual songs of their own lives and experiences in the literary style of the poet. My goal in these early years of my teaching career was to increase learner motivation by incorporating specific strategies based on constructivist learning theory.

In 1998, I was invited to join a group of core subject-area teachers who were designing the first statewide distance-learning curriculum for secondary students. Funded by grant money, this fledgling organization, formerly the Florida Online High School, now the Florida Virtual School (FLVS), sought creative, flexible, teachers willing to develop online curriculum to be distributed via the Internet to students across the state of Florida. I was hired to develop both the language arts curriculum for eleventh grade and to develop an online American Studies course. At FLVS, this core group of educators was breaking new ground. Most had no background in instructional systems design or online course development. A common goal of the organization was to create a learner-centered online curriculum based on state and national standards, using the wealth of resources on the Internet to engage and motivate students at a distance to

succeed. The motto was, and remains, “Any time, any place, any path, any pace,” stressing the benefits of flexibility and convenience that distance learning offers. This organization was founded to meet a range of student needs: from credit recovery to Advanced Placement.

Having knowledge of effective teaching in a traditional situation does not automatically translate to effective online instruction (Zhao, 1998). A new set of skills is required and FLVS’ core developers recognized this. Developers and administrators in the organization anticipated a variety of variables as we planned to modify our traditional classroom knowledge into “best practices” for the virtual environment. We considered the following challenges presented by Bellon & Oates (2002):

- The individual nature of online learning has the potential to depersonalize the teacher-student relationship. Given the social nature of learning, this issue could adversely affect student attention.
- The choices involved in instructional decision-making are also constrained by the nature of online courses. Without choice, students will be less likely to find relevance in the information to be learned.
- The absence of a physical classroom challenges the online teacher to provide a climate that supports learning. Courses that lack identifiable structure and organization could damage the development of student confidence.
- The lack of face-to-face meetings in online courses impedes the teacher’s ability to understand and encourage their students based upon their personality types. This introduces questions about the nature of student satisfaction while involved in cyber learning.

The administration developed a list of guiding policies to address these challenges. For example, to personalize the teacher-student relationship, a policy was set requiring facilitators to make an initial welcome call to each enrolled student, followed up with regular email and phone communication. To give students choice,

designers integrated alternative assessments so that students could select a variety of multimedia options for projects and assignments. Attention was paid to developing curriculum that addressed a variety of learning styles by integrating a variety of audio, visual, and textual formats.

Once pilot courses were launched, I began to experience what it was like to facilitate online instruction. This required a shift from my traditional instructor-led approach to a new virtual paradigm. Since content was online, my role as a facilitator was not as content expert but to support, encourage, and guide students in their learning. Without daily face-to-face interaction with students, it was necessary for me to acquire new skills to communicate, monitor, and motivate students online. As I faced the challenges in motivating online students, I began to develop a growing interest in ways I could build, sustain, and improve motivation in students in this new virtual environment.

One concern that grew during this time was attrition rate. Reasons for attrition were investigated by the FLVS organization through surveys, phone calls, and email. Strengths and motivating factors for success were also investigated through similar methods. Based on this information, a consensus of best practices was developed. An understanding that timely, detailed feedback and consistent communication was crucial to motivating students resulted in policies for teachers. These policies include a preferred 24-hour response to emails and a 48-hour time frame for grading assignments. Frequent progress reports and parent phone calls were established to increase communication. Specific design standards such as gaining students' attention through incorporating Gagne's nine events, and integrating interaction became codified.

Throughout my time at FLVS, the issues of how to effectively design and facilitate motivation continued to challenge and interest me. Inexplicably, on occasion, even if a course was well designed, effectively facilitated, and frequent communication occurred, a student dropped the course anyway. Taking into account transfers, illness, and other causes, it became clear that sometimes, no matter how well a course was designed, if a student was not motivated to learn, retention was unlikely. How to motivate unmotivated students became a key interest at this phase of my career.

While motivational issues at FLVS centered on adolescent learners, the motivational issues at my next job, Anteon (subsequently acquired by General Dynamics Information Technology), focused on adult learners. As an instructional systems designer (ISD) for this government subcontractor, I used my experience as an online developer and facilitator to build on-the-job web-based training for the Veterans Benefits Administration (VBA), the Veterans Health Administration (VHA), the Army, and other government agencies. My major focus as an ISD was the design and development of Training and Performance Support System TPSS products built on the ADDIE mode of instructional design: Analysis, Design, Development, Implementation, and Evaluation.

In order to understand how motivation relates to the design of this product, some background on TPSS is required. TPSS is a job-training package that provides assistance to the graduate of the training once actual on-the-job performance begins. There are three elements that make up a typical TPSS:

1. Web-based training
2. Performance-based assessment
3. Cooperative learning methodology

The performance-based assessment in TPSS is a test that mirrors what the employee will actually do on the job. For example, when designing performance-based assessment for the Veterans Service Representative (VSR) training position, VSRs would have to show that they can properly develop a claim. While some TPSSs are individually structured, many are built on cooperative learning methodology. When a TPSS is built cooperatively, small groups of two or three trainees sit at one computer, working through the web-based lessons and practice exercises together. They take module posttests individually. The strength of this idea is that trainees learn the material together so that they can perform better individually. In their meta-analysis, Johnson & Johnson (2000) cite numerous research studies showing that small-group cooperative learning is effective in promoting greater achievement, more favorable attitudes toward learning, and increased longer-term retention than other forms of learning (e.g., competitive or individual).

Adult learners are motivated differently than adolescent learners (Knowles, 1984; Wlodkowski, 1993). Analysis and review of literature built my knowledge of designing motivation for adult learners. As I designed web-based curriculum, I kept the following assumptions about adult learning theory (Knowles, 1996) in mind:

- Adults need to know why they need to learn something.
- Adults need to learn experientially.
- Adults approach learning as problem solving.
- Adults learn best when the topic is of immediate value.

My knowledge of motivational design at this stage was limited to literature review, especially Wlodkowski's *Enhancing Adult Motivation to Learn* (1999) and the Malcolm Knowles' work on adult learning theory. According to Knowles (1984), as a person

matures the motivation to learn is internal. Adult learners are motivated by a “need to know” (Knowles, 1995, p. 23), especially as it relates to solving problems in their lives.

One of my roles at General Dynamics Information Technology is facilitator for instructor-led “Train-the-Trainer” sessions for training coordinators in charge of facilitating TPSS in their VBA regional offices. During this training, my co-facilitator and I prepare these training coordinators to motivate their new VBA employees before they begin their TPSS training. We stress to these training coordinators that they should include, as part of their initial briefing, “What’s in it for me?” information in order to motivate potential trainees. Here is a sample script of a training coordinator conversation with a new employee that I model as a Train-the-Trainer course facilitator. This script was created by me for the purpose of this course:

> As a trainee, you are probably wondering “What’s in this TPSS training for me? Is this going to help me actually do my job at the VBA?” I’d like to address your concerns directly by letting you know how TPSS is going to help you: First, this is performance-based training, which means that you’ll get practice actually doing what you’ll need to do on the job. You’ll be looking at VA Forms and evidence taken from real Veteran’s claims and asked to make important decisions about those claims. Second, this TPSS uses cooperative learning, which means you’ll be working together in this small group as you go through the web-based courseware. You’ll be learning more because you’ll be able to build on the knowledge and experience of each other.
>
> I can tell you from my own personal experience as an RVSR that TPSS has helped me tremendously. When I was first promoted, I felt competent with the claims process but had NO idea how to begin determining service connection….or evaluating evidence…or identifying ancillary benefits. After I completed the first TPSS, I was able to rate simple claims without error. And the more practice I got, the better I became at handling even the more complex cases.

Note that, in this script, the training coordinator is being taught to emphasize the content relevance of the web-based courseware and supporting materials in TPSS to the students' personal and career goals. This supports the assumptions by Knowles

(1984) that adults need to know why they need to learn something and that adults learn best when the topic is of immediate value. An American Productivity Center study supports the concept, stating, "Since motivation comes from within, a worker (student) is more motivated to perform well if he or she understands what is going on. The more I understand what is going on, why it is going on, how it affects me, and what's in it for me, the more I will tend to support... its goals" (Etzioni & Hogan, 1980).

Research supports the importance of content relevance to motivation. In a study by Frymier and Shulman (1995), the researchers administered a validated survey measuring content relevance in course. Making content relevant to students' personal and career goals was hypothesized to be a factor, in addition to immediacy, that increased students' state of motivation. Based on the results of their research, relevance was found to be associated with state motivation.

Niche

As an ISD and Train-the-Trainer course facilitator, I have developed a niche in the area of instructional systems design, distance learning, and cooperative learning methodology. The current target audience for my work is adult distance learners, but my experience builds on an understanding of what motivates virtual Kindergarten through 12th grade (K-12) learners. After attending foundation leadership training at the University of Minnesota with Drs. David and Roger Johnson, I became an adjunct instructor with the Cooperative Learning Center. I have continued to develop expertise in cooperative learning through continued study and research and frequently train adult learners on cooperative learning methodology. Because the target audience for my work as an ISD is adult learners, I have studied, researched, and designed web-based training based on adult learning theory, including what motivates adult learners. This

capstone is designed to fill a gap in the literature on what motivates distance learners in the virtual K-12 environment.

Foundational Research

The focus of this capstone on concepts of motivation in a distance learning environment grew from a review of literature on learning theory, instructional strategies, and best practices as I prepared for written and oral sections of my scholarly projects. The findings of this research, in addition to my annotated bibliography, became the building blocks for an initial exploration of potential motivating factors for learners.

Scholarly project 1. My first scholarly project was based on research showing that the incorporation of interaction and different levels of interactivity in the design of web-based courseware was important in motivating learners. Several elements discovered in this scholarly activity relate to an understanding of motivation.

Although there are a variety of definitions for interactivity, the central focus of interactivity is that it involves the active engagement of learner with people or technology that leads directly to meaningful learning. Research analyzing the role of interactivity and interaction within web-based courseware demonstrates a positive effect of student interactivity on learning outcomes. Berge (1999) observed that, “for learning to occur, either alone or in a group, the student must interact with, and process, the content of the course” (p. 6).

Sims (1997) stated that interactivity plays a crucial role in knowledge acquisition and the development of cognitive skills as well as retention. Evans and Gibbons (2007) concluded that interactive systems facilitate deep learning by actively engaging the learner in the learning process. Jones (2008) supports this view, indicating that interaction is central to “deep learning” (p. 223). A primary factor in determining online

course quality is students' perceptions of the degree of interaction. (Klesius, Homan, & Thompson, 1997; Roblyer & Ekhami, 2000; Smith, 1996; Zhang & Fulford, 1994; Zheng & Smaldino, 2009).

Several studies explore the effects of different levels of interaction on achievement. Gao and Lehman (2003) explored the effects of different levels of interaction on achievement and motivational perceptions of college students in a web-based learning environment. There were three groups in the study: a control group, a reactive interaction group, and a proactive interaction group. The control group received a treatment with hyperlinks to link all the learning content together, the reactive interaction group received a treatment that was implemented with elaborated immediate feedback strategy, and the proactive interaction group received a treatment that was implemented with generative activity strategy. The results indicated that students in both the reactive and proactive interactive groups outperformed those in the control group in the achievement test. The students in the reactive interaction group demonstrated significantly higher motivation than those in the control group.

Brady (2004) analyzed the results of learners using three educational websites with the same content areas and varying levels of interactivity to determine the effect of interactivity. On the reactive website, users were required to simply press the space bar or click on "Next" to view each lesson page. The coactive website allowed users to make more choices as to how to traverse the lesson; users clicked on the links at the top of the page to view each portion of the lesson. The proactive website allowed users to engage in an interactive way for each portion of the lesson. The results of this study, mirroring those of Gao and Lehman (2003), showed that students in the most interactive

group (proactive) made significantly larger learning gains, were more satisfied, and spent more time with the site than the least interactive group (reactive).

In a comprehensive meta-analysis, Zhao, Lei, Yan, Lai, and Tan (2005) found that interaction is a key component in deciding the effectiveness of distance learning compared to face-to-face instruction. Specifically, they found that distance-learning programs providing opportunities for both synchronous and asynchronous interactions reported more positive outcomes than programs with a single mode of interaction. Research performed in the last two years also supports the link between high levels of interactivity and achievement. M. Neo and T. Neo (2008) investigated the impact of interactivity on achievement and satisfaction. Their results showed that high levels of interactivity, seen in the design of visual and auditory media elements, were effective in enhancing students' understanding of the subject matter and motivated them to learn more about the subject. According to their research, high levels of interactivity increased motivation, satisfaction, and learning for students who completed the web-based course.

Scholarly project 2. The second scholarly project was based on research showing that web-based training using situated learning, experiential learning, and cooperative learning was linked to positive learning outcomes; leading to the assumption that online courseware built on these theories motivates and engages learners. Several elements discovered in this scholarly activity relate to an understanding of motivation.

Situated learning. Lave (1988), a major figure in the theory of situated learning, conducted ethnographic studies of learning and everyday activity that revealed how

different schooling is from the activities and culture that give meaning and purpose to what students learned elsewhere. In these studies, Lave focused on the behavior of "just plain folks" (JPFs) and recorded that the ways they learned were different from what students were asked to do. Lave discovered that when JPFs aspired to learn a set of practices, they had two options. First, they could enculturate through apprenticeship. The second option was to enter school as a student. Lave found that, while becoming an apprentice did not involve a qualitative change from what JPFs normally do, schools demanded a qualitative change in behavior.

Lave (1988) and other researchers in the field found that many didactic teaching practices assume that conceptual knowledge can be abstracted from the situations in which it is used and learned. This assumption means that, in this approach, there is a separation between knowing and doing and that knowledge is an integral, self-sufficient substance, independent of the situations in which it is learned and used. For example, teaching from dictionaries assumes the definitions are self-contained "pieces" of knowledge. However, experienced readers understand that words are situated and often ask for the rest of the sentence or the context before interpreting the word. This example illustrates the idea of situated learning; knowledge is situated, being in part a product of the activity, context, and culture in which it is developed and used (Brown, Collins, & Duguid, 1989, p.32).

Dabbagh and Bannan-Ritland (2005) summarize the underlying principles of situated learning theory as including the following principles:

1. Knowledge needs to be presented in an authentic context, i.e., settings and applications that would normally involve that knowledge.
2. Learning requires social interaction and collaboration.

Experiential learning. The concept of experiential learning originated with Rogers in 1969 and was later expanded on by Kolb and Fry (1975). According to Kolb, knowledge is continuously gained through both personal and environmental experiences. This experiential learning model can be simplified to *Do* (experience it), *Reflect* (share and process it), and *Apply*. Kolb states that in order to gain genuine knowledge from an experience, certain abilities are required:

- *Experience the activity: perform, do it:* The learner must be willing to be actively involved in the experience.
- *Share and process reactions, observations about the experience*: The learner must be able to reflect on the experience.
- *Generalize by connecting the experience to real-world examples:* The learner must possess and use analytical skills to conceptualize the experience.
- *Apply what was learned to a similar or different situation:* The learner must possess decision-making and problem-solving skills in order to use the new ideas gained from the experience (Merriam, Caffarella & Baumgartner, 2007).

According to Merriam and Caffarella, "experiences that provide learning are never just isolated events in time. Rather, learners must connect what they have learned from current experiences to those in the past as well as see possible future implications" (1999, p. 223).

Cooperative learning. In their meta-analysis, Johnson & Johnson (2000) cite numerous research studies showing that small-group cooperative learning is effective in promoting greater achievement, more favorable attitudes toward learning, and increased longer-term retention than other forms of learning, such as, competitive or individual.

The preponderance of research studies involving cooperative learning demonstrate that use of formal and informal cooperative learning, which uses cognitive

and experiential techniques for training of complex cognitive skills and objectives, ensures that training is meaningful, in-depth, and retainable, ensuring that the skills and knowledge gained is transferable across many different situations (Johnson & Johnson, p. 4).

Conclusions. As a result of research and review of existing literature through scholarly projects 1 and 2, several potential sources of motivation in distance education environments were discovered. The role of interactivity and levels of interaction (learner-learner, learner-content, learner-instructor) were identified as a potential motivational design factors in scholarly activity 1. In scholarly activity 2, instructional strategies using situated, experiential, and cooperative learning methodologies were identified as possible motivators for online learners. However, since the target audience for these studies was adult learners, it was necessary for me to extend my review of literature into specific factors that may motivate distance learners in a K-12 environment.

Annotated bibliography. I began building my annotated bibliography by first establishing the current status of distance learning in the U.S. in both higher education and in virtual K-12 environments. Current studies showed rapid growth as well as challenges faced by distance learning organizations. From this base, I began investigating the various definitions and theories of motivation in a variety of learning environments. This built my knowledge of the experts, theories, and research in the area.

Because my niche was in distance learning environments, I began to narrow my search to peer reviewed articles and research on motivation in distance learning

environments. Through an analysis and organization of this literature, it became clear that most research in the area was being done in distance learning environments in higher education. Since my niche also encompasses instructional systems design, I became particularly interested in John Keller's motivational design models. Keller's development of the ARCS model of motivational design (**A**ttention, **R**elevance, **Confidence**, **S**atisfaction) spurred me to explore literature and research based on the ARCS model. In addition to research studies built on Keller's design theory, I found numerous studies referencing two instruments Keller developed to measure motivation – the Course Interest Survey (CIS) and the Instructional Materials Motivation Survey (IMMS).

Research continues into studies that have used the CIS to measure motivation. A variety of studies have used the ARCS motivational design method (Gabrielle, 2003; Huett, Kalinowski, & Moller, 2008; Talvitie-Siple, 2007). The findings of these studies support the use of the ARCS motivational design method in improving motivation in distance learning environments.

Context of the Problem

> *Carrots and sticks are so last century. For the 21st century we need to upgrade to autonomy, mastery, and purpose.* – Daniel H. Pink. (Drive, 2009, p. 203)

The effort to put courses online is ubiquitous in education and training. Offering online courses has been growing rapidly in higher education and K-12 education as well as business and government organizations. The military has also increased its development of online training. Because of frequent deployments, for example, the Army has focused energy on developing distance learning courses to replace or

supplement courses formerly offered as face-to-face or paper-based courses (TRADOC, 2010).

Distance, or virtual, learning education environments provide the opportunity for students to learn at their own pace and at their own convenience. However, distance education offers challenges for students, instructional designers, and online facilitators. The learner-centered focus of distance education courses requires learners to be motivated and self-directed (Lee, 2000). These requirements mean that distance educators need to identify what motivates learners in a virtual environment and then how to integrate specific motivational strategies into the design and implementation of online courses.

Motivation has long been a concern of educators, especially by distance educators (Cornell & Martin, 1997; Keller, 1999; Lin, 1999). Lack of motivation has been cited as a major cause of failure to succeed by distance education students (Kim & Keller, 2008; Moore & Kearsley, 1996). Students' motivation to learn may contribute significantly to their success or failure in a distance learning or virtual environment.

Business and training organizations recognize that motivation is key to the success or failure of employees. Leadership and organizational literature has explored the issue of how to motivate employees to be productive and satisfied in the workplace. Evaluation procedures such as performance appraisals, promotions, and stock options have been implemented based on assumptions about what motivates people.

In *Bringing Out the Best in People*, Daniels (2000), a performance management expert, explains how to apply scientifically based behavioral stimuli to the workplace through positive reinforcers, ideas that are based on the work of B. F. Skinner.

However, new thinking about the concept raises questions about how we should think about what motivates not only adults but also the adolescent learners we seek to prepare for the 21st century.

In *Drive: The Surprising Truth about What Motivates Us*, Pink (2009) challenges us to think about what motives us – at work, at school, and at home – in a different way. Drawing on four decades of scientific research on human motivation, Pink demonstrates that while the "carrot-and-stick approach" worked successfully in the twentieth century, it is the wrong way to motivate people for today's challenges. Pink examines three elements of true motivation:

- Autonomy: the desire to direct our own lives
- Mastery: the urge to get better at something that matters
- Purpose: the yearning to do what we do in the service of something larger than ourselves

Pink then offers techniques for putting these into action and describes motivational elements which should make us question how we prepare K-12 learners for the 21st century world of work and life. When considering elements that contribute to successful distance learning, factors such as autonomy, mastery, and purpose prompt us to examine the issue of motivation in virtual settings with renewed interest and perspective.

Although there are numerous research studies on distance education in higher education institutions, the research at the secondary level is in its infancy. There are several case studies available describing specific virtual high schools, as well as articles reporting the overall trend in the implementation of virtual high schools (Bradley, 2004; Cavanaugh, Gillan, Kromley, Hess, & Blomeyer, 2004; Clark, 2001). However, unlike

higher education research, there are few research studies that address motivational constructs that underlie virtual secondary school experience and students' perception of these constructs.

There are a variety of studies which investigate the relationship between motivation and achievement in higher education settings (Angelino, Williams, & Natvig, 2007; Bocchi, Eastman, & Swift, 2004; Hara & Kling, 2001; Huett, Kalinowski, & Moller, 2008; Sperry, 2009), but there is a gap in the existing research on what motivates virtual secondary students to perform. This research seeks to contribute to existing research on motivation in virtual secondary students.

Conceptual Framework

What is Motivation?

Motivation is a broad topic with a variety of definitions. This capstone focuses on the definition of motivation in the context of education. An analysis of various definitions of motivation will be presented in the literature review section of this capstone document. For the purpose of this study, motivation will be defined as an individual's demonstrated effort to learn course content.

One purpose of this capstone is to explore the specific strategies and design techniques we can we use to motivate students. With the help of motivation design theory, instructional strategies, and the results of the research outlined in this capstone, I believe we can create the circumstances that influence students to want to engage in learning. We do have the power, in other words, to design and facilitate online courses that sustain and improve motivation. Improved motivation, as the review of literature will demonstrate, may lead to positive outcomes such as increased academic performance

and satisfaction. This work supports the long-term student persistence in courses and education, resulting in potentially higher levels of academic performance.

The literature review of this capstone proposal will outline why the focus of this capstone is valuable for the field of educational technology. The section will begin with the rationale for studying motivation in a virtual K-12 environment. It will then discuss the reasons the ninth grade is an important target audience. The section will end by outlining the reasons why Florida Virtual School (FLVS) is an appropriate venue for study.

Why Study Motivation?

There are two compelling reasons why motivation is a worthwhile topic for investigation. First, motivation is positively linked to academic performance (Wlodkowski, 1993). Even without agreement on the specific definition of motivation, we know motivation is important. We know from personal experience and observation that if two people with the same exact ability are given the same opportunity, the motivated person will surpass the unmotivated person in performance.

Research supports this premise. When there is no motivation to learn, there is no learning (Walgerg & Uguroglu, 1980; Wlodkowski, 1993). There are numerous studies that show motivation is positively related to educational achievement (Kim & Keller, 2008; Levin & Long, 1981; Uguroglu & Walgerg, 1979; Wlodkowski). People work longer, harder, and with more intensity when they are motivated than when they are not motivated (Wlodkowski, 1993).

In addition, while some elements of student motivation are not within the control of an instructor, educators can stimulate motivation in specific ways. Two concepts of motivation - intrinsic and extrinsic – are commonly referenced in a review of the

literature on motivation. According to Deci (1975), intrinsically motivated activities are "ones for which there is no apparent reward except the activity itself" (p.23). Alternatively, extrinsically motivated individuals engage in tasks "for the rewards that follow from completing them, not for the pleasure that comes from them" (Keller, 2010, p.17). For example, many successful students take advanced courses to increase their chances of getting into a desired college, not because of intrinsic motivation. Likewise, most students do not attend school because they are intrinsically motivated to do so However, a common goal educators have for our students is intrinsic; we seek to create in our students lifelong learners and spark a passion in students to enjoy learning.

The issue of intrinsic and extrinsic motivation is complex. Keller (2010) points out that it is a challenge to build intrinsic interest "without necessarily expecting all learners to become totally motivated by intrinsic interests and to respect the motivational orientations of students, while, at the same time, trying to encourage positive growth" (p.19).

While it is true that we cannot control another person's motivation, educators can influence the motivation of students by either stimulating their motivation to learn or not. This supports the need to investigate the relationship between specific ARCS motivational variables and performance. By developing an understanding of specific motivational elements we can, as educators, use this knowledge to effectively integrate motivation in virtual K-12 courses.

Why Study the Virtual K-12 Environment?

Virtual K-12 environments are expanding rapidly. Picciano and Seaman's August 2010 survey of K-12 online learning estimated that the number of students enrolled in at least one online or blended course was 1,030,000, which represents 2% of the total K-

12 population. Of these estimates, 70% of the students were enrolled at the secondary level.

A March 2010 study survey of public school- and district-level administrators by Simba Information indicates that about one-third of schools have some kind of online program in 2009-2010, and another 20% expect a program will be started by 2011-2012. “The anticipated expansion of the implementation of online learning is spurred not only by the economy and education budget constraints but by the increasing recognition of the need to engage students as individuals and the rapid proliferation of computer technologies,” said Kathy Mickey, senior analyst/managing editor of Simba’s Education Group.

Growth in K-12 distance education is likely to increase in the coming years as a result of Investing in Innovation (i3) funding, Race to the Top projects, and the new Elementary and Secondary Education Acts. These federal funding projects emphasize raising standards for all students and improving learning and achievement.

According to the fact sheet for i3 funding posted on the U.S. Department of Education website, the proposed 2010, budget for i3 funding is 100 million dollars. The purpose of this project is to provide competitive grants that expand the implementation of, and investment in, innovative and evidence-based practices, programs and strategies that significantly (a) improve K-12 achievement and close achievement gaps, (b) decrease dropout rates, (c) increase high school graduation rates, (d) improve teacher and school leader effectiveness, and (e) accelerate the creation of an education sector that supports the rapid development and adoption of effective solutions. In order to be eligible to apply, school district applicants must:

- Have significantly closed the achievement gaps between groups of students
- Have demonstrated success in significantly increasing student academic achievement for all groups of students
- Have made significant improvement in other areas, such as graduation rates, high-quality teachers and school leaders
- Demonstrate that they have partnerships with the private sector that will provide matching funds

Increasing enrollments in distance virtual K-12 courses is one way to meet these requirements.

The Race to the Top federal funding project aims to promote what the Department of Education calls “comprehensive, coherent, statewide education reform” across four key areas: standards and assessments, teacher quality, data systems, and turning around low-performing schools (Robelen, 2010). In addition, the Department of Education included STEM—Science, Technology, Engineering, and Mathematics—education as a “competitive preference priority” in evaluating state applications, with an emphasis on ensuring the topic was integrated throughout the states’ plans (Robelen, page number because of phrase in quotes). This competitive preference priority on technology supports the increase of innovative learning environments such as virtual k-12 programs. Nebraska Governor Heineman, for example, proposed during the January 2010, State of the State address to apply for funding to develop a 20 million dollar virtual high school with Race to the Top money (Dejka, 2010). Although Nebraska was unsuccessful in being awarded Race to the Top money, the governor has pledged commitment for the virtual school because it would give students in remote areas of the state access to more rigorous curriculum in foreign languages, math, other subjects, and it could serve as a resource to help struggling urban youths (Dejka, 2010).

The new Elementary and Secondary Education Acts replaces the No Child Left Behind Act of 2001. According to the U.S. Department of Education's Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act (March 2010), a major priority of the act is that:

> Every student should graduate from high school ready for college and a career, regardless of their income, race, ethnic or language background, or disability status. Following the lead of the nation's governors, we're calling on all states to develop and adopt standards in English language arts and mathematics that build toward college- and career-readiness by the time students graduate from high school (p.3).

The blueprint replaces No Child Left Behind's requirement that every American child reach proficiency in reading and math with the goal that all students should graduate from high school college-ready by 2020. To this end, it provides incentives for states to adopt academic standards that prepare students to succeed in college and the workplace (Blueprint for Reform, 2010). Because it broadens the range of students served and expands the goals of education, the Elementary and Secondary Education Act, like i3 and Race to the Top projects, supports the increase of virtual K-12 education programs.

Virtual K-12 environments have unique challenges, such as higher attrition rates than face-to-face environments, which must be addressed. According to Angelino et al. (2007), attrition rates for classes taught through distance education are 10-20% higher than classes taught in a face-to-face setting. The higher attrition rate of distance education is supported by other studies (Dagger & Wade, 2004; Flood, 2002; Nash, 2005). The rates vary widely and questions about the validity of these reports have been argued (Tyler-Smith, 2006). Flood, for example, reports attrition from e-Learning as high as 70-80% while Diaz (2002) puts the figure at between 20-50%. Regardless of

the exact figure, drop rates for distance classes have been consistently higher than those of traditional classes (Diaz, 2000; Phipps & Merisotis, 1999; Ridley & Sammour, 1996).

Thus, it is important to investigate the relationship between specific motivational constructs and performance in virtual K-12 environments to increase our understanding of what motivates virtual students to persist in completing courses, thus lowering attrition. Distance educators, designers, and facilitators may be able to use the results of studies such as this capstone to design and facilitate online courses that increase motivation. Although there are many studies on motivation in distance higher education environments, there are few studies that study motivation in virtual K-12 environments.

There are a variety of studies that investigate the relationship between motivation and achievement in higher education settings. Bocchi et al. (2004), for example, studied an online MBA program in order to investigate ways of retaining learners. The researchers used a cohort learning experience with extensive faculty feedback and interaction to address isolation concerns, providing application-based content and activities. The researchers found that interactions with other students were motivational, supporting the use of student-student interaction in online courses.

Studies by Angelino (2007) and Hara and Kling (2001) explored what motivates students, causing stress and attrition in higher education distance education courses. Both studies suggested practical strategies such as prompt, clear feedback, and clear expectations from instructors to increase motivation. Huett, (2008) investigated motivation in an online, undergraduate computer course by using Keller's (2010) ARCS method. These researchers designed motivational e-mail messages and compared a

treatment group using these messages with a control group. Finding increased motivation in the treatment group, they concluded that online instructors could increase motivation with specific strategies such as these. Sperry's (2009) doctoral dissertation on motivation in rural community college students concluded that timely instructor feedback and clear course expectations were essential to keeping students motivated.

Although many studies on motivation in distance education environments have been conducted in higher education, few studies focus on motivation in secondary virtual students. Talvitie-Siple (2007) did focus on this target audience; studying student motivation in a secondary web-based algebra course. Talvitie-Siple found that there were specific elements which motivated students in this environment such as effective, consistent, timely instructor feedback. More studies need to be done in virtual K-12 environments to fill the gap in existing literature.

Why Study the Ninth Grade?

Entering ninth grade can be one of the most emotionally difficult and academically challenging times in a student's life (Rourke, 2001). Ninth graders are a unique group of individuals who are searching for their own identities. Rourke identifies ninth grade as the most critical point for intervention to prevent students from losing motivation, failing, and dropping out of school. Up to 40% of ninth grade students in cities with the highest dropout rates repeat ninth grade; only 10 to 15% of those repeaters go on to graduate (Balfanz & Legters, 2006).

In addition to the academic challenges ninth graders face there are other issues. For example, entering high school has the tendency to make ninth grade students feel more isolated and anonymous in the larger high school setting (Cotton, 1997).

Researchers target ninth grade as the make or break year for completing high school. One reason given is that students may not be academically prepared for the rigor of high school coursework. It is during the ninth-grade year that many students for the first time have to earn passing grades in core courses (Fulk, 2003). Satisfactory completion of core courses is often required for graduation from high school, and these core courses are typically some of the toughest and most rigorous academic classes a student has to take in high school (Smith, Akos, Lim, & Wiley, 2008). The target course for this capstone project, ninth grade language arts, is a core course required for high school graduation. Academic success in ninth grade course work is highly predictive of eventual graduation; it is even more telling than demographic characteristics or prior academic achievement (Allensworth & Easton, 2007).

Ninth grade success rates in Florida mirror the statistics of other U.S. states. According to 2010, Weber (2010, p. 1), ninth grade remains the most failure prone in Florida's K-12 public-school system. Florida peaked in 2004, when 52,355 ninth-graders – nearly one out of every four – could not meet requirements for promotion to 10th grade (Weber, 2010). While educators continue to analyze why freshmen fail, transitional programs for ninth graders have been proposed as one way to address the issue. Moving from the traditional high school program is of great interest among educators as many transitional high school program models are currently being implemented across the nation (Hertzog & Morgan, 2001).

An expert in research on transitional programs for individuals with disabilities, Repetto (2003) defines transition into the postsecondary setting as a change in status from behaving primarily as a student to assuming adult roles in the community. These

roles include employment, participating in postsecondary education, maintaining a home, becoming appropriately involved in the community, and experiencing satisfactory personal and social relationships (Halpern, 1994).

After reviewing the principles guiding transition programs, Repetto (2003) identifies a variety of foundational skill areas that are needed by students to transition into, and maintain, the various roles they will assume as adults. These skill areas fall into five categories: self-determination, academic performance, relationship building, consumerism, and self-maintenance (Repetto, 2003, p.81). Repetto suggests that the teaching of transition to life skills should be part of the mind-set of all teachers; it should be why they teach math, English, reading, history, and other subjects. As many educators would agree, teaching students to make this connection and to use the skills being taught in their life roles is what education should be about (Repetto, 2003).

Repetto (2003) poses a series of questions teachers might consider when planning to teach transition; questions such as “How can I help my students be self-determined? Am I connecting academics to real-life situations and needs? Have I spoken with my students about their dreams for their futures and helped them prepare for these dreams?” (p.85). By effectively addressing and engaging students with these types of topics during transitional periods, such as ninth grade, facilitators may motivate students toward positive performance. Repetto’s identification of foundational skills needed for effective transition have common characteristics with the motivational constructs identified in Keller’s ARCS model. For example, like Repetto, Keller identifies Relevance (the “R” in ARCS) as an important element of the model. Building Confidence (the “C” in ARCS) is a key motivational construct in Keller’s model. Like

Keller's Confidence construct, Repetto describes the importance of self-determination, self-maintenance, and relationship building for learners to effectively transition. These commonalities support the need for further research into how key elements of transitional and motivational models can be used to increase motivation and performance in ninth graders.

Another reason further research is needed relates to existing models of transitional programs. These transitional models in traditional schools vary. There are two common types of transitional models targeted for ninth graders: the School-within-a-School model, and the Ninth Grade School model. Both transitional program models require restructuring of the traditional high school. Because this study focuses on a virtual school environment, further investigation is needed into effective ways to build transitional programs for the unique virtual K-12 learning environment.

Why investigate elements of transitional programs for ninth graders in a virtual environment? Studies have found that transitional programs have positive results. J. Smith (1997) collected data from approximately 8,000 middle grade students nationwide and later collected data after their completion of high school. In this study, J. Smith investigated the long-term effects that middle school transition programs have on students' high school performance as measured by their grades throughout high school. The study was prepared as an analysis of covariance. J. Smith established that the students who had access to a transitional program in middle school showed an average GPA of 2.43 in high school, whereas those students who did not have a transitional program in place in their middle school showed an average GPA of 2.01. While this

study focused on the impact of transition in a traditional school, the results hold promise for integrating transitional program elements in a virtual environment.

Since academic success in ninth grade course work is highly predictive of eventual graduation (Weber, 2010), it is essential that educators understand specific motivational constructs that may motivate students. This understanding can be used by distance educators and designers to develop and implement best practices in the construction and facilitation of online curriculum. In addition to its applicability to virtual K-12 environments, this study has possible applications across content areas and learning environments.

Why Should Florida Virtual School (FLVS) be the Research Venue?

FLVS is the largest K-12 virtual school in U.S. According to the 2009 Keeping Pace report on online learning, FLVS is the largest K-12 online learning program in the nation with more than 150,000 half-credit course completions, and more than 120,000 physical students (Watson et.al, 2009, p. 54). FLVS is approximately five times larger than any other state-led program, and ten times larger than most, with 154,125 course registrations in 2008-09 (Watson et al., p. 46).

FLVS is a pioneer in K-12 virtual school education in the U.S. FLVS has a unique place in K-12 virtual education because of its position as a pioneer in distance learning. FLVS, originally the Florida Online High School, was begun in 1996 as a cooperative effort between two Florida school districts funded through a state grant. Because it was breaking new ground in offering distance-learning courses to secondary students, it has a rich history of developing best practices, conventions, policies, and procedures which have been used by other virtual schools which followed. FLVS has

also given researchers and educators the ability and accessibility to trace the history, growth and success of the organization from pilot phase to present.

FLVS has a reputation for excellence in the field of distance education. FLVS holds an important place in virtual U.S. education for quality and excellence. This excellence is supported by its accreditation as well the numerous awards it has received for excellence in distance learning, including the 2009 Codie Award (Watson et al., 2009). FLVS is funded through public FTE dollars, with full funding contingent upon student success. FLVS successfully serves a wide spectrum of students, including academically advanced, average, learning recovery, and struggling learners (Watson et al., 2009). Because it is one of the oldest and largest virtual schools in the U.S., and because of its success as measured by internal and external evaluations on satisfaction, completion rates, and learning outcomes, FLVS school is important as educators and researchers study trends, best practices, and policies in effective K-12 online learning environments.

The impact FLVS has had on the study and practice of K-12 virtual learning becomes clear from a review of literature on K-12 virtual schools, which frequently profiles, discusses, or examines FLVS. Some important areas of study in K-12 virtual studies which reference FLVS include best practices of virtual schools, such as literature providing personal accounts of strategies that FLVS online instructors use that are effective. Other researchers have used FLVS to study how to categorize types of virtual schools (Clark, 2001), benefits of virtual schooling (Barbour & Reeves, 2009), and challenges of virtual schools (Barbour & Reeves, 2009).

The International Association for K-12 Online Learning (2007) includes FLVS as an example of an effective state-led online learning program. It observes that FLVS has "shown the popularity of online learning when students are given the choice of taking online courses, and has demonstrated the ability of a program to grow rapidly" (Watson, 2007, p.2) It also observes that FLVS offers projects "similar to the real world, where companies often have employees from different offices collaborating on projects, and in fact may effectively prepare students for the 21st century workplace" (Watson, p.18).

FLVS' reputation for excellence in the field of distance education is supported by internal and external evaluations. External sources, such as the Center for Educational Performance and Accountability (CEPA), a Florida TaxWatch Center of Excellence, and the Innosight Institute, a not-for-profit think tank, have assessed the performance of students at FLVS with positive results. According to *Florida TaxWatch* (2007), during the 2004-05 and 2005-06 school years FLVS students consistently outperformed their counterparts in Florida's traditional middle and high schools on such measures as grades, Advanced Placement scores, and FCAT scores.

In their October 2009 case study of FLVS, Mackey and Horn evaluated the performance of students at the virtual school concluding "students who completed AP courses at FLVS received higher scores on 2008 AP exams than did Florida students overall and outscored the nation in several subjects" (p. 25).

FLVS conducts regular student and parent surveys at the end of courses to elicit feedback on its curriculum and practices. Annual evaluations are posted on its website including results of exit, district, parent, school, and student surveys. For the 2009-10 school year, FLVS contracted with Optimal Performance, Inc., to conduct a Student

Survey, an Exit Survey (for students who withdraw), a Parent Survey, a School Survey, and a District Survey in order to gather data about the quality of FLVS services.

According to their report, Florida Virtual School Stakeholder Survey 2009-2010, when asked about teacher communication and quality of services, the data reveal a consistent level of satisfaction among parents and students over the course of several years. Satisfaction levels for students who exit their course prior to completion, while high, are lower than the ratings provided by FLVS parents and students who finish their course. The percentage of students rating the teacher/student communication as either "excellent" or "good" has remained around 90% since 2003 and has continued to slowly move upwards, with 93% of this year's students giving teacher or student communication positive ratings. The percentage of parents rating communication as "excellent" rose from 49% in 2007-08 to 54% in 2008-09 and 57% in 2009-10. All other items pertaining to communication have remained high. For instance, the majority of students (those who complete and who withdraw) and parents agree that FLVS teachers show a special interest in their students. Also, the majority from all three groups indicates that teachers respond to content questions within 24 hours (Watson, 2007).

FLVS provides quality online curriculum. Cavanaugh (2009) observes that a successful online distance organization will have consensus about standards for quality courses, teaching, and programs. FLVS defines quality in specific ways using detailed criteria based on best practices and learning theory. In addition to consistency, adherence to conventions, accuracy, clarity, and integration of interactivity, additional requirements define quality for this organization. These include interactive, engaging

curriculum promoting critical thinking skills, opportunities for student-student interaction and collaboration, and preparation of students for the 21st century. Project-based and multimedia assessments, wikis and other web 2.0 tools, discussion threads, and real-life examples are also part of the design and implementation of quality online courses at FLVS (Arnott, 2010).

An extensive nine-page checklist (a confidential FLVS work product) is used when creating, assessing and revising online courses. Some important features of this checklist are listed here.

- Content is designed with the FLVS Symphony of Skills in mind. (21st Century Skills, Working on the Work, Prisoners of Time, Literacy Skills, and Quantum Learning)
- Lessons incorporate Gagne's Nine Events of Instruction (Gagne, 1965)
- Activities are linked to real-world problems and issues
- Dynamic presentation of content is present

According to FLVS curriculum director (Arnott, 2010), FLVS redevelops or enhances 15-20 courses per year using a specific checklist, ensuring curriculum is accurate, current, and reliable. There is a dedication to continuous improvement to ensure quality.

The Quality Matters Program collaborated with Florida Virtual School (FLVS) to create a Quality Matters G6-23 rubric. The G6-12 rubric has been created to address the need for a set of standards that is specific enough to guide the development, enhancement, and evaluation of online and blended courses for middle and high school students. In addition to collaborating with FLVS, the G6-12 Rubric integrates existing national standards for K–12 online education promulgated by the Southern Regional

Education Board, The International Association for K-12 Online Learning, and the Partnership for 21st century Skills.

The Quality Matters program mission is to promote and improve the quality of online education and student learning through:

- Development of research-supported, best practice-based quality standards and appropriate evaluation tools and procedures.
- Recognition as experts in online education quality assurance and evaluation.
- Fostering institutional acceptance and integration of QM standards and processes into organizational improvement efforts focused on improving the quality of online education.
- Provision of faculty development training in the use of QM rubric(s) and other quality practices to improve the quality of online/hybrid courses.
- Provision of quality assurance through the recognition of quality in online education.

According to the awards section of the FLVS website, Florida Virtual School is fully accredited by two major agencies: The Southern Association of Colleges and Schools (SACS) and The Commission on International and Trans-Regional Accreditation. The curriculum, learning outcomes, and practices of FLVS have received numerous awards for excellence such as the CODIE Award for Best Virtual School (2009), Ednet Pioneer Award (2007), and USDLA 21st Century Best Practices in Distance Learning Award (2005 and 2007).

FLVS provides quality instructors.

FLVS instructors have complex, dynamic roles in the organization. FLVS understands the importance of selecting candidates who exhibit not only the highest caliber of academic and professional accomplishment, but also match the student-

centered philosophy of the virtual school. The job description for credit-producing instructors below captures the responsibilities of this position, as defined by FLVS:

> The Instructor is responsible for providing an educational atmosphere where students have the opportunity to fulfill their potential for intellectual, emotional, physical, and psychological growth. This person is responsible for organizing and implementing an instructional program that results in students achieving academic success in accordance with FLVS and state policies and laws. (FLVS Instructor Job Description, 2011)

The essential position functions of FLVS instructors are complex, including the following major responsibilities:

- Plans, prepares, and implements instructional activities that contribute to a climate where students are actively engaged in meaningful learning experiences.
- Implements instructional activities that contribute to a climate where students are actively engaged in meaningful learning experiences.
- Identifies, selects, creates and modifies instructional resources to meet the needs of the students with varying backgrounds, learning styles, and special needs.
- Assists in assessing changing curricular needs and offers plans for improvement.
- Maintains effective and efficient record keeping procedures.
- Provides a positive environment in which students are encouraged to be actively engaged in the learning process.
- Communicates effectively, both orally and in writing, with students, parents, and other professionals on a regular basis. (FLVS Instructor Job Description, 2011)

According to Jennifer Locke (personal communication, May 23, 2011), department manager of employment services at FLVS, on average, within one week of opening an English posting to general a candidate pool for general consideration, FLVS easily receives 500-700 applicants. This is a tremendous pool, allowing FLVS to be highly selective of its instructors.

The teacher selection process involves a three part process (online profiler, phone screening and panel interview), working in conjunction to gauge the candidate's student-centeredness and alignment with the organization's vision, mission and core competencies for success. Review of recent performance evaluations, reference and employment verifications are used to determine the candidate's teaching performance. The final selection is determined by the Panel in the final interview, with is a combination of current teachers and our Instructional Leaders.

The instructor training is five days with ongoing mentoring and training support through the first year. Part of the training is face to face and part of it is online/virtual. Some parts are asynchronous and some are synchronous. According to Mary Mitchell, (personal communication, May 23, 2011), Professional Learning Team-Department manager at FLVS, training focuses on:

- relationships with students and parents
- effective communication
- modes of communication
- how 2 way communication looks
- types of calls to make
- what the calls look and feel like
- meaningful purposeful goal setting conversations
- Positive feedback
- Responsiveness to engage students in the learning process
- Synchronous tools for webinars
- Web 2.0 tool

FLVS has an effective model of virtual schooling.

There are different models of virtual schooling. This study occurred within the Florida Virtual School model. At FLVS courses are designed and reviewed in compliance with a specific FLVS course design checklist. Once a course has been designed, the same course "shell" is assigned to qualified instructors in the subject.

Thus, all English I instructors in this study taught the same course shell. Instructors personalized the course through their interaction and communication with students, their specific feedback, and their participation and postings in discussion boards. The results of this study apply only to this model of virtual schooling.

Purpose of the Study

There are two main purposes of this study. The first is to identify whether or not there are significant differences in John Keller's ARCS (Attention, Relevance, Confidence, and Satisfaction) motivational constructs in virtual ninth grade English I students based on instructor experience. The second is to investigate the perceived instructional practices that contribute to motivation.

Instructor experience will be defined in this study by the number of years an instructor has spent teaching language arts. Instructor experience will be categorized in two groups. Group 1 will be English I instructors who have 1-5 years experience teaching language arts. Group 2 will be English I instructors who have 6 years or more experience teaching language arts.

This study will examine whether the students' median scores on each subscale of the CIS are the same or differ, depending on the experience of students' assigned instructor. For example, if the analysis for Attention is significant the researcher will be able to determine if students who have teachers with more experience have, statistically, significantly higher Attention scores.

The results of this study may be used to inform best practices and design considerations for virtual K-12 distance educators to increase motivation and performance. It may also apply to a variety of content areas and learning environments.

Assumptions

Students taking English I at Florida Virtual School are assigned to different instructors, but the main shell of the English I course (lessons, topics, assignments) are identical. This study makes several assumptions. First, the study assumes that the basic course design structure of all sections of the English I course are identical. This study also assumes that all students who complete 65% - 99% of the course are successful performers. The study assumes that the FLVS instructors facilitating the English I course follow the grading and communication policies set up by Florida Virtual School. The study will explore the extent of personalization instructors can make in the English I course, but it is assumed that the facilitating of the course, including all lessons, activities, assignments, and scoring rubrics are consistent.

The results of this study may be used to inform best practices and design considerations for virtual K-12 distance educators to increase motivation and performance. It may also apply to a variety of content areas and learning environments.

Research Questions

The following research questions will be examined during this capstone project:

- **RQ1:** For completers only, is there a statistically significant difference in Attention scores by instructor experience?
- **RQ2:** For completers only, is there a statistically significant difference in Relevance scores by instructor experience?
- **RQ3:** For completers only, is there a statistically significant difference in Confidence scores by instructor experience?
- **RQ4:** For completers only, is there a statistically significant difference in satisfaction scores by instructor experience?
- **RQ5:** For completers only, what are the perceived instructional practices that contribute to motivation?

Significance of Study

A careful review of the existing literature reveals a wealth of discussion and theories about the concept of motivation. The popularity of recent publications such as Pink's Drive (2009) supports the relevance and importance of motivation for workers of the 21st century. According to Pink, the idea of business operating systems built around external motivators ("carrots and sticks") does not work. Pink urges us to upgrade our approach to motivating 21st century workers to autonomy, mastery and purpose.

Because the mission of K-12 education is to give students the knowledge, skills, and abilities they need to be successful in the world of 21st century work and life, it is important that we, as educators, build effective motivating strategies into education to instill these elements. Although there have been studies on motivation in distance education environments in higher education there is little empirical data on motivation in virtual K-12 environments. Research is also lacking on how to positively affect motivation of virtual K-12 students. Motivation is essential to all learning (Dick & Carey, 1996); consequently, this study benefits the fields of general K-12 education and virtual K-12 learning since it addresses the motivational aspects of self-directed learning.

Perraton (2000) argues that existing research is seldom grounded in theory and is instead typically descriptive, stressing the need for additional empirical development of the literature. Likewise, Visser and Keller (1990) point out that the literature often neglects the motivational needs of learners. Motivation has been the topic of research for decades in pedagogy; however, there is little formal research on the topic as it relates to virtual K-12 learning.

Studies such as *Keeping Pace* (2009) and *K-12 Online Learning: A 2008 Follow-up* (2009) clearly show that the number of virtual K-12 schools and learners are

growing. As the offering of virtual K-12 learning environments continues to expand, the transformation in education from an instructor-centered approach to a learner-centered focus requires learners to be self-directed and motivated (Fischer & Scharff, 1998). The increase in virtual K-12 schools across the nation further necessitates these traits in adolescent learners. Despite this transformation to a learner-centered focus, the question of how to positively affect motivation has not been adequately examined in the existing literature. While the concept of motivation in distance learning higher education environments has been explored, there is little research on the motivational needs of virtual K-12 learners.

This research study will build on Keller's (2010) ARCS motivational design model for learning and achievement. Since the literature suggests that motivation plays a critical role in performance (Song & Keller, 2001), Keller's Course Interest Survey (CIS) will be used to assess the relationship between specific ARCS motivational constructs and performance in a virtual K-12 environment. Once these relationships are identified, this knowledge about what motivates virtual K-12 learners may benefit instructional designers and facilitators of virtual K-12 virtual environments as they develop and implement best practices to sustain and improve motivation.

This study will also build on existing research on the role of an instructor's teaching experience in student performance, and motivation to perform. Some studies of the effects of teacher experience on student learning have found a relationship between teachers' effectiveness and their years of experience (Murnane & Phillips, 1981; Klitgaard & Hall, 1974). While many studies have established that inexperienced teachers (those with less than three years of experience) are typically less effective than

more senior teachers, the benefits of experience appear to level off after about five years, especially in non-collegial work settings (Rosenholtz, 1986). There is very little literature exploring the relationship between teacher experience and achievement in virtual environments. This study will seek to add to the literature about the effect teacher experience may have on motivation in virtual secondary students.

Operational Definitions

Review of existing research and literature led to the following operational definition of terms:

ARCS MODEL: Refers to John Keller's ARCS Motivational Design Model. Each letter of the acronym ARCS stands for a motivational factor of learning (Attention, Relevance, Confidence, Satisfaction).

DISTANCE EDUCATION: "Distance Education is instructional delivery that does not constrain the student to be physically present in the same location as the instructor. Historically, Distance Education meant correspondence study. Today, audio, video, and computer technologies are more common delivery modes" (Steiner, 1995).

EXPERIENCED: a teacher with 6 or more years teaching experience in the subject area he or she teaches.

EXPERT TEACHER: a teacher with possession of an organized body of conceptual and procedural knowledge that can be both readily accessed and used with superior metacognitive skill. An expert teacher may be an experienced teacher.

FACE-TO-FACE: Traditional classrooms or schools where students meet in the same physical location as their teacher and fellow classmates. Also referred to as brick-and mortar classrooms or schools.

INSTRUCTOR*:* For the purposes of this study, an instructor at Florida Virtual School is one responsible for providing an educational atmosphere where students have the opportunity to fulfill their potential for intellectual, emotional, physical, and psychological growth. This person is responsible for organizing and implementing an instructional program that results in students achieving academic success in accordance with FLVS and state policies and laws.

MOTIVATION*:* For the purpose of this study, motivation will be defined as an individual's demonstrated effort to learn course content.

MOTIVATIONAL DESIGN*:* The process of arranging resources and procedures to bring about changes in motivation. According to Keller, motivational design focuses "on the motivation to learn and refers specifically to strategies, principles, and processes for making instruction appealing" (Keller, 2010, p.23).

NOVICE TEACHER: a teacher with 1-5 years teaching experience in the subject area he or she teaches.

PERFORMANCE: For the purpose of this capstone, performance by English I students includes both completion of 65% - 99% of the English I course and mastery of course objectives in the English I course, as measured by earning a passing grade at the 65% - 99% completion point in the course.

SAMPLE: The sample is the English I students who responded to the survey. Out of 432 in the target audience, 78 were in the sample.

TARGET AUDIENCE: For the purpose of this capstone, the target audience is the 432 English I students who met the criteria for this study.

TEACHING EXPERIENCE: Teaching experience will be defined as the number of years an instructor has taught in any environment – whether face-to-face, virtual, or blended.

VIRTUAL SCHOOL: As defined by Clark (2001) virtual schools are "educational organizations that offer K-12 courses through the Internet or web-based methods" (p.1).

VIRTUAL K-12 SCHOOL: The use of K-12 when discussing virtual schools is an industry standard and will be used in this capstone when there is a discussion of virtual schools and students in general. However, to date, according to Keeping Pace (2009) very few state-led programs offered elementary school in 2008-09; exceptions include the Missouri Virtual Instruction Program (MoVIP) and FLVS (in conjunction with Connections Academy) (p.46).

CHAPTER 2
LITERATURE REVIEW

There are two main purposes of this study. The first is to identify whether or not there are significant differences in John Keller's ARCS (Attention, Relevance, Confidence, and Satisfaction) motivational constructs in virtual ninth grade English I students based on instructor experience. The second is to investigate the perceived instructional practices that contribute to motivation.

This literature review begins with studies supporting the rapid growth of distance learning in both higher education and Kindergarten through the 12th grade (K-12). The review describes research on the current trends and challenges in distance education for both learning groups. Following this discussion of distance education, the review focuses on the concept of motivation. After defining motivation, the review focuses on motivational design models as categorized by Keller (2010). After describing these models, an analysis of research on motivation in distance learning reviews the findings of studies performed in higher education and virtual K-12 learning environments. After establishing the gap in research in the area of motivation in virtual K-12 environments, this review addresses the role of teaching experience in motivating students to perform successfully. The review concludes with a description of how this capstone seeks to contribute to an understanding of what sustains and improves motivation in virtual K-12 learners.

Distance Education in the U.S.

Distance education has been growing steadily in higher education. In 2007, nearly two thirds of the 4,200 colleges and universities in the United States reported offering online, hybrid, or other distance education courses (Parsad & Lewis, 2008).

Currently there are approximately 164 accredited online colleges (eLearners.com, 2009). Online courses can clearly be seen as dominating in distance learning with 61% of institutions reporting offering online courses (Parsad & Lewis, 2008). Carr (2000) points out that many institutions are using online courses to increase enrollment.

Aligning with the growth of online higher education, recent studies support the rapid growth of distance education in virtual K-12 environments. More than 2 million pre-K-12 students take some form of schooling online right now – whether attending a virtual school for all their classes or just taking one or more courses via the Internet. But while the vast majority of students will continue to take all of their courses in physical classrooms over the next five years, the number of students taking courses online will jump to more than 10 million by 2014, according to data released recently by research firm Ambient Insight (Nagel, 2009). According to Ambient Insight's Chief Research Officer, already about 450,000 K-12 students attend virtual schools or "cyber" charter schools, full-time, while another 1.75 million take some of their classes online. The two groups are still outnumbered by students who take all of their courses in physical classrooms, which Ambient Insight indicates is 50.03 million as of 2009 (Nagel).

A recent Sloan Consortium report indicates that three-quarters of public school districts responding to a survey of K-12 online learning offered online or blended courses (Picciano & Seaman, 2009). The overall number of K-12 students engaged in online courses had increased 47% from 2005-2006 to 2007-2008. The 2009 Keeping Pace with K-12 Online Learning review reports that 45 out of 50 states have state virtual schools or online full-time online schools or both (Watson et al., 2009). *Keeping Pace*

2009 concludes that students' demand for online learning options is higher than the opportunities that students have in many states. (Watson et al.).

As indicated in Figure 2-1, this situation will change somewhat by 2014, at which time, forecasts of the number of students taking all of their courses in physical classrooms will drop to 40.49 million, while 3.78 million will take all of their classes online, and 6.68 million will take some of their classes online (Nagel, 2009).

According to the Sloan survey, online learning is meeting the specific needs of a range of students from those who need extra help and credit recovery to those who want to take Advanced Placement and college-level courses. (Picciano & Seaman, 2009). A more detailed discussion of these ranges of students and their needs will be presented in the next section of this review.

Challenges in Distance Education.

Various studies indicate a variety of challenges facing distance educators in the U.S. These include high attrition rates, isolation, and the needs of a widening range of students. According to Angelino et al. (2007), attrition rates for classes taught through distance education are 10-20% higher than classes taught in a face-to-face setting. The higher attrition rate of distance education is supported by other studies (Dagger & Wade, 2004; Flood 2002; Nash, 2005). Attrition is also an issue in corporate training. Recent statistics from the corporate training arena found that attrition rates are as high as 80% in e-learning training courses (MIT, 2001). Studies have investigated the issue of isolation experienced by distance learners, developing strategies such as building a sense of community to address the concern (Rovai, 2001; Sperry, 2009).

A review of virtual K-12 learners shows that the range of students these schools serve is growing. This is supported by literature describing the history and progress of

virtual K-12 programs. Online K-12 education programs known as virtual schools began in the 1990s with programs developed to meet the specialized needs for enrichment experiences and accelerated high school courses such as honors, Advanced Placement, world languages, and International Baccalaureate in smaller schools or schools where qualified teachers were not available (Repetto, Cavanaugh, Wayer, & Liu, 2010).

Currently, in response to mandates to close achievement gaps and raise graduation rates, virtual schools have recently added credit recovery and remediation to their mission (Repetto et al., 2010). As a result, the mission of virtual schools has expanded to include online courses for at-risk students and students with disabilities. Because this mission is recent for most virtual school, the research base on online courses for at-risk students and students with disabilities is still developing (Repetto et al., 2010).

Florida Virtual School (FLVS) is one example of an organization that has expanded the age and range of students it serves. While FLVS began the pilot program as Florida Online High School focusing on grades nine through twelve, the organization has now expanded to offer online courses for middle school and elementary grades. FLVS has also seen growth in the diverse types of students it serves. Much of the school's recent growth has been driven by minority enrollments. During the 2008–09 school year, African-American enrollments grew by 45%, Hispanic enrollments by 36%, and Native American enrollments by 18% (Mackey & Horn, 2009).

Online schools are seeking effective ways to reach out to struggling students to help ensure their success and are well-positioned to directly address the needs of at-

risk learners (Repetto et al., 2010; Rose & Blomeyer, 2007). Scherer (2006) indicates that as the range of students enrolled in virtual K-12 expands, research is required to ensure that online learning is realistic and accessible.

Table 2-1 summarizes the results of current literature addressing some of the challenges faced by educators in the distance-learning environment. The literature cited in this table indicates that a majority of literature focuses on distance education in the higher education environment. As the next section of this capstone demonstrates, this trend toward research conducted in higher education is also true for the issue of motivation in distance education environments. This supports the need for additional research on the challenges faced by virtual K-12 educators.

Motivation

Motivation defined. As indicated in the introduction to this capstone, there are varying definitions of "motivation." Biehler and Snowman (1997) define motivation as the "forces that account for the arousal, selection, direction, and continuation of behavior" (p.399). Another definition is "a person's willingness the act toward a goal" (University of Kentucky, 2006).

In an early work, Keller (1987) defines motivation as "the magnitude and direction of behavior and the choices people make as to what experiences or goals they will approach or avoid and to the degree of effort they will exert in that respect" (p.5). In the latest work, Motivational Design for Learning and Performance, Keller (2010) refines this definition as "that which explains the direction and magnitude of behavior, or in other words, it explains what goals people choose to pursue and how actively or intensely they pursue them" (p.4). This definition describes the elements of motivation –

magnitude and direction – but does not explain how or why people identify and choose their goals.

For the purpose of this study, motivation will be defined as an individual's demonstrated effort to learn course content. This demonstrated effort will be measured by the individual's completion of 65% - 99% of English I course and mastery of course objectives at the 65% - 99% completion point in the English I course.

There is a large body of knowledge related to student motivation in the traditional classroom (Ames, C. & Archer, J., 1988; ChanLin, 1994; Deci & Ryan, 1995; Graham & Golan, 1991; Keller, 1987, 1999, 2010). There are also a growing number of studies on student motivation as it relates to distance learning (Angelino et al., 2007; Gabrielle, 2003; Hara & Kling, 2001; Keller, 2010; Sperry, 2009; Swan, 2001; Talvitie-Siple, 2007). This knowledge includes a variety of theories regarding how and why students are motivated. What educators try to achieve when developing instruction for all types of learning environments is the incorporation of theoretical frameworks to engage and motivate students. Keeping this in mind, how do educators and instructional designers effectively design motivation? What conditions or elements must be present for students to be motivated to learn in an online course? How does motivational design relate to instructional systems design? This section addresses these questions as a building block for my capstone.

Intrinsic and extrinsic motivation. Two concepts of motivation –intrinsic and extrinsic – are commonly referenced in a review of the literature on motivation. According to Deci (1975), intrinsically motivated activities are "ones for which there is no apparent reward except the activity itself" (p.23). Intrinsically motivated people tend to

follow a deep learning approach, which is associated with better retention, application, and reflection (Jordan, 2006). In a case study on motivational influences in self-directed learning, Vallerand, Blais, Briere, and Pelletiers (1989) identified three types of intrinsic motivation: (a) the intrinsic motivation to know, (b) the intrinsic motivation toward accomplishments (process, not outcome), and (c) the intrinsic motivation to experience stimulation.

Alternatively, extrinsically motivated individuals engage in tasks “for the rewards that follow from completing them, not for the pleasure that comes from them” (Keller, 2010, p.17). Jordan (2006) argues that extrinsically motivated people tend to follow a surface learning approach, which is associated with lower comprehension, weaker academics, and overload. They want to attain the reward without necessarily having to master the content (Kawachi, 2002).

The descriptions support the value of intrinsically motivating students since this type of motivation fosters deep learning. However, as Keller (2010) observes, “intrinsic motivation is a complex issue and a challenge is to build intrinsic interest in one’s subject without expecting all learners to become totally motivated by intrinsic interests” (p.19).

Self-directed learning. Carolus (2005, p.25) observes, "No matter how good teaching may be, each student must take the responsibility for his own education." Particularly in a distance-learning environment, learners must take this sense of responsibility for learning; a concept also called self-directed learning. It is important to examine the issue of self-directed learning as it relates to motivation.

Self-directed learning (SDL) originated as an off-shoot of andragogy's first assumption: that adult learners can direct their own learning (Merriam, 2008). SDL is another model that helped define adult learners as different from children (Merriam, 2008). Although Knowles is an expert in adult learners, the concept of SDL applies to K-12 students since distance learners of all ages must be able to initiate their own learning in order to succeed in a virtual environment. According to Knowles (1975) SDL is a process:

> In which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (p.18).

Knowles puts forward three compelling reasons why SDL is important. First, there is convincing evidence that people who take the initiative in learning (proactive learners) learn more things, and learn better, than do people who passively wait to be taught (reactive learners). Knowles explains that self-directed learners "enter into learning more purposefully and with greater motivation. They also tend to retain and make use of what they learn better and longer than do the reactive learners." (1975, p. 14)

The second reason is SDL is more in tune with our natural processes of psychological development. "An essential aspect of maturing is developing the ability to take increasing responsibility for our own lives – to become increasingly self-directed" (Knowles, 1975, p.15).

Knowles' third reason is many of the new developments in education, especially distance learning, put a heavy responsibility on the learners to take a most of the initiative in their own learning. "Students entering into these programs without having

learned the skills of self-directed inquiry will experience anxiety, frustration, and often failure, and so will their teachers" (1975, p.15).

Since a major goal of educators is to encourage life-long learning, fostering a sense of SDL is important. Self-directed learners are continual learners who use a multitude of thinking strategies to maximize their own learning.

Because SDL is essential in a distance-learning environment, students must learn the skill of SDL. Educators have a responsibility to teach, practice, and model the skill for students. Increasing student motivation requires quality instructional strategies and consistent implementation of those strategies. McGuiness (2005) suggests that the teacher can be a key to motivating "unmotivated" students by using the following strategies:

- Establish a supportive learning environment
- Engage students in the learning process
- Provide students with timely feedback on their performance
- Recognize students for their effort and performance (Slide 45)

Research exploring online learning has indicated that SDL skills may assist the learner with the learning process in a distance learning environment (Hartley & Bendixen, 2001). Lee, Hong, and Ling (2002) found that certain aspects of SDL, such as self-efficacy, were positively related to students' attitudes and performance in online learning.

Other researchers have supported the importance of SDL to learners in a distance-learning environment. To succeed in online learning context, Chizmar and Walbert (1999) contend that learners need to take control in planning their learning pace and monitoring their learning comprehension. Shapley (2000) and Petrides (2002) point out the importance of SDL as distance learners make judgments on various aspects in

their learning process. Online learners need to become motivated to overcome procrastination (Elvers, Polzella, & Graetz, 2003), and to actively engage in online communication opportunities to create meaningful interaction (King, 2002).

Many studies of the relationship between motivation and learning performance confirm that when students are more engaged in learning, they will more fully understand new knowledge and be more flexible in their use of it (Rigby, Deci, Patrick, & Ryan, 1992; Wang & Reeves, 2006).

Keller (1999) notes that instructional designers are faced with even greater challenges in self-directed learning environments than with traditional instruction, especially with regard to satisfying the motivational needs of learners.

What is motivational design? Keller (2010) defines motivational design as the process of arranging resources and procedures to bring about changes in motivation. Motivational design focuses on the motivation to learn and refers specifically to strategies, principles, and processes for making instruction appealing.

As illustrated in Figure 2-1, motivational design is a distinct process but does not occur in isolation from other influences such as the learning environment. Motivational design is used in conjunction with the systematic approach to instructional design.

The concept of motivational design complements instructional systems design (ISD). Like motivational design, ISD is a systematic approach. The goal of ISD is to produce accurate, efficient, and effective instruction. An understanding of how to select specific instructional strategies to improve motivation is essential to the effectiveness of distance learning courseware.

An understanding of motivational design adds an important dimension to instructional systems design. For example, instructional designers seem to have an assumption that effectiveness refers to how well people can learn from an instructional event given that they want to learn. As Keller (2010) points out, it is assumed instruction will be effective if the instruction is presented to the defined target audience, something is done to get the audience's attention as in Gagne's first event of instruction (Gagne, 1965), and they are reinforced for correct responses (Skinner, 1954). However, none of these elements provides a sufficient explanation of motivation to learn.

Motivational design is focused on improving the appeal of instruction or a work environment for people who "fall within reasonable boundaries of readiness to learn or to work" (Keller, 2010, p.23). Designing instruction for those who do not want to learn remains challenging.

Keller's motivational design models. Based on this survey of the literature on motivation, Keller (2010) categorized motivational design models into four groups:

- Person-centered models
- Environmentally-centered models
- Interaction-centered models
- Omnibus models

Table 2-1 summarizes these motivational design models along with researchers who have contributed to the theories. The first three are grounded in psychological theories of human behavior. They can be classified as person-centered theories, environmentally-centered theories, and interaction theories. The fourth group has a more pragmatic, or pedagogical, origin and includes omnibus models that incorporate both instructional design and motivational design strategies.

This capstone will focus in on two of these motivational design models: omnibus and interaction-centered models. The omnibus model is of particular interest from an ISD and distance learning perspective because the model incorporates both ISD and motivational design strategies. Because it is practical in nature, it is valuable in giving distance educators specific motivational strategies for improving and sustaining motivation.

Malone and Lepper (1987) identified four major factors that make a multimedia learning environment motivating: challenge, curiosity, control, and fantasy. Other studies have shown that use of these strategies enhance motivation (Cordova & Lepper, 1996; Lepper & Hodell, 1989; Parker & Lepper, 1992). Wang and Reeves (2007) collaborated with a tenth grade science teacher to integrate challenge, curiosity, control, and fantasy into the ISD of a web-based course. A table provided in the study results shows specific ISD strategies that were integrated in an online course that elicited positive learning outcomes (Wang & Reeves, p.173). In the study, in order to understand the subject, learners had to interact with the online program the researchers studied and combine all factors to observe results. This study revealed multiple forms of evidence that the web-based course improved students' motivation by incorporating specific instructional strategies built on identified motivational constructs.

According to Astleitner and Wiesner (2004), however, the approach by Malone and Lepper (1987) summarizes and categorizes motivationally relevant factors but is not a comprehensive theory. This supports the need for interaction-centered motivational models as described by both Wlodkowski (1993) and Keller (1987, 2010).

In the past, it was assumed that effective ISD and provision of suitable learning activities would guarantee engagement of all learners. However, many educators and institutions are beginning to realize that there is more to motivation than design. It is not always the case that if the instruction is of good quality, motivation will follow (Smith, 2008).

Wlodkowski's Time Continuum Model of Motivation. Wlodkowski's (1993) *Time Continuum Model of Motivation* draws on approaches from linguistics, cognitive psychology, and motivation research. It has many similarities to Keller's ARCS model, but the focus of the model is on the role motivation plays in different stages of the learning process. It divides the learning process up into three critical stages: the beginning of the learning process, during the learning process, and the end of the learning process.

The beginning of the learning process should focus on attitudes and needs (Wlodkowski, 1993). Motivational strategies that may be used during this stage include icebreaker activities, stating clear objectives for the course, and various strategies to help learners develop a clear understanding of what will be required to be successful in the course. It suggests that when possible, the instruction should focus on the physiological needs of the learners and experiences familiar or relevant to the learners. The instruction should allow for choice and self-direction in assignments. A key ingredient of this phase is the needs assessment, which should be performed prior to developing the instruction (Hodges, 2004).

During the learning process, emphasis should be placed on stimulation and effect (Wlodkowski, 1993). Motivational strategies that may be used during this stage

include learner participation via questions, humor, varying of presentation style, or the use of different modes of instruction from lecture to group work to class discussion. At the same time, it should be as personalized and relevant to the learner as possible (Hodges, 2004).

The end of the learning experience should focus on *competence* and *reinforcement* (Wlodkowski, 1993). Motivational strategies that may be used during this stage include frequent feedback and communicating learner progress (Hodges, 2004).

Keller's ARCS Model for Motivation. Keller synthesized existing research on psychological motivation and created the ARCS model (Keller, 1987). ARCS stands for Attention, Relevance, Confidence, and Satisfaction:

Attention. Attention involves engaging the learner and keeping the learner's attention. This factor coincides with the first step in Gagne's model of instruction (Gagne, 195). Keller's strategies for Attention include sensory stimuli inquiry arousal in the form of thought provoking questions, and variability in the form of variance in exercises and use of media (Keller & Suzuki, 2004).

Relevance. Relevance involves ensuring that the learners understand how the content is related to their lives. If the student has a good feeling about the personal meaningfulness of the material, or consciously recognizes its importance, then the student will be motivated to learn it (Keller, 2010). Relevance also involves providing consistent goals, which are ideally intrinsic in nature, that are connected to the learners' past experiences and future goals and are compatible with their individual learning styles. This factor has links to the Edwin Locke's (1968) Goal Theory, which assumes that establishing goals to be obtained motivates behavior (Hodges, 2004).

Confidence. Confidence involves helping students establish positive expectancies for success. This factor has links to Bandura's (1977) *Self-Efficacy Theory* Self-efficacy is the belief that one is capable of performing in a certain manner to attain certain goals. Self-efficacy has been shown to predict school achievement. Schunk (1966) found that students with self-efficacy perform better than students with low self-efficacy. Bandura (1977) points out that, in general, repeated successes at a given task lead to positive self-efficacy and repeated failures lead to lowered self-efficacy.

The Confidence factor also has links to Attribution Theory (Jones et al., 1971). Attribution is concerned with how a learner explains successes and failures. Learner may attribute the success or failure on an assignment to themselves ("I can do that") or to reasons external to them ("No matter how hard I try, I won't be able to do that"). The ARCS model argues that instruction should make an effort to help learners attribute their learning outcomes to that which is controllable (Smith, 2008).

Satisfaction. Satisfaction involves designing instruction so that learners gain positive feelings about their learning experiences. This factor can be linked to Fishbein's (1967) *Expectancy-Value Theory* which argues that learners expect certain outcomes from behaviors and the more valued the outcomes, the more likely the learner is to perform the necessary behavior. Also, students must feel that the amount of work required was appropriate and that there was no favoritism at play. Motivational strategies used to increase learner satisfaction are verbal reinforcement, rewards, personal attention, feedback, and deliberate avoidance of negative influences (Keller & Suzuki, 2004).

ARCS Model summary. Keller (1979) summarizes the ARCS model as follows:

> In brief, we can say that in order to have motivated students, their curiosity must be aroused and sustained; the instruction must be perceived to be relevant to personal values or instrumental to accomplishing desired goals; they must have the personal conviction that they will be able to succeed; and the consequences of the learning experience must be consistent with the personal incentives of the learner (p.6-7).

The principles of the ARCS model have been proven to be valid and stable over the years at all levels of education even though there are many differences in the practices used to achieve them (Keller, 1999, 2008, 2010).

There are many examples of empirical studies that support the validity of the model, and many were done in a distance learning setting. Chyung, Winecki, and Fenner (1999) used the ARCS model in combination with a systematic needs assessment process to design and implement interventions that would decrease the dropout rate in a distance learning program. The results indicated that there were improvements in both learning and motivational reactions in all four motivational categories (Attention, Relevance, Confidence, and Satisfaction).

In addition to these results, there was a significant reduction in the dropout rate, from 44% to 22% (Keller, 2008). Chang and Lehman (2002) used the ARCS model to guide the development of strategies in a distance-learning environment. The researchers found a significant improvement in learner perceptions of motivation in scores on a comprehensive test.

Motivation in Distance Learning

Even though motivational models and theories have been around for several decades, distance-learning organizations – business, higher education, and K-12 – still find it challenging to integrate them into their online courses. Literature about online

training environments in business offers some potential ways to integrate motivating variables into online courses.

Some positive ways of influencing motivation in online courses are provided in the 2002 research of Bonk in *Online Training in an Online World*. In this research study, Bonk surveyed 201 corporate trainers, instructional designers, training managers, and Chief Learning Officers, 80% of whom had training departments in their organizations, to find out what motivational principles they valued the most. In the study, respondents were asked about the importance of thirteen different web-based principles or characteristics when creating or delivering a web-based course. Twelve of these characteristics are primarily related to intrinsic motivation while the other concerned extrinsic motivation. The respondents favored intrinsic motivational principles related to content relevancy, timely feedback, goals and product-based activities, personal growth, choice, flexibility, interaction, collaboration, fun, and variety in course materials and activities (Bonk, 2002).

There are differing opinions on what motivates employees in the private and public sectors. The first and most traditional method is based on external motivators. Daniels, a clinical psychologist by training, was one of the first to make extensive use of the science of behavior analysis in business (Johnson, Redmon, & Mawhinney, 2001). As a young clinical psychologist, Daniels became convinced that the work of B.F. Skinner and other behavioral scientists best enabled patients to change their own behaviors. With this conviction, Daniels began to consider the impact of applying behavioral science to the workplace.

Daniels' ground breaking impact in the workplace spawned the phrase "performance management" (Daniels, 2000). In *Bringing Out the Best in People: How to Apply the Astonishing Power of Positive Reinforcement* (2000), Daniels describes how to apply scientifically-based behavioral stimuli to the workplace. Daniels' methods, used at major companies such as Xerox, 3M, and Kodak, includes finding reinforcers that work because they are tailored to meet individual employees' needs, setting fair performance measurement standards, and providing continual feedback so employees always know how to improve performance and when they have achieved it.

Pink (2009) challenges readers to change their method of motivating workers from the carrot-and-stick approach suggested by behavioral psychologist Daniels to a new paradigm based on intrinsic motivation. Reviewing scientific and organizational studies, Pink examines three elements of "true" motivation, (a) autonomy, the desire to direct our own lives; (b) mastery, the urge to get better at something that matters; and (c) purpose, the yearning to do what we do in the service of something larger than ourselves – and offers techniques for putting these into action. Other research, such as that of Malone and Lepper (1987) and McClesky (2009), supports the idea that intrinsic motivation is much more successful than extrinsic motivation.

Pink's description of intrinsic motivational elements, along with evidence from other researchers, should make educators question how they prepare and motivate K-12 learners for the 21st century world of work and life. Intrinsic motivation is most relevant to ISD because designers often have no control over extrinsic factors, with the exception of the occasional word of praise or passing grade. Intrinsic motivation,

according to McClesky (2009) is what makes people do the things that they normally would do on their own, whether or not you coerce them with external motivators.

So how can distance educators and designers tap into their audience's intrinsic motivation when they create and facilitate online courses? A review of literature (Table 2-3) on the issue of motivation in distance education offers some practical strategies and potential motivators. A review of Table 2-3 shows a variety of potential motivating factors including learner-instructor, learner-learner, and learner-content interactions. While the majority of literature focuses on distance education higher education environments, the findings of this research are valuable starting points for an investigation of motivators in virtual K-12 learning environments.

One potential motivating factor in distance learning seen consistently in the literature is high quality learner-instructor interaction. Feedback impacts motivation (Jordan, 2006). This is supported by survey data collected from online students. Universities and colleges that offer online courses typically conduct student surveys to assess programs, including levels of interaction. In one survey of online courses at the University of Kentucky, students indicated that their motivation to do well in class was strongly influenced by the level of their instructors' engagement and interest (Bhavsar, Burke, Carter, & Jensen, 2006). Other surveys, both national and local, show that student satisfaction and success is positively affected by faculty who take a personal interest in individual students and promote positive faculty-student interaction (Jordan).

Specific guidelines for effective learner-instructor interaction, collected from various studies, include clear, prompt, consistent feedback on assignments from the instructor, timely and frequent communication from the instructor, and clear instructions

on assignments. (Angelino et al., 2007; Hara & Kling, 2001; Sperry, 2009; Swan, 2001; Talvitie-Siple, 2007).

A number of studies have shown that effective learner-learner interaction can also positively affect motivation. Rovai (2001) found that building a sense of community among distance learners is positively related to learning. Bocchi et al. (2004) found that a team-based, cohort approach was the main reason for the success of the higher education distance education program they studied.

One of the ways to build a sense of community is through online discussions. Shroff et al. (2008) found a positive relationship between online discussions and individual perceived competence, increasing individual's intrinsic motivation. Sperry (2009) found that the greater the percentage of the course grade that was based on discussion, the more satisfied the students were, the more they thought they learned from the course, and the more interaction they thought they had with the instructor and with their peers. ChanLin (2009) found a positive correlation between students' final scores and the number of discussion postings, concluding that students who were more involved in class discussions performed better in the course.

Some literature points out the motivational impact of course design. McConnell, Hoover, and Sassed (2001) found that designing motivational instruction using the ARCS model, can increase learning outcomes while Means, Toyama, Murphy, Bakia, and Jones (2009) opine that incorporating mechanisms that promote student reflection motivates students toward increased learning outcomes. Fischer and Sharff (1998) concluded that interactivity and supported self-directed learning are essential in technology-mediated environments. Beatty (2002) found that choosing appropriate

instructional methods helped engage learners and improved motivation in online learning.

Research suggests that using Keller's ARCS model of motivational design has a positive impact on motivation. Gabrielle (2003) designed instructional strategies using Keller's ARCS model of motivation delivered through online courses to undergraduate students. An experimental group received the motivational design strategies while the control group did not. Surveys measuring motivation, including Keller's Course Interest Survey (CIS), were administered to both groups. Gabrielle found that those students who received ARCS motivational strategies had significantly higher levels of academic performance than control group students. There were also significant differences in motivation and proclivity to be self-directed learners, with higher levels for treatment group students than control group students (Gabrielle, 2003). These results show that systematically designed technology-mediated instructional strategies can positively affect motivation, performance, and SDL.

Huett et al. (2008) integrated ARCS design elements in online courses for university students. The treatment group not only outperformed the control group but also increased the Confidence subscale on the motivational survey. The authors concluded that integrated ARCS design methods in online courses increases both motivation and performance. The literature, as illustrated in Table 2-3, consistently indicates that when ARCS motivational design strategies are integrated in distance learning environments, motivation and performance increase (ChanLin, 2009; Gabrielle, 2003; Huett et al., 2008; Song & Keller, 2001; Visser, 1990; Visser, 1998).

Recent literature on motivation in the virtual K-12 environment also provides support for ARCS motivational design strategies. As indicated earlier in this review, the range of students virtual schools are now serving has broadened to include at-risk students and students with disabilities providing new challenges for virtual schools to motivate these learners. Reppetto et al.(2010) describe the five “Cs” in schools that influence a student’s risk of dropping out and then profiles virtual schools that have adopted elements in their programs. The five Cs are shown in Table 2-4 (Repetto et al.).

When adding Keller’s ARCS elements to Table 2-4, it becomes clear that there are similarities between the elements that influence student risk for dropping out and specific motivational constructs. Because virtual schools have become the school of choice for increasing number of at-risk students including students with disabilities, it is important that virtual schools design and facilitate online curriculum that meets the needs of these students (Repetto, et al., 2010). The parallels between ARCS elements and elements which may influence at-risk students in virtual schools to succeed in this environment supports the need for further investigation. This capstone project will build on an understanding of the relationship between specific motivational variables in the ARCS model and performance. Since common features exist between ARCS variables and at risk elements this research will add to the literature and understanding of what motivates virtual K-12 students to succeed in this learning environment.

Differences in Motivational Needs of K-12 and Adult Learners.

As indicated in the review of research on motivation in distance education, the majority of studies have been on adult learners in higher education settings. Because of the small numbers of studies done on motivation in distance learning environments for younger learners, it is challenging to consider their motivational needs. While there may

be similarities between motivating factors in both groups, literature shows that the overall factors which motivate adult learners in online courses differ from what motivates adolescent or child learners in a virtual K-12 environment. This difference is based on physical, cognitive, and social differences between adults and younger learners. This gap in literature supports the need for additional research on how K-12 learners are motivated in virtual environments.

An analysis of the existing literature on motivation in distance learning supports the importance of reviewing the cognitive differences between motivation in adults and younger learners. Adult learners, according to Knowles' theory of andragogy, are motivated by a "need to know," especially as it relates to solving problems in their lives (Knowles, 1998). According to Knowles (1984) as a person matures the motivation to learn is internal.

Andragogy makes the following assumptions about the design of learning (Knowles, 1998):

- Adults need to know why they need to learn something
- Adults need to learn experientially
- Adults approach learning as problem-solving
- Adults learn best when the topic is of immediate value

Zemke and Zemke (1981) observe that increasing or maintaining one's sense of self-esteem and pleasure are strong secondary motivators for engaging in learning experiences for adult learners.

Adult learners build on a rich background of prior experience and knowledge as a starting point for their learning. As they pursue higher education or career training, adult learners may be motivated by subject areas or career choices of interest, as well as the opportunity to learn specific knowledge, skills, or abilities they will need in the

workplace. Adult learners typically have a well-defined locus of control and sense of autonomy, well developed metacognitive and cognitive abilities, and are experienced at working independently (Cavanaugh et al., 2004). These characteristics distinguish adults from younger learners and influence how and why these adult learners are motivated.

K-12 students, prompted by parents and administrators, may be motivated to take online classes for a variety of needs including credit recovery, graduation requirements, or advanced placement (Nagel, 2009). Both adults and younger audiences may be motivated to take distance education courses for flexibility and convenience. However, once enrolled in online courses, the specific factors that motivate adult and K-12 learners to succeed may differ. While research exists to assess how specific ARCS motivational factors affect adult learners in distance learning environments, there is insufficient research to make conclusions on which specific ARCS motivational factors have relationships to increased motivation or performance in K-12 learners. Such a lack of research makes it difficult to establish best practices for integrating motivational design in virtual K-12 courses.

Literature on adult and adolescent learning theory supports the differences between the two audiences. In a meta-analysis of the effects of distance education on K-12 student outcomes Cavanaugh et al. (2004) identify these differences, providing recommendations for virtual school teachers to effectively address these needs. Table 5 compares characteristics of adult and younger learners, along with recommendations for effectively addressing these in a virtual K-12 environment.

Adolescent learning is complex, yet research is clear about the conditions that support it (Lambert & McCombs 1998; McCombs & Whisler, 1997; Resnick, 1987). In an article on how to support and motivate adolescent learners, Beamon (2001) Table 2-5 summarizes research on the conditions that have a positive impact adolescent learning. Many of these conditions identified as supporting and motivating for adolescent learners are also found in Keller's ARCS motivational model. Table 2-6 reflects a comparison of the two.

The Role of Teacher Presence in Motivating Online Learners

Research supports the importance of teaching presence for successful online learning (Swan & Shih, 2005; Meyer, 2003; Murphy, 2004). The consensus is that teaching presence is a significant determinate of student satisfaction, perceived learning, and sense of community.

Teaching presence includes a variety of elements, including "the design, facilitation, and direction of cognitive and social process for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes," (Anderson, Rourke, Garrison, & Archer, 2001, p. 5). In online learning environment, the teacher's presence is essential for student success. This includes the teacher's use of strategies promoting the feeling of connectedness and belonging (Hara, Bonk, & Angeli, 2000; Harasim, 1993; Kitchen & McDougall, 1998; So & Kim, 2005). Gunawardena and Mclsaac (2004) observe that teacher presence is critical to distance learners' perception of psychological distance with their instructor and other learners.

In facilitating and directing student learning, teaching presence includes the responsibility of motivating students to succeed in the online learning environment. However, the specific strategies that are most effective in motivating students, as well

as the characteristics of a motivating instructor, especially in a virtual environment, are still being studied. One potential characteristic of a motivating instructor to consider is the level of experience a teacher has. To better understand the determinants of teacher quality, this study considers the relationship between specific motivational constructs and teaching experience in order to investigate effective ways to motivate virtual learners to perform.

According to Lorenzo and Moore (2002), who co-authored a report for the Sloan Consortium about the five pillars of quality online education, one of the goals of a quality online program is that all learners who are qualified and motivated are enabled to succeed and complete a course through online access to learning in any discipline. One of the key factors enabling learners to succeed is the facilitator or instructor. In an article titled "What Works," for example, Reisetter and Boris (2011) indicate that, according to students' comments, the teacher was the most important factor in motivating them to learn in online courses.

McGuiness (2005) suggests that the teacher can be a key to motivating students by using the following strategies:

- Establish a supportive learning environment
- Engage students in the learning process
- Provide students with timely feedback on their performance
- Recognize students for their effort and performance (Slide 45)

Wlodkowski identifies four cornerstones of a motivating instructor: expertise, empathy, enthusiasm, and clarity. Supporting a learner's autonomy and influencing student mindset are also essential to motivating students in a virtual environment.

Experience and Expertise

Glaser and Chi (1988) define expertise as the possession of an organized body of conceptual and procedural knowledge that can be both readily accessed and used with superior metacognitive skill. Wlodkowski (1993) observes “there is no substitute for thoroughly knowing our topic…nothing beats it. Whatever experience, reviewing, or practice it takes its payoff far outweighs its cost” (p.19).

Expertise is often linked with experience. Siedentop and Eldar (1989), who conducted a study of expertise, experience, and effectiveness, indicate experience is a necessary but not a sufficient condition for expertise. This is because expertise is probably developed over long periods of time in a specific context. Although inexperienced teachers (beginning and first year teachers) can be effective, Siedentop and Eldar note that the effectiveness of the experienced teachers is different than that of the intermediate and first year teachers. The more experienced teachers paced events more smoothly, followed up more deliberately on important specifications, and utilized content more imaginatively. Shulman (1987), citing additional studies, reports “what these studies show is that the knowledge, understanding, and skill we see displayed haltingly, and occasionally masterfully, among beginners are often demonstrated with ease by the expert” (p.5). Siedentop and Eldar, in their study of beginning and experienced teachers, observe that first year teachers and expert or experienced teachers accomplished the same goals, so both are effective. They call the automaticity and ease of expert teachers “experienced effectiveness.”

There is a great deal to be learned from studying “experienced effectiveness,” especially in terms of how more experienced teachers motivate virtual learners. Are the characteristics of a motivating teacher related to the personality of a teacher? Do other

variables such as certification, degrees, professional development, contribute to motivation? Is it possible to teach beginning teachers motivation? These are important questions to consider when seeking motivating teachers.

Supporting Autonomy

Students benefit when teachers support their autonomy. Distance learners, by nature of the environment, must be self-directed learners. The type of teaching style best suited to motivate students by supporting their autonomy is defined by Reeve (1998) as “autonomy-supportive.” These are teachers who encourage students to pursue self-determined agendas and then support students’ initiatives and intrinsic motivation.

Deci and Ryan (1991), in their explanation of self-determination theory identifies three sources of influence on a person’s interpersonal motivating style. First, motivating style is partly a matter of personality. Deci (1995) argues that some people have personalities oriented toward controlling others, and he cites the authoritarian personality as one example. He reasons that autonomy support ‘‘is a personal orientation you take toward other people. This orientation flavors every aspect of your interactions with them’’ (Deci, 1995, p. 142). Second, autonomy support is an interpersonal style composed of acquired skills. Just as behavior modification (a controlling style) requires practiced skill, supporting the autonomy of others also requires deliberate practice. Requisite skills include, for instance, taking the other person’s perspective, acknowledging feelings, and using noncontrolling language, (Deci, 1995).

Closely linked with autonomy support is self-efficacy. Self-efficacy, as defined in this context, is the extent to which teachers believe they are able to affect student

performance (Gibson & Dembo, 1984). Efficacy is related to setting goals and to exercising effort and persistence in their attainment (Bandura, 1997). It has been linked to teachers' instructional practices and attitudes toward students (Bender, Vail, & Scott, 1995; Gibson & Dembo, 1984; Midgley, Anderman & Hicks, 1995; Midgley, Feldlaufer, & Eccles, 1989).

Teachers with high self-efficacy spend more time helping students persist in their efforts, support students' ideas and give more help to students having difficulties (Ashton & Webb, 1986). Research has also established a relationship between teachers' high level of efficacy and an increase in students' achievement test scores (Ashton, Webb & Doda, 1983). Ashton and Webb's later study (1986) showed that teachers with high levels of teaching efficacy are more likely to expect that all students can learn, and to feel responsible for that learning, than are teachers with low efficacy levels.

Showing Empathy

Motivational theories such as Maslow (1970) are based on need gratification. Students learn in response to their own perceptions and needs, not those of their instructors. Empathy is an important characteristic of any instructor seeking to motivate students. Empathy, as defined by Rogers (1969, p.11) is "when the teacher has the ability to understand the student's reactions from the inside, a sensitive awareness of the way the process of education and learning seem to the student." Empathy seems to be both an attitude as well as a skill. Vlodkowski (1993), in a statement about adult motivation that applies readily to the virtual K-12 learner states "the more we mechanize and objective the learning process through computers and electronic media, the more learners need to know we care about them as human beings" (p.27). An instructor in a

virtual course can use empathy to establish a supportive learning environment, as suggested by McGuiness (2005).

Demonstrating Enthusiasm

Enthusiasm is energy, and it is motivating as well as inspiring. In educational research, enthusiasm has been related to increased learner motivation as well as achievement (Rosenshine & Furst, 1971; Cruickshank, 1980). Gage (1979) sees enthusiasm as useful at all grade levels, in all subject areas, and for all types of students. When teachers are enthusiastic, students are more likely to pay attention and therefore understand what is said or demonstrated (Vlodkowski, 1993). Enthusiastic instructors inspire and motivate learners to want to learn. Vlodkowski (1993) describes two cornerstones of enthusiasm: 1) we care about and value what we teach for ourselves as well as our learners and 2) this commitment is expressed in our instruction with the appropriate degree of animation and energy.

Providing Instructional Clarity

There are many studies that reveal that instructional clarity (teaching something in a manner that is easy for learners to understand) is positively associated with learning (Gephart, Strother, & Duckett, 1981). An instructional clarity checklist, developed by Gephart, Strother and Duckett, includes explaining things simply, staying with a topic until the learner understands, using examples to illustrate concepts, giving students enough time to practice, answering questions, and teaching things step-by-step. If students are confused, they will become frustrated and motivation to learn will decrease.

Having expertise in the subject area being taught, supporting learner autonomy, showing empathy, demonstrating enthusiasm, and providing instructional clarity are

several important characteristics of a motivating teacher which are supported by research. These are general qualities pertaining to a variety of learning environments. Virtual environments, because of the absence of a face-to-face instructor, require modifications. Rather than showing enthusiasm through voice quality or eye contact, for example, an instructor may show enthusiasm through discussion board texts, positive feedback, video lectures, emails or phone calls with students. Best practices and policies for frequent instructor-student communication by schools such as Florida Virtual School seek to address the need for the instructor to motivate students in different ways, but with the same underlying philosophy of caring, empathy, passion, enthusiasm, and support for autonomy.

Influencing Students' Mindset

A motivating instructor has the knowledge, skills, and ability to influence student mindset, building students' belief in their own ability to succeed. In her 2002 article "Messages that Motivate: How Praise Molds Students' Beliefs, Motivation, and Achievement," Carol Dweck argues that students' beliefs about themselves and their learning profoundly affect their behavior. For example, do students believe intelligence is a fixed trait or an expandable quality? Do they believe that failure is a lack of ability or a lack of effort? How students explain their success or failure is key to what they achieve, regardless of intellectual ability.

As Dweck observers, the exciting thing about student mindset is that instructors have the power to help students change their beliefs in their ability to learn and perform and "when you change their beliefs you change their motivation and achievement" (p.38).

Dweck's recommends practical strategies to influence student mindset. One strategy is for instructors to carefully design messages, comments, and feedback on assignments to teach students a different view of intelligence. For example, comments praising a student's intelligence seems like a great thing to do, but supports the view that intelligence is a fixed trait. Praising effort, which Dwyer observes "sounds like a consolation prize" instead fosters a malleable view of intelligence. The quality and nature of feedback, Dweck argues, can have a real effect on students' motivation and achievement. John Keller's specific strategies for building confidence and satisfaction through positive and constructive feedback give instructors specific ways to change students' beliefs and improve motivation.

Are Characteristics of Motivating Teaching Teachable?

Once characteristics of a motivating teacher such as these are identified, can these characteristics be taught to other teachers? Or are many motivating factors simply personality traits? One researcher addressed one characteristic, supporting student autonomy – an essential skill needed for facilitators of virtual K-12 learning. Reeve (1998) performed a study examined the motivating styles of beginning preservice teachers by studying two issues. The first issue was whether personality characteristics orient preservice teachers toward either an autonomy-supportive or controlling motivating style. The second was whether the autonomy-supportive style was teachable to preservice teachers. Study 1, which addressed the first question, relied on self-determination theory to identify and confirm causality orientation as one personality characteristic related to motivating style. Study 2, which addressed the second question, randomly assigned preservice teachers to receive training in either autonomy-supportive, controlling, or neutral instructional strategies. Results showed that the

autonomy-supportive style was teachable. Autonomy-oriented preservice teachers (as measured by causality orientation) assimilated the information rather easily, while control-oriented preservice teachers accommodated the information only in proportion to the extent that they perceived it to be highly plausible and classroom applicable.

Role of Teaching Experience in Effectiveness

Because one of the goals of current presidential, state, and local administrations is to ensure highly qualified teachers are in every classroom, including virtual ones, it is important to define the factors that contribute to "quality". What are the characteristics of a "highly qualified teacher?" Educational background, certification, professional development, and experience have been cited as some characteristics of an effective or qualified teacher.

In education, a teacher's experience is probably the key factor in personnel policies that affect current employees: it is a cornerstone of traditional single-salary schedules. Ballou and Podgursky (2002) estimated that 17% (average) of teacher salary is paid as the additional costs for teaching experience. Issues in the current merit teacher debate in the state of Florida focus on the role of seniority, based on number of years teaching in the district, in pay and tenure. This prompts and investigation of the underlying assumption is that experience promotes effectiveness and, in turn, student achievement. It also requires administrators, legislators, and virtual leaders to distinguish the impact of experienced and less experienced, or novice teachers, in motivating students to achieve.

There are a variety of studies that address the issue of teaching experience and quality in traditional schools. Many studies report that teacher experience has a positive effect on student test scores (Clotfelter, Ladd, & Vigdor, 2006; Goldhaber & Anthony,

2007; Goldhaber & Brewer, 1997; Jepsen, 2005; Krueger, 1999; Noell, 2005, 2001; Rivkin et al., 2005; Rockoff, 2004; Sanders, Ashton & Wright, 2005). There is, however, complexity when trying to pinpoint the exact number of years this positive effect occurs. A review of literature on the role of teaching experience on achievement highlights sometimes conflicting viewpoints on when teaching experience has a significant impact on achievement and learning. Table 2-8 summarizes mixed reviews of the role of experience while Table 2-9 focuses on research supporting the view that teacher experience has impact on achievement in the first five years. Table 2-10 identifies research that shows that teaching experience beyond 5 years has a positive effect on achievement.

The first perspective is that the positive effect of experience appears to be non-linear in nature as demonstrated by substantial improvements in teaching skill during the first 3–5 years in the classroom with the effects generally tapering off around the fifth year (Rivkin et al., 2005). This view is also supported by Rice (2010) who conducted an analysis of the impact of teacher experience on quality for the National Center for Analysis of Longitudinal Data in Education Research. Citing over 40 years of teacher productivity research, Rice et al. conclude that the impact of experience is strongest during the first few years of teaching; after that, marginal returns diminish.

A study using New York City data illustrates the diminishing marginal returns to experience (Boyd, Rockoff & Wyckoff, 2007). According to this study the largest gain in math achievement attributable to teacher experience is associated with teachers' progression from their first year of teaching to having one full year of experience (Boyd, et al., 2007) Specifically, the first year of experience accounted for almost half the

cumulative experience effect in grades 4–5 (.06 standard deviation [SD]) and more than half the cumulative effect in grades 6–8 (.04 SD) (Rice, 2010).

A number of studies support the positive effect of more than five years of experience on achievement. This research is summarized in Table 2-10. Murnane and Phillips (1981), for example, found the experience had a significant positive effect on elementary student achievement among teachers during their first seven years of teaching. Ferguson (1991) found that, at the high school level, Texas students taught by teachers with more than nine years of experience had significantly higher test scores than students whose teachers had five to nine years of experience. Rivers and Sanders (2002) concluded that teachers' effectiveness increases dramatically each year during the first ten years of teaching.

A review of these studies supports the complexity of attempting to assign exact numbers to quality. A review of studies with mixed results, summarized in Table 2-8, also points out contrasting views of the effect of experience. For example, one researcher found that, on average, teachers with more than 20 years of experience are more effective than teachers with no experience, but are not much more effective than those with 5 years of experience (Ladd, 2008). Studies have also documented some evidence that effectiveness declines after some point, particularly among high school teachers. In fact, evidence suggests that the most experienced high school mathematics teachers, defined as more than 25 years experience, may be less effective than their less experienced counterparts (Ladd, 2008) and even their inexperienced colleagues (Harris & Sass 2007).

Rice (2010) concludes that while less experienced teachers tend to be less effective than more experienced teachers as a whole (evidenced by the performance distributions of teachers with no experience and one to two years of experience shifted to the left of the performance distribution of more experienced teachers), many less experienced teachers have value-added scores comparable to or exceeding those of their more experienced counterparts (evidenced by the substantial overlap among the three distributions). Research has shown that other policy-relevant factors—such as a teacher's academic training and preparation program—may equal or even outweigh the impact of early-career experience (Rice, 2010).

Findings on the impact of teacher experience at the high school level are less definitive. A study using North Carolina high school data estimates the effect of early-career experience as .05 SD, with the largest effects observed for student achievement in mathematics and biology. In contrast, a study using data from Florida finds little evidence of an impact of early-career experience among high school teachers, and no effect (or even a negative effect) of teaching experience beyond the first several years on high school student achievement in mathematics and reading (Harris & Sass, 2007).

There are a few global studies on the role of teacher experience, as part of overall teacher quality, and effectiveness. For example, in 2011, a total of 2460 teachers and 4860 students in Pakistan participated in a study examining the impact of teacher quality on the academic achievement of secondary science and arts students. One of the factors examined by the researchers was teaching experience, defined as the time spent by a teacher in the teaching profession (Dahar, Dahar, & Faize, 2011). The study found that teaching experience had negatively insignificant relationship with

academic achievement for both types of students. However, its impact is negatively significant for science students and negatively insignificant for arts students. The authors of this study used the findings to support the need for more intensive professional development of teachers in Pakistan.

Some studies of the effects of teacher experience on student learning have found a relationship between teachers' effectiveness and their years of experience (Murnane & Phillips, 1981; Klitgaard & Hall, 1974), but not always a significant one or an entirely linear one. While many studies have established that inexperienced teachers (those with less than three years of experience) are typically less effective than more senior teachers, the benefits of experience appear to level off after about five years, especially in non-collegial work settings (Rosenholtz, 1986).

Other studies point out that attributing teacher experience to effectiveness is difficult due to the number of variables that can be attributed to “quality.” Darling-Hammond (2000), for example, linked surveys of 65,000 teachers (52,000 public and 13,000 private); 13,000 school principals (9,500 public and 3,500 private); and 5,600 school districts to examine the relative contributions of teaching policies and student characteristics to student achievement. Her analysis uses data on public school teacher qualifications and other school inputs. Among variables assessing teacher "quality," Darling-Hammond found the percentage of teachers with full certification and a major in the field was a more powerful predictor of student achievement than teachers' education levels (e.g., master's degrees) or teaching experience.

As the research of Darling-Hammond points out, experience teaching is only one of many factors in a teacher’s effectiveness on learning outcomes. However, since it

has been found to be one indicator, and is the subject of the current debate on how to assess the pay and merit of teachers in the state of Florida and other states, it is an important one to consider. How to measure teacher quality is a hot topic of debate at a national and state level as legislative bodies, teachers, principals, teacher unions, and the community considers how to define terms such as “quality” and “effectiveness.”

Haycok and Hanushek (2010) recommend that measures of teacher quality should be based primarily on teachers’ effectiveness in promoting student learning as well as evidence of teaching practices known to contribute to greater student learning. These researchers argue that while experience in no way equals effectiveness, experience does matter for inexperienced teachers. As a group, first-year teachers tend to be less effective than those with even a little more experience, and effectiveness tends to climb steeply for any given cohort of teachers until it begins to plateau at about year five (Haycok & Hanushek). According to research by Eric Hanushek and others, disproportionate exposure to inexperienced teachers contributes to the achievement gap (Rivkin, Hanushek & Kain, 2005)

A review of literature on the role of teachers in quality and achievement supports the differences in the ways inexperienced (less than 5 years teaching experience) and experienced or expert teachers (with 6 years or more teaching experience) impact student learning. While “inexperienced” or novice teachers have been defined by some studies as less than 3 years experience (Rosenholtz, 1986), other studies have grouped differences in effectiveness of teachers between two groups, experienced (experienced) and inexperienced (novice) at 5 years of experience (Ladd, 2008). For the purposes of this capstone, and in order to evaluate the different ways levels of experience impact

motivation, teachers in this study have been grouped by years of teaching experience in the subject area of language arts. Inexperienced, or novice, teachers are defined as those with 1-5 years experience, while experienced teachers are defined as those with 6 or more years teaching experience in the subject area of language arts.

There are few studies examining the role of teaching experience on quality or achievement in a virtual environment. Face-to-face teaching and online teaching have different skill sets that impact teacher's effectiveness. Since most of the research on the impact of teaching experience has been done in a face-to-face environment, more research needs to be done in order to understand how teaching experience relates to effectiveness in the online environment.

There are also policy considerations for hiring virtual teachers that may be impacted by increased knowledge. When making decisions about hiring an "inexperienced" or "experienced" teacher as a virtual instructor, what criterion is best? What factors and variables may or may not impact a potential teacher's effectiveness in motivating students in an online or virtual secondary environment? When considering policy issues such as how much to pay online instructors, should teacher experience be the primary factor? What research would support such decisions? The current research will contribute to knowledge in the field that may be used in such policy considerations and professional development recommendations.

Creating a quality learning experience is a central concern for administrators and educators building virtual environments. One important element of quality is the characteristics of instructors who facilitate virtual curriculum. Because of the increased attrition rates in virtual environments, it is crucial that these instructors possess the

ability to motivate students to complete virtual curriculum. However, there is little research on the role of teaching experience on motivation and achievement in a virtual environment. This research will investigate the role of teaching experience on motivation. Lessons learned may be used to improve professional development and best practices not only for virtual instructors, but for instructors in face-to-face and blended environments.

Impact of Quality Course Design

Creating quality online courses includes creating a motivating learning environment. Typically, even though many instructors can identify motivating versus demotivating experiences, they do not have a reasoned, systematic approach with dealing with the motivational aspects of instructional design and teaching. The specific aim of the ARCS motivational model (Keller, 1987, 2008, 2010) is to provide guidance for the design of courses to address questions about specific motivational variables and strategies that can be used to motivate students.

Research supports the effectiveness of Keller's recommended strategies for integrating ARCS motivational constructs in curriculum. Huett et al. (2008) determined there were significant increases in Confidence levels of online learners when Confidence strategies (ARCS) were used. In the Huett et al. study, the treatment group outperformed the control group on the posttest Song (1998) used Keller's ARCS model of motivation to develop computer-based instruction for middle school students. One control and two experimental groups received different levels of motivation in instruction. The results indicated significantly higher levels of Attention, Relevance, motivation and effectiveness in the experimental group (Song, 1998). Naime-Diefenbach (1991) found that students who completed lessons with Attention strategies

recommended in Keller's research (1987) acquired higher success points than the control group. Relevance strategies have been effective in increasing the students' motivational perceptions (Nwagbara, 1993).

Some virtual schools, such as Florida Virtual School, have developed detailed Course Development Checklists based on specific learning theories, such as Gagne's nine events of instruction to ensure the quality and effective design of each course. As Table 2-11 indicates, Gagne and Keller's ARCS constructs address the same type of instructional strategies. The following items on the FLVS checklist address the importance of specific ARCS constructs. These three items, for example, require Relevance to be integrated in course design:

> Lessons and activities are clearly linked to real world problems, issues, products, performances, and exhibitions that students consider relevant and significant to their lives.
>
> Students are presented with opportunities to move from hands-on work to abstract thinking by solving real-world problems. (Problem Based Learning)
>
> Vertical Motif employed that relates content to real-world circumstances. (WOW- Authenticity)

Elements of choice, recommended as strategies for Attention, Relevance, and Confidence, are also specified on the FLVS Course Development Checklist:

> Multiple modalities are integrated into the design of the lessons meeting the needs of learners from a sensory, perceptual, and/or information processing perspective. (*WOW: Choice)*
>
> Equitable assessment choices focused on a variety of learning styles are offered for demonstration of content mastery. Specific rubrics are provided to address each choice. (*WOW: Choice, Novelty and Variety)*

Clear learning objectives and prerequisites, identified as strategies for building Confidence, are also specified on the FLVS Course Development Checklist:

> Clear expectations are stated through use of items such as rubrics, examples, and prototypes. Standards for assessing student product or performance are clear and specific. *(WOW: Content and Substance)*

What is the impact of meaningful quality assurance, such as the type represented by the FLVS Course Development Checklist? The Quality Matters Program, focusing on quality standards for online course design and peer-based, course review process, is one manifestation of the response to the demands for quality online curriculum (Legon & Runyon, 2007) . Quality Matters (QM) is a faculty-centered, peer review process that is designed to certify the quality of online and blended courses. QM is a leader in quality assurance for online education and has received national recognition for its peer-based approach and continuous improvement in online education and student learning. QM subscribers include community and technical colleges, colleges and universities, K-12 schools and systems, and other academic institutions. The Grades 6-12 Edition (G6-12) of the Quality Matters Rubric , developed in collaboration with Florida Virtual School, is specifically tailored for middle school and high school online and blended courses.

The result of a review by Quality Matters is a score, based on 40 standards, and a series of comments and recommendations for the course to meet the standards. According to Executive Director Ron Legon, “this is not an evaluation process, but rather a collegial process to enhance the instructional design of a course. The goal of the process is to stimulate the refinement of online and hybrid courses, not to pass judgment on courses or instructors” (p.1-2).

Research, based on survey results of Quality Matters reviewed courses, found the positive impact of the QM standards and the process itself. 91% of faculty respondents (n=47) whose course was reviewed made revisions to the course as a result of the review (Legon & Runyon, 2007). Eighty-nine percent of faculty respondents whose

course was reviewed felt that the quality of course design improved as a result of the review and would recommend the QM review process to others.

The survey of peer reviewers indicates that peer reviews indicate that participation in the course review process benefited them as well. Seventy-five of respondent peers (n=240) indicated they made revisions to their own online course as a result of the process (Legon & Runyon).

Best Practices and Lessons Learned about Distance Education Course Design

There is a variety of research published on the issue of best practices in technology and teaching which can be used to identify what works in distance education. One publication, entitled *The Perfect Online Course: Best Practices for Designing and Teaching,* editors Anymir Orellano, Terry Hudgins, and Michael Simonson from Nova Southeastern University compile a series of journal articles published in *Quarterly Review of Distance Education* and *Distance Learning*. The book begins by covering literature related to general approaches and guidelines, continues with proposed methods approaches and guidelines, continues with proposed methods and models for designing and instruction and ends with instructional strategies to achieve engagement through interaction. Orellano et al. indicate that when designing an online course, there are three organizational categories to consider: course structure, course content, and artifacts of learning. The editors define “artifacts of learning as evidence of student learning. The editors conclude that there is no “perfect” online course but there are keys to an effective course. The key to an effective course is “ the direct, purposeful involvement of a knowledgeable teacher; one with content knowledge, teaching skills, and design experience” (p.550).

Principles and guidelines for effective distance learning, supported by theory and research, are identified by a variety of experts in the field of distance education. Research supports, for example, the importance of interaction as a crucial element of successful online learning (Bates, 2000; Fulford & Zhang, 1993, Moore, 1998). One model which captures the fundamentals of interaction, the Rubric for Assessing Interactive Qualities in Distance Courses (RAIQ) was developed by Roblyer and Wiencke (2004). This rubric includes five elements or indicators for interactive qualities of distance courses. These include:

1. Social rapport-building designs for interaction.
2. Instructional designs for interaction which encourage and support interaction among students
3. Interactivity of technology resources
4. Evidence of learner engagement
5. Evidence of instructor engagement

Roblyer and Wiencke's (2004) rubric describes the specific ways in which each of these can be measured. For example, instructor engagement is measured by "the consistent, timely and useful feedback to students from the instructor" (p.89) Rubrics such as these can be useful in helping design and measure interaction in distance education courses. Since term "interaction" is vague and can be measured in a variety of ways, rubrics such as this one can help define quality more in a more practical way for designers and distance educators.

High expectations are also an important principle of online learning. Chickering and Gamson (2003) stated "expect more and you will get it." Sorenson and Baylen (2009) observe that students seem to need more detailed information in an online class

than in a face-to-face class. They recommend the use of course objectives, assignment information, performance expectations, and sample grading rubrics. Sorenson and Baylen (2009) conclude that using criterion-referenced grading communicates high expectations for students, as does allowing for revision of assignments in order to reach higher levels of performance.

Student satisfaction, along with increased learning outcomes, is a major goal of distance learning organizations. This supports the need to identify the nature and characteristics of student satisfaction. Moore (1998) has noted that technology is not a critical element in shaping students' satisfaction with their distance courses. Rather satisfaction is determined by "the attention they receive from their teachers and from the system they work in to meet their needs" (p.4). Those needs "what all distant learners want, and deserve include:

1. Content that they feel is relevant to their needs;
2. Clear directions for what they should do at every stage of the course
3. As much control of the pace or learning as possible
4. A means of drawing attention to individual concerns
5. A way of testing their progress and getting feedback from their instructors; and
6. Materials that are useful, active, and interesting (p.4).

One can recognize Keller's ARCS constructs within this list of student needs. Attention, for example is addressed in number 4, Relevance in numbers1 and 6, Confidence in numbers 2 and 3 and Satisfaction in number 5.

One can also learn from the best practices recommended by Graham, Cagiltay, Lim, Craner, and Duffy (2001) who offer seven lessons for online instruction:

1. Instructors should provide clear guidelines for interaction with students
2. Well-designed discussion assignments facilitate meaningful cooperation among students
3. Students should present course projects
4. Instructors need to provide two types of feedback: information feedback and acknowledgement feedback
5. Online courses need deadlines
6. Challenging tasks, sample cases, and praise for quality work communicate high expectations
7. Allowing students to choose project topics incorporates diverse views in online courses

As with the distance learning needs identified by Moore (1998), these seven lessons offered by Graham et al. overlap with Keller's ARCS motivational constructs as well as specific strategies to implement them.

Many instructional systems designers and distance educators identify Gagne's nine events of instruction as a framework for the design of instruction. As seen in Table 2-11, a comparison of Gagne's events and Keller's ARCS constructs shows that the events parallel Keller's ARCS constructs.

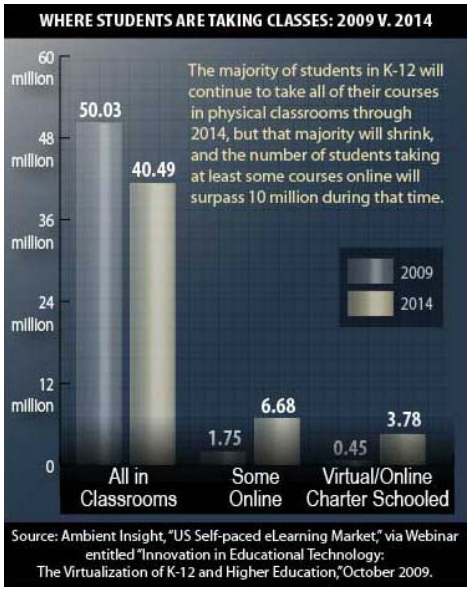

Figure 2-1. Where students are taking classes: 2009 v. 2014 . Reprinted with permission from Nagel, D. (2009, October 28). 10.5 Million PreK-12 Students Will Attend Classes Online by 2014. Transforming Education through Technology Journal. Retrieved August 30, 2010, from http://thejournal.com/articles/2009/10/28/10.5-million-preK-12-students-will-attend-classes-online-by-2014.aspx.

Table 2-1. Literature on challenges faced by distance educators

Issue	Researcher(s)	Audience	Focus	Applicable Findings
Attrition	Angelino et al. (2007)	H	Strategies for decreasing attrition in distance education courses	Developed table of strategies to reduce attrition (based on integrative literature review): Engagement Learner-centered approach Learning communities Accessibility to online services
Attrition	Bocchi et al. (2004)	H	Discusses program with a high retention rate (MBA program at University of Georgia) and approaches that have been successful	Approaches highlighted; Cohort and team-based approaches; Extensive faculty feedback and interaction;
Attrition	Hara and Kling (2001)	H	Found two sources of stress: technological problems and lack of communication	Recommended practical strategies for increasing student motivation – clear course expectations, clear communication, support services
Attrition	Huett et al. (2008) (distinguish which Huett study)	H	Seek to address how to improve retention and motivation	Experimented with use of motivational messages using ARCS model to increase retention Results show greater retention rate as well as lower student failure rate for treatment group (receiving motivational messages). Increases in motivation can translate into increased performance
Attrition	Nash (2005)	H	Surveyed community college students to determine factors for retention	Results showed that students who dropped were more likely to say they expected the course would be easier, supporting the need to have clear course expectations

Table 2-1. Continued

Issue	Researcher(s)	Audience	Focus	Applicable Findings
Isolation	Rovai (2001) Schroff, Vogel, and Coombes (2008) Sperry (2009)	H	Explores value of classroom community to achievement	Concluded sense of community is positively related to motivation and performance
Isolation	Bocchi et al. (2004)	H	Discuss approaches that have been successful	Extensive faculty feedback and interaction are important to motivate students
Quality	DiPietro, Ferdig, Black, and Preston (2008)	K -12	Best practices in teaching K-12 online	Potential motivating factors: Teacher presence Organizing and structuring content Teachers encouraging and communicating frequently with students Timely, detailed feedback and encouragement
Quality	Cavanaugh (2008)	K-12	Analyzes literature and research Identifies core group of successful online teaching practices	Potential motivating factors: Qualified online teachers Knowledge about characteristics of successful online learners Online interactivity Frequent, quality instructor communication and feedback Content requiring application of content
Satisfaction and Learning	Swan (2001)	H	Researchers analyzed surveys of 73 online university courses to determine what factors were important to satisfaction and perceived learning.	Survey showed positive satisfaction and perceived learning from: Clear course design, Quality interaction with instructors, and Active discussion among course participants.

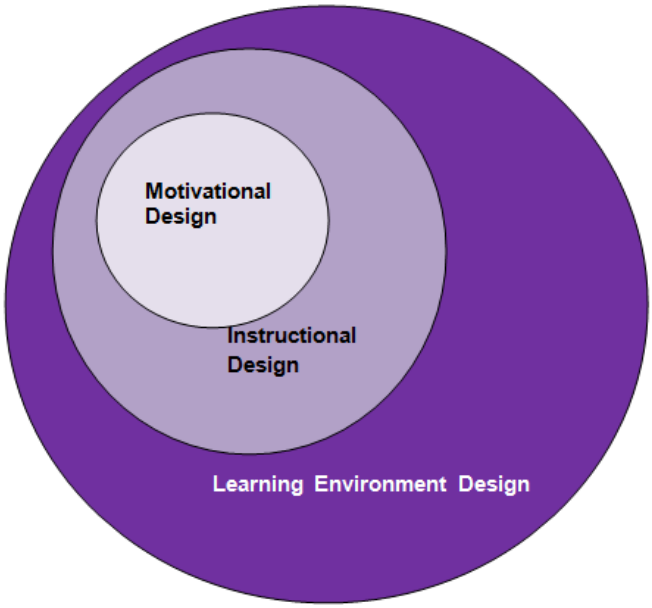

Figure 2-2. Motivational design as a subset of instructional and learning environment design. Reprinted with permission from Keller, J.M. (2010). *Motivational Design for Learning and Performance*. New York: Springer.

Table 2-2. Keller's motivational design models

Model	Examples	Description
Person-Centered	Alschuler (1973), McClelland (1965), Bandura (1977)	Postulate that people have drives, potentials, values, and motives that influence personal motivation and development. Assume that the primary impetus for psychological growth comes from within the individual
Environmentally -Centered	Skinner (1968), F.S. Keller (1968), Sloane and Jackson (1974)	Assume that behavior can be explained in terms of environmental influences on human volition.
Interaction-Centered	DeCharms (1976), Hunt and Sullivan (1974), Wlodkowski (1993), J.M. Keller (1987)	Assume that neither the personal nor the environmental assumptions provide an adequate basis for understanding or explaining motivation. Sometimes called social learning theory or expectancy-value theory (Keller, 1993) Human values and innate abilities are seen to both influence and be influenced by environmental circumstances. Examples: Wlodkowski's Time Continuum Model Keller's ARCS Model
Omnibus Models	Duffy, Lowyck, and Jonassen (1993); Joyce and Weil (1972); Malone and Lepper (1987)	Described by Keller (2010) as "complete solutions to given instructional goals; not motivational design models but motivational strategies" (p.34).

Table 2-3. Literature review of motivation in distance learning

Researcher(s)	Audience	Purpose	Applicable Findings
Bellon and Oates (2002)	H	Three year collection of survey data from graduate students taking online courses. Researchers administered the Jung Typology Test to determine individual personality styles. They also collected survey data concerning students' preferences for online course components. The goal was to determine the relationship between personality styles and course components as well as inform best practices for developing online curriculum to motivate learners. Descriptive article based on survey data, no rigorous method used	The results of this study suggest that despite signing up for online courses based on individual needs, student personalities do play a part in motivating the online learner once the course begins. Preferences for particular course components were marginally predictable based on personality types. Interaction with the instructor is necessary to motivate all students
Carliner (2000),	N	Defines a three-part framework for designing online information that is motivating including physical design, cognitive design, and affective design. Descriptive article based on literature review	Motivating factors include: Clear course design (more visuals/ less text, making layout appealing, consistent navigation) Determining learner goals and developing solutions to help learners understand information Making learners comfortable and encouraging them to perform

Table 2-3. Continued

Researcher(s)	Audience	Purpose	Applicable Findings
Gabrielle (2003)	H	Dissertation study conducted during one semester with 784 students (20% of population) on undergraduate students in a tuition-free public military school. Strategies were designed using Keller's ARCS model of motivation delivered through online course. Experimental group received strategies; control group did not. Surveys administered to both groups Mixed method – four surveys used to measure motivation and self-directed learning (Keller's Course Interest Survey, Keller's Instructional Materials Motivation Survey, Guglielmino's Self-Directed Learning Readiness Scale, and Self-directed Learning survey	Those students who received ARCS motivational strategies had significantly higher levels of academic performance than control group students. There were also significant differences in motivation and proclivity to be self-directed learners, with higher levels for treatment group students than control group students. Systematically designed technology-mediated instructional strategies can positively affect motivation, performance and self-directed learning
Horton (1990)	N	Provides course design guidelines for developing online courses which motivate learners. Descriptive article based on literature review	Recommendations: Information should fit screen size Recommends directories and search engines Clearly marked selectable options, consistent navigation
ChanLin (2009)	H	Keller's ARCS model used to examine problems within a web-based environment at a university in Taiwan. Attention and Relevance strategies used when designing content. Mixed method (# of postings, textual information from discussion forums, assignments, reflections); Sample size (n=40)	Positive correlation between students' final scores and the number of discussion postings. Conclusion: students who were more involved in class discussions performed better in course

Table 2-3. Continued

Researcher(s)	Audience	Purpose	Applicable Findings
Chyung, et al.(1999)		Used the ARCS model in combination with a systematic needs assessment process to design and implement interventions that would decrease the dropout rate in a distance learning program. Study cited by Keller (2010) indicating rigor of methods.	The results indicated that there were improvements in both learning and motivational reactions in all four motivational categories (Attention, Relevancee, Confidence, and satisfaction). Also, there was a significant reduction in the dropout rate, from 44% to 22%
Huett, Kalinowski, & Moller (2008)	H	Determined effect of ARCS-based motivational email messages on motivation and retention. Treatment group received motivational messages, control group did not; CIS used; 78% response rate to survey (n=119); strong response rate supports results.	Greater retention as well as lower student failure rate for treatment rate. Statistically significant difference in every measure of motivation except Relevance in treatment group
Huett, J., Young, Huett, K., Moller, and Bray (2008)	H	Determined if there were significantly significant increases in Confidence levels of online learners when Confidence strategies (ARCS) were used. Determined if there was also an increase or change in academic performance Treatment and control group used, IMMS administered Sample size 81 (treatment n=41, control n=40)	Treatment group outperformed control group on the posttest. Conclusion: increases in motivation can increase performance or performance

Table 2-3. Continued

Researcher(s)	Audience	Purpose	Applicable Findings
Little (2008)	K-12 (high school)	Relationship between student's motivational strategies and achievement. Motivated Strategies for Learning Questionnaire (MSLQ) administered at beginning and end of course to see if there were changes. Validity issues include small sample size (n =28) and short time frame (5 ½ week summer online course)	Intrinsic goal orientation and self-efficacy for learning were useful predictors of final course grade. Only one measure, effort regulation, changed significantly
McClesky (2009)	N	Offers practical strategies, based on research literature, for building intrinsic motivation in E-learning Descriptive article based on literature review	Recommendations: Strategies for stimulating and sustaining motivation in online courses include: • Learn the basics of motivation • Think structure – a well-organized structure builds Confidence (the "C" in the ARCS model) • Be aware of session length (online sessions should take no longer than 10 minutes to complete) • Increase visual interest through photographs, video, graphics, animations • Incorporate emotion by incorporating images that have a mild emotional impact • Tell a story with anecdotes, examples • Incorporate interactivity to engage learners
Nash (2005)	H	Investigating motivation (and reasons for success) in online students Quantitative (n=478) respondents were 14.7% of population	Surveys show online tutoring, clear course expectations are potential motivators

Table 2-3. Continued

Researcher(s)	Audience	Purpose	Applicable Findings
Rovai, Ponton, Weighting, and Baker (2007)	H	Multivariate analysis used to determine if there were differences in seven measures of motivation between students enrolled in 12 e-learning and 12 traditional university courses (N=353); strong sample size; study cited by Keller (2010) indicating rigor of methods.	E-learning students possess stronger intrinsic motivation than face-to-face course students on three intrinsic motivation measures. Graduate students reported stronger intrinsic motivation than undergraduate students in both e-learning and traditional courses.
Shroff et al. (2008)	H	Dissertation investigating factors supporting intrinsic motivation in online discussions Qualitative research methodology (n =7); small sample size, limited application	Researchers conclude that positive relationship between online discussions and individual perceived competence could result in an increase in an individual's intrinsic motivation
Song (1998)	K-12	Used Keller's ARCS model of motivation to develop computer-based instruction for middle school students. One control and two experimental groups received different levels of motivation in instruction. study cited by Keller (2010) indicating rigor of methods	Significantly higher levels of Attention, Relevance, motivation and effectiveness in the experimental group.
Sperry (2009)	H	Dissertation investigating rural community college student experiences of elements/strategies they found motivational in online courses. Qualitative method consisting of in-depth interviews (n=8); small sample size	Participants reported the importance of timely, constructive feedback, clear course expectations, and flexibility to motivation

Table 2-3. Continued

Researcher(s)	Audience	Purpose	Applicable Findings
Talvitie-Siple (2007)	K-12 (high school)	Dissertation investigated secondary students' motivation to learn, mathematics attitudes, and perceptions of transactional distance in a virtual high school. Sample size started with 41. High dropout rate resulted in only 10 students participating in study. 4 surveys administered, including CIS.	For students who passed the course, there were lower perceptions of transactional distance, supporting the importance of instructor-student interaction. Surveys also showed that timely, effective, consistent instructor feedback was essential to motivating students
Visser, Plomp, Amirault and Kuiper (1999)	H	Used instructional strategies (motivational messages) using the ARCS model with distance learners; study cited by Keller (2010) indicating rigor of methods.	Motivational messages were found to improve learner motivation, retention, satisfaction, and performance

Table 2-4. Five Cs of dropping out and how virtual schools address them

Element influencing student risk	Keller ARCS variable	Description	Application in virtual schools
Connect	Relevance	Making the connection between school and one's future	Rigorous and relevant instruction; Transition-based effective practices (e.g. career development, community experiences, self-determination, interagency collaboration, vocational/technical education). Emphasis on life skills and work readiness.
Climate	Confidence Satisfaction	Providing a safe and caring learning environment Opportunities to be successful while setting reasonable academic and social expectations	Climate that emphasizes safety, caring, support, and data-driven instruction.
Control	Confidence	Teaching evidence-based strategies to students to assist them in controlling their learning and behaviors	Give attention to behavioral and affective needs of students with specific programs and interventions designed to promote independence Review causes of issues (absence, truancy) and develop action plans to correct them. Life skills program to meet behavioral and emotional needs of students
Curriculum	Attention	Effective teaching strategies and academic support Varied student groupings depending on learning activity, scaffolded learning moving students toward independence	Provide a range of scaffolds and grouping strategies to foster independence in learners
Caring Community	Confidence	Personalized learning environment letting students know they are valued	Ask students what they think of school experience and consider this when planning lessons and interacting with students Positive, proactive communication Mentoring

Table 2-5. Comparison of characteristics of adult and younger learners

Characteristic of Successful Distance Learners	Characteristics of Adult Learners	Characteristics of Younger Learners	Recommendation for Virtual School Facilitators (Cavanaugh et al., 2004)
Autonomy (Keegan, 1996)	Have acquired a degree of autonomy by the time they reach higher education. (Cavanaugh, et.al, 2004)	Need to be scaffolded as part of distance education experience (Cavanaugh, et al., 2004)	Assist children in acquiring the skills of autonomous learning, including self-regulation
Increased student responsibility (Wedemeyer 1981)	Experts in subjects they study (Bransford, Brown & Cocking 1999)	Novices (Cavanaugh, et al., 2004)	Help the learner develop this cognitive skill
Metacognitive ability	Well developed metacognition (Cavanaugh, et.al, 2004)	Gradually developing metacognition (Cavanaugh, et al., 2004)	Help the learner develop this cognitive skill
Internal locus of control, leading to persistence in educational endeavors (Rotter, 1998)	Well developed internal locus of control	Older children have more internal locus of control than younger children (Gershaw, 1989)	Help the learner develop this cognitive skill
Refined cognitive development	Adults have progressed through Piaget's stages of cognitive development	At various stages of cognitive development (based on Piaget's stages) Each stage is characterized by the emergence of new abilities and ways of processing information (Slavin, 2003, p. 30)	Web based instruction for students in their formative years must include age appropriate developmental activities, building on the students' accomplishments in and through the cognitive stages
Independent learners	Work independently	Vygotsky believed that learning takes place when children are working within their zone of proximal development	Offer students activities that make use of the web's powerful tools for collaborative learning, and are within their zone of proximal development

Table 2-6. Conditions that have a positive adolescent learning impact

Adolescents learn better when:
• Encounter learning that is appropriate to their developmental level and is presented in multiple ways and in an enjoyable and interesting manner.
• Are intellectually intrigued by tasks that are “authentic” and perceived as challenging, novel, and relevant to their own lives.
• Are allowed to share and discuss ideas, and to work together on tasks, projects, and problems.
• Are afforded multiple strategies to acquire, integrate and interpret knowledge meaningfully, to demonstrate understanding, and to apply knowledge to new situations.
• Are provided opportunities to develop and use strategic thinking skills, such as reasoning and problem solving.
• Are given guidance and feedback about their work, yet are permitted to monitor personal progress and understanding.
• Are in a safe, supportive environment where value is given to personal ideas and negative emotions, such as fear of punishment and embarrassment, are minimized.

Table 2-7. Comparison of ARCS motivational variables with elements of adolescent learning

Motivational Variables in Keller's ARCS model (Keller, 2010)	Elements which motivate and support adolescent learning (Beamon, 2001)
Attention: involves engaging the learner and keeping the learner's attention. A successful instructor will assist in building Confidence with strategies in these areas: *Perceptual Arousal*: What can I do to capture their interest? *Inquiry Arousal*: How can I stimulate an attitude of inquiry? *Variability*: How can I maintain their attention? (Keller, 2010, p.47)	Encounter learning that is appropriate to their developmental level and is presented in multiple ways and in an enjoyable and interesting manner.
Relevance "does this material relate to my life?" If the student has a good feeling about the personal meaningfulness of the material, or consciously recognizes its importance, then the student will be motivated to learn it (Keller, 2010, p.48).; A successful instructor is able to build bridges between the subject matter and learner's needs in various subcategories of relevance: *Goal orientation*: how can I best meet my learner's needs? *Motive Matching*: how and when can I provide my learners with appropriate choices, responsibilities and influences? *Familiarity:* how can I tie the instruction to the learned experiences? (Keller, 2010, p.48)	Are intellectually intrigued by tasks that are authentic and perceived as challenging, novel, and relevant to their own lives; are afforded multiple strategies to acquire, integrate, and interpret knowledge meaningfully, to demonstrate understanding, and to apply knowledge to new situations; are provided opportunities to develop and use strategic thinking skills such as reasoning and problem solving.
Confidence involves helping students to establish positive expectancies for success. It includes assisting students reach develop self-efficacy; the belief that one is capable of performing in a certain manner to attain certain goals. A successful instructor will assist in building Confidence with strategies in these areas: *Learning requirements*: How can I assist in building a positive expectation for success? *Success opportunities*: How will the learning experience support the students' belief in their competence? *Personal Control*: How will learners clearly know their success is based upon their efforts and abilities? (Keller, 2010, p.51)	Are in a safe, supportive environment where value is given to personal ideas.

Table 2-7. Continued

Motivational Variables in Keller's ARCS model (Keller, 2010)	Elements which motivate and support adolescent learning (Beamon, 2001)
Satisfaction involves designing instruction so that learners gain positive feelings about their learning experiences. A successful instructor will assist in building Confidence with strategies in these areas: *Natural consequences*: How can I provide meaningful opportunities for learners to use their newly acquired knowledge/skills? *Positive consequences*: What will provide reinforcement to the learners' successes? Equity: How can I assist the students in anchoring a positive feeling about their accomplishments? (Keller, 2010, p.51-52)	Are given guidance and feedback about their work, yet are permitted to monitor personal progress and understanding

Table 2-8. Mixed results of role of experience on achievement

Researchers	Findings
Siedentop & Eldar (1989),	This study of elementary P.E. first year and experienced teachers concluded that both groups accomplished the same goals, so both are effective. Researchers concluded that the effectiveness of the experienced teachers is different than that of the intermediate and first year teachers. For example, the more experienced teachers paced events more smoothly, followed up more deliberately on important specifications, and utilized content more imaginatively. They call the automaticity and ease of expert teachers "experienced effectiveness."
Harris & Sass, 2007	This study found little evidence of an impact of early-career experience among high school teachers, and no effect (or even a negative effect) of teaching experience beyond the first several years on high school student achievement in mathematics and reading.
Dahar, M., Dahar, R., & Faize,, 2011	The study found that teaching experience had negatively insignificant relationship with academic achievement for secondary math and science students in Pakistan.
Fetler, 1999; Murnane & Phillips, 1981.	Researchers concluded teachers with less teaching experience typically produce smaller learning gains in their students compared with more experienced teachers.
Aaronson, Barrow, & Sander (2007)	Researchers found that 90% of the variance in teacher effects on student learning was not explained by teacher characteristics such as highest level of education, experience, credentials, and selectivity of the college that the teacher attended.

Table 2-9. Research supporting the premise that the role of experience on achievement matters in years 1-5

Researchers	Findings
Hanushek et al. (2005),	Researchers conclude that experience matters only in the first year of teaching. By their estimates, having a first year teacher on average is roughly equivalent to having a teacher a half standard deviation down in the quality distribution.
Boyd, Rockoff & Wyckoff, 2007.	Study concludes that the largest gain in math achievement attributable to teacher experience is associated with teachers' progression from their first year of teaching to having one full year of experience.
Grissmer (2000)	This analysis of state data on the National Assessment of Educational Progress revealed positive effects on student achievement in states with large proportions of teachers who had at least two years of experience, but no evidence that additional years of experience were associated with higher achievement.
Gordon, Kane, and Staiger (2006)	Researchers found large gains in teacher effectiveness between the first and second year of teaching, much smaller gains between the second and third year, and no substantial improvement after the third year in the classroom.
Murnane (1975)	Researchers found that teacher effectiveness improves rapidly over the first three years of teaching and reaches its highest point between the third and fifth year but found no substantial improvement after year five.
Ferguson (1991) and Ferguson and Ladd (1996) Hanushek & Rivkin, 2007, Rockoff, 2004; Rivkin, Hanushek, & Kain, 2005; Boyd et al., 2005). Rice (2010)	Researchers found no experience effects for elementary teachers beyond the first five years in the classroom teacher experience effects are largely concentrated in the early years

Table 2-10. Research supporting the premise that experience matters after 5 years of teaching

Researchers	Findings
Murnane and Phillips (1981)	Researchers conclude that experience had a significant positive effect on elementary student achievement among teachers during their first seven years of teaching.
Ferguson (1991)	At the high school level, study concludes that Texas students taught by teachers with more than nine years of experience had significantly higher test scores than students whose teachers had five to nine years of experience.
Rivers & Sanders (2002)	Researchers concluded that "current TVAAS research suggests that teachers' effectiveness increases dramatically each year during the first ten years of teaching" (p. 22).
Clotfelter, Ladd, and Vigdor (2006, 2007a)	Researchers found evidence of growing teacher effectiveness out to 20 or more years in their analyses of North Carolina teacher data, although more than half of the gains in teacher effectiveness occurred during the first few years of teaching.
Ladd, 2008	Researcher concluded that teachers with more than 20 years of experience are more effective than teachers with no experience, but are not much more effective than those with 5 years of experience

Table 2-11. Comparison of Gagne's nine events and Keller's arcs constructs

Gagne	Keller's ARCS constructs
Gaining Attention	Attention
Informing learners of the objective	Relevance
Stimulating recall prior knowledge	Relevance
Presenting the content	Relevance
Providing learning guidance	Confidence, Satisfaction
Eliciting performance	Confidence, Satisfaction
Providing feedback	Confidence, Satisfaction
Assessing Performance	Confidence, Satisfaction
Enhancing retention and transfer	Confidence, Satisfaction

CHAPTER 3
METHODOLOGY

This chapter describes the research design, methodology, data collection, and the data analysis procedures in this study. The researcher also delineates the sampling procedures and instrument validation. The chapter is divided into six sections. Section one provides the introduction; section two describes the research design plan, section three describes the instrumentation used for this study, including its reliability and validity, section four describes the data collection and analysis for the study, section five describes the data analysis techniques employed, and section six describes the limitations of the study.

There are two main purposes of this study. The first is to identify whether or not there are significant differences in John Keller's ARCS (Attention, Relevance, Confidence, and Satisfaction) motivational constructs in virtual ninth grade English I students who have completed 65%-99% of the course based on instructor experience. The second is to investigate the perceived instructional practices that contribute to motivation.

Instructor experience is defined in this study by the number of years an instructor has spent teaching language arts. Instructor experience is categorized in two groups. Group 1 is English I instructors who have 1-5 years experience teaching language arts. Group 2 is English I instructors who have 6 years or more experience teaching language arts. These groups were formed based on research suggesting there is no significant positive impact on achievement beyond five years of experience (Hanushek & Rivkin, 2007, Rockoff, 2004; Rivkin, Hanushek, & Kain, 2005; Boyd et al., 2005). Although there is disagreement among researchers about the exact number of years

experience matters in increasing or improving achievement, the five year mark is being used in order to assess the impact of experience on motivation.

This study examines whether the students' median scores on each subscale of the CIS are the same or differ, depending on the experience of students' assigned instructor. The results of this study may be used to inform best practices for training virtual instructors as well as assist in the design and facilitation of effective virtual K-12 distance curriculum. Educators, administrators and policy makers seeking to increase motivation and performance may find the results of this study useful as they consider policies and procedures governing the design, review, facilitation and implementation of virtual curriculum. It may also apply to a variety of content areas and learning environments.

Research Design

This study gathered both quantitative and qualitative data. English I students were asked to select responses to the Course Interest Survey from a series of Likert scale choices. They were also asked to rank a series of twelve course design and facilitation features from "extremely motivating" to "not motivating." These were analyzed using quantitative methods. Student responses to a variety of open-ended questions designed to assess their perceptions of ARCS constructs in the course were analyzed using qualitative methods. Appendix C is a complete copy of the student survey.

In addition to gathering student data, the study also obtained quantitative and qualitative data from English I instructors through an instructor survey. This survey was designed to collect information about the professional background, education, and years of experience each instructor had teaching language arts. This information about instructors' years experience teaching language arts made it possible to identify novice

and experienced instructors based on the study's criteria. English I instructors' responses to the open-ended questions on the survey assessed the instructional strategies used by instructors to facilitate the English I course as well as the instructors' perceptions of the ARCS motivational constructs in the English I course. Open-ended questions also allowed instructors to discuss how they added their own personal presence to the course and specific ways they gave feedback to students. Instructor's open-ended responses were analyzed qualitatively. Appendix G is a complete copy of the instructor survey.

Qualitative information from student and instructor surveys was used to support the quantitative data as well as to identify derivative outcomes outside of the research questions. These outcomes include instructional practices and course design features related to motivation for the virtual secondary school target audience. The target audience was ninth grade language arts students in the English I course at Florida Virtual School (FLVS) who were active in the course and had completed 65%-99% of one segment of the course.

According to Florida Virtual School research specialist Rhonda McPherson, Florida Virtual School had 8,445 enrollments and 8,445 completers in the English I course in 2009-2010 (personal communication, January 21, 2011). As of January 21, 2011 there were 3,803 active enrollments and 5,555 completed enrollments for the 2010-2011 school year. Since this study targets students who have completed 65% - 99% of one segment of the course, there was a potential target audience of 432 English I students.

According to Dr. McPherson, there were 35 instructors for English I in the 2010-2011 school year (personal communication, January 21, 2011).

Population

Instructors

Dr. McPherson identified 35 instructors teaching English I in the 2010-2011 school year (personal communication, January 21, 2011). Dr. McPherson created this list from internal sources at FLVS in a two tiered fashion. First, she received a list of instructors assigned to teach the English I course from human resources at FLVS. Second, she emailed each of these instructors to verify that each was teaching English I in the 2010-2011 school year.

The instructor survey was distributed only to the 19 instructors teaching English I who had students who had completed 65-99% of the course as of January 21, 2011. 19 of the 19 instructors who had students who completed 65%-99% of the course by January 2011 responded to the survey, for a total response rate of 100%.

Students

To obtain a proportional sample of students from the institution, all Florida Virtual School English I students who met the following criteria were contacted: 1) were active in the English I course during the 2010-2011 school year and at the time of the survey period 2) had completed between 65% and 99% of one segment of the English I course and 3) demonstrated mastery of the course objectives by earning a passing grade at the time of the survey.

On January 21st, 2011, Dr. McPherson pulled a progress report of all students in the target audience from the Virtual School Administrator (VSA) database. This progress report identified a target population of 432 students taking the English I course

from 19 English I instructors. Each of the 432 students met the requirements of completing between 65% and 99% of at least one segment of the English I course and mastering the course objectives by earning a passing grade at the time of the survey.

A total of 91 English I students in the target audience started the survey and responded to portions of the survey. 78 completed the quantitative portions of the survey, including the Course Interest Survey. 66 English I students in the target audience completed the entire survey, including the open-ended questions. All of the 19 instructors corresponding to these respondents had completed the instructor survey, making grouping of data by instructor experience possible.

Sample Size

The study used non-parametric statistics to assess group differences. G*Power 3.1.0 was used to calculate the sample size for a t-test, parametric equivalent to Mann-Whitney. Lehmann (2006) recommends adding 15% to the computed sample size when planning for a non-parametric analysis. Considering this large effect size of 0.80, a generally accepted power of 0.80, a 0.05 level of significance, and an allocation ratio of 1, the desired sample size to achieve empirical validity for a t-test with two tails is a total of 52 participants. The addition of 15% for the nonparametric equivalent brings the desired sample size to a total of 60 participants (Faul, Erdfelder, Buchner, & Lang, 2008).

Research questions were divided into two categories: quantitative and qualitative. Research questions 1-4 were examined using quantitative methods. Research question 5 was examined using qualitative methods.

Quantitative Methods

Research Question 1

RQ1: For completers only, is there a statistically significant difference in Attention scores by instructor experience? To examine research question 1, one Mann-Whitney U test was conducted to assess whether differences exist on Attention scores by years of experience teaching language arts (1-5 years vs. 6 or more years). Only students who had completed 65% -99% of one segment of the English I course were included in the study. Attention scores was the dependent variable in the analysis. To measure Attention scores, Keller's Course Interest Survey was used (questions 1, 4, 10, 15, 21, 24, 26, 29). Questions 4 and 26 were reverse coded. Responses ranged from 1 = not true, 2 = slightly true, 3 = moderately true, 4 = mostly true, and 5 = very true. The independent variable in the analyses was years of experience teaching language arts (1-5 years vs. 6 or more years).

Research Question 2

RQ2: For completers only, is there a statistically significant difference in Relevance scores by instructor experience? To examine research question 2, one Mann-Whitney U test was conducted to assess whether or not differences exist on Relevance scores years of experience teaching language arts (1-5 years vs. 6 or more years). Only students who had completed 65% -99% of one segment of the English I course were included in the study. Relevance scores were the dependent variable in the analysis. To measure Relevance scores, Keller's Course Interest Survey was used (questions 2, 5, 8, 13, 20, 22, 23, 25, and 28). Questions 8 and 25 were reverse coded. Responses ranged from 1 = not true, 2 = slightly true, 3 = moderately true, 4 = mostly

true, and 5 = very true. The independent variable in the analyses was years of experience teaching language arts (1-5 years vs. 6 or more years).

Research Question 3

RQ3: For completers only, is there a statistically significant difference in Confidence scores by instructor experience? To examine research question 3, one Mann-Whitney U test was conducted to assess whether or not differences exist on Confidence scores by years of experience teaching language arts (1-5 years vs. 6 or more years). Only students who completed 65% -99% of one segment of the English I course were included in the study. Confidence scores were the dependent variable in the analysis. To measure Confidence scores, Keller's Course Interest Survey was used (questions 3, 6, 9, 11, 17, 27, 30, and 34). Questions 6, 11, and 17 were reverse coded. Responses ranged from 1 = not true, 2 = slightly true, 3 = moderately true, 4 = mostly true, and 5 = very true. The independent variable in the analyses was years of experience teaching language arts (1-5 years vs. 6 or more years).

Research Question 4

RQ4: For completers only, is there a statistically significant difference in Satisfaction scores by instructor experience? To examine research question 4, one Mann-Whitney U test was conducted to assess whether or not differences exist on Satisfaction scores by years of experience teaching language arts (1-5 years vs. 6 or more years). Only students who had completed 65% -99% of one segment of the English I course were included in the study. Satisfaction scores were the dependent variable in the analysis. To measure Satisfaction scores, *Keller's Course Interest Survey* was used (questions 7, 21, 14, 16, 18, 19, 31, 32, and 33). Questions 7 and 31 were reverse coded. Responses ranged from 1 = *not true,* 2 = *slightly true*, 3 =

moderately true, 4 = *mostly true*, and 5 = *very true.* The independent variable in the analyses was years of experience teaching language arts (1-5 years vs. 6 or more years).

Research Question 5

RQ5: For completers only, what are the perceived instructional practices that contribute to motivation? To examine research question 5, responses to open-ended questions related to each of the ARCS categories were coded into tables following the guidelines recommended in Saldana's *Coding Manual for Qualitative Researchers*. For example, questions 1-6 in the open-ended question section of Appendix C first asked students whether or not they perceived the course or instructor captured their attention, was relevant to their lives, built confidence or satisfaction. If the course or instructor motivated them through the use of these ARCS constructs, students were asked to share the specific ways the course or instructor contributed to their motivation. Responses were coded according to key words, organized in tables, and emerging themes were analyzed.

Analysis Justification

Mann-Whitney U Test

The Mann-Whitney U test is the nonparametric equivalent to the independent t-test and the appropriate analysis to compare differences that come from the same population when the dependent variable is ordinal (Leech, Barrett & Morgan, 2008). The Mann-Whitney U test compares the number of times a score from one sample is ranked higher than a score from another sample. The scores from both samples will be ranked together; rank 1 is used for the lowest score, rank 2 for the next lowest score, and so on. When scores have the same value, a tie is determined. The scores are

ranked and those ranks are added together and then divided by the number of scores. Each of the tied scores is then assigned the same ranking (Cramer, 1998). Once the data is ranked, calculations will be carried out on the ranks. Given the nonparametric nature of this statistical analysis, there are fewer assumptions to assess. The assumptions include: the two samples have independent observations; and the measure of the two samples have at least an ordinal scale of measurement (Brace, Kemp & Sneglar, 2006).

Qualitative Methods

Qualitative methods are a useful complement to quantitative methods. They can increase the understanding of quantitative information by eliciting responses to more probing questions which expand the knowledge of the researcher about the issues. According to Linda Mayoux (2010), qualitative methods can increase understanding of what is happening, contribute to an understanding of who is affected in which ways, and analyze why particular impacts are occurring. Qualitative methods recognize the multiple realities of the sample and enable a more in-depth understanding of individuals as well as groups (Mayoux).

In order to facilitate references to participant responses in the student survey and in order to protect the privacy of both students and instructors, two tables were created. Table 4-13 provides a data code sheet of novice teachers and their corresponding students. Table 4-14 provides a similar data code sheet of experienced teachers and their corresponding students. These tables assign an instructor number to each instructor. The students of each instructor were assigned participant numbers to enable the research to discuss comments from participants of each instructor.

The guidelines recommended in Saldana's *Coding Manual for Qualitative Researchers* were followed in the analysis of responses to open-ended questions in both the student and instructor surveys (Appendices C and G). The coding process involved recognizing (seeing) an important moment and encoding it (seeing it as something) prior to a process of interpretation (Boyatzis, 1998). A "good code" is one that captures the qualitative richness of the phenomenon (Boyatzis, 1998, p. 1). Encoding the information organizes the data to identify and develop themes from them. Boyatzis defined a theme as "a pattern in the information that at minimum describes and organizes the possible observations and at maximum interprets aspects of the phenomenon" (p. 161).

The themes or patterns which emerged during analysis of the responses to open-ended questions were analyzed and synthesized into two main groups: motivational course design and instructional practices. The researcher used best practices recommended by Mayoux (2010) including validating findings by cross-checking with other questions and respondents, quoting an individual's exact words, carefully documenting responses, and continually examining the researcher's own biases.

Justification for Online Survey Approach

For decades, paper-and-pencil administration of questionnaires or survey instruments dominated research and evaluation efforts. In recent years, web surveys have become increasingly popular, as manifested in the growing research on Web survey methodology (Couper 2000; Couper, Traugott, & Lamias 2001; Crawford, Couper, & Lamias 2001; Dillman & Bowker 2001; Dillman, Tortora, Conradt, & Bowker, 1998; Tourangeau, Couper, & Steiger 2001). Web surveys have been used by researchers in a variety of fields, such as medicine (Eysenbach & Diepgen, 1998;

Raziano, Jayadevappa, Valenzula, Weiner, & Lavizzo-Mourey, 2001; VanDenKerkhof, Parlow, Goldstein, & Mine, 2004), program evaluation (Morrel-Samuels, 2003; Watt, 1999), social science (Babbie, 1998; Fraley, 2004; Sell, 1997), education (Carini, Hayek, Kuh, Kennedy, & Ouimet, 2003; Kennedy, Kuh, & Carini, 2000; Kwak & Radler 2002; McCabe, 2004; Shannon & Bradshaw, 2002; Sax, Gilmartin, & Bryant 2003), and business (Roberts, Konczak, & Macan, 2004; Shu, 2005; Truell, Bartlett, & Alexander, 2002).

Underlying this popularity may be the advantages some researchers find in using Internet-based tools for collecting their data (Bebell, O'Dwyer, Russell, & Hoffman, 2010; Shapley, 2008; Silvernail, 2008). Virtual schools, such as FLVS, routinely collect data from online surveys for use in annual evaluations such as the *Florida Virtual School Stakeholder Survey 2009-2010* (2010). Web-based research provides many advantages such as access to specific, sometimes difficult-to-find populations, speed of data access, and decreased costs for data collection and data entry (Duffy, 2002).

Compared to traditional mail surveys, the normal data collection period in web-based surveys is dramatically reduced from 4-6 weeks for mail surveys and 2-3 weeks for telephone surveys to a 2-3 day data collection period for web-based surveys (Duffy, 2002). Linking a web-based survey directly to a database or spreadsheet application eliminates manual data entry as well as errors that might be made while entering data (Lazar & Preece, 1999; Schmidt, 1997).

Web-based surveys are particularly advantageous in settings where technology is easily accessible and the target audience is comfortable using the Internet. Aoki and Elasmar (2000) state that the Internet will present advantages over traditional modes of

data collection if it is used for specific populations that are known to be “Internet savvy” (p. 3). Because virtual K-12 learners routinely use the Internet to access online courses and possess a high level of comfort with technology, an online survey is ideal for students in a virtual school environment.

Some studies show that another advantage of web-based surveys, under specific conditions, is a higher response rate than other methods, such as paper-based surveys. Cobanoglu, Warde, and Moreo (2001) compared the response rates of mail, fax, and web-based surveys in a university setting for response speed, response rate, and costs. On average, the response rate was 28.91%: 26.27% for mail, 17.0% for fax, and 44.21% for web surveys. Since this study was done nine years ago, the expectation is that individuals in educational settings have increased their use and comfort level with technology and similar, if not greater results, would follow. According to Shih and Fan’s (2008) meta-analysis comparing response rates from web and mail surveys, higher response rates seem to be related to a variety of factors, including the length of the survey, the age and technological expertise of the respondent, and the format of the survey. The survey being used in this study is short (34 items) and being administered to young students who are effectively using technology in their daily lives. The purpose of these choices is to increase the response rate of this study.

Another advantage of web-based surveys is that they reduce the time and effort required to collect and analyze information. Data collected from computer-based surveys can be accessed easily and analyzed nearly instantly, streamlining the entire data collection process.

Surveys and questionnaires remain widespread and dominant tools across nearly all studies of educational technology (Bebell et al., 2010). To measure technology use appropriately, researchers must invest time and effort to develop instruments that are both reliable and valid for the inferences that are made (Bebell et al.). Keller's Course Interest Survey meets these standards of reliability and validity.

Course Interest Survey

Keller (1987, 2010) designed the Course Interest Survey (CIS) to correspond with the theoretical foundation represented by the motivational concepts and theories comprising the ARCS Model. The CIS was designed to measure students' reactions to instruction. According to Keller (2010) the CIS can be used in both synchronous and asynchronous online courses that are instructor facilitated. The goal with this instrument is to measure how motivated students are with respect to a particular course (Keller, 2010).

The CIS has 34 items in each of the four ARCS categories with approximately equal numbers in each of the ARCS categories (Attention items = 8, Relevance items= 9, Confidence items = 8, and Satisfaction items = 9) or the total scale score. The response score ranges from 1 (Not True) to 5 (Very True). The minimum score on the 34 item survey is 34, and the maximum is 170 with a midpoint of 102. The minimums, maximums, and midpoints for each subscale vary because they do not all have the same number of items.

Scores are determined by summing the responses for each subscale and the total scale. The items marked reverse are stated in a negative manner. The responses have to be reversed before they can be added into the response total. That is, for the reversed items, 5=1, 4=2, 3=3, 2=4, and 1=5 (Keller, 2010). There are no norms for the

survey. As it is a situation-specific measure there is no expectation of a normal distribution of responses.

Reliability of survey

This instrument has been found reliable and valid for college aged students in 4 studies outlined in Keller (2010), including both face-to-face and online.

The survey was first administered to a class of 45 university undergraduates, and the internal consistency estimates were satisfactorily high (Keller, 2010). A pretest version was prepared by rewriting items in the future tense and was administered to an undergraduate class of 65 students. The internal consistency estimates were high, but further revisions were made to improve the instrument. The standard version of this instrument was then administered to 200 undergraduates estimates, based on Cronbach's alpha, were satisfactory (Keller, 2010). Reliability estimates based on Cronbach's alpha coefficient for the total CIS based on the above study was .95. Alpha coefficient values for the subscales were: .84 for Attention, .84 for Relevance, .81 for Confidence, and .88 for Satisfaction. Based on these results, the CIS was seen as a reliable tool for measuring college student motivation in a specific classroom setting (Keller & Subhiyah, 1993).

CIS scores from 200 university undergraduates and graduates used for internal consistency estimation were correlated with their course grades and grade point averages (Keller, 2010). All the correlations with course grade are significant at or beyond the 0.05 level. This supports the validity of the CIS as a situation-specific measure of motivation, and not as a generalized motivation measure, or "construct" measure, for school learning (Keller, 2010).

Prior reliability testing of the CIS instrument using Cronbach's alpha measure resulted in all five components (Attention, Relevance, Confidence, and Satisfaction subscores and ARCS total score) greater than .80 (Keller & Subhiyah, 1993) This study, consisting of 101 undergraduate students, investigated what kind of supportive information can be effective in improving the situation where there were severe motivational challenges.

Validity of survey

In her dissertation, Naime-Diefenbach (1991) notes that the ARCS Model and the survey instruments designed by John Keller to measure the ARCS constructs, including the Course Interest Survey and the Instructional Materials Motivational Survey, have been empirically validated in a course context (Bickford, 1989) but the individual scales had not been validated under controlled conditions. In her study, Naime-Diefenbach (1991) conducted an experimental investigation of the causal validity of two components of the ARCS Model: Attention and Confidence. Using a sample size of 111 undergraduate and graduate students, three sets of instructional materials were used to test for influences on Attention and Confidence. One set enhanced Attention, the second enhanced Confidence, and the third was neutral. There were three groups of subjects, each receiving one of the three sets of materials. The sample size of 111 students was distributed as follows: 34 students in the control group, 39 students in the Attention treatment group and 38 students in the Confidence treatment group (Naime-Diefenbach, 1991). Upon completion of the lesson, students in all three treatment groups took the motivational survey, as well as the posttest. The results showed that students who completed the revised lesson with enhanced Attention had a higher score

on the Attention subscale than the control group and the Confidence treatment group which both had similar scores on that subscale.

Since the current study is exploratory using 9th grade students in an online learning environment, Coefficient alpha was computed and reported to see if the CIS was equally reliable for this aged student as was found in prior studies.

Instructor Survey

In order to collect data from English I instructors at FLVS, the researcher developed a survey based on instructor perceptions of the Keller's ARCS in the English I course. In addition to questions about education, certification, and instructor training, the survey asked the number of years each instructor taught in the subject area of language arts as well as the number of years each instructor taught in a virtual environment. The entire survey can be reviewed in detail in Appendix G.

This survey was also designed to elicit English I instructors' perceptions of how they felt each of the ARCS constructs was integrated in the course. To decrease any confusion about the definition or strategies associated with each of the ARCS strategies, the survey first presented John Keller's (2010) definition of the construct. The survey then asked the instructor if they felt that construct was present in the design or facilitation of the English I course. If it was not, the instructor was asked why. If they perceived the construct was present, the instructor was asked to describe specific activities or features of the course that elicited this construct of motivation. Open-ended questions also asked instructors what they perceived was most motivating about the course and how they felt motivation could be improved.

Data Analysis Plan

Data was entered into Predictive Analytic SoftWare (PASW) version 18.0 for Windows for analysis. Descriptive statistics was conducted to describe the sample characteristics and the research variables. Frequencies and percentages were calculated for categorical or nominal data and means and standard deviations were calculated for interval/ratio data (Howell, 2010). Teacher demographic data gathered from instructor surveys were analyzed descriptively.

Preliminary Tests to Assess Normality

A preliminary Kolmogorov-Smirnov (KS) test was conducted to assess normality. The KS test was significant on the independent variable. For parametric techniques, it is assumed that the populations from which the samples are taken are normally distributed; the independent variable has violated this assumption. The assumption of equality of variance was assessed with the Levene's test for equality of variances. It was found to be significant on Relevance, Confidence, and Satisfaction. For these variables equal variances could not be assumed. The F statistic is robust against violations of normality and in situations where the variance is unequal provided group sizes are similar (Stevens, 2009). However, in this case, the ratio of largest to smallest group was >1.5 (63/15 = 4.20). The assumptions for a t-test were not met; the non-parametric equivalent of a t-test, Mann-Whitney U tests, will be used to analyze the data.

Table 3-1. Scoring guidance for the Course Interest Survey (CIS)

Attention	Relevance	Confidence	Satisfaction
1	2	3	7 (reverse)
4 (reverse)	5	6 (reverse)	12
10	8 (reverse)	9	14
15	13	11 (reverse)	16
21	20	17 (reverse)	18
24	22	27	19
26 (reverse)	23	30	31 (reverse)
29	25 (reverse)	34	32
	28		33

CHAPTER 4
RESULTS

This chapter will report results obtained through the investigation of the role of teaching experience on motivation in Florida Virtual students who have completed 65%-99% of at least one segment of the English I course. The chapter will: a) describe the sample and report findings associated with research questions described in Chapter 1 and b) examine the impact of teaching experience on specific ARCS motivational constructs.

Sample

Utilizing a list provide by the virtual school, 432 English I students who completed 65%-99% of one segment of the English I course at Florida Virtual School during 2010-2011 school year were contacted via email with a request to take part in the study. These students in the target audience had 19 corresponding English I instructors. These 19 English I instructors who had students meeting this criterion were also contacted via email. In order to expedite the contact and data collection, an online survey application, Survey Monkey, was utilized. The respondent population can be divided into two distinct groups: Students and Instructors. The student group can also be divided into two groups. The first group, Student Group A, consists of all student respondents who completed the Course Interest Survey (n=78, a 18% survey response rate). Student Group B consists of all student respondents who completed the entire survey, including both the Course Interest Survey and the open-ended questions on the survey. (n=66, a 16% response rate). These individuals represent students who completed 65%-99% of one segment of the English I course at FLVS during the 2010-

2011 school year. The second group, instructors, consisted of all instructor respondents to the instructor survey (n=19, 100% survey response rate).

According to the G*Power 3.1.0 used to calculate the sample size for a t-test, parametric equivalent to Mann-Whitney, with addition of 15% for the nonparametric equivalent, the desired sample size was 60 participants (Faul, Erdfelder, Buchner, & Lang, 2008). Since 78 students participated in this survey empirical validity was achieved.

Instructor Population

Nineteen teachers participated in the study to examine differences in students' ARCS construct scores by teachers' experience in teaching language arts. Not all of the teachers responded to all of the demographic items. All of the teachers that participated in the study were female. The descriptive statistics were analyzed by years of experience teaching language arts. Teachers were grouped in either one to five years of experience (novice) or six or more years of experience teaching language arts (experienced).

Of the four teachers who reported one to five years of language arts experience, two (50.0%) had an undergraduate degree and two (50.0%) had a graduate degree. The majority (3, 75.0%) of the teachers reported three to five years of face-to-face teaching. Teachers reported either one to two years (3, 75.0%) or six to eight years (1, 25.0%) of teaching experience in a virtual classroom. The majority (3, 75.0%) reported three to five years of language arts teaching experience. The majority of teachers (12, 63.2%) had between one and two years of virtual classroom teaching experience. Half (2, 50.0%) of the teachers reported one to two years of English 1 teaching experience while the other half (2, 50.0%) reported three to five years. The majority (2, 50.0%) of

participants have been a facilitator at FLVS for three to five years. All teachers (4, 100.0%) reported fulltime positions.

Of the 15 teachers who reported six or more years of language arts experience, the majority (11, 84.6%) had an undergraduate degree and two (15.4%) had a graduate degree. Many (6, 40.0%) of the teachers reported six to eight years of face-to-face teaching. The majority (9, 60.0%) of teachers reported one to two years of experience teaching in a virtual classroom. Many (6, 40.0%) reported six to eight years of language arts teaching experience and many of the teachers (6, 40.0%) had between three and five years of English 1 teaching experience. Many (5, 35.7%) of the participants have been a facilitator at FLVS for one to two years. All teachers (12, 100.0%) reported fulltime positions. Frequencies and percentages of the characteristics of teachers are presented in Table 4-1.

Teaching Experience and Environment

Because teaching experience is a critical factor in distinguishing between novice and experienced instructors, it is important to consider the environment where most experience was obtained. As indicated by Table 4-1, both novice and experienced instructors gained the majority of their teaching experience in the face-to-face classroom. 75% of novice teachers, for example, have 3-5 years experience teaching language arts in a face-to-face classroom while the 40% of experienced teachers have 6-8 years experience teaching language arts in a face-to-face classroom. The majority of both novice and experienced instructors have only 1-2 years experience teaching in the virtual classroom. 75% of the novice teachers had only 1-2 years experience in the virtual classroom while 60% of the experience teachers had only 1-2 years experience in the virtual classroom.

Student Population

Seventy-eight students participated in the study. Fifteen of these students had novice instructors while sixty-three students had experienced instructors.

For those students with instructors who had one to five years of experience teaching language arts, 9 (60.0%) were male and 6(40.0%) were female. The students were between the ages of 12 – 16. A large number of students were either age 14 (5, 33.3%) or age 15 (5, 33.3%), and only one (6.7%) student was age 12.

Most of the students in this study had either As (5, 35.7%) or Bs (6, 42.9%) in the course. Of the students participating in the study, only 2 (13.3%) were taking the course to make up credit for a previous English I course. The majority (10, 66.7%) of the students participating have not taken an online course before.

For those students with instructors who had six or more years of experience teaching language arts, 43 (68.3%) were male and 20 (31.7%) were female. The students were between the ages of 13 – 18. A large number of students were either age 14 (26, 41.3%) or age 15 (18, 28.6%), and only two (3.2%) students were age 18. The majority of the students have As (33, 54.1%) while a large number have Bs (21, 34.4%) in the course.

Of the students participating in the study, only 9 (14.3%) were taking the course to make up credit for a previous English I course. The majority (38, 60.3%) of the students participating have taken an online course before. Frequencies and percentages for student demographic data are presented in Table 4-2.

Analysis of Characteristics of Target Audience

An analysis was conducted of the entire target population of 432 English I students who had completed 65-99% of the course with a passing grade using a spreadsheet

generated by Florida Virtual School's Virtual School Administrator (VSA) database on January 21, 2011. The spreadsheet provided demographic information, including gender, age, and course grade. Also included was whether or not each student was taking the course for credit recovery.

Data showed that of the 432 students, 53% (228) were female and 47% (204) were male. 35% were age 15, 24% were age 16, 21% were 14, 13% were age 17, 4% were age 18 and only 1% were age 12. The majority of students (70%) had taken an online course with FLVS before.

Data showed that 99 students or 23% of the target audience were taking English I for credit recovery. At the 65-99% point in the course, according to the VSA Florida Virtual School database, 37% of English I students in the target audience had As, 28% had Bs, 21% had Cs, and 14% had Ds.

Descriptive Statistics

Descriptive statistics were calculated for the Attention, Relevance, Confidence, and Satisfaction scores on the Course Interest Survey. Each student who responded to the survey was matched with his or her corresponding English I instructor. Student scores were categorized into two groups: Group 1: Novice and Group 2: Experienced. Group 1 consists of students whose instructor had one to five years of language arts teaching experience (novice) while Group 2 includes students whose teachers had six or more years of experience (experienced).

For students with teachers who had one to five years of experience, Relevance scores ranged from 2.22 – 5.00 (M= 4.02, SD = 0.82) and Confidence scores ranged from 1.88 – 4.75 (M= 4.03, SD = 0.82). For students with teachers who had six or more years of experience, Confidence scores ranged from 3.00 – 5.00 (M = 4.59, SD = 0.38)

and Satisfaction scores ranged from 2.67 – 5.00 (*M* = 4.37, *SD* = 0.55). Descriptive statistics for Attention, Relevance, Confidence, and Satisfaction scores by years of experience are presented in Table 4-3. Figure 4-1 show comparisons of median ARCS scores based on instructor experience.

Preliminary Analysis

To examine the internal consistency reliability of the survey subscales Cronbach's alpha was run for each subscale: Attention, Relevance, Confidence, and Satisfaction. The alpha coefficients for each subscale was found to be reliable, and ranged from acceptable to good, according to the rules of thumb recommended by George and Mallery (2003) whereby, > .9 – Excellent, > .8 – Good, > .7 – Acceptable, > .6 – Questionable, >.5 – Poor, < .5 – Unacceptable. The Cronbach's alpha tests of reliability are presented in Table 4-4.

Correlations

Cohen's standard (Cohen, 1988) was used to determine the strength of the relationship between ARCS constructs. Three Pearson product-moment correlations were conducted : 1) all students for the ARCS motivation constructs, 2) all students with novice instructors and 3) all students with experienced instructors.

Pearson product-moment correlation (r) is a bivariate measure of association (strength) of the relationship between two variables. Given that all variables are continuous (interval/ratio data) when seeking to assess the relationships, or how the distribution of the z scores vary, Pearson correlations are the appropriate bivariate statistic (Pagano, 2010). Correlation coefficients can vary from 0 (no relationship) to +1 (perfect positive linear relationship) or -1 (perfect negative linear relationship) (Cohen, 1988). Positive coefficients indicate a direct relationship, as one variable increases, the

other variable also increases. Negative correlation coefficients indicate an inverse relationship, as one variable increases, the other variable decreases.

Six Pearson product-moment correlations were conducted among all students for the ARCS motivation constructs. All constructs were found to be significant with one another. According to Cohen's standard (1988), where less than .30 represents a small association, .30 - .49 represents a medium association, and .50 or larger correlations represent a large size effect or correlation between the two variables. The correlation coefficients of > .50 represents a large association between the two variables. The results of the correlations among all students are presented in Table 4-5.

Six Pearson product-moment correlations were conducted for the ARCS motivation constructs among students who had teachers with one to five years of language arts teaching experience. All constructs were found to be significant with one another. According to Cohen's standard (1988), where less than .30 represents a small association, .30 - .49 represents a medium association, and .50 or larger correlations represent a large size effect or correlation between the two variables. The correlation coefficients of > .50 represents a large association between the two variables. The results of the correlations among all students are presented in Table 4-6.

Six Pearson product-moment correlations were conducted for the ARCS motivation constructs among students with teachers who had six or more years of language arts teaching experience. All constructs were found to be significant with one another. According to Cohen's standard (1988), where less than .30 represents a small association, .30 - .49 represents a medium association, and .50 or larger correlations represent a large size effect or correlation between the two variables. The correlation

coefficients of > .50 represents a large association between the two variables. The results of the correlations among all students are presented in Table 4-7.

The subscales (ARCS) are positively and highly correlated indicating a strong relationship among the subscales. As one subscale score increases, another increases; as one subscale score decreases, another decreases.

Assumptions

The assumptions of a *t* test were examined prior to analysis. For parametric techniques, it is assumed that the populations from which the samples are taken are normally distributed. A preliminary Kolmogorov-Smirnov (KS) test was conducted to assess normality, the results of which were statistically significant, indicating a violation of this assumption. The assumption of equality of variance was assessed with the Levene's test for equality of variances, which was statistically significant on Relevance, Confidence, and Satisfaction. For these variables equal variances could not be assumed. While Stevens (2009) reported the *F* statistic is robust against violations of normality and in situations where the variance is unequal provided group sizes are similar, in this case, the ratio of largest to smallest group was >1.5 (63/15 = 4.20). The assumptions for a *t*-test were not met; the non-parametric equivalent of a *t*-test, Mann-Whitney *U* tests, was used to analyze the data.

Analysis of Research Questions

Research questions were divided into two categories: quantitative and qualitative. Research questions 1-4 were examined using quantitative methods. Research question 5 was examined using qualitative methods.

Research Question 1

RQ1: For completers only, is there a statistically significant difference in Attention scores by instructor experience? To test hypothesis 1, and to determine if differences exist in Attention scores by instructor experience, one Mann-Whitney analysis was conducted. The Mann-Whitney *U* test revealed no significant differences in Attention scores between students of novice teachers (*Md* = 3.75, *n* = 15) and students of experienced teachers (*Md*= 3.88, *n* = 63), *U* = 385.00, *z* = -1.11, *p* = .266. The null hypothesis cannot be rejected; there is not a statistical difference in Attention scores by instructor experience (1-5 years vs. 6 or more years). The results of the Mann Whitney *U* tests are summarized in Table 4-8.

Research Question 2

RQ2: For completers only, is there a statistically significant difference in Relevance scores by instructor experience? To test hypothesis 2, and to determine if differences exist in Relevance scores by instructor experience, one Mann-Whitney analysis was conducted. The Mann-Whitney *U* test revealed no significant differences in Relevance scores between students of novice teachers (*Md* = 4.22, *n* = 15) and students of experienced teachers (*Md*= 4.44, *n* = 63), *U* = 387.00, *z* = -1.09,*p* = .277. The null hypothesis cannot be rejected; there is not a statistical difference in Relevance scores by instructor experience (1-5 years vs. 6 or more years). The results of the Mann Whitney *U* tests are summarized in Table 4-9.

Research Question 3

RQ3: For completers only, is there a statistically significant difference in Confidence scores by instructor experience? To test hypothesis 3, and to determine if differences exist in Confidence scores by instructor experience, one Mann-Whitney

analysis was conducted. The Mann-Whitney *U* test revealed significant differences in Confidence scores between students with novice teachers (*Md* = 4.25, *n* = 15) and students of experienced teachers (*Md*= 4.62, *n* = 63), *U* = 226.50, *z* = -3.14, *p* = .002. Student who had teachers with six or more years of experience teaching language arts had statistically higher Confidence scores than students with teachers who had one to five years of experience. The null hypothesis is rejected; there is a statistical difference in Confidence scores by instructor experience (1-5 years vs. 6 or more years). Students whose teachers had more experience in teaching language arts had higher Confidence scores than students whose teachers had less experience. The results of the Mann Whitney *U* tests are summarized in Table 4-10.

Research Question 4

RQ4: For completers only, is there a statistically significant difference in Satisfaction scores by instructor experience? To test hypothesis 4, and to determine if differences exist in Satisfaction scores by instructor experience, one Mann-Whitney analysis was conducted. The Mann-Whitney U test revealed significant differences in Satisfaction scores between students with novice teachers (Md = 4.00, n= 15) and students with experienced teachers (Md= 4.56, n = 63), U = 318.50, z = -2.00, p = .050. A p-value of .05 is considered statistically significant. The null hypothesis is rejected; there is a statistical difference in Satisfaction scores by instructor experience (1-5 years vs. 6 or more years). Students who had more experienced instructors had higher Satisfaction scores than students whose teachers had less experience. The results of the Mann Whitney U tests are summarized in Table 4-11.

Motivating Course Design Factors Identified on Student Survey

In addition to the survey questions relating to the ARCS motivation constructs, students were asked to rate 12 select components of the online course. These components included the following:

1. Assigned readings
2. Choice of reading assignments
3. Ability to search internet for ideas
4. Cartoons, pictures, or quotes
5. Flexibility of assignments
6. Email communication from instructor
7. Feedback on assignments
8. Target due dates set
9. Email communication from students
10. Link to internet site from instructor
11. Projects
12. Assignments and activities

The scale ranged from one (not motivating) to five (extremely motivating). The maximum score reported for all course components at both levels of teaching experience was five. For both students of instructors with one to five years of experience and six or more years of experience, feedback on assignments from the instructor received the highest mean score.

Students with novice instructors had a mean score of 4.60 (*SD* = 0.63) while students with experienced instructors had a mean score of 4.61 (*SD* = 0.64). Students with instructors that had one to five years of language arts experience reported the

lowest mean scores on assigned readings (*M* = 3.33, *SD* = 0.90) and email communications from other students (*M* = 3.33, *SD* = 1.34).

Students of experienced instructors reported the lowest mean scores on email communications from other students (*M* = 2.72, *SD* = 1.39). Means and standard deviations for the 12 course components are reported in Table 4-12.

Research Question 5

RQ5: For completers only, what are the perceived instructional practices that contribute to motivation? To examine research question 5, responses to open-ended questions related to each of the ARCS categories were coded into tables following the guidelines recommended in Saldana's *Coding Manual for Qualitative Researchers*. Written responses to open-ended survey questions on the student survey provided a rich amount of detail regarding student and instructor perspectives of Keller's ARCS constructs within the English I course. Sixty-six participants responded to these open-ended questions. The open-ended questions are documented in Appendix C.

In order to facilitate references to participant responses, two tables were created. Table 4-13 provides a data code sheet of novice teachers and their corresponding students. Table 4-14 provides a similar data code sheet of experienced teachers and their corresponding students. These tables assign an instructor number to each instructor. The students of each instructor were assigned participant numbers to enable the researcher to discuss comments from the participants of each instructor.

The responses to open-ended questions were coded to identify and develop themes from them. Boyatzis defined a theme as "a pattern in the information that at minimum describes and organizes the possible observations and at maximum interprets aspects of the phenomenon" (p. 161). Themes were developed based on the frequency

of references to specific features and characteristics. For example, each time a student referred to instructor feedback, that reference was counted. Based on frequency, tables identified these features and characteristics from most frequently cited references to least.

The themes or patterns which emerged during analysis of the qualitative data were organized into two main categories or themes: motivational course design features and motivational instructional practices.

Motivational Course Design Features

Students responding to the open-ended questions were first asked if a specific ARCS construct motivated them in the English I course. For each construct, if a student indicated that the ARCS construct was present in the course, the student was asked to describe specific factors, either from the course design or the instructor, they felt motivated them. This open-ended question allowed the researcher to probe more deeply into details about specific features, practices, and strategies which motivated students to perform.

Instructors were also asked to describe, from their own perspective, what they believed students found motivating about the course design or facilitation for each of the ARCS constructs. Based on these written comments from instructors, the researcher created a table ranking the most frequently referenced English I course lessons and activities in each ARCS category based on perspective. This allowed the researcher to compare student and instructor perspectives of motivating factors. Table 4-15 documents these results.

Both instructors and students identified project-based activities most frequently in motivating students by capturing their Attention. While some projects were referenced

more frequently by instructors than students, the type of assignment which captured student attention was consistent. These assignments gave students opportunities to choose a variety of ways to present their understanding of content creatively through technology, audio, visual, or written methods. For example, for the Attention construct both instructors and students most frequently mentioned projects that gave students the opportunity to organize a fictional class trip, illustrate their own book cover, create an avatar that fits the protagonist's perspective and create a future city. Creating a personal resume, selecting a favorite verse from a favorite song, and writing an "I" essay were cited most frequently as course factors that motivated students through the Relevance motivational construct. The student and instructor identification of these activities, along with the descriptions of activities, allowed the researcher to compare instructional practices and strategies to Keller's ARCS constructs. The activities most frequently referenced by students and instructors as motivating integrate Keller's recommended strategies for Relevance: present worth and future usefulness.

Themes also emerged from a qualitative analysis of written comments. These themes related to specific characteristics of a motivating course. Students referenced features such as interesting reading activities and creative projects as motivating them. Students also referenced a variety of organizational and program features such as progress reports, pace charts, and flexibility. The following comments from students provide specific details on how and why these features motivated them.

Variety of Interesting Reading Activities

> The Story I had to read for Module 3. I chose to read Animal Farm, which was one of the choices, and it was an awesome, motivating book. The entire thing made me really think about the meaning of society. (Instructor 16, Participant 66)

believe this course captured my attention by offering interesting material and detailed lessons. (Instructor 8, Participant 61)

The English 1 course isn't a boring course it is actually an exciting course. What makes it exciting is the questions they ask, and the articles they have you read. It strengthens your reading skills and thinking skills. (Instructor 12, Participant 30)

The course is very interesting and kept my attention because of all of the stories we read and the thought- provoking questions asked. (Instructor 2, Participant 3)

Creative Projects

I would have to say that the projects which you can draw or create with were the most motivating. For example when I read "The house on mango street" i wasn't looking forward to reading it and I would rather get a shot than read an assigned book, but when Ms.XX gave the assessment for us to make our own cover and back for the book I was extremely motivated! I was so happy that we could create something that would in turn show who we are. I ripped the book off my desk and highlighted what I wanted to use for the covers. (Instructor 12, Participant 31)

by doing a lot of fun activities like "planning a class trip" and stuff like that, that we normally wouldn’t do in school. (Instructor 16, Participant 66)

the projects that were assigned to do were creative and fun and not boring like regular book reports. I was motivated when we were able to do power points and posters and those were a lot of fun for me. (Instructor 13, Participant 64)

What motivated me most about the English I course is the fun projects and creative assignments throughout the course. I am very creative and love doing them, they help me express myself because sometimes it’s too hard with words. These assignments allow me to show what’s important to me and how I feel. (Instructor 8, Participant 58)

Organizational Features

Progress Reports and Pace Charts

one of things I found help full is that she sends a weekly progress report out every week. This helps me know what I have to get done. None of my other courses did that. (Instructor 18, Participant 49)

one of things i found help full is that she sends a weekly progress report out every week. This helps me know what i have to get done. None of my other courses did that. (Instructor 12, Participant 32)

Flexibility

> I am most motivated by the flexibility in application and completion of assignments. (Instructor 19, Participant 53)

> When I moved into virtual English I, I was astounded by all of the different options I had to learn from. Also, I like that fact that you work on your own pace, The flexibility of the English I course motivates me to do more and strive harder. Also, I enjoy the fact that I can email my instructor as well as text and or call him/her. It motivates me to do harder and makes me feel more confident, because if i ever have a question, my instructor is just a phone call away! (Instructor 10, Participant 24)

> I think what motivated me most is the flexibility I have of completing the assignments so I can take the time to really understand what I'm learning. (Instructor 3, Participant 7)

Students of both novice and experienced teachers frequently commented on the motivational aspect of the courses' policy of opportunities to resubmit assignments. This feature overlaps with instructor and course design features and correlates with the Satisfaction construct on Keller's ARCS model:

> The thing that really motivated me during my English 1 course was when my teacher would leave feedback on how well I did on an assignment also on what I did wrong on an assignment so that I was able to correct it and get a better grade on the assignment….. for example she would first tell me what I did right and how I did good on it then she would tell me what I did wrong so that i was able to fix it. It was encouraging because even though I received a 75% on a assignment she still told me what I did right. (Instructor 13, Participant 64)

> the feedback did motivate me. If I got it wrong it motivated me to correct it and turn it in again to get a better grade. If I did it right her feedback motivated me to keep going further in my course and try harder on my work. I believe this is all because she is very encouraging and willing to help.(Instructor 11, Participant 62)

> she is always complimenting me on my work, and if I need to fix something she'll tell me how I can fix it in order to get a better grade. She also keeps in contact with me, so that if i'm not submitting work she can call me to make sure everything is okay. (Instructor 17, Participant 45)

> I felt most motivated by the opportunities that this course gave me to get better grades. (Instructor 19, Participant 54)

By allowing students to resubmit assignments, and giving them a choice to do so, students perceived increased Satisfaction. As defined by Keller, Satisfaction involves designing instruction so that learners gain positive feelings about their learning experiences. Motivational strategies used to increase learner satisfaction are verbal reinforcement, rewards, personal attention, feedback, and deliberate avoidance of negative influences (Keller & Suzuki, 2004).

An overall review of student comments on each of the ARCS construct based on teaching experience demonstrates that students felt both teachers with 1-5 years of experience and those teachers with 6 or more years experience were effective in motivating them. Students with teachers who had 1-5 years teaching experience, for example, support students' perceptions of the effectiveness of Attention in the design and facilitation of the English I course:

> Hypothetical questions that were asked during the course helped capture my attention. They made me think more widely and openly about the topics I was learning at that point. Also they put more ideas in my head about that topic to give me a bigger and greater imagination. (Instructor 11, Participant 62)

> My English 1 course always captured and maintained my attention because the projects that were assigned to do were creative and fun and not boring like regular book reports. We were able to do power points and posters and those were a lot of fun for me. (Instructor 13, Participant 64)

> My teacher captured my attention by having us do a lot of fun activities like "planning a class trip" and stuff like that, that we normally wouldn't do in school. (Instructor 16, Participant 65)

Students with teachers who had 6 or more years teaching experience also support students' perceptions of the effectiveness of Attention in the design and facilitation of the English I course. For example, the strategy of inquiry referenced by the student of a novice teacher (Instructor 11) was also noted by a student of an experienced teacher

(Instructor 2). The project-based course design captured the attention of students of novice teachers (Instructors 13, 16) as well as those of experienced teachers (Instructors 10, 17)

> The course is very interesting and kept my attention because of all of the stories we read and the thought- provoking questions asked. (Instructor 2, Participant 3)
>
> The instructor assigns fun projects for us to do on our novel that we currently read. We got to design our own book cover which I think is a great idea to let students express their own artistic style on the way they imagine the book to look like inside their head when their reading. (Instructor 10, Participant 24).
>
> The course captured my attention with the creative and hands-on projects I had to do. The course maintained my attention by me receiving feedback from every assignment I did. I was excited to read how I did. (Instructor 17, Participant 44).

Students with teachers who had 1-5 years teaching experience support the effectiveness of Relevance in the design and facilitation of the English I course:

> my instructor did make it relevant to me because we were given a lot of real life scenarios. For example we had to do a book report and we had to think if you were in this book what would your life be like and that interested me because I would think about if I was in that time frame what would I be like. (Instructor 13, Participant 64)
>
> My instructor constantly reminds me to make the assignments my own, to think of what I feel, therefore I can input my opinion or my voice into them. (Instructor 8, Participant 58)
>
> Create a Resumé" as well as the "letter to the editor" were relevant to me…..I can see that she is trying to prepare us to look for a job and tell our opinions to an editor in a professional way which is important (Instructor 16, Participant 65)

Students with teachers who had 6 years or more teaching experience also supported the effectiveness of Relevance in the design and facilitation of the English I course with comments to open-ended questions about Relevance:

> Because I'm home-schooled, there are very few things that I'm involved in. One of these things is a program called Horses 'N' Heroes. Knowing this, my teacher has no problem with letting me tie parts of my work into that. Such as using girls from the farm as examples in my assignments. She also has openly embraced my love for writing poetry. By this, I mean that not only has she shown open interest in the poetry I write for school, she has also shown her interest in the poetry I write for fun. (Instructor 1, Participant 2)

> There are certain projects that are really fun to do. For instance we were asked to develop a Class Trip to anywhere in the USA. I've never been to Hawaii, so that's where I planned this fictitious trip. I had a blast doing this project. Now I can't wait to visit with my family! (Instructor 18, Participant 49)

Motivational Instructor Practices

While course design features were most frequently referenced in Attention and Relevance constructs, instructor practices were most often cited by students in motivating them by building Confidence and Satisfaction. Confidence building activities mentioned most often by instructors were opportunities to build research or essays piece by piece toward a final draft. Students, on the other hand, most frequently referenced the instructor's personal feedback, phone calls, and emails as most motivating in building their Confidence. Both groups ranked instructor feedback, as well as the opportunity to resubmit assignments for a higher grade, as building student Satisfaction. According to both students and instructors, the most motivating part of the English I course overall was personal feedback.

An analysis of instructor themes made it possible to identify a list of characteristics of a motivating teacher, from the perspective of a virtual English I student. According to student comments, a motivating teacher possesses the following qualities: high expectations for success, frequent communication and availability, expertise in subject area, encouragement and positive attitude, investment in student success, gives

positive and constructive feedback, offers choices, and makes things relevant. These characteristics support McGuiness' (2005) recommendations for motivating students by establishing a supportive learning environment, engaging students in the learning process, providing students with timely feedback on their performance, and recognizing students for their effort and performance. Comments representing these emerging themes were selected to reflect a variety of different students and instructors, both experienced and novice.

Although there may be more comments in each category than documented here, the examples here have been limited to 3-4 in each category. These selections are most reflective of the overall student sample, which remained consistently positive for all characteristics:

High Expectations for Success

> My course instructor would pose a question or problem and ask me to answer it or solve it, which made me actually have to think about it instead of her just giving me the answer. (Instructor 5, Participant 13)

> I think that she really tried to make it capture my attention. and that is important to me, as I am not generally motivated life. She just really motivated me to try and succeed in this class, and i think caring alone captures my attention. (Instructor 4, 9)

> The thing that motivated me the most is my teacher she is always telling me I could do better than I am doing. (Instructor 10, Participant 26)

> She is an amazing and very helpful teacher and always has some sort of positive feedback and praise for me. At the same time, she doesn't hesitate to tell me that I have to go back and fix or change something. (Instructor 1, Participant 2)

Frequent Communication and Consistently Available

> I enjoy the fact that I can email my instructor as well as text and or call him/her. It motivates me to do harder and makes me feel more confident, because if i ever have a question, my instructor is just a phone call away! If

she were to not help me, I probably would have been lost and given up (Instructor 13, Participant 64)

She made me feel comfortable and able to be on my own pace. My monthly calls or emails really helped me. If i ever had questions she was an email or phone call away. If she were to not help me, i probably would have been lost and gave up. Ms. XX definitely helped. (Instructor 12, Participant 28)

she shows that she cares about her students by keeping in touch with her students and the parents of the household. She regularly stays in contact and replies the e-mails and phone calls. She wants all of her students to succeed in life/ or in the course she is presenting to her students. (Instructor 10, Participant 23)

Encouraging

my instructor was very encouraging to me and helped me go beyond what I thought I could do on my own. (Instructor 8, Participant 61)

I believe my instructor has a very encouraging and helpful teaching style. She is always reaching out with either encouraging comments and feedback or helpful hints and tips. My instructor is always willing to talk as long as she has to to help you understand the work you are doing. While explaining work she always throws in an encouraging comment like "I know you can do this", or "Keep trying you are doing great." (Instructor 11, Participant 62)

had a lot of courage and faith in me, and every time I completed something, I got great feedback. She expressed to me how much faith she had in me, and that made me want to work hard on all my assignments. She was extremely motivating. (Instructor 17, Participant 43)

Invested in Students' Success

It is so wonderful to get on the phone and talk to someone genuinely interested in my success and in the things I do--as a student, it makes me feel appreciated. It also places a certain importance on my work, like it really matters to the person who's reading it. (Instructor 17, Participant 43)

She captured and maintained my attention by showing that she cared about me. For instance, when she sends me feedback for my assignments, she is alway so positive about my work. That alone motivates me. (Instructor 12, Participant 27)

She is always there if I need her and is very willing to help me if I don't understand something. She is always nice to me, and I can tell that she wants me to succeed in this course. That is why she was what motivated me the most in this course. (Instructor 6, Participant 15)

Demonstrates Expertise in Subject

> What motivated me the most in my English 1 course was when we read Romeo and Juliet, I could never comprehend the work of Shakespeare until this course helped me. Now I've become more motivated to read more work from the author. (Instructor 14, Participant 33)

> I love poems, and I love to read, so in the past module I was working on, it really captured my attention. Then when I talked to her for the DBA, we went over a poem, and being able to talk about it with someone who shared the same passion is really cool. (Instructor 17, Participant 45)

Gives Constructive, Positive Feedback

> I would have to say that my teacher does a fine job of giving me feedback. Fine enough that I will run around the house to tell all my family members my grade and read them the emails and feedback that my teacher sends--she is so awesome! I am most definitely satisfied in this course! (Instructor 17, Participant 43)

> The thing that motivates me most in this course is the feedback I get and knowing that my teacher is pleased with the work I have submitted. It makes me want to submit more and more work that I have completed to the best of my ability. When she tells me good job and awards me a good grade on an assignment it makes me super excited and willing to work harder and longer to get everything done. My teacher's feedback is very important to me, and to get positive feedback makes me feel great! (Instructor 11, Participant 62)

> I am motivated most by my teacher who is very confident that I will do well in the course. She doesn't let me turn in work that is any less than the best I can do.I really admire her for that. (Instructor 5, Participant 14)

Positive Attitude

> She took her time and explained many things about the course with me. She always had a great attitude, and that made everything easier and interesting….she showed me that there was nothing I could not do. (Instructor 14, Participant 33)

> the instructor kept my attention by having the phone calls once a month and always staying positive making me want to go on and pass the class.(Instructor 7, Participant 16)

> Every time I'm on the phone or afterwards with her i feel more confident in my ability to strive for gold. Because she's such a happy and just nice person, makes it easier to work for her. Pure psychology. (Instructor 19, Participant 56)

She makes this exciting by putting a lot of energy and emphasis into what she is teaching and saying and that always helps me. My attention is never spotty when she is talking or explaining something. During the module 3 book project she made things very clear after I would pose a question or problem so I went from literally not understanding anything about my question, to understanding all of it within a matter of minutes. (Instructor 17, Participant 48)

My teacher is always telling me how well I am doing and that seems to make me work harder in all of my lessons. She's a very optimistic person and that's a good way to change a student's attitude for the better. (Instructor 10, Participant 25)

Offers Choices and Supports Autonomy

She gave me multiple options for solving problems when I encountered them during a project I did on my city. (Instructor 7, Participant 17)

The most motivating thing about the course is that we get to choose different stories or books that we can read through the course and doing projects I Love doing projects :)(Instructor 19, Participant 55)

Makes Things Relevant

She always made a point to tie me into what I was learning about. Like when I read one of my novels she asked what me and the main character had in common and things that we didn't. (Instructor 8, Participant 59)

My teacher wants to know what I am up to, for instance when I began my soccer season. My teacher coached soccer at one time, so she used some soccer analogies to teach me things I didn't understand. In my opinion she really tied my interests in to this course.(Instructor 12, Participant 27)

she always asked us our opinions or to compare it with somebody. This is important because it lets you know that the teacher wants you feed back and actually cares what you think. (Instructor 2, Participant 3)

my instructor often ties things she knows I'm interested in such as church and music into what we are discussing. (Instructor 5, Participant 14)

Students of novice instructors demonstrate that they felt their instructors built their

Confidence effectively:

My instructor has always encouraged me to keep going further into my work and to do my best. She is always applauding the work I submit and helping me out with anything I have a problem with. (Student, Instructor 11)

> My instructor is so supportive it makes me feel confident. If I don't understand something I can just email or call her and she'll explain it to me and then I can go back and complete the assignment and receive a great grade. (Student, Instructor 8)
>
> if I had a question or if I needed help my teacher was a call or email away so that would build up my Confidence because I knew that if I needed help I could turn to her. (Student, Instructor 13).

Responses of students whose instructor had 20 years experience also show the positive nature of her skill in building Confidence:

> My teacher is extremely positive in her feedback and positive affirmation relating both to my work, and to my extracurricular involvements. It is so wonderful to get on the phone and talk to someone genuinely interested in my success and in the things I do--as a student, it makes me feel appreciated. It also places a certain importance on my work, like it really matters to the person who's reading it. At least for me, this makes me want to keep it top-notch so that their Confidence will not be misplaced. (Instructor 17, Participant 43)
>
> my English 1 instructor built my Confidence by saying motivating and inspiring things to me each time we spoke. She would give me pep talks and talk to me in a nice way, almost like a friend. She had faith in me, and that made me want to excel in her class and make her proud. (Instructor 17, Participant 44)
>
> I have never had a teacher who makes me feel good about my work and what I have accomplished until now. If I have a problem with something she doesn’t push it aside or downplay it, she puts all her effort into making me understand the problem that I am faced with. She is very encouraging and always says very nice things to me if I have done something good in terms of work or assignments. On one occasion I had to draw a cover for a book and she liked it so much that she asked if she could use it on her announcement page later on; that really motivated me to keep turning in work to that standard. (Instructor 17, Participant 48)

Finally, students of both novice and experienced instructors documented positive comments of the effectiveness of their instructors in building Satisfaction. Samples of student responses who had a novice instructor reflect how students perceive instructor feedback:

> My instructor always puts very positive and supportive feedback. She always really acknowledges my hard work with great comments, which satisfies me. (Instructor 8, Participant 58)
>
> My instructor is constantly building my satisfaction with all the positive feedback she gives me. It makes me feel good to know she enjoys the work I have submitted and wants to read more. After working hard on a long or even short assignment it is nice to know that she liked it and is giving me a good grade on it (Instructor 11, Participant 62)
>
> My English 1 instructor built my satisfaction because any time I did anything wrong on a assignment she would always leave me good, helpful feedback and give me a chance to improve my work. When I got a good grade or even when I received bad grades on assignments she still told me things I did good as well as how I could make it better. (Instructor 13, Participant 64)

Student responses of those with experienced instructors also indicate the effectiveness of their instructors in building Satisfaction:

> I am very satisfied after I read Mrs. A's comments on "Gradebook," or when I speak to her on the phone for monthly calls or oral components. She always gives me praise when I have done well, and always steers me in the right direction when my work needs improvement. (Instructor 18, Participant 49)
>
> My teacher does a fine job of giving me feedback. Fine enough that I will run around the house to tell all my family members my grade and read them the emails and feedback that my teacher sends--she is so awesome! (Instructor 17, Participant 43)
>
> I always am satisfied when my teacher sends me an email with positive feedback about my assignments. It makes me work harder on my following assignments.(Instructor 10, Participant 25).

The importance of feedback to students is not only supported by these written comments but by the quantitative data. For both students of instructors with one to five years of experience and six or more years of experience, feedback on assignments from instructor received the highest mean score. (Table 4-12). Overall these student comments to open-ended questions support the effectiveness of both experienced and novice teacher in each of the ARCS motivational constructs.

Surprising Findings

Open-ended questions allowed students in the course to respond to questions about what motivated them least in the course as well as giving students the opportunity to give suggestions for making the course more motivating. There were several surprising outcomes of these responses. The first was student perceptions of the motivational effect of student-student interaction. A second was a perceived desire for more structure in the context of an online environment while, at the same time, seeking more choice.

One expectation for improving motivation in the course was that students would recommend increasing interaction with other students . This expectation is based on research suggesting that learning community has positive effects on learning in online environments. Liu (2007), for example, conducted a study of participants perceptions of building learning communities in online courses in an online MBA program. His findings suggested that students felt a sense of belonging to a learning community when they took online courses in this program. The study found positive relationships between this sense of belonging and perceived learning engagement, course satisfaction, and learning outcomes. However, in this study, students ranked email communication with other students as the least motivating factor in the course (Table 4-12). Students with both novice and experienced teachers ranked student-student interaction as the lowest motivational factor (novice, M = 3.33; experienced, M = 2.72). Participant 45 (Instructor 17) stated that “getting e-mails from other students motivated me the least” while another student indicated frustration at working with other students on projects:

> Sometimes when I am doing collaboration projects with other students I am unmotivated because the other students don't always take their work

> seriously and procrastinate which frustrates me because I like to stay ahead of pace. (Instructor 5, Participant 14)

Participant 14's comments hold open the possibility that interaction with other students could be motivating if structured more cooperatively, with individual accountability or other elements of cooperative learning. Several students voiced the desire to interact with other students under specific circumstances, such as "shared motivation" and mutual desire to share opinions:

> I wish other students shared my motivation so that projects would be more enjoyable when working with a partner. (Instructor 4, Participant11)

> What would motivate me better is to talk to other students that take this course, and get their feedback/ opinions. (Instructor 10, Participant 23)

While students frequently mentioned they were motivated by the flexibility of FLVS, more than a dozen students also expressed the desire for more structured deadlines. This student's comments identified this as the least motivating factor of the course:

> The lack of due dates motivated me the least. I kept pushing assignments back because in my head I didn't have a due date. I think that there should be some more solid due dates for people like me who aren't very good at keeping up with things that don't have a definite due date. There could be a penalty for not completing work by a certain time period, or a reward for completing it. (Instructor 7, Participant 16)

From responses to open-ended questions, students seem to desire a firm deadline but flexibility during a specific number of days or weeks to meet that deadline.

Table 4-1. Characteristics of teachers

	1 – 5 years		6 or more years	
Characteristic	*n*	%	*n*	%
Highest degree				
Undergraduate	2	50.0	11	84.6
Graduate	2	50.0	2	15.4
Years of experience in face to face classroom				
1-2	0	0.0	0	0.0
3-5	3	75.0	2	13.3
6-8	0	0.0	6	40.0
9-12	0	0.0	4	26.7
16-20	1	25.0	0	0.0
More than 20	0	0.0	3	20.0
Years of experience in virtual classroom				
1-2	3	75.0	9	60.0
3-5	0	0.0	5	33.3
6-8	1	25.0	0	0.0
9-12	0	0.0	1	6.7
Years of experience teaching language arts				
1-2	1	25.0	0	0.0
3-5	3	75.0	0	0.0
6-8	0	0.0	6	40.0
9-12	0	0.0	5	33.3
13-15	0	0.0	0	0.0
16-20	0	0.0	1	6.7
More than 20	0	0.0	3	20.0
Years of experience teaching English I				
1-2	2	50.0	3	20.0
3-5	2	50.0	6	40.0
6-8	0	0.0	1	6.7
9-12	0	0.0	3	20.0
13-15	0	0.0	0	0.0
16-20	0	0.0	0	0.0
More than 20	0	0.0	2	13.3
Years as facilitator at FLVS				
1-2	1	25.0	5	35.7
3-5	2	50.0	4	28.6
6-8	0	0.0	3	21.4
9-12	0	0.0	1	7.1
13-15	1	25.0	1	7.1
Type of position				
Full time	4	100.0	12	100.0
Part time	0	0.0	0	0.0

Table 4-2. Characteristics of students

	1 – 5 years		6 or more years	
Characteristic	*n*	%	*n*	%
Gender				
Male	9	60.0	43	68.3
Female	6	40.0	20	31.7
Age				
12	1	6.7	0	0.0
13	1	6.7	4	6.3
14	5	33.3	26	41.3
15	5	33.3	18	28.6
16	3	20.0	9	14.3
17	0	0.0	4	6.3
18	0	0.0	2	3.2
Current grade in the course				
A	5	35.7	33	54.1
B	6	42.9	21	34.4
C	2	14.3	5	8.2
D	0	0.0	2	3.3
F	1	7.3	0	0.0
Taking English I to make up credit				
Yes	2	13.3	9	14.3
No	13	86.7	54	85.7
Taken online course prior				
Yes	5	33.3	38	60.3
No	10	66.7	25	39.7

Table 4-3. Descriptive statistics on attention, relevance, confidence, and satisfaction by years of language arts teaching experience

	n	Attention			Relevance			Confidence			Satisfaction		
Years Experience		M	SD	Md	M	SD	Md	M	SD	Md	M	SD	Md
1-5	15	3.48	0.87	3.75	4.02	0.82	4.22	4.03	0.82	4.25	3.78	1.08	4.00
6 or more	63	3.79	0.62	3.88	4.31	0.56	4.44	4.59	0.38	4.62	4.37	0.55	4.56

Table 4-4. Reliability and internal consistency for attention, relevance, confidence, and satisfaction

Subscale	Items	α
Attention	8	0.77
Relevance	9	0.84
Confidence	8	0.77
Satisfaction	9	0.85

Table 4-5. Pearson correlation for all students between attention, relevance, confidence, and satisfaction

Variable	Attention	Relevance	Confidence
Relevance	.81**		
Confidence	.61**	.73**	
Satisfaction	.73**	.76**	.77**

Note. *$p < .05$, **$p < .01$.

Table 4-6. Pearson correlation for all students with novice instructors between attention, relevance, confidence, and satisfaction

Variable	Attention	Relevance	Confidence
Relevance	.87**		
Confidence	.67**	.86**	
Satisfaction	.83**	.87**	.86**

Note. *$p < .05$, **$p < .01$.

Table 4-7. Pearson correlation for all students with experienced instructors between attention, relevance, confidence, and satisfaction

Variable	Attention	Relevance	Confidence
Relevance	.77**		
Confidence	.57**	.67**	
Satisfaction	.68**	.70**	.61**

Note. *$p < .05$, **$p < .01$.

Table 4-8. Mann-Whitney U tests for attention scores by years of experience teaching language arts (1-5 years vs. 6 or more years)

			Attention	
U Test	U	p	Mean Rank	Sum of Ranks
1-5 years	385.00	.266	33.67	505.00
6 or more years			40.89	2576.00

Table 4-9. Mann-Whitney U tests for relevance scores by years of experience teaching language arts (1-5 years vs. 6 or more years)

			Relevance	
U Test	U	p	Mean Rank	Sum of Ranks
1-5 years	387.00	.277	33.80	507.00
6 or more years			40.86	2574.00

Table 4-10. Mann-Whitney U tests for confidence scores by years of experience teaching language arts (1-5 years vs. 6 or more years)

			Confidence	
U Test	U	p	Mean Rank	Sum of Ranks
1-5 years	226.50	.002	23.10	346.50
6 or more years			43.40	2734.50

Table 4-11. Mann-Whitney U tests for satisfaction scores by years of experience teaching language arts (1-5 years vs. 6 or more years)

			Satisfaction	
U Test	U	p	Mean Rank	Sum of Ranks
1-5 years	318.50	.050	29.23	438.5
6 or more years			41.94	2642.5

Table 4-12. Means and standard deviations for motivation scores on 12 course components by years of language arts teaching experience

Course component	1-5 years of experience		6 or more years of experience	
	M	SD	M	SD
Assigned readings	3.33	0.90	3.35	1.13
Choice of reading assignments	3.67	0.90	4.13	1.02
Ability to search internet for ideas	4.40	0.83	4.32	0.90
Cartoons, pictures, or quotes	4.20	1.08	4.22	0.95
Flexibility of assignments	4.47	0.64	4.44	0.88
Email communication from instructor	4.33	0.82	4.40	0.80
Feedback on assignments	4.60	0.63	4.61	0.64
Target due dates set	3.93	1.33	3.84	1.19
Email communication from students	3.33	1.34	2.72	1.39
Link to internet site from instructor	4.07	1.16	4.02	1.00
Projects	3.93	1.22	3.64	1.24
Assignments and activities	4.20	0.86	4.05	1.02

Table 4-13. Novice teacher data code sheet

Instructor Number	Participant Number(s)
8	58-61
11	62
13	63, 64
16	65, 66

Table 4-14. Experienced teacher data code sheet

Instructor Number	Participant Number(s)
1	1, 2
2	3, 4
3	5-8
4	9, 10
5	11-14
6	15
7	16-20
9	21, 22
10	23-26
12	27-32
14	33
15	34-41
17	42-48
18	49-51
19	52-57

Table 4-15. Ranking of most frequently referenced English I course factors in each ARCS category

ARCS	Instructor Survey	Student Survey
Attention	1. *Project:* Create an Avatar that fits Protagonist's Perspective 2. *Projec*t: Create a Future City 3. *Project*: Illustrate your own book cover of novel 4. *Project*: Organize Fictional Class Trip	1. *Project:* Organize Fictional Class Trip 2. *Project*: Illustrate your own book cover of novel 3. *Project:* Create an Avatar that fits Protagonist's Perspective 4. *Project:* Create a Future City
Relevance	1. "I" essay about student interests, goals and experiences 2. Create a resume 3. Write down a favorite verse from a favorite song and explain why the verse is important to you 4. Write a letter to the editor about issue: teenage curfew 5. Project: Research your city	1. Create a resume 2. Write down a favorite verse from a favorite song and explain why the verse is important to you 3. "I" essay about student interests, goals and experiences 4. Write a letter to the editor about issue: teenage curfew
Confidence	1. Module 2: Steps in Writing Process. Students complete pieces of a formal writing assignment, building it piece by piece. They have freedom to choose a topic that relates to them 2. Module 3: Reflection guide for novel. Students explain their opinions about specific issues in the novel. 3. Frequent communication with students 4. Positive feedback	1. Frequent communication with instructor (email, phone calls) 2. Positive feedback on assignments and activities 3. Ability to resubmit assignments for higher grade
Satisfaction	1. Positive feedback on all assignments - even ones that need revisions, plus allowing for revisions so students can truly strive or achieve their level of mastery. Offering a chance for ongoing progress and for them to excel 2. Final Draft Essay This assignment requires the student to write an essay and label all the parts, thesis, main points, transitions, clincher or summary of each paragraph. Students often tell me they really feel like they understand the process of writing more because they can easily see that they can identify each part of their essay.	Positive feedback on assignments and activities

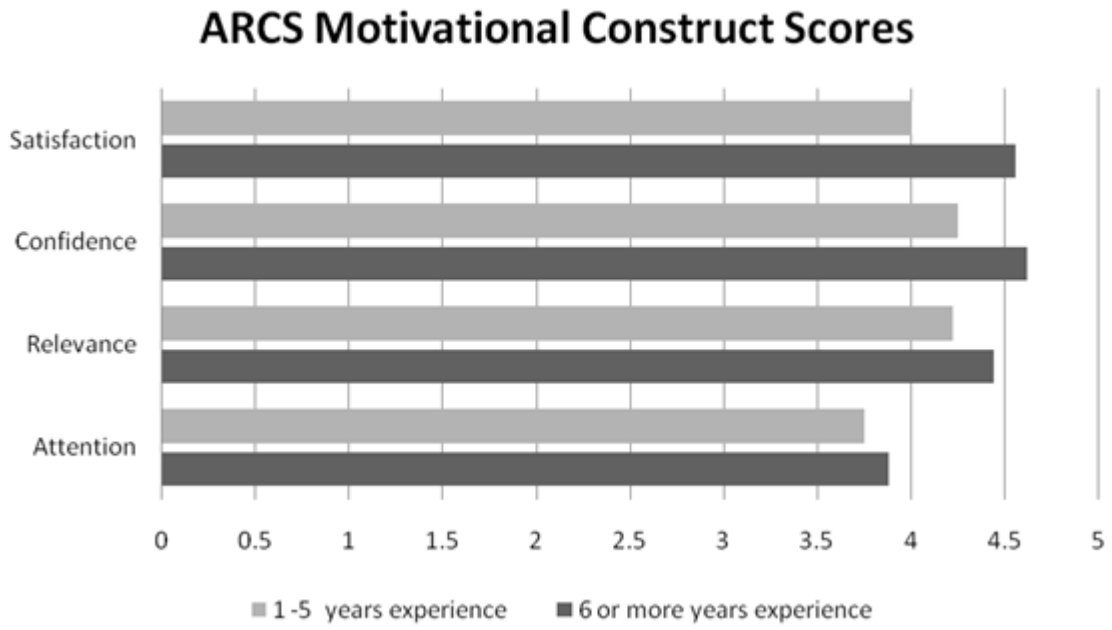

Figure 4-1. Bar graph of median Course Interest Survey scores for students with novice and experienced instructors

CHAPTER 5
DISCUSSION AND IMPLICATIONS

In an effort to understand the impact of teacher's experience upon motivation and achievement, this study employed an online survey adapted from research by John Keller called the Course Interest Survey, sampling all Florida Virtual School students who were active in the English I course, completing 65% - 99% of the English I at the time of this study. Although there are published studies about factors motivating virtual college students, as well as studies which discuss the role of teaching experience on achievement in elementary and secondary face-to-face environments, there are no published studies that empirically investigate the impact of teaching experience on motivation for ninth grade virtual students. There are also no empirical studies on the role of teaching experience on each of the four ARCS motivational constructs.

There are two main purposes of this study. The first is to identify whether or not there are significant differences in John Keller's ARCS (Attention, Relevance, Confidence, and Satisfaction) motivational constructs in virtual ninth grade English I students based on instructor experience. The second is to investigate the perceived instructional practices that contribute to motivation.

A better understanding of motivational factors related to online student achievement is of critical importance to K-12 online education (NCREL, 2002). Virtual K-12 education is rapidly expanding in the U.S. (Watson, et al.; Picciano & Seaman). Growth in K-12 distance education is likely to increase in the coming years as a result of Investing in Innovation (i3) funding, Race to the Top projects, and the new Elementary and Secondary Education Acts. These federal funding projects emphasize raising standards for all students and improving learning and achievement. Along with rapid

expansion, distance educators and administrators face a variety of challenges, including attrition. Drop out rates for distance classes have been consistently higher than those of traditional classes (Diaz, 2000; Phipps & Merisotis, 1999; Ridley & Sammour, 1996) supporting the need to understand the specific factors which motivate virtual students to persist in completing online courses and achieving course objectives.

Creating a quality learning experience is a central concern for administrators and educators building virtual environments. One important element of quality is the characteristics of instructors who facilitate virtual curriculum. Because of the increased attrition rates in virtual environments, it is crucial that these instructors possess the ability to motivate students to complete virtual curriculum. There are a variety of studies that address the issue of teaching experience and quality in traditional schools.

Many studies report that teacher experience has a positive effect on student test scores (Clotfelter, Ladd, & Vigdor, 2006; Goldhaber & Anthony, 2007; Goldhaber & Brewer, 1997; Jepsen, 2005; Krueger, 1999; Noell, 2005, 2001; Rivkin et al., 2005; Rockoff, 2004; Sanders, Ashton & Wright, 2005). However, the issue of the number of years this effect impacts achievement, effectiveness and/or quality is in debate. While the largest number of studies indicate that the positive impact of experience on achievement is mainly limited to the first five years (Hanushek et al., 2005; Boyd et al., 2007; Murnane, 1975), other studies conclude that teachers with more than five years experience have a significant positive impact on achievement and quality (Murnane and Phillips,1981; Ferguson, 1991; Rivers & Sanders, 2002). These studies indicate that the role of teaching experience on achievement is complex. Because of this debate, and

because there are no specific studies on the role of experience on motivation in virtual environments, further research is needed.

In order to explore the relationship between teaching experience and motivation, data were collected in two –tiered fashion: Tier one targeted English I students at Florida Virtual School who completed 65%-99% of at least one segment of the English I course demonstrating mastery of course objectives by earning a passing grade at this pivotal point in the course. It is assumed that if a student reaches 65% -99% of the course they will more than likely complete the course and have demonstrated that they are motivated to achieve. Tier two targeted instructors who were actively teaching the English I course during the survey period (2010-2011). Among other data collected, each English I instructor reported the number of years he or she had taught language arts. Instructors with 1-5 years teaching experience were grouped as "novices" while those with 6 years or more teaching experience were grouped as "experienced." Students' scores on the Course Interest Survey were organized based on the experience of assigned instructor.

This chapter will discuss the outcomes and review the implications associated with five research questions providing foundation to this study. Research questions were analyzed using two methods: quantitative and qualitative. Research questions 1-4 were examined using quantitative methods. Research question 5 was examined using qualitative methods.

Analysis of Research Questions

Research Question 1

For completers only, is there a statistically significant difference in Attention scores by instructor experience? Keller's first ARCS motivational construct, Attention,

involves engaging the learner and keeping the learner's attention. This factor coincides with the first step in Gagne's model of instruction (Gagne). Keller's strategies for Attention include sensory stimuli inquiry arousal in the form of thought provoking questions, and variability in the form of variance in exercises and use of media. (Keller & Suzuki, 2004). Naime-Diefenbach (1991) states that students who completed lessons with the specific Attention strategies recommended by Keller acquired higher success points than the control group. The results of this study indicate there were no significant differences in Attention scores between novice and experienced English I instructors. This may be explained by a variety of factors, including consistent course design, uniform instructor training, and Florida Virtual School policies and procedures.

The data on Attention scores in this study indicates there is no significant difference in Attention scores between novice and experienced teachers. This supports Darling-Hammond's (2000) observation that attributing teacher experience to effectiveness and quality is complex. The findings also support the research of Siedentop and Eldar (1989), who found that since novice and experienced teachers accomplished the same goals in their study, both groups are effective. Since Attention scores for both novice and experienced groups in this study are both in the effective range on the Likert scale (novice = 3.75 Md, experienced = 3.88 Md), students in both groups perceived their instructors are effective in gaining and sustaining their Attention in the course.

While the data of this study supports the effectiveness of both groups, the study seems to support Siedentop and Eldar's (1989) conclusion that the effectiveness of experienced teachers is different than that of the intermediate and first year teachers.

Although the Attention scores in this study, for example, are not statistically different, the median Attention scores of experienced teachers are slightly higher than those of the less experienced teachers. In their study Siedentop and Eldar (1989) concluded more experienced teachers paced events more smoothly, followed up more deliberately on important specifications, and utilized content more imaginatively. They call the automaticity and ease of expert teachers “experienced effectiveness.” This type of experienced effectiveness could be one explanation for why both groups are effective in this construct, while Attention scores are slightly higher, although not significantly different between novice and experienced teachers

Another reason there may have been no significant differences in Attention scores between inexperienced and experienced teachers in this study may be the consistent, uniform course design of the English I course. Since all students taking English I take the same core online course with the same module and lesson structure, the same activities and the same grading rubrics, the results may study support the motivational impact of course design.

McConnell, Hoover, and Sassed (2001) found that designing motivational instruction using the ARCS model can increase learning outcomes. The procedures followed by Florida Virtual School support the implementation of design and review processes following the ARCS motivational design model. For example, all courses at Florida Virtual School, including English I, go through extensive quality review during the design and development process using a specific FLVS course development checklist. This checklist requires the integration of Gagne’s nine instructional events in course design. Gagne’s nine events mirror those of Keller’s ARCS construct, as

indicated in Table 4-10. Student responses to open-ended questions about the Attention construct support the facilitation of activities, projects, and instructional strategies that effectively gained student attention.

Means, Toyama, Murphy, Bakia, and Jones (2009) opine that incorporating mechanisms that promote student reflection motivates students toward increased learning outcomes. A variety of projects cited by students support the observations of Means, et al. by challenging students to use a variety of high-order critical thinking skills such as self-assessment and reflection. Fischer and Sharff (1998) concluded that interactivity and supported self-directed learning are essential in technology-mediated environments. The “create a profile of the protagonist” activity, for example, exemplifies self-directed learning as students use information from their reading and technology to create an avatar. The opportunity to make the avatar speak by recording their own voices or using text to speech translation is a creative opportunity which captures student attention.

Another highly ranked activity for capturing students’ attention referenced in the student survey was an activity called “Future City.” In this activity students are asked to create a future city with economic, environment, government, etc things in mind. Then they create a visual and present the visual and their ideas for a future city to an adult. Other activities students mentioned included the opportunity to create a book cover for a novel they read and organizing a class field trip. These activities integrate Keller’s recommended strategies of providing choice, variability, and inquiry. Giving learners a choice so that they can select those that appeal most to their curiosity motivated many students in this study. Participant 55, for example, indicated that the most motivating

thing about the course was the opportunity to choose different stories, books, and options for projects in the course. Participant 17, referencing the “Future City” project, was motivated by the instructor giving her “multiple options for solving problems when I encountered them during a project I did on my city.”

The data collected in this study through written comments supports the positive effects of Keller’s strategies for capturing and maintaining students’ attention. The consistent references to students of course design elements, such as creative projects and thought-provoking questions based on reading selections provides further support for the lack of significant differences between novice and experienced instructors on this specific construct since these course design elements were consistent in the English I course, regardless of the experience of the instructor.

In her study, Naime-Diefenbach (1991) observed that students who completed lessons with Attention strategies acquired higher success points than the control group. This study provides evidence that Attention strategies motivate students when effectively integrated in the design and facilitation of virtual courses, such as English I.

Another reason there may have been no significant difference between student perceptions of the Attention construct may be that novice and experienced instructors both are immersed in the culture of Florida Virtual School. FLVS consistently reinforces the philosophy of constructivist learning. Student-centered learning, customer service, and a commitment to the success of every student is at the center of their goals and instructors who are hired are screened carefully to ensure their teaching philosophy matches that of Florida Virtual School. This may result in both novice and experienced

instructors both capturing their students' attention effectively based on a uniform belief in the importance of this motivational construct.

It may the case that gaining attention in the online environment is sufficiently distinct from the face-to-face environment that all FLVS teachers are effectively novices or are on a relatively level field in terms of experience. This is supported by the characteristics identified on Table 4-11, where 67% of English I instructors reported teaching at FLVS for1-5 years. This number of years experience puts the majority of teachers in the novice category of experience teaching in the FLVS learning environment.

A well designed course, integrating ARCS motivational constructs such as Attention, can support less experienced instructors as they facilitate virtual courses. Since Attention is identified on the FLVS course development checklist and integrated in the English I course, this may support the effectiveness perceived by students of both novice and experienced instructors for this construct.

Research Question 2

For completers only, is there a statistically significant difference in Relevance scores by instructor experience? Keller defines Relevance, in the ARCS motivational model, as a "person's perception(s) of attraction towards one's desired outcomes, ideas, or other people based upon their own goals, motives and values (Keller, 2009, p. 98). Six major strategies described by Keller (2009) include:

1. *Experience* – Tell the learners how the new learning will use their existing skills. We best learn by building upon our preset knowledge or skills.
2. *Present Worth* – What will the subject matter do for me today?
3. *Future Usefulness* – What will the subject matter do for me tomorrow?

4. *Needs Matching* – Take advantage of the dynamics of achievement, risk taking, power, and affiliation.

5. *Modeling* – Model what you want your students to do. Other strategies include guest speakers, videos, and having the learners who finish their work first to serve as tutors.

6. *Choice* – Allow the learners to use different methods to pursue their work or allowing s choice in how they organize it.

Research supports the positive effects of these strategies. Relevance strategies, for example, have been effective in increasing the students' motivational perceptions (Nwagbara, 1993).

The data on Relevance scores in this study indicates there is no significant difference in Relevance scores between novice and experienced teachers. The findings support the research of Siedentop and Eldar (1989), who found that novice and experienced teachers accomplished the same goals in their study, so both groups are effective. Since Relevance scores for novice and experienced groups in this study are both in the effective range on a Likert scale (novice = 4.22 Md, experienced = 4.44 Md), students in both groups perceive their instructors in the English I course are effective in making the course relevant and thus may perceive no significant difference based on experience.

Siedentop and Eldar's (1989) conclusion that the effectiveness of experienced teachers is different than that of the intermediate and first year teachers is also supported by the data from this study. Although the Relevance scores in this study, for example, are not statistically different, the Relevance scores of experienced teachers are slightly higher than those of the less experienced teachers (novice = 4.22 Md, experienced = 4.44 Md),

As indicated in a discussion of Attention scores, there may have been no significant differences in Relevance scores between inexperienced and experienced teachers in this study because of the consistent, uniform course design of the English I course. The data collected through the student survey on both the Course Interest Survey and open-ended responses supports the effectiveness of the course design. The consistency of Relevance in the English I course design may explain student perceptions that the course and instructors who are both experienced and inexperienced are effective in making the English I course relevant (novice = 4.22 Md, experienced = 4.44 Md). There may be no significant differences in Relevance scores on the Course Interest Survey due to the uniform design of lessons, activities, and real-world problems in the English I course.

Both students of novice and experienced teachers, for example, ranked specific activities in the course, such as developing a personal resume and selecting a verse from a favorite song and explaining it, as relevant. Both activities use Keller's recommended strategies for increasing motivation, such as present worth and future usefulness. Strategies of choice are mentioned often in students' responses to written questions about motivating features of the course. Students reflected on how being able to select novels, reading selections, or options for creative projects motivated them to succeed in the course. Like Attention, Relevance is referenced specifically on the FLVS Course Development Checklist, and course designers are required to integrate relevant and real-world applications in the design of the English I course. A well designed course, integrating ARCS motivational constructs such as Relevance, can support less experienced instructors as they facilitate virtual courses. Since Relevance is identified

on the FLVS course development checklist and integrated in the English I course, this may support the effectiveness perceived by students of both novice and experienced instructors for this construct.

Another reason why there may have been no significant differences in Relevance scores between novice and experienced teachers is the rigorous screening and hiring process of FLVS instructors consistent instructor training each FLVS instructor completes prior to facilitating courses, as well as immersion in the constructivist culture of Florida Virtual School. FLVS emphasizes student-centered, discovery learning consistently in course design, policies and procedures, and instructor training. According to Jennifer Locke (personal communication, May 23, 2011), department manager of employment services at FLVS, on average, within one week of opening an English posting to general a candidate pool for general consideration, FLVS easily receives 500-700 applicants. The teacher selection process involves a three part process (online profiler, phone screening and panel interview), working in conjunction to gauge the candidate's student-centeredness and alignment with the organization's vision, mission and core competencies for success. Review of recent performance evaluations, reference and employment verifications are used to determine the candidate's teaching performance. The final selection is determined by the Panel in the final interview, with is a combination of current teachers and our Instructional Leaders.

The instructor training is five days with ongoing mentoring and training support through the first year. Part of the training is face to face and part of it is online/virtual. Some parts are asynchronous and some are synchronous. According to Mary Mitchell,

(personal communication, May 23, 2011), Professional Learning Team-Department manager at FLVS, training focuses on:

- relationships with students and parents
- effective communication
- modes of communication
- how 2 way communication looks
- types of calls to make
- what the calls look and feel like
- meaningful purposeful goal setting conversations
- Positive feedback
- Responsiveness to engage students in the learning process
- Synchronous tools for webinars
- Web 2.0 tool

The rigorous screening process of FLVS candidates, as well as the large pool of potential candidates for positions, may lead to the pre-selection of instructors by FLVS who motivate students effectively using ARCS strategies. The consistent instructor training may also lead to the implementation of consistent attitudes and instructional strategies of Relevance, regardless of the level of teaching experience. A review of written comments from students who had novice and experienced teachers shows that students from both groups had positive comments about the Relevance construct, indicating their belief that instructors made the course relevant.

Other variance in teacher effects on student motivation may also explain why there were no significant differences in Relevance scores based on instructor experience. Aaronson, Barrow, and Sander (2007) found that 90 % of the variance in teacher effects on student learning was not explained by teacher characteristics such as highest level of education, experience, credentials, and selectivity of the college that the teacher attended. It is possible that experience has no difference because other teacher characteristics are a more accurate indicator of motivation.

Research Question 3

For completers only, is there a statistically significant difference in Confidence scores by instructor experience? The Confidence construct of the ARCS model focuses on establishing positive expectations for achieving success among learners. For the instructor, the key question for building Confidence is "how can I help students succeed and believe in their ability to control their successes?" The importance of students' beliefs in their ability is echoed by Carol Dwyer's work. In her 2002 article "Messages that Motivate: How Praise Molds Students' Beliefs, Motivation, and Achievement," Carol Dweck, like Keller, argues that students' beliefs about themselves and their learning profoundly affect their behavior.

Keller (1983) describes Confidence as expectancy. There are many psychological constructs and attitudinal concepts that help provide explanations for people's expectancy-beliefs regarding the degree to which they can predict the outcomes of their behavior (Keller, 2010). A central issue seems to be perceptions of control. Control is included in defining confidence which Keller describes as "helping the learners believe/feel that they will succeed and control their success" (Keller, 1987a, p. 2). Confidence is the interplay between learners' desire for success, and their fear of failure. These opposing forces vie for control of the learning experience. Keller and Suzuki (1988) list the three most important dimensions to Confidence: perceived competence, perceived control, and expectancy for success. This concept of control may be particularly relevant to distance learning environments. Roblyer (1999), for example, found that students who chose distance education classes over face-to-face classes often did so out of a greater desire or need for control over their own learning outcomes.

The Confidence level of learners is often correlated with motivation and the amount of effort put forth in reaching a performance objective. For this reason, it's important that learning design provides students with a method for estimating their probability of success. This can be achieved, according to Keller, in the form of a syllabus and grading policy, rubrics, or a time estimate to complete tasks. Additionally, Confidence is built when positive reinforcement for personal achievements is given through timely, relevant feedback.

Keller (2009) offers learning designers the following Confidence building strategies:

- *Performance Requirements* - Provide learning standards and evaluative criteria to establish positive expectations and trust with learner.
- *Success Opportunities* – Present multiple, varied challenges for learners to experience success.
- *Personal Control*- Use techniques that allow learners to attribute success to personal ability or effort.

In this study, the Mann-Whitney *U* test revealed significant differences in Confidence scores between teachers with one and five years of experience teaching language arts (Md = 4.25, n = 15) and those with six or more years of experience (Md= 4.62, n = 63), U = 226.50, z = -3.14, p = .002. Student who had teachers with six or more years of experience teaching language arts had statistically higher Confidence scores than students with teacher that had one to five years of experience.

The results of this study support the complexity of the role of teaching experience on achievement, and, in this case motivation. This study builds on existing research reporting the positive effect of teaching experience on student test scores (Clotfelter, Ladd, & Vigdor, 2006; Goldhaber & Anthony, 2007; Goldhaber & Brewer, 1997; Jepsen,

2005; Krueger, 1999; Noell, 2005, 2001; Rivkin et al., 2005; Rockoff, 2004; Sanders, Ashton & Wright, 2005) by providing evidence of the positive effects of experience on one essential component of motivation, Confidence. It challenges the results of Harris & Sass (2007) who found no effect (or even a negative effect) of teaching experience beyond the first several years on high school student achievement in mathematics and reading. Although Harris and Sass (2007) found no effect on high school teaching experience in achievement in mathematics and reading, this study found that experience did have a significant impact in motivating high school students by building Confidence in their ability to succeed. The data from this study also supports the effectiveness of improving overall learner motivation and performance through external conditions such as systematically applied Confidence strategies.

Although one strategy recommended by Keller to build Confidence can be addressed through course design (developing performance standards), many aspects of Confidence are interpersonal, which may account for the significant difference between novice and experienced teachers in Confidence scores. The links to self-efficacy and attribution theories, as well as the psychological and attitudinal aspects of the personal control aspect of the construct, may make the Confidence motivational construct challenging for novice instructors to implement. Simply telling a teacher to assume a group of people can improve and teach them accordingly is not sufficient (Schrank, 1970) and the research (Bandura, 1977; Jones et al., 1971) does not offer specific guidance for developing these expectancies in students. The skill of building a learner's sense of personal control may require the type of "superior metacognitive skill set" that Glaser and Chi (1988) link with experience. Novice teachers who are building

their own skill level and Confidence in the profession, may not yet have developed "superior metacognitive skill" levels in building Confidence in their students.

Another reason why students with teachers who had more experience may have had significantly higher Confidence scores than those with novice teachers may be students' knowledge of the teaching background and experience of their instructors. As part of the introduction to the course, FLVS teachers are encouraged to share their own professional background, including years of teaching experience, with students as part of the personalization of the course. Wlodkowski (1993) indicates that knowing the subject matter well enhances an instructor's confidence, flexibility and creativity. This knowledge alone may create a sense of confidence in those learners with more experienced teachers.

Although students of both experienced and novice teacher rated their instructors effective in building Confidence (novice *Md* = 4.25; experienced Md. 4.62), students with more experienced teachers perceived their instructors were significantly better at building Confidence. Although students of novice instructors rated the Confidence construct the highest of all ARCS constructs for novice teachers, indicating they felt their instructor did effectively build their confidence, there are skill sets that experienced teachers may possess or strategies they may employ which build Confidence even more effectively than novices. The significant difference between Confidence scores of novice and experienced teachers may be attributed to what Siedentop and Eldar (1989) describe as "experienced effectiveness" in experienced teachers. Experienced teachers, or those with 6 years or more teaching experience, may possess an ease and automaticity in building Confidence that novice teachers do not yet possess. Although

experience does not always lead to expertise, it may be that the experienced teachers in this study are, indeed, experts in their craft. This expertise may account for their stronger skills in building confidence in students.

Additional support for the differences in Confidence scores between experienced and novice instructors comes from John Keller's observations about the role of expertise. According to Keller (2010) the level of subject matter expertise can be important when trying to make a unit of instruction more motivating. Keller (2010) opines that teachers with a high level of knowledge and experience "are usually better able to think of a variety of possible motivational tactics" (p.201).

Another reason for the significant differences in Confidence scores may be that addressing the personal control aspect of the construct rests within the skill level of the instructor rather than course design or quality assurance factors. While the FLVS Course Development Checklist addresses Keller's recommended strategy of providing learning standards and evaluative criteria, there are no specific guidelines documented for allowing learners to attribute success to personal ability or effort. FLVS instructor training teaches newly hired instructors specific techniques for developing effective communication, developing positive feedback, and engaging students in learning. Once these skills are introduced, time and practice are needed to strengthen and perfect these skills as novice instructors interact with virtual students. The differences in the amount of time, practice, and skill level may account for the differences in Confidence scores between novice and experienced instructors.

Research Question 4

For completers only, is there a statistically significant difference in Satisfaction scores by instructor experience? Like Confidence, the Satisfaction construct of Keller's

ARCS motivational model has an interpersonal component. According to Keller (2010), the key question for instructors seeking to build Satisfaction in learners is this: “What can I do to help my students feel good about their experience and desire to continue learning?” Keller (2010) suggests a variety of strategies to support satisfying feelings of accomplishments in students. These include using exercises that are authentic with an optimal challenge level, providing detailed and constructive feedback on results, and grading in a manner that is fair and consistent within a stated set of criteria.

Satisfaction and Confidence are linked with each other and are interdependent (Keller, 2010). Knowing this, it might be expected that, if there were significant differences in Confidence scores by instructor experience, there would also be significant differences in Satisfaction scores by instructor experience. The Mann-Whitney U test confirmed that there were, indeed, significant differences in Satisfaction scores between teachers with one to five years of experience teaching language arts ($Md = 4.00$, $n = 15$) and those with six or more years of experience ($Md = 4.56$, $n = 63$), $U = 318.50$, $z = -2.00$, $p = .050$. Students with experienced teachers had significantly higher Satisfaction scores than students with novice teachers. This supports the close relationship Keller suggested exists between Confidence and Satisfaction. The Pearson correlations among ARCS motivational constructs conducted in Chapter 4, documented in Table 4-7, 4-8, and 4-9 also support the strong relationships among the subscales. As indicated in these tables, the subscales (ARCS) are positively and highly correlated indicating a strong relationship among the subscales. As one subscale score increases, another increases; as one subscale score decreases, another decreases.

Like the Confidence construct, building Satisfaction is a skill which is instructor-driven, rather than driven by course design. This may result in students perceiving no significant difference in the course design driven constructs of Attention and Relevance, while perceiving differences between novice and experienced instructors in Confidence and Satisfaction, which are more related to the expertise and level of skill of instructors. Building satisfaction in students is also interpersonal, requiring skill and practice. Experience gives experienced teacher the opportunity to have more frequently practiced and refined the skill of building satisfaction in students.

Additional support for the differences in Satisfaction scores between experienced and novice instructors comes from John Keller's observations about the role of expertise. According to Keller (2010) the level of subject matter expertise can be important when trying to make a unit of instruction more motivating. Keller (2010) opines that teachers with a high level of knowledge and experience "are usually better able to think of a variety of possible motivational tactics" (p.201). Experienced teachers in this study may possess a level of expertise in building Satisfaction that novice teachers have not yet developed.

Research Question 5

RQ5: For completers only, what are the perceived instructional practices that contribute to motivation? The qualitative data analyzed in this study provided rich detail about students' perceptions of specific instructional practices and course design features which motivated them to persist in the English I course. The identification of these practices has implications for both instructor training and course development of online courses.

Outcomes

Outcomes Related to Instructor Training

As discussed in the Chapter 2, research supports the importance of instructor presence for student success in a distance learning environment (Gunawardena & Mclsaac, 2004). Characteristics of instructor presence which motivate students include expertise in the subject area being taught, supporting learner autonomy, showing empathy, demonstrating enthusiasm and providing instructional clarity (Wlodkowski, 1993). Influencing student mindset (Dwyer, 2002) is also a key motivator. Each of these characteristics was supported and extended by the written feedback of secondary students in this study. Empathy and encouragement, for example, was a key to motivating Participant 44:

> My English 1 instructor built my confidence by saying motivating and inspiring things to me each time we spoke. She would give me pep talks and talk to me in a nice way, almost like a friend. She had faith in me, and that made me want to excel in her class and make her proud. (Instructor 17, Participant 44)

Other students indicate enthusiasm can be sensed in different ways by students in virtual environments:

> What motivated me is my teacher, when I speak to her she is very happy and nice. Her voice motivates me to do well in her class.
>
> My instructor was incredibly enthusiastic, and always was happy to talk to me when a problem came up

According to these comments, the tone and quality of an instructor's voice as well as his or her positive attitude transmit enthusiasm through phone conversations with the virtual student.

In addition to the characteristics identified by researchers in chapter 2, other characteristics emerged. This insight allows educators and policymakers of distance

learning organizations a student perspective of what is needed to motivate students in a virtual secondary environment.

One of the strongest motivating characteristics specific to the virtual environment is frequent communication and consistent availability to students. Participant 64 discussed the importance of this element of instruction:

> I enjoy the fact that I can email my instructor as well as text and or call her. It motivates me to do harder and makes me feel more confident, because if I ever have a question, my instructor is just a phone call away! If she were to not help me, I probably would have been lost and given up (Instructor 13, Participant 64)

Another participant explains the importance of this type of frequent communication, especially on the phone, with her instructor. Her words describe this communication as central to her feeling that her instructor is invested in her success and cares about her:

> It is so wonderful to get on the phone and talk to someone genuinely interested in my success and in the things I do--as a student, it makes me feel appreciated. It also places a certain importance on my work, like it really matters to the person who's reading it. (Instructor 17, Participant 43)

One participant indicated in his comment that this type of consistent communication and caring is what kept him from dropping the course:

> She made me feel comfortable and able to be on my own pace. My monthly calls or emails really helped me. If I ever had questions she was an email or phone call away. If she were to not help me, I probably would have been lost and gave up. Ms. XX definitely helped. (Instructor 12, Participant 28)

Another student felt so strongly, he wanted to encourage other teachers to do what his teacher did to motivate him:

> I would make sure the instructors all did what my instructor did which is tell the student motivating things in messages or when they are on the phone with them, because it really makes a student more interested in the course. It makes us want to achieve things since we know someone believes in us.

These comments support the findings of numerous researchers that strong student-instructor interaction, including timely and frequent communication between instructors and students is essential to motivating students in the distance learning environment (Angelino et al., 2007; Hara & Kling, 2001; Sperry, 2009; Swan, 2001; Talvitie-Siple, 2007). It also reinforces Cavanaugh's (2008) recommendation that frequent communication, feedback, and scheduled tutoring or skill checks is motivational.

The quantitative ratings of 12 course factors in the course on Table 4-11 provide continued support for the motivating value of frequent, encouraging communication between instructors and students. Both students of novice and experienced instructors rated email communication with their instructors as very motivating (novice = Md 4.33, experienced = Md 4.40). The scale for these factors ranged from one (not motivating) to five (extremely motivating). These findings support research by Bhavsar, Burke, Carter, and Jensen (2006) that motivation to do well in class was strongly influenced by the level of their instructors' engagement and interest.

Students had detailed comments about the importance of instructor feedback. Participant 43 recognizes the complexity of giving feedback effectively by noting how his instructor performed this skill well:

> Perhaps motivation can be based slightly on a person's temperament. In my one of my old classes (not English; it was also high-school level) the feedback I received was hardly encouraging; brief, usually only a couple of sentences and a line at the end saying, "Please resubmit." May I briefly say that this is NOT motivation? However, the feedback in English is most definitely encouraging and motivating, with well-thought responses to the student's work and highlights especially on the good aspect. I'm not saying it's wrong to point out the bad in a person's assignment, but it's a delicate process to do so without crushing one's pride. My teacher does this

> impeccably and keeps the student soaring higher, asking them to bring out the best in them for the best in their future. (Instructor 17, Participant 43)

Not only was this student articulate in his reflections about his experienced instructor's skill level, he offers insight into specific ways instructor training can be developed to teach this skill to other instructors, regardless of level of experience. Participant 43 points out the importance of feedback being specific, rather than general, as well as focused initially on the positive aspect of student work. He recognizes the skill involved, noting that it is a "delicate process."

Another student comment, this time for a novice instructor, reflects the importance of the ultimate goal of feedback: it should be written in a way that it energizes the learner to improve. Participant 58 felt his instructor was effective in this way:

> The feedback defiantly motivates me because I feel more confident in my work after every comment. I feel as though I can complete any assignment well. (Instructor 8, Participant 58).

An instructional design or developer of instructor training can identify a list of effective strategies for giving feedback through a review of these student comments. The comments also suggest the efficacy of gathering samples of effective instructor feedback as a model for instructor training on this skill. Experts in the area, such as Johnson and Johnson (2000), offer specific guidelines for giving effective feedback which can be utilized in instructor training. According to these researchers, when feedback is given skillfully, it generates energy, directs the energy toward constructive action, and transforms the energy into action towards improving performance. This specific criteria can be valuable in designing instructor training about this essential skill.

Skills, by their nature, are teachable. Giving feedback, encouraging participation, supporting learner's autonomy, and other skills inherent in the characteristics of a

motivating instructor are teachable. Practice, which includes repetition, strengthens the ability of each instructor to be effective in using these skills with students. One implication of these student comments is the identification of specific skills that should be developed and reinforced through instructor training for instructors who teach this target audience. Training or reinforcing skills identified by virtual students as motivating could contribute to an increase in motivation and performance.

In a brief prepared for the North American Council for Online Learning (NACOL), Davis and Rose (2009) argue it is a myth to believe that any regular classroom teacher is already qualified to teach online. The authors note that research has consistently shown that teachers teach the way they were taught. That is especially significant for teachers who were educated in a traditional face-to-face classroom environment and then plan to move into virtual environments. Synchronous and asynchronous online courses require different pedagogy, communication, and pacing to be successful. Synchronous technologies, including videoconferencing, change the nature of communication between the teacher and students more than if they were physically in the same classroom. Anyone who is working with virtual schooling needs to understand and experience these differences.

Some key suggestions offered in this brief should be followed by distance educators, administrators and program administrators:

1. A teacher adopting specific course content and institutional practices will need time to personalize it to his or her own pedagogic beliefs and knowledge, possibly including minor revision of the content or technology. This is true even if the course is already designed.

2. Professional development should include five key behaviors that have been linked effective online teaching performance:

    - Provide timely and meaningful feedback

- Create learning activities that engage students
- Keep students interested and motivated
- Get students to interact with each other
- Encourage students to be critical and reflective

Knowledge about subject matter and traditional instructional approaches are as necessary for online teachers as they are for those teaching in traditional environments, but online teachers require additional knowledge in order to be able to successfully motivate and engage learners. Best practices in virtual schooling include well-published case studies where student engagement and success is increased. Study of these award-winning courses and coaching of best practices accompanied by mentoring are valuable approaches for all roles in online learning.

The National Education Association's *Guide to Teaching Online Courses* provides a three part recommendation for preservice programs: 1) skills to use the Internet in teaching 2) taking an online course that models good practice, and 3) undertaking preservice online student teaching. It is also suggested that programs prepare all educators for virtual schooling, including principals, superintendents, school counselors, technology coordinators, and library media specialists.

This study supports the need for virtual mentoring and internships for any novice or preservice teacher considering virtual instruction or facilitation. Kathryn Kennedy's dissertation studied a partnership between University of Florida and Florida Virtual School where student teachers were paired with experienced virtual school teachers. The purpose of this study was to describe the essence of these virtual school experiences as expressed by three pre-service teachers. Interns started by observing their supervising teachers placing phone calls with their students, writing emails and launching class web conferences. Later, interns act more as teaching assistants and

participate in classroom discussions, grade assignments and create tutorials. The insights in this study support the value of this type of internship for novices to learn from experienced virtual instructors the specific skills needed for effective facilitation of virtual curriculum.

Outcomes Related to Course Design and Policy

Course design and policy outcomes were identified from an analysis of student comments on the survey. Student perception of their autonomy was supported by course design factors, which were then reinforced by the instructor. Keller's strategies of variability and choice, recommended for the Attention and Relevance constructs, were effective in motivating students in this virtual secondary environment. Students were consistently positive about the opportunity to select creative projects and have choices in their learning. Research points out the motivational impact of course design. McConnell, Hoover, and Sassed (2001) found that designing motivational instruction using the ARCS model, can increase learning outcomes while Means, Toyama, Murphy, Bakia, and Jones (2009) opine that incorporating mechanisms that promote student reflection motivates students toward increased learning outcomes.

Fischer and Sharff (1998) concluded that interactivity and supported self-directed learning are essential in technology-mediated environments. Course design implications can be identified through the written comments on student surveys in this study. Students identified creative projects and options to choose reading selections most frequently as examples of activities that motivated them most. These assignments gave students opportunities to choose a variety of ways to present their understanding of content creatively through technology, audio, visual, or written methods. For example, for the Attention construct both instructors and students most frequently

mentioned creative projects which gave students the opportunity to organize a fictional class trip, illustrate their own book cover, create an avatar that fits the protagonist's perspective and create a future city. Other activities mentioned, such as creating a personal resume or selecting a verse from a favorite song, exemplify how course activities can be designed to motivate students through Relevance. Table 4-11 ranked creative projects as between motivating and very motivating by both students of novice and experienced teachers (Md =3.93, Novice; Md = 3.64, Experienced)

Instructional designers developing courseware for virtual secondary students can use data from this survey, including quantitative data on motivating course factors (Table 4-11), written comments to open-ended questions, and median scores for each of the ARCS motivational constructs to reinforce existing understanding of the importance of designing using Gagne's nine events of instructions and Keller's ARCS motivational design model. Specific examples of motivating activities, through the lens of virtual secondary students, can lead designers to a better understanding of what types of activities and design features are best suited to the secondary virtual school audience. This understanding can and should lead to better design decisions that can then improve or enhance student motivation.

Student comments support current understanding of the importance of specific policy decisions for virtual K-12 schools, such as the flexibility of students being able to work at their own pace. This Participant discusses the importance of flexibility in supporting his autonomy:

> I think what motivated me most is the flexibility I have of completing the assignments so I can take the time to really understand what I'm learning. (Instructor 3, Participant 7)

The importance of feedback is supported by student rankings of flexibility on 12 course factors (Table 4-11). Students of both novice and experienced teachers ranked flexibility as very motivating (Md =4.47, Novice; Md =4.44, Experienced).

Student comments indicated that the ability to receive feedback, implement the feedback, and submit an assignment for a higher grade, along with the encouragement from the instructor was motivating:

> the feedback did motivate me. If I got it wrong it motivated me to correct it and turn it in again to get a better grade. If I did it right her feedback motivated me to keep going further in my course and try harder on my work. I believe this is all because she is very encouraging and willing to help.(Instructor 11, Participant 62)

> I felt most motivated by the opportunities that this course gave me to get better grades. (Instructor 19, Participant 54)

This issue overlaps into the policy of the organization or the course through flexible pace charts and resubmission policies. It is clear from student comments that policies to increase and improve student-instructor interaction, such as frequent and consistent communication motivate students in this environment and should be continued and viewed by other virtual K-12 organizations as a best practice. The ability to receive constructive feedback and resubmit work for grades, have choices in activities and projects, and develop relationships with instructors is also motivating to virtual secondary students.

Implications

In the process of collecting and analyzing the data produced in this study, several broad-based outcomes that could be applied in research, policy and practice became clear. There are also implications for teacher education programs, instructional systems designers and programs, students, and parents.

The overwhelming body of research indicates that while motivation is an important aspect of learning, there is a noted lack of research concerning the motivational needs of learners (Astleitner & Keller, 1995; Gabrielle, 2003; Means, Jonassen & Dwyer, 1997; Shellnut, Knowlton & Savage, 1999; Visser & Keller, 1990) In addition, there is a lack of research on the specific motivational needs of virtual secondary students. There is also a gap in understanding the role of teaching experience as one of several characteristics of a motivating instructor.

Research does show that overall motivation can be enhanced in distance learners through the application of specific ARCS strategies recommended by John Keller (Gabrielle, 2003; ChanLin, 2009; Nwagbara, 1993). These strategies can be integrated in the development and facilitation of online course. One implication of this study is the recommendation that Keller's ARCS strategies be considered in the course design process of virtual secondary courses. Consistent application of these constructs can be increased by ensuring a course development checklist, such as the one Florida Virtual School uses in course design, or a rubric, such as the Quality Matters Rubric is used by virtual organizations during course development.

Experience matters in motivating students in a virtual secondary environment. The data in this study supports the positive effects of teaching experience on specific motivational constructs, especially Confidence and Satisfaction. Students with teachers with more experience had significantly higher Confidence and Satisfaction scores than those with less experience. Data showed students with experienced teachers were motivated to perform in the course in specific ways that were different than the effectiveness of novice teachers. There is a lot to learn from the experienced

effectiveness of teachers with 6 or more years experience. Internships pairing novice or preservice teachers with experienced virtual instructors, as described in Kennedy's 2009 dissertation, are valuable for effectively introducing, practicing, and learning these specific skills.

Administrators and organizers of virtual K-12 schools seeking quality programs should understand the value of experience as they select instructors to implement online programs. These distance educators should also find ways to utilize the skills, expertise, and practical strategies used by experienced teachers to benefit the organization in specific ways.

The experienced effectiveness of experienced teachers in building Confidence and Satisfaction in students can be used by virtual school administrators and staff to develop instructor training for less experienced instructors. Since novice instructors in this study were also perceived as effective in building motivation, skills and strategies from this group should also be utilized in the design of instructor training. Experienced instructors can also be paired with novice teachers in the capacity of mentorship during the initial year of their selection as a virtual instructor. Since both groups are effective in slightly different ways both groups can learn from each other how best to motivate students. The Florida Virtual School model of mentorship is an effective practice for this type of training. According to the North American Council of Online Learning's October 2008 report on online teacher support programs, new online instructors at FLVS have an intricate support system comprised of six formal mentors and a myriad of individuals who collaborate to ensure the mentee's success. The key features of this formalized mentoring program include :

- New hires complete a training module prior to attending the initial face-to-face training
- New hires are supported by a formal mentor for up to one year
- Face-to-face and web-based follow up training sessions
- Mentors are experienced teachers who have a reduced student load
- Content buddies provide “just in time” content-related support
- Extensive network of support through both formal and informal mentoring

At FLVS, according to the NACOL report, new hires have the opportunity to build relationships with their training cohort, an Instructional Leader, a mentor and other staff by going out to dinner together, working in small groups, and practicing their new skills. For example, during one of the evenings, mentors help mentees make welcome calls to their newly assigned students. Mentors also assist mentees with new job skills. They role play different scenarios and practice decision making, as well as go over other important pieces such as academic integrity. The type of support system described in the FLVS mentoring model can be disseminated to other virtual schools seeking to develop quality programs with high levels of motivation.

Teacher education programs can also benefit from the outcome of this study. There is a need to develop a long-term, stable, highly skilled teaching force to meet the needs of 21st century learners in all learning environments. An analysis of the Schools and Staffing Surveys showed that new teachers who lacked student teaching and teacher education coursework left teaching in their 1st year at rates double of those who had had student teaching and coursework (NCTAF, 2003). Darling-Hammond (2010) notes that although about 30% of new public school teachers leave the profession over their first 5 years of teaching, attrition rates are much lower for teachers with greater initial preparation. Preparation should include, according to the outcomes of this study, online internships for those instructors seeking to teach in the virtual K-12

environment. Since experienced teachers in this study demonstrated significant differences in Confidence and Satisfaction compared with novice instructors, it is beneficial for preservice teachers to work under the mentorship of experienced virtual instructor to learn best practices for motivating virtual students. In addition to internships, this study supports a curriculum focused on teaching future teachers specific motivational strategies, such as the skill of giving effective feedback and building confidence and satisfaction in students. Potential instructors should not only learn about these strategies but practice them so that they can receive feedback, refine, and continue practicing these skills prior to becoming instructors in a virtual environment. An understanding and expertise in building these skills is useful in all learning environments, whether face-to-face, virtual, or blended. For those who do want to specialize, this study supports the development of specific cognate areas or specializations in online teaching and learning with specific curriculum designed to give potential instructors motivational strategies and best practices for facilitating in the virtual environment.

College and universities offering programs in instructional systems design can also benefit from the outcomes of this study. Standard curriculum currently centers on instructional processes and/or models such as ADDIE, Dick and Carey, and rapid prototyping, as well as instructional theories and strategies. Educators seeking to train future instructional systems designers to develop effective online training should include motivational design models such as Keller's ARCS motivational model as well as give designers specific strategies for motivating virtual students in course design.

The outcomes of this study, including the characteristics of motivating instructors and motivating course design features, can be used by administrators and organizers of emerging virtual K-12 programs developing policies and procedures for the program. Higher education leaders have expressed concern that published guidelines for distance education institutions appear more like statements of adequate rather than best practice (Twigg, 2001). In other words, published guidelines do not always specify the level at which distance educators, learners, or organizations are expected to perform. Two organizations—the National Education Association (NEA), the nation's largest professional association of higher education faculty, and Blackboard Inc., a widely used platform provider for online education—jointly commissioned The Institute for Higher Education Policy to examine the benchmarks by studying active distance learning programs at several institutions . The study guidelines which recognized the importance of factors such as feedback but were not specific about the nature of the factor. For example, The Institute for Higher Education Policy (2000) benchmarks state that distance organizations should ensure "Feedback to student assignments and questions is constructive and provided in a timely manner." To develop effective guidelines, virtual K-12 organizations should specify what is meant by timely and appropriate feedback based on research, theory, and documented best practices.

The comments support the importance of positive, constructive feedback as a powerful motivator of distance learners in secondary environments. Students consistently referenced the motivating quality of frequent, timely, consistent communication with instructors and often linked this communication with their willingness to persist in the course. The outcomes of this study provide further support

that feedback is vital to e-learning. At minimum, feedback is essential for closing message loops (Northrup & Ramussen, 2000; Yacci, 2000) and informing learners that communications are complete (Berge, 1999; Liaw & Huang, 200). Feedback may also increase response rate or accuracy, reinforce correct responses and change erroneous responses (Kulhavy & Wager, 1993; Hirumi, 2005). According to Sorenson (2004) students often seek more and prompter feedback in an online environment than in a traditional classroom.

Based on outcomes of this study, establishing mechanisms for acknowledgement of assignments or assignment receipt protocols is important in enabling prompt feedback in online environments. Research by Hirumi (2005) found students demand immediate feedback in an online course, often emailing repeated messages asking whether an assignment was received or whether the instructor feedback is completed. The current study shows policies developed by one effective organization, FLVS that work. These include:

1. Guidelines provided to students indicating the instructor will acknowledge receipt of the assignment within 48 hours of submission. This is typically done in an email.

2. Students are provided guidelines on when to expect instructor feedback on an assignment, typically a one week time period. Giving students guidance on the turnaround time to expect for assignments helps reduce their anxiety and decreases the number of individual emails to the instructor.

Giving and receiving feedback is a skill that can be taught, practiced, and reinforced. Distance learning administrators and educators can develop instructor training to teach the elements of giving feedback (being specific, constructive, positive) to increase the ability of virtual instructors to give feedback effectively. Teacher education programs should also include curriculum developed to refine specific

motivational strategies and skills. A study by Reeve (1998) shows that teaching learner autonomy is also teachable. Since supporting student autonomy is an essential skill needed for instructors of virtual K-12 learning, this skill can and should be integrated as part of instructor training and teacher education programs for virtual schools.

Sorenson and Baylen (2009) concluded that using criterion-referenced grading communicates high expectations for students, as does allowing for revision of assignments in order to reach higher levels of performance. Data from this study support this conclusion. Students indicated on written responses to open-ended questions that they were motivated by opportunities to revise their work and resubmit it for a higher grade. This opportunity reinforces learner autonomy by giving learners choices to improve their work. The existing policies of Florida Virtual School for frequent, consistent, timely communication between instructors and students and the opportunity to revise and resubmit work motivates students. Providing specific, rather than general guidelines, are essential to communicating high expectations for distance education instructors, students, and parents. For example, FLVS specifies “timely” communication in policy guidelines, requiring instructors to return emails and phone calls from students and parents within 24 hours. FLVS also specifies that assignments should be acknowledged within 24 hours and graded within 48 hours. The results of this study can and should be used to support specific and practical student-instructor communication policies and submission and resubmission policies for existing and future virtual K-12 schools.

There are implications for students and parents from this study. This study supports the importance of intrinsic motivation as the most powerful type of motivation.

Parents can encourage intrinsic motivation. Students need to know and, thus, need to experience that what they do in terms of studying and assignments will make a difference in their learning and success. Parents can assist students in making connections between what they are learning and real-life. By reading books for pleasure or relating past and current events, parents can model a love of learning and promote inquiry and critical thinking. By openly discussing causal attributions for success or lack of success on specific assignments in classes with their child, parents can also build intrinsic motivation.

One implication of this study is the importance of listening to the authentic, specific feedback of students as they reflect on their learning experience. For students, this supports the value of student feedback and evaluations on instructors and courses. Distance educators should encourage and acknowledge the feedback of students as valuable information for continued improvement. When instructors model how to give effective, constructive feedback, students will become more effective at giving feedback on their own learning and learn to reflect more deeply on their experience. The written comments in this study were impressive in the level of honesty, detail, and thoughtfulness they exhibit. Instructors and distance organizers should encourage honest feedback and set up mechanisms for this feedback to be given in a safe, anonymous way consistently throughout online coursework.

Students are motivated, as this study shows, by teachers who appear to be human and caring. Teachers can help produce these feelings by sharing parts of themselves with students, especially personal interests or mistakes they made. Such personalizing of the student/instructor relationship helps students see teachers as

approachable human beings. Instructors should set up mechanisms for students to share personal interests by integrating discussion boards, online profiles, and reflection assignments. Students are then more likely to take the opportunity to share what motivates and interests them through the opportunities presented. The benefits of the personalization of the student/instructor relationship are seen in this study. By sharing her love of soccer with her instructor, for example, one student in this study gave her instructor a framework for making the course more relevant to her interests. Other students in this study mentioned how their instructor made connections to their interests in football, horses, and poetry.

This study demonstrates the value in using Keller's Course Interest Survey to explore students' perceptions of motivation in virtual secondary courses. The data from the Course Interest Survey, in conjunction with students' written comments, provides further support for the value of Keller's ARCS motivational model in identifying potential motivational needs and prescribing practical strategies to meet these needs to increase motivation. Once unmet motivational needs are identified, instructors and course designers can use this information to revise and improve courses to increase motivation.

Continued research should be done to identify learner characteristics, strengths and weaknesses in course design and unmet motivational needs in other virtual programs, courses and grade levels, in order to develop an understanding of unmet motivational needs. Data from further studies can be used to develop strategies to increase motivation and increase performance for a wide range of virtual K-12 students.

Limitations

There are a variety of limitations to this study. These include the low response rate to the survey, despite efforts to maximize response rate, and the differences between the sample and the target audience.

Low Response Rate

Though there is no literature that has established a benchmark for web-based survey response, response rates associated with students for this survey were low as compared to rates discussed by Cook, Heath and Thompson (2000), but fall in line with those reported in Manfreda, Bosnjak, Berzelak, Haas and Vehovar's 2008 meta-analysis. Cook, Heath and Thompson found the mean response rate for the 68 surveys reported in 49 studies was 39.6% (*SD* = 19.6%) in their meta-analysis of web-based surveys. Manfreda et al. study reviewed 45 different content non-specific cases in which web-based surveys were utilized, their findings detail a range of response rates, from 11% to 82%. There are few studies measuring the response rate of virtual secondary students making it difficult to determine a benchmark for this age group. One dissertation study on K-12 virtual schooling found a response rate of 36% (Black, 2009). An investigation of secondary students' motivation to learn mathematics in a virtual high school algebra 1 course, found a high degree of dropout rate for students in ninth and tenth grade. While Talvitie-Siple (2007) began her study with 41 virtual high school students, only 10 students completed the study. Although this study did not conduct a web-based survey the response rate of this age group shows that participation is a challenge for this target audience.

There were a variety of measures taken to increase response rate to the student survey in this study. Kittleson (1997) was assertive in emphasizing the effectiveness of

follow-up notices to electronic survey efforts, maintaining that “one can expect between a 25 and 30% response rate from an e-mail survey when no follow-up takes place. Follow-up reminders will approximately double the response rate for e-mail surveys” (p. 196). Two reminder notices were sent to students in this study. One reminder was sent seven days after the first notification (Appendix E). The final reminder was sent the day before the survey was closed (Appendix F). Cook, Heath and Thompson (2000) found that using personalized correspondence was associated with higher response rates for electronic surveys. In this study, the initial email with survey link and subsequent reminders to complete the survey were sent to students by their corresponding English I instructor. This process was used to lend credibility to the survey as students received the request to participate in the survey from an instructor they knew and trusted. Incentives, in the form of the potential to earn an ipod Touch, Universal or Gamestop tickets, were offered to students to increase response rate. Although researchers have had mixed results with the use of incentives to increase response rates (Cook, et al.) it was felt that with the age group of the target audience (12-14 years) incentives may increase response rates.

Even though numerous measures were taken to maximize response rate, the 18% response rate was lower than expected. There are several reasons that may have resulted in the relatively low level of participation by students comprising the study population. Due to Florida Virtual School policy, all email communication is done through students’ assigned FLVS mail account, Thus, the email with the link to the survey for this study was sent to students’ FLVS mail accounts by their corresponding instructor. Students who do not check their FLVS account frequently may have missed

the email with the survey link, as well as the subsequent reminders. Due to the bombardment of requests for participation in other FLVS surveys and questionnaires, students may have become fatigued with requests for participation in surveys and decided not to respond to this one. Evidence indicates that many individuals experience 'email overload', characterized by overflowing email in-boxes and the stress of attempting to respond to this deluge of communications (Jackson, Burgess & Edwards, 2006). Additionally, research indicates that email users develop patterns of responsiveness based upon reciprocity and perceived communicative value. Over time, the perception that an email sender's communications have little value or are non-reciprocative will hinder participation (Tyler & Tang, 2003). Non-response to email can also be associated with poor email communications practices. It is possible that students get many requests from FLVS for participation in surveys and assessments leading students to develop a negative opinion of all communications from the organization, or a belief that all surveys are equal and they can ignore some surveys since others will follow.

Differences in Sample and Target Audience

To assess the extent to which those who responded to the survey are representative, an analysis was conducted of specific characteristics of each student in the overall target audience (432) with those in the sample (78). This comparison showed that although there were similarities in the academic grades and online experience of the sample with the target audience, there were differences in the gender, age, and reason for taking the English I course. Because the characteristics of the sample do not match the target audience, the sample is not representative. Therefore, caution should be taken when generalizing the results.

An analysis showed differences between the gender and age between the English I students in the overall target audience and the sample surveyed . While a higher percentage of females in the overall target audience completed the course (53%), for example, the sample of students who completed the survey reflected a higher percentage of males completing the course (66%). While the majority of students were age 15 in the target audience (35%), the majority of students who completed the survey (40%) were 14 years old while 35% were 15 years old. According to the sample, 14% of students were taking English I for credit recovery. This is much less than the percentage of students in the target audience taking the course for credit recovery (23%).

There were some similarities between the sample size and the target audience. Like the target audience, the majority of students in the sample who had completed 65-99% of the course had As and Bs. The sample showed the majority of students (55%) had taken an online course. This is representative of the overall target audience of 70% completing 65-99% of the course who had taken an online course before.

The comparison of the sample to the overall target audience shows that the gender and age of the sample differs from the overall target audience. While the majority of students who responded to the survey were male, the majority of students who actually completed 65-99% of the course with a passing grade were female. A larger number of younger students (age 14) completed the survey compared with the target audience. This may mean that the motivational constructs reflected in the survey results are not representative of the older students in the actual target audience. Because less students in the sample were taking the course for credit recovery, the ARCS constructs which motivate at risk students are not representative of the target

audience as a whole. This is further exemplified by the data indicating that 21% of the target audience earned Cs and 14% earned Ds. Of the sample student respondents to the survey, only 9% reported earning Cs and 3% reported earning Ds. This discrepancy demonstrates that students taking the course for credit recovery, as well as students earning Cs and Ds were underrepresented in the sample, compared with the target audience.

Sample Represents Only Students who Persist

When examining the implications of the results of this study, one must keep in mind that the findings are limited only to those students who persisted to complete 65%-99% of the course. The factors which motivate ninth grade students in the English I course, therefore, do not represent the students who did not reach the 65% completion mark in the course, nor did it represent those who completed 100% of the course.

Study Focuses only on ARCS

Since the study focused only on ARCS motivational constructs, other factors which may have motivated students were not considered. Some students may have been motivated by other factors such as a desire to graduate, pleasing parents or teachers, or personal reasons. Further research is in a variety of factors which motivate students in order to get a complete picture of all motivational constructs.

Incentives offered in Survey

One limitation of this study may be the incentives offered to students to motivate them to take the survey. Although the prizes themselves were deemed by the researcher to be gender neutral, the nature of the prizes (ipod Touch, Universal Studios Tickets, gift card to Gamestop) may have appealed more to boys than girls. This may

explain why the majority of respondents to the survey were males, while the majority of students in the target audience were females. Offering incentives such as those offered in this study may have resulted in a smaller number of more detailed written responses to open-ended questions due to the award criteria, but may also have kept a larger number of students from responding due to the extended length of the survey.

CHAPTER 6
CONCLUSION

This dissertation explored the impact of teaching experience upon virtual secondary school motivation utilizing a sample of students and instructors from Florida Virtual School. Outcomes of this study have specific implications for researchers, policy-makers and practitioners.

Through its Virtual School Administrator (VSA) database, Florida Virtual School was able to provide this researcher with the ability to collect a wide range of demographic information about students, as well as the ability to identify those who completed 65%-99% of the course. This type of database has the ability, among other things, to track students longitudinally and to generate, through its program, email communication to groups and subgroups of a population within a course or program. Programs such as VSA allow the organization to update student information and communicate through FLVS email accounts. Florida Virtual School is a pioneer in the ability to access information for research. Data infrastructures in other virtual schools should be improved to provide seamless access to comprehensive student information as well as the ability to verify student contact information on a regular basis to prevent instances in which a student or parent is unable to be contacted. Educational policymakers, either at the state or federal level, may ultimately be the impetus for the integration of the multiple educational data systems that exist in some states in the U.S.

Results indicate that the effect of teaching experience on motivation is complex, but positive. There were significant differences in the perceptions of students with teachers who have 6 or more years experience and those with 1-5 years experience on two ARCS motivational constructs. While novice and experienced teachers in this

study were both perceived by students to effectively motivate them, there are some differences in specific ways experienced and novice teachers motivate students. In addition to quantitative data, qualitative data, such as written responses to survey questions, is important information for researchers to collect to assess these complex differences.

Experience matters. In a political environment where the value of experience is being challenged as an indicator of quality and merit, it is important to be cautious when compiling research on the issue. Politicians deciding there is no relationship between experience and achievement should recognize there are studies such as this one, which show that experience does motivate secondary virtual students in positive and different ways than less experienced. While both groups can be effective, the value of experience should not be minimized or dismissed as an indicator of quality or effectiveness.

Since experience does make a difference in how ninth grade English I students are motivated, how can the knowledge, skills, and abilities of experienced instructors be used. Some potential uses include:

- mentorships between experienced and novice instructors
- facilitator training which focuses on skills such as giving feedback, developing relationships with students designed or facilitated by experienced instructors
- Opportunities for experienced instructors to share best practices, model, share samples of best practices.

Results associated with this study indicate there are significant differences on two motivational constructs, Confidence and Satisfaction, between experienced and novice instructors. According to the data from this study, students with teachers who have 6 or

more years experience motivate students at higher levels in the area of building Confidence and Satisfaction than novice teachers. Keeping in mind that the low response rate may not be indicative of entire sample of English I students. These results can be valuable in providing instruction to new and novice instructors on specific confidence and satisfaction building skills and strategies used by experienced instructors and to build mentorship programs pairing experienced and novice teachers.

The results of this study also indicate that course design, like experience, also matters in motivating students. A well designed course, based on sound instructional design and motivational design principles can ensure curriculum effectively meets the learning and motivational needs of students. It can also support less experienced teachers while they develop skills which are specific to virtual instruction.

Practitioners seeking to encourage and improve motivation in the design and facilitation of virtual K-12 education should look to experienced instructors to identify best practices and strategies used to build specific ARCS motivational constructs, such as Confidence.

Distance education administrators and organizers should take into account the experienced effectiveness of experienced teachers and be cautious in assessing the relationship between experience and achievement and in their hiring, training, and merit decisions. While some studies can be cited to support the lack of relationship between experience and positive outcomes, such as achievement and motivation, studies such as this one should open a dialogue on the complexity of dismissing the value of experience as an indicator of quality and effectiveness.

Future research should continue to use the Course Interest Survey to measure ARCS motivational constructs with subsequent 9th grade English I courses to gather longitudinal data. This will allow distance educators to make assessments on how future 9th grade English I students perceive motivation in their courses, making it possible to compare multiple calendar years of students of the same course. Further studies should use the Course Interest Survey to survey what motivates 9th grade students in other virtual courses to assess similarities and differences between what motivates 9th grade English I students compared with what motivates 9th graders in other subjects.

Further studies should also be conducted on what motivates students in other grade levels and other secondary virtual courses . For example – Are 10th grade English II students motivated in similar or different ways than 9th grade English I students? Are 12th grade physics students motivated differently or the same as 9th grade English I students. These findings will allow distance educators to identify what works in motivating students to perform and what improvements can be made to address unmet motivational needs.

This study supports the powerful voice of the target audience of this study: the virtual secondary student. The qualitative feedback received from this students in response to specific motivating factors of the virtual course and curriculum supports the value of conducting qualitative surveys to identify both what works and what needs to be done to motivate students to perform in a virtual environment.

This dissertation should serve as the starting point for a more detailed and comprehensive conversation regarding specific ways to motivate secondary virtual

students as well as continuing to research the role of experience on motivation in virtual secondary schools.

APPENDIX A
PARENTAL WAIVER OF CONSENT

Dear Parent/Guardian,

You are receiving this email because your child has completed 65% of the English I course at Florida Virtual School. As a doctoral student at University of Florida, I'd like to ask you for your permission to let your child participate in a short web-based survey that asks your child specific questions about what motivated them to succeed in the online course. For specific information about the study, please read this email carefully.

Notice:
If you do **NOT** want your child to participate in this online survey, please email or fax me "I do not want my child _____(fill in name) to participate in this study. Signed ____ as follows ____or email _____Please communicate this information within 10 days of receipt of this email.

Who am I?

I am a doctoral candidate in the Department of Educational Technology at the University of Florida, conducting research on the factors which motivate ninth grade students to complete the online English I course at Florida Virtual School under the supervision of Dr. Cathy Cavanaugh. The purpose of this study is to identify specific motivational factors, such as Attention, Relevance, Confidence, and Satisfaction in the online course which motivate students to complete the English I course. The results of the study may help virtual instructors and designers to better understand the factors which motivate students and allow them to design instructional practices accordingly. These results may not directly help your child today, but may benefit future students.

What will my child have to do?

This study would require your child to take a short multiple choice question web-based survey about the motivating factors in the English I course. They will also be asked to give their responses to a series of open-ended questions about what specific factors (course design, instructor) motivated them in the English I course.

How long will it take?

The survey should take about 15 minutes to complete.

How will my child's confidentiality be protected? Are there any risks/benefits?

Although the student will be asked to write their name for matching purposes (so that students' names can be matched with instructors), their identity will be kept confidential to the extent provided by law. I will replace their names with code numbers. The list connecting your name to this number will be kept in a locked file in my office. Once the study is completed the list linking student names and responses will be destroyed.

Results will only be reported in the form of group data. Participation or non- participation in this study will not affect the children's grades or placement in any programs.

You child has the chance to win one of three awards for participating in this study. These awards are NOT a random drawing or lottery, but are based on how you respond to the survey as specified in the description for each award. The following awards are offered

Gold Award (IPOD Touch)
What your child has to do to win Gold Award

1. All survey responses, including written responses, must be answered completely.
2. Among all written responses received, your child's answers to written responses are found to be the most detailed, comprehensive and useful to the study.
3. Activities and instructor practices are described in detail and explain specifically how the instruction motivated the student.
4. Written responses reflect a distinctive student "voice"
5. Responses are found to be the most creative and interesting of all respondents to survey.

Silver Award (1 pass to Universal Studios)
What your child has to do to win Silver Award

1. All survey responses, including written responses, are answered completely.
2. Among all written responses received, this student's answers to written responses are found to be the second most detailed, comprehensive and useful to the study.
3. Activities and instructor practices are described in detail and explain specifically how the instruction motivated the student.

Bronze Award($40 gift certificate to Game Stop)
What your child has to do to win Bronze Award

1. All survey responses, including written responses, are answered completely.
2. Among all written responses received, this student's answers to written responses are found to be the third most detailed, comprehensive and useful to the study.
3. Activities and instructor practices are described in detail and explain specifically how the instruction motivated the student.

Note: These awards will be selected at the close of the survey window period (March 1, 2011). By April 2011, winners of the drawing will be notified by email and prizes will be distributed accordingly.

Are there any risks/benefits to my child?

You and your child have the right to withdraw consent for your child's participation at any time without consequence. There are no known risks or immediate benefits to the participants.

Results of this study will be available in August 2011 upon request.

What if I have questions about the study? How do I reach you?
If you have any questions about this research protocol, please contact me
Questions or concerns about your child's rights as research participant may be directed to the IRB02 office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.

Julia Carpenter

APPENDIX B
INSTRUCTOR ASSENT

Assent for Participation in Survey: Instructors of English I Course at FLVS

Dear Instructor,

I am contacting you because of your success in motivating your English I students to complete 65% of the English I course. As a doctoral candidate in the Department of Educational Technology at the University of Florida, I am conducting research on the factors which motivate ninth grade students to complete the online English I course at Florida Virtual School under the supervision of Dr. Cathy Cavanaugh. Because you are a facilitator of the English I course, I've received permission through the FLVS Research Request process to survey you to gain a better understanding of the structure of the course as well as your background and instructional strategies as a facilitator of the course.

The purpose of this study is to identify specific motivational factors, such as Attention, Relevance, Confidence, and Satisfaction in the online course which motivate students to complete the English I course. The results of the study may help virtual instructors and designers to better understand the factors which motivate students and allow them to design instructional practices accordingly.

This study would require you to take a short web-based survey about the motivating factors in the English I course as well as your background and strategies. The survey should take about 15 minutes to complete.

Although the survey will ask you to write your name, this will be used only for matching purposes (to match those students who respond to the survey to your section of the course). I will replace your name with an instructor number. The list connecting your name to this number will be kept in a locked file in my office. When the study is completed, the list linking your name and responses will be destroyed. Results will only be reported in the form of group data. Your identity will be kept confidential to the extent provided by law. There are no known risks or immediate benefits to the participants.

No compensation is offered for participation. Results of this study will be available once the study has been completed upon request. You have the right to withdraw from the study at anytime without consequence. Your participation in this study is completely voluntary. There is no penalty for not participating.

If you have any questions about this research protocol, please contact me .Questions or concerns about your rights as research participant may be directed to the IRB02 office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.

APPENDIX C
STUDENT SURVEY

- *Permission obtained for use of this survey by Dr. John Keller*

Name
Email address (for notification of award)
Gender
Age
Instructor
Are you taking the English I course to make up credit for not passing a prior section of English I course?
Have you taking an online course before?
Grade at this point in English I course

Directions: There are 34 statements in this questionnaire. Please think about each statement in relation to the class you have taken and indicate how true it is.
1 = Not True
2 =Slightly True
3 = Moderately True
4= Mostly True
5=Very True

Course Interest Survey					
1. The instructor knows how to make us feel enthusiastic about the subject matter of this course.	1	2	3	4	5
2. The things I am learning in this course will be useful to me.	1	2	3	4	5
3. I feel confident that I will do well in this course.	1	2	3	4	5
4. This class has very little in it that captures my attention.	1	2	3	4	5
5. The instructor makes the subject matter of this course seem important.	1	2	3	4	5
6. You have to be lucky to get good grades in this course.	1	2	3	4	5
7. I have to work too hard to succeed in this course.	1	2	3	4	5
8. I do NOT see how the content of this course relates to anything I already know.	1	2	3	4	5
9. Whether or not I succeed in this course is up to me.	1	2	3	4	5
10. The instructor creates suspense when building up to a point.	1	2	3	4	5
11. The subject matter of this course is just too difficult for me.	1	2	3	4	5
12. I feel that this course gives me a lot of satisfaction.	1	2	3	4	5

Course Interest Survey						
13. In this class, I try to set and achieve high standards of excellence.	1	2	3	4	5
14. I feel that the grades or other recognition I receive are fair compared to other students.	1	2	3	4	5
15. The students in this class seem curious about the subject matter.	1	2	3	4	5
16. I enjoy working for this course.	1	2	3	4	5
17. It is difficult to predict what grade the instructor will give my assignments.	1	2	3	4	5
18. I am pleased with the instructor's evaluations of my work compared to how well I think I have done.	1	2	3	4	5
19. I feel satisfied with what I am getting from this course.	1	2	3	4	5
20. The content of this course relates to my expectations and goals.	1	2	3	4	5
21. The instructor does unusual or surprising things that are interesting.	1	2	3	4	5
22. The students actively participate in this class.	1	2	3	4	5
23. To accomplish my goals, it is important that I do well in this course.	1	2	3	4	5
24. The instructor uses an interesting variety of teaching techniques.	1	2	3	4	5
25. I do NOT think I will benefit much from this course.	1	2	3	4	5
26. I often daydream while in this class.	1	2	3	4	5
27. As I am taking this class, I believe that I can succeed if I try hard enough.	1	2	3	4	5
28. The personal benefits of this course are clear to me.	1	2	3	4	5
29. My curiosity is often stimulated by the questions asked or the problems given on the subject matter in this class.	1	2	3	4	5
30. I find the challenge level in this course to be about right; neither too easy nor too hard.	1	2	3	4	5
31. I feel rather disappointed with this course.	1	2	3	4	5
32. I feel that I get enough recognition of my work in this course by means of grades, comments, or other feedback.	1	2	3	4	5
33. The amount of work I have to do is appropriate for this type of course.	1	2	3	4	5
34. I get enough feedback to know how well I am doing.	1	2	3	4	5

STUDENT SURVEY (CONTINUED)

Please rate the following components of the online course from 1 (not motivating) to 5 (extremely motivating)

1. Assigned readings
2. Choice of reading assignments
3. Ability to search internet for ideas
4. Cartoons, pictures, or quotes
5. Flexibility of assignments
6. Email communication from instructor
7. Feedback on assignments
8. Target due dates set
9. Email communication from students
10. Link to internet site from instructor
11. Projects
12. Assignments and activities

OPEN-ENDED QUESTIONS

1. What motivated you MOST about the English I course?

2. What motivated you LEAST in the English I course?

3. Did the English I course or instructor capture and maintain your attention? (for example: posing a problem or issue and asking you how to resolve it, use novelty or surprise, project enthusiasm for the subject)

    a. If yes, how did the course or instructor capture and maintain your attention?
    b. If no, how could the course or instructor have captured or maintained your attention?

4. Did the instructor make the English I course relevant to you (tie it into your interests, explain why the content is important)?
    a. If yes, how did the course or instructor make the English I course relevant?
    b. If no, how could the course or instructor have made the English I course more relevant to you?

5. Did the English I course or instructor build your Confidence in your ability to be successful in the course?

    a. If yes, how did the course or instructor build your Confidence?
    b. If no, how could the course or instructor have built your Confidence?

STUDENT SURVEY (CONTINUED)

6. Did the English I course or instructor build your satisfaction? (for example, you felt satisfied after receiving positive feedback or praise from the instructor)
    a. If yes, how did the instructor build satisfaction?
    b. If no, how could the course or instructor have helped you feel more satisfied?

7. How would you describe your instructor's teaching style (were they strict, flexible, encouraging, helpful, distant)?

8. Did your instructor's teaching style motivate you? Why or why not?

9. Describe the type of feedback on assignments you received on your assignments? (was it brief, detailed, encouraging, discouraging)

10. Did the feedback your instructor give you motivate you? Why or why not?

11. List any suggestions you have for making the English I course more motivating.

The Course Interest Survey is being used with written permission of the author, John Keller.

APPENDIX D
FIRST EMAIL TO STUDENTS WITH SURVEY LINK

Hello FLVS English I students!

Congratulations! You are receiving this survey link because you have completed at least 65% of the English I course here at FLVS and we'd like to learn some of the secrets of your success through a brief survey.

A University of Florida doctoral student in Educational Technology, Julia Carpenter, has received our authorization to conduct an online survey so that she might collect data for her dissertation research on what factors motivate virtual students like you to complete courses.

This is an opportunity for you to contribute to the current body of research on virtual schools .

Mrs. Carpenter is also offering several awards that you may earn, such as

- An Ipod Touch
- A Ticket to the Wizarding World of Harry Potter at Universal
- A gift certificate to Game Stop

We encourage you to participate in this survey by selecting the link below:

http://www.surveymonkey.com/s/FVX8JG3

Thank you for your time and your participation!

APPENDIX E
SECOND REMINDER TO ENGLISH I STUDENTS

Hello FLVS English I students!

Last week you received information about a survey we're sending to students who've completed at least 65% of the English I course here at FLVS to find out what motivated you to be successful. If you've completed the survey THANK YOU.

If you haven't had a chance to give your feedback, please take a few minutes to complete the survey by going to the link below:

http://www.surveymonkey.com/s/FVX8JG3

We'd like to get feedback from each English I student at FLVS to explore what motivates you to complete online courses.

Here are some benefits for completing this short survey:

1. You'll help future virtual students. Your feedback may influence the way future online courses are developed and facilitated by increasing motivation.

2. You'll contribute to the current body of research on virtual schools. Your feedback, along with the feedback given by other English I students, will be analyzed and presented at the 2011 United Distance Learning Association Conference by the doctoral researcher authorized by FLVS to conduct this survey.

3. You have a chance to earn some great awards, such as an ipod Touch, as described on the first page of the survey.

Thank you for your time and your participation!

APPENDIX F
FINAL REMINDER TO ENGLISH I STUDENTS

Hello FLVS English I students!

We need your feedback today! The English I student survey will close at 5 p.m. tomorrow. If you've completed the survey THANK YOU.

If you haven't had a chance to give your feedback, please take a few minutes to complete the survey by going to the link below:

http://www.surveymonkey.com/s/FVX8JG3

We'd like to get feedback from each English I student at FLVS to explore what motivates you to complete online courses.

Here are some benefits for completing this short survey:

1. You'll help future virtual students. Your feedback may influence the way future online courses are developed and facilitated by increasing motivation.

2. You'll contribute to the current body of research on virtual schools. Your feedback, along with the feedback given by other English I students, will be analyzed and presented at the 2011 United Distance Learning Association Conference by the doctoral research.

3. You have a chance to earn some great awards, such as an ipod Touch, as described on the first page of the survey.

Thank you for your time and your participation!

APPENDIX G
INSTRUCTOR SURVEY

Name (for matching purposes only):_____

Gender:

- o Male
- o Female

Highest Degree Obtained

- o Undergraduate Degree
- o Graduate (Master's Degree of Specialist Degree)
- o Doctoral Degree

Are you certified to teach English?

- o Yes
- o No

Do you have National Board Certification?

- o Yes
- o No

How many years experience do you have teaching in a face-to-face classroom?

- o 1-2
- o 3-5
- o 6-8
- o 9-12
- o 13-15
- o 16-20
- o 20 and over

How many years experience do you have teaching in a virtual classroom?

- o 1-2
- o 3-5
- o 6-8
- o 9-12
- o 13-15
- o 16-20
- o 20 and over

How many years experience do you have teaching language arts?

- o 1-2
- o 3-5
- o 6-8
- o 9-12
- o 13-15
- o 16-20
- o 20 and over

How many years experience do you have teaching English I?

- o 1-2
- o 3-5
- o 6-8
- o 9-12
- o 13-15
- o 16-20
- o 20 and over

How long have you been a facilitator at FLVS?

- o 1
- o 2
- o 3-4
- o 5-6
- o 7-8
- o 9-10
- 0 11 years and up

At FLVS are you?

- o Part-time
- o Full-time

Have you taught any other online courses at FLVS?

- o Yes
- o No

If so, what other online course have you or do you teach?

What training have you received to be an online facilitator?

Why did you choose to teach online?

What is your favorite part of teaching online?

INSTRUCTOR SURVEY (CONTINUED)

What is the hardest part of teaching online?

This study focuses on motivating factors in the English I course. The students who've successfully completed 65-99% of the English I course are being surveyed. Since these students have completed so much of the course, you've done a great job motivating them. I'd like to get feedback from you about how you motivate your students and the specific assignments and activities in the English I course which work best to motivate students. Your feedback will help me do that!

Keller (1979, 1983) has developed a four factor theory to explain motivation. the first is Attention, the Second is Relevance, the third Confidence, and the fourth Satisfactio. The model also contains strategies that can help an instructor stimulate each motivational element. I'd like to see how you use each of these factors to motivate your students in this course.

The first factor is ATTENTION. According to Keller (and Gagne) students' attention has to be aroused and sustained to motivate them to learn. This category also includes things that relate to curiosity and sensation seeking.

1. Do you think the English I course captures students' Attention?

   - If so, describe an activity (lesson, assignment) in the English I course that you think effectively maintains your students' attention.

   - How or why do you think it maintains student attention?

The second factor is Relevance. This refers to making the course relate to your students' interests and goals.

2. Do you think the English I course effectively relates to your students' interests and goals?

   - If so, describe an activity (lesson, assignment) in the English I course that you think effectively relates to your students' interests and goals.

   - How or why do you think it relates to your students' interests and goals?

The third factor is Confidence. This relates to building a students' feelings that he or she can succeed in the course, building their confidence.

3. Do you think the English I course effectively builds your students' confidence?

   - If so, describe an activity (lesson, assignment) in the English I course that you think effectively builds your students' confidence.

   - How or why do you think it built your students' confidence?

The fourth factor is Satisfaction. This relates to building a students' satisfaction by giving them positive feedback and a satisfaction in their progress in the course.

4. Do you think the English I course effectively builds your students' satisfaction?

   - If so, describe an activity (lesson, assignment) in the English I course that you think effectively builds your students' satisfaction.

   - How or why do you think it built your students' satisfaction?

5. How do you think the English I course can be even more motivating than it is now?

6. How do you think your facilitation of the course can be even more motivating?

7. How do you define an "at risk" student?

8. Do you teach students who are "at risk"?

9. How do you motivate "at risk" students?

10. Are there lessons or activities you really like to teach because you feel they are interesting to students? If so, can you describe these?

11. When a student completes a writing assignment, which strategies do you use to give feedback?
    - Feedback sandwich (start with positive, end with positive, improvements in the middle)
    - Dialogue within text of the assignment
    - General feedback at end of assignment
    - Completed rubric
    - Emoticons
    - Automated

INSTRUCTOR SURVEY (CONTINUED)

12. How often do you give personalized feedback?
    - o Very often
    - o Often
    - o Sometimes
    - o Rarely

13. If a student does well on an assignment what are some examples of words or phrases you use to praise them?

14. If a student does NOT do well on an assignment, what are some words or phrases you use to help him/her improve?

15. Since the shell of the English I course is consistent, how do you add your own personal presence to the English I course?

16. Do you think there is a sense of community in the English I course? If so, why? If not, why not?

APPENDIX H
FLVS ENGLISH I COURSE DESCRIPTION

Course Name: English I

Course Code: 1001310

Honors Course Code: 1001320

AP Course Code:

Description: What can you see? Somebody (your teacher) really wants to know. This is one course in which what you see and what you say really matters.

No two people experience books, plays, or community events in exactly the same way, and no two people describe their experiences with the same words. How clearly can you see what is happening before you? How compellingly can you describe what you saw to others? In this course, you will find out.

Great books, short stories, poems and plays convey messages and feelings that make them great. In this course, you will learn how to look for the message. You will learn how to trust your feelings about that message. And you will learn how to express clearly and convincingly what you think. The purpose of this course is to give you the tools to see and hear with real understanding, and to communicate with real conviction.

Access the site link below to view the PDF of the course description from the Florida Course Code directory.

http://data.fldoe.org/crsCode/912/Language%20Arts/English/pdf/1001310.pdf

Prerequisites: None

Estimated Completion Time: 2 segments/32-36 weeks

Major Topics and Concepts: Segment 1

- Grammar/Syntax Concepts: Personal Pronoun, Quotation Marks, Slang, Tone
- Literary Terms: Antagonist, Author, Book Hook, Characterization, Climax, Conflict, Dynamic Character, Epilogue, Flashback, Flat Character, Foreshadowing, Irony, Minor Character, Mood, Narrator , Novel Review (Honors), Personification, Plot , Point Of View, Preface, Protagonist,

Round Character, Setting, Short Story, Static Character, Subplot, Symbolism, Theme

- Organizational Skills: Clustering, Listing, Mapping, Outline, Pro-Con Chart, Self Evaluation, Timeline, Webbing
- Types of Sentences/Writing: Declarative Sentence, Exclamatory Sentence, Expository Writing, Free writing, "I" Composition, Imperative Sentence, Interrogative Sentence, Interview, Persuasive Writing
- Writing Process: Body Paragraph, Brainstorming, Cliché, Clincher Sentence, Conclusion, Contraction, Direct Quotation, Editing, Introduction, Keying, Lead-in Sentence, Lead-out Sentence, Main Idea, Peer Review, Prewriting, Proofreading, Punctuation, Revision, Sensory Language (Honors), Sentence variety, Summary, Supporting Details, Thesis Statement, Topic, Transition Words

Segment 2

- Persuasive Techniques: advertisement, bandwagon, connotation (Honors), glittering generalities, name-calling, plain folks, propaganda, slogan, suspension of disbelief, testimonial, transfer
- Literary Terms: acknowledgement, act, alliteration, allusion, aside, characterization, chorus, climax, couplet, denouement, diamante, dramatic images, dramatic irony, dramatic structure, Elizabethan expressions, epic poetry, euphemism, exposition, falling action, fear, figurative language, foil, foresight, free verse, haiku, imagery, irony, metaphor, monologue, onomatopoeia, oxymoron, personification, poetic form, poetic structure, poetry, preface, prologue, props, refrain, rising action, scene, Shakespeare, simile, situational irony, soliloquy, sonnet, sound device, stanza, symbolism, table of contents, theme, tone, turning point, verbal irony, visual aid
- Organizational Skills: brainstorm
- Real-World Application: culture, data collection, directorial suggestions, driving directions, media
- Test Taking Terms: cause and effect, sequence of events
- Types of Writing: advice column, announcement, autobiography, ballad, biography, book review, brochure, columnist (honors), consumer complaint, contract, creative writing, descriptive writing, diary, editorial, employment application, essay, evaluation, film review, interview, introduction, invitation, itinerary, journal, legal will, letter, menu, music review, newsletter, nonfiction, obituary, oral presentation, organizational chart/model, paraphrase, policy,

poll, recipe, research, restaurant review, resume, speech, survey, synopsis, warning label, weather forecast

Course Assessment and Participation Requirements: Besides engaging students in challenging curriculum, FLVS guides students to reflect on their learning and to evaluate their progress through a variety of assessments. Assessments can be in the form of self-checks, practice lessons, multiple choice questions, writing assignments, peer review, projects, research papers, essays, oral assessments, and discussions. Instructors evaluate progress and provide interventions through the variety of assessments built into a course, as well as through contact with the student in other venues.

REFERENCES

Alkin, M. (Ed.). (1992). *Encyclopedia of educational research.* New York: Macmillan.

Allensworth, E., & Easton, J. (2007) *What matters for staying on-track and graduating in Chicago public high schools: A close look at course grades, failures and attendance in the freshman year*. Consortium on Chicago School Research at the University of Chicago.

Alschuler, A.S. (1973). *Developing achievement motivation in adolescents.* Englewood Cliffs, NJ: Educational Technology Publications.

Ames, C., & Archer, J. (1988). Achievement in the classroom: Students' learning strategies and motivation process. *Journal of Educational Policy*, *80*, 260-272.

Anderson, T., Rourke, L., Garrison, D.R., & Archer, W. (2001). Assessing teaching presence in a computer conferencing environment. *Journal of Asynchronous Learning Networks*, 5 (2).

Andrew, M. & Schwab, R.L. (1995). Has reform in teacher education influenced teacher performance? An outcome assessment of graduates of eleven teacher education programs. Action in Teacher Education, 17, 43-53.

Angelino, L., Williams, F. & Natvig, D. (2007, July). Strategies to engage online students and reduce attrition rates. *The Journal of Educators Online*. *4*(2).

Aoki, K. & Elasmar, M. (2000, May). *Opportunities and challenges of conducting web surveys: Results of a field experiment*. Paper presented at the annual meeting of American Association for Public Opinion Research, Portland, Oregon.

Ashton, P. & Webb, R.B. (1986). *Making a difference: Teachers' sense of efficacy and student achievement*. New York: Longman.

Ashton, P. T., Webb, R.B. & W. Doda (1982-1983). *A study of teachers' sense of efficacy, final report.* Florida: Foundations of Education, University of Florida.

Astleitner, H., & Wiesner, C. (2004). An integrated model of multimedia learning and motivation. *Journal of Educational Multimedia and Hypermedia*, *13*(1), 3-21.

Babbie, E. 1998. *The practice of social research*. Belmont, CA: Wadsworth.

Balfanz, R., & Legters, N. (2006). Closing dropout factories: The graduation rate crisis we know and what can be done about it, *Education Week*, *25*(42), 42–43.

Ballou, D., & Podgursky, M. (2002). Seniority, Wages and Turnover among Public School Teachers, Journal of Human Resources, 37(4), 892-912.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191-195.

Barbour, M. K., & Reeves, T.C. (2009). The reality of virtual schools: A review of the literature. *Computers and Education*, *52*(2), 402-416.

Bates, A. (2000). *Managing technological change.* San Francisco: Jossey-Bates.

Beatty, B.J. (2002). *Social interaction in online learning: A situationalities [please check the previous word] framework for choosing instructional methods*. (Unpublished Dissertation). Indiana University, Indianapolis, IN

Bebell, D., O'Dwyer, L., Russell, M., Hoffman, T. (2010). Concerns, considerations, and new ideas for data collection and research in educational technology studies. *Journal Research on Technology in Education*, *43* (1), 29-52.

Bellon, T., & Oates, R. (2002). *Best practices in cyberspace: Motivating the online learner*.

Berge, Z. (1999) Interaction in post-secondary web-based learning. *Educational Technology*,*41*(1), 5-11.

Beamon, G. (2001) *Supporting and motivating adolescent thinking and learning: Teaching with adolescent learning in mind*. New York: Skylight Training and Publishing, Inc.

Bender, W.N., Vail, C.O., & Scott, K. (1995). Teachers' attitudes toward increased mainstreaming: Implementing effective instruction for students with learning disabilities. *Journal of Learning Disabilities*. 1(4), 87-94.

Bhavsar, V., Burke, B., Carter, C., Jensen, J. *Handbook of undergraduate education*. Lexington: University of Kentucky Press.

Biehler, J., & Snowman, R. (1997). *Psychology applied to teaching*. (8th ed.). New York: Houghton Mifflin.

Black, E. (2009). An Evaluation of Familial Involvements' Influence on Student Achievement in K-12 Virtual Schooling. Ph.D. dissertation, University of Florida, United States -- Florida.

Bocchi, J., Eastman, J. & Swift. C. (2004). Retaining the online learner: Profile of students in an online MBA program and implications for teaching them. *Journal of Education for Business*, *79*(4), 245-253.

Bolton, J. (2002). *Web-based distance education: Pedagogy, epistemology, and instructional design*. Saskatchewan, Canada: University of Saskatchewan Press.

Bonk, C.J. (2002). Online teaching in an online world. *Sharing a Course for Online Learning*. Jones International University Press.

Boyatzis, R. (1998). Transforming qualitative information: Thematic analysis and code development. Thousand Oaks, CA: Sage.

Boyd, D., Hamilton ,L., Susanna L., Rockoff, J. & Wyckoff, J. (2007). The Narrowing Gap in New York City Teacher Qualifications and Its Implications for Student Achievement in High-Poverty Schools. CALDER Working Paper 10. Washington, DC: The Urban Institute.

Brace, N., Kemp, R., & Snelgar, R. (2006). SPSS for psychologists (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Publisher.

Brady, L. (2004, July). The role of interactivity in web-based educational material. *Usability News*, *6*(2).

Bransford, J., Brown, A., & Cocking, R. eds. (1999). *How people learn*. Washington, DC: National Academies Press

Brown, J.S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, *18*, 32-42.

Bruckman, A. (1998). Computer Supported Cooperative Work. *The Journal of Collaborative Computing, 7*: 47–86.

Carini, R. M., J. C. Hayek, G.D. Kuh, J.M. Kennedy, and J. A. Ouimet. 2003. College student responses to web and paper surveys: Does mode matter? *Research in Higher Education, 44* (1), 1–19.

Carliner, S. (2000). Physical, cognitive, and affective: A three-part framework for information design. *Technical Communications*, 561-572.

Carolus, J. (2005). *Strategies for self-directed learning*. AST Instructor's Workshop.

Carr, S. (2000). As distance education comes of age, the challenge is keeping students. *Chronicle of Higher Education* (online archives), *46*(23).

Cavanaugh, C. (2008, Fall). Real learning happens in virtual schools. *Threshold*.

Cavanaugh, C. (2009, May). *University of the Pacific online program capacity study*.

Cavanaugh, C., Gillan, K., Kromrey, J, Hess, M., & Blomeyer, R. (2004). *The effects of distance education on K-12 student outcomes: A meta-analysis*.

Chang, M.M., & Lehman, J. (2002). Learning foreign language through an interactive multimedia program: An experimental study on the effects of the Relevance component of the ARCS model. *CALICO Journal*, *20*(1), 81-98.

ChanLin, L. (1994). *A case for assessing motivation from learning a computer-assisted instruction.* Eric Document ED376803.

Chickering, A.W. & Gamson, Z.F. (2003). Seven principles for good practice in undergraduate education. Wingspread Journal (special edition).

Chizmar, J.F., & Walbert, M. S. (1999). Web-based learning environments guided by principles of good teaching practice. *Journal of Economic Education*, *30*(3), 248-264.

Chyng, Y., Winiecki, D. & Fenner, J.A. (1999). Evaluation of effective interventions to solve the dropout problem in adult distance education. In B. Collins & R. Oliver (Eds.), *Proceedings of ED-MEDIA 99, Eleventh World Conference on Educational Multimedia, Hypermedia, & Telecommunications*. Charlottesville, VA: Association for the Advanced of Computing in Education (AACE).

Clark, T., & ChanLin, L.J. (2009, February). Applying motivational analysis in a web-based course. *Innovations in Education and Teaching International*, *46*(1), 91-103.

Clark, T. (2001). *Virtual schools: Trends and issues - A study of virtual schools in the United States*. San Francisco, CA: Western Regional Educational Laboratories.

Clotfelter, C.T., Ladd, H.F., & Vigdor, J.L. (2006). Teacher–student matching and the assessment of teacher effectiveness. *The Journal of Human Resources*, *41*(4), 778–820.

Cobanoglu, C., Warde, B., & Moreo, P. (2001). A comparison of mail, fax and web-based survey methods. *International Journal of Market Research, 43* (4), 441-452.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). St. Paul, MN: West Publishing Company.

Cook, C., Heath, F., & Thompson, R.L. (2000). A meta-analysis of response rates in web- or internet- based surveys. *Educational and Psychological Measurement*, 60, 821-836.

Cooper, S.T., & Cohn, E. (1997). Estimation of a frontier production function for the South Carolina educational process. Economics of Education Review, 16(3), 313–327.

Cordova, D.I., & Lepper, M.R. (1996). Intrinsic motivation and the process of learning: Beneficial effects of contextualization, personalization, and choice. *Journal of Educational Psychology*, *88*, 715–730.

Cornell, R., & Martin, B. (1997) The role of motivation in web-based instruction. In B. A. Khan (ed.), *Web-based instruction*, Englewood Cliffs, NJ: Educational Technology Publications, pp. 93-100.

Cotton, K. (1996). *Affective and social benefits of small-scale schooling*. Charleston, WV: Clearinghouse on Rural Education and Small Schools, Appalachia Educational Laboratory.

Couper, M.P. (2000). Web surveys: A review of issues and approaches. *Public Opinion Quarterly, 64* (4), 464–94.

Couper, M.P., J. Blair, & T. Triplett. (1999). A comparison of mail and e-mail for a survey of employees in U.S. statistical agencies. *Journal of Official Statistics, 15* (1), 39–56.

Couper, M.P., M.W. Traugott, & M.J. Lamias. (2001). Web survey design and administration. *Public Opinion Quarterly, 65* (2), 230–53.

Cramer, D. (1998). *Fundamental statistics for social research: Step by step calculations and computer techniques using SPSS for Window.* New York, NY: Routledge

Crawford, S.D., Couper, M.D. & Lamias, M.J. (2001). Web surveys: Perceptions of burden. *Social Science Computer Review, 19* (2), 146–62.

Cruickshank, D.R. (1980). *Teaching is Tough*. Englewood Cliffs, N.J.: Prentice-Hall.

Dabbagh, N., & Bannan-Ritland, B. (2005). *Online learning: Concepts, strategies, and application*. Upper Saddle River, NJ: Prentice Hall, Pearson Education.

Dagger, D., & Wade,V.P., (2004) *Evaluation of Adaptive Course Construction Toolkit (ACCT)*..

Dahar, M., Dahar, R., & Faize, F. (2011). Impact of Teacher Quality on the Academic Achievement of Students at Secondary State in Pakistan. *European Journal of Social Sciences.* 19(1), 97- 104.

Daniels, A. (2000). *Bringing out the best in people*. New York: McGraw-Hill, Inc.

Darling-Hammond, L. (2000, January). Teacher Quality and Student Achievement: A Review of State Policy Evidence. *Center for the Study of Teaching and Policy*. 8(1), 1-41.

Davis, N. and Rose, R. Research Committee Brief: Professional Development for Virtual Schooling and Online Learning. North American Council for Online Learning.

Dawley, L., Rice, K., & Hinck, G. (2010). Going Virtual! 2010: The status of professional development and unique needs of K-12 online teachers. White paper prepared for the International Association for K-12 Online Learning. Washington, DC.

DeCharms, R. (1976). *Enhancing motivation change in the classroom*. New York: Academic Press.

Deci, E.L. (1975). *Intrinsic motivation*. New York: Plenum Press.

Deci, E.L. (1995). *Why we do what we do: The dynamics of personal autonomy.* New York: G. P. Putnam's Sons.

Deci, E.L., & Ryan, R.M. (1991). A motivational approach to self; Integration in personality. In R. Dienstbier (Ed.), *Nebraska symposium on motivation: Perspectives on motivation* (Vol. 38, pp. 237–288). Lincoln: University of Nebraska Press.

Deci, E.L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

Dejka, J. (2010, April) Race to Top may end early. *Omaha World Herald*.

Denton, J.J., and Peters, W.H. (1988). Program assessment report: Curriculum evaluation of a non-traditional program for certifying teachers. Texas A &M University, College Station, TX.

Diaz, D. (2002). *Online dropout rates revisited.* Chapel Hill, N.C.: The University of North Carolina Press.

Diaz, D.P., & Bontenbal, K.F. (2000). Pedagogy-based technology training. In P. Hoffman & D. Lemke (Eds.), *Teaching and learning in a network world* (pp. 50-54). Amsterdam, Netherlands: IOS Press.

Dick, W., & Carey, L. (1996). *The systematic design of instruction* (4th ed.). New York: Longman.

Dillman, D.A. (2007). Mail and internet surveys: The tailored design method, 2nd ed. Hoboken, NJ: John Wiley & Sons.

Dillman, D.A., & D.K. Bowker. (2001). The web questionnaire challenge to survey methodologists. In U. D. Reips & M. Bosnjak (Eds.), *Dimensions of Internet science*, (pp. 159–78). Lengerich, Germany: Pabst Science Publishers.

Dillman, D. A., R. D. Tortora, J. Conradt, & D. K. Bowker. (1998, August). *Influence of plain vs. fancy design on response rates for web surveys.* Paper presented at annual meeting of the American Statistical Association Joint Statistical Meetings, Dallas, TX

DiPietro, M., Ferdig, R., Black, E., & Preston, M. (2008, Spring). Best practices in teaching K–12 online: Lessons learned from Michigan virtual school teachers. *Journal of Interactive Online Learning, 7*(1).

Donald, M. 1960. Implications of nonresponse for the interpretation of mail questionnaire data. *Public Opinion Quarterly, 24* (1), 99–114.

Duffy, M. (2002, March). Methodological issues in web-based research. *Journal of Nursing Scholarship*, *34*(1), 83-88.

Duffy, T.M., Lowyck, J., & Jonassen, D.H. (Eds). (1993). *Designing environments for constructivist learning*. New York: Spring-Verlag.

Dweck, C. (2002). Messages that Motivate: How Praise Molds Students' Beliefs, Motivation and Performance. *Improving Academic Achievement*. New York: Elsevier Publishing.

Efklides, A. (2001). Metacognitive experiences in problem solving: Metacognition, motivation, and self-regulation. In A. Efklides, J. Kuhl, & R. M. Sorrentino (Eds.), *Trends and prospects in motivation research* (pp. 297-323). Dordrecht, The Netherlands: Kluwer.

Ehrenberg, R.G., & Brewer, D.J. (1994). Do school and teacher characteristics matter? Evidence from high school and beyond. *Economics of Education Review*, 13(1), 1–17.

Elvers, G.C., Polzella, D.J., & Graetz, K. (2003). Procrastination in online courses: Performance and attitudinal differences. *Teaching of Psychology*, *30*(2), 159-162.

Etzioni, A. & Hogan, J. (1980). Productivity: The Human Factor. Dimensions of Productivity Research. *Proceedings of the Conference on Productivity Research.* Houston, Texas.

Evans, C., & Gibbons, N. (2007). The interactivity effect in multimedia learning. *Computers in Education*. *49*(4), 1147-1160.

Eysenbach, G., & T.L. Diepgen. (1998). Epidemiological data can be gathered with World Wide Web. *British Medical Journal,* 316 (7124), 72.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.G. (2008). G*Power Version 3.1.2 [computer software]. Uiversität Kiel, Germany.

Ferguson, R.F., & Ladd, H.F. (1996). How and why money matters: An analysis of Alabama schools. In H. F. Ladd (Ed.), Holding schools accountable: Performance-based reforming education (pp. 265–298).Washington, DC: The Brookings Institution.

Fetler, M., (1999).High School Staff Characteristics and Mathematics Test Results. Education Policy Analysis Archives, 7 (9).

Fishbein, M. (1967). Attitude and the prediction of behaviour. In: Fishbein, M (Ed.). Readings in attitude theory and measurement. New York: Wiley.

Fischer, G., & Scharff, E. (1998). Learning Technologies in Support of Self-Directed Learning. *Journal of Interactive Media in Education*, *98*(4), 1-32.

Flood, J. (2002). Read all about it: online learning facing 80% attrition rates, *TOJDE*, *3* (2)

Florida Tax Watch. (2007, November 5). *Final report: A comprehensive assessment of Florida Virtual School*.

Florida Virtual School Stakeholder Survey 2009-2010. (2010). Optimal Performance Inc.

Fraley, R.C. (2004). *How to conduct behavioral research over the Internet: A beginner's guide to HTML and CGI/Perl*. New York: Guilford.

Frymier, A., & Shulman, G. (1995, January). What's in it for me? Increasing content Relevance to enhance students' motivation. *Communication Education*. *44*(1), 40-50.

Fulford, C.P. & Zhang, S. (1993). Perceptions of interaction. *The American Journal of Distance Education*, 7(3), 8-21.

Fulk, B. (2003). Concerns about ninth grade students' poor academic performance: One schools action plan. *American Secondary Education*, *31* (2), 8-26.

Gabrielle, D. (2003). *The Effects of Technology-mediated Instructional Strategies on Motivation, Performance, and Self-directed Learning*. Retrieved from Proquest Digital Dissertations. (AAT 3137428).

Gage, N.L. (1979). The Generality of Dimensions of Teaching. In P.L. Peterson and H.J. Walberg (Eds) Research on Teaching: Concepts, Findings, and Implications. Berkeley, CA: McCutchan.

Gagne, R.M. (1965). *The conditions of learning.* New York: Holt, Rinehart and Winston, Inc.

Gao, T., & Lehman, J. (2003) The Effects of Different Levels of Interaction on the Achievement and Motivational Perceptions of College Students in a Web-Based Learning Environment. *Journal of Interactive Learning Research*. *14*(4), 21-31.

Garrison, D.R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *The American Journal of Distance Education*, 15(1), 7-23.

George, D. & Mallery, P. (2003).*SPSS for Windows step by step: a simple guide and reference, 11.0 update* (4thed.). Boston, MA: Allyn and Bacon.

Gephart, W.J., Strother, D.B. & Duckett, W.R. (Eds). (1981). Instructional Clarity. *Practical Applications of Research*, 3(3), 1-4.

Gibson, S. & Dembo, M.H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology*, 76, 569-582.

Glaser, R. & Chi, M. (1988). Overview, M. Chi, R. Glaser & M. Farr (Eds). *The Nature of Expertise.* Hillsdale, NJ: Erlbaum.

Goldhaber, D.D., & Anthony, E.A. (2007). Can teacher quality be effectively assessed? *The Review of Economics and Statistics*, 89(1), 134–150.

Goldhaber, D.D., & Brewer, D.J. (1997). Why don't schools and teachers seemto matter? Assessing theimpact of unobservables on educational productivity. *The Journal of Human Resources*, 32(3), 505–523.

Graduation Rates Fact Sheet. (2009, February). *Alliance for Excellent Education*.

Graham, C., Cagiltay, K., Lim,B., Craner, J. & Duffy, T.M. (2001, March/April). Seven principles of effective teaching: A practical lens for evaluating online courses. *The Technology Source*.

Graham, S. & Golan, S. (1991). Motivational influences on cognition: Task involvement, ego involvement, and depth of information processing. *Journal of Educational Psychology*, *83*, 187-194.

Gunter, G. (2007). The Effects of the Impact of instructional Immediacy on Cognition and Learning in Online Classes. International Journal of Human and Social Sciences 2(3).

Gunawardena, C.N., & Mclsaac, M.S. (2004). Distance education. In D. Jonassen (Ed.), Handbook of research for educational communications and technology (2nd ed.) (pp. 355–395). Bloomington, IN: Association for Educational Communications & Technology.

Halpern, A. (1994). The transition of youth with disabilities to adult life: A position statement of the Division on Career Development and Transition, the Council for Exceptional Children. *Career Development for Exceptional Individuals*, *17*, 115-124.

Hara, N., Bonk, C., & Angeli, C. (2000). Content analysis of online discussion in an applied educational psychology. *Instructional Science*, 28(2), 115–152.

Hara, N., & Kling, R. (2001). Student distress in web-based distance education. *Educause Quarterly, 3*, 68-69.

Harasim, L.M. (1993). Networlds: Networks as social space. In L. M. Harasim (Ed.), *Global networks: Computers and international communication* (pp. 15–34). Cambridge, MA: MIT Press.

Harris, D., & Sass, T. (2007). Teacher Training, Teacher Quality, and Student Achievement. CALDER Working Paper 3. Washington, DC: The Urban Institute.

Hartley, K., & Bendixen, L.D. (2001). Educational research in the Internet age: Examining the role of individual characteristics. *Educational Researcher*, *30*(9), 22-26.

Hawkins, A., & Barbour, M. (2010, January). U.S. Virtual School Trial Period and Course Completion Policy Study. *American Journal of Distance Education*. *24*(1), 5-20.

Haycock, K. & Hanushek, E. (2010). An Effective Teacher in Every Classroom. *EducationNext.* 10(3), 1-4.

Hertzog, C.J., & Morgan, L.P. (2001). Designing comprehensive transitions. *Principal Leadership*, *1*(7), 10-18.

High School Dropouts in America (2009, February). *Alliance for Excellent Education Fact Sheet*.

Hirumi, A. (2005). In search of quality: An analysis of e-learning guidelines and specifications. *Quarterly Review of Distance Education*, 6(4), 309-329.

Hodges, C. (2004). Designing to motivate: Motivational techniques to incorporate in e-learning experiences. *The Journal of Interactive Online Learning*. *2*(3).

Horton, W.K. (1990). *Designing and writing online documentation*. New York: John Wiley & Sons Inc.

Howell, D.C. (2010). Statistical methods for psychology (7th ed.). Belmont CA: Wadsworth Cengage Learning.

Huett, J. (2006). The Effects of ARCS-based Confidence Strategies on Learner Confidence and Performance in Distance Education. Unpublished Dissertation.

Huett, J., Kalinowski, K., & Moller, L. (2008). Improving the Motivation and Retention of Online Students Through the Use of ARCS-Based E-Mails. *The American Journal of Distance Education*, *22*, 159–176.

Huett, J., Young, J., Huett, K., Moller, K., & Bray, M. (2008). Supporting the Distant Student The Effect of ARCS-Based Strategies on Confidence and Performance. *The Quarterly Review of Distance Education*, *9*(2), 113–126.

Hunt, D.E., & Sullivan, E.V. (1974). *Between Psychology and Education.* Hinsdale, IL:Dryden.

Jackson, T.W., Burgess, A., & Edwards, J. (2006). Technical opinion: A simple approach to improvising email communication. Communications of the ACM, 49(6), 107-109.

Jepsen, C. (2005). Teacher characteristics and student achievement: Evidence from teacher surveys. *Journal of Urban Economics*, 57(2), 302–319.

Johnson, C., Redmon, W., & Mawhinney, W. (2001). *Handbook of Organizational Performance*, New York: Haworth Press.

Johnson, D.W. & Johnson, R.T (2000, February). Take Time for Group Processing. *The Newsletter of the Cooperative Institute*.15(1).

Johnson, D.W., Johnson, R.T., & Stanne, M.B. (2000). Cooperative learning methods: A meta-analysis. University of Minnesota: Interaction Learning, Inc.

Jones, C. (2008). Student Perceptions of the Impact of Web-based Homework on Course Interaction and Learning in Introductory Accounting, *IACIS. 9*(1),

Jones, E.E., Kanhouse, D.E., Kelley, H.H., Nisbett, R.E., Valins, S. & Weiner, B. (1971). *Attribution: Perceiving the causes of behavior*. Morristown, NJ: General Learning Press.

Jordan, C. (2006, November). Building Motivation into Online Education. *ITEC.*

Joyce, B., & Weil, M. (1972). *Models of teaching*. Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Kawachi, P. (2002). Motivating and Retaining Adult Learners Online. Essex Junction: *The Virtual University Gazette*.

Keegan, D. (1996). *Foundations of Distance Education*. London: Routledge.

Keller, F.S. (1968). Goodbye teacher. *Applied Behavior Analysis*, *1*, 78-79.

Keller, J. M. (1987). Development and use of the ARCS model of instructional design. *Journal of Instructional Development*, *10*(3), 2-10.

Keller, J.M. (2008, August). First principles of motivation to learn and e-learning. *Distance Education, 29*(2), 175-185.

Keller, J.M. (2010). *Motivational Design for Learning and Performance*. New York: Springer.

Keller, J.M. (2009). *Motivational Design for Learning and Performance: The ARCS Model Approach.* New York: Springer.

Keller, J.M. (1979). Motivation and instructional design: A theoretical perspective. *Journal of Instructional Development*, *2*(4), 26-34.

Keller, J. M. (1999). Motivation in Cyber Learning Environments. *International Journal of Educational Technology, 1*(1), 7-30.

Keller, J.M., & Subhiyah, R. (1993). *Course interest survey*. Tallahassee, FL: Instructional Systems Program, Florida State University.

Keller, J.M., & Suzuki, K. (1988). Application of the ARCS model to courseware design. In D.H. Jonassen (Ed), *Instructional designs for microcomputer courseware design* (pp.401-434). New York: Lawrence Erlbaum, Publisher.

Kennedy, J. M., G.D. Kuh, & R. Carini. (2000). *Web and mail surveys: Preliminary results of comparisons based on a large-scale project*. Portland, OR: American Association for Public Opinion.

Kennedy, K. (2009). A phenomenological study of preservice teachers' experiences in a virtual school internship. Doctoral Dissertation. University of Florida.

Kim, C., & Keller, J. (2008). Effects of motivational and volitional messages with personal messages on undergraduate students' motivation, study habits and achievement. *British Journal of Educational Technology*, *39*(1), 36-51.

Kim, U., & Park, Y. (2006). Factors Influencing Academic Achievement in Collectivist Socities: The Role of Self, Relational, and Social Efficacy. *Adolescence and Education*. Greenwich, CT: Information Age Publishing.

King, K. P. (2002). Identifying success in online teacher education and professional development*. Internet and Higher Education*, *5*(3), 231-246.

Kitchen, D., & McDougall, D. (1998). Collaborative learning on the Internet. *Journal of Educational Technology Systems*, 27(3), 245.

Klesius, J., Homan, S., & Thompson, T. (1997). Distance education compared to traditional instruction: The students' view. *International Journal of Instructional Media*, *24*(3), 207-220.

Klitgaard, R.E. and Hall, G.R. (1974). Are there unusually effective schools? *Journal of Human Resources*, 10, 3, 90-106.

Knowles, M.S. (1984). *Andragogy in Action. Applying modern principles of adult education, S*an Francisco: Jossey Bass.

Knowles, M.S. (1975). *Self-Directed Learning. A guide for learners and teachers*, Englewood Cliffs: Prentice Hall/Cambridge.

Knowles, M.S. (1998). *The adult learner: The Definitive Classic in Adult Education and Human Resource Development*. Houston, TX: Gulf Publishing.

Kolb, D.A., & Fry, R. (1975). Toward and applied theory of experiential learning. In C. Cooper (Ed.) *Theories of Group Process*. London: John Wiley.

Krueger, A.B. (1999). Experimental estimates of education production functions. *The Quarterly Journal of Economics,* 114(2), 497–532.

Kukla-Acevedo, S. (2009). Do teacher characteristics matter? New results on the effects of teacher preparation on student achievement. *Economics of Education Review* 28 (1) 49–57.

Kulhavey, R.W. & Wager, W. (1993). Feedback in programmed instruction: Historical context and implications for practice. In J.V. Dempsey & G.C. Sales (Eds.) *Interaction instruction and feedback*. (pp. 2-20). Englewood Cliffs, NJ: Educational Technology.

Kwak, N., & B. T. Radler. 2002. A comparison between mail and Web surveys: Response pattern, respondent profile, and data quality. *Journal of Official Statistics, 18* (2), 257–74.

Ladd, H. (2008). Value-Added Modeling of Teacher Credentials: Policy Implications. Paper presented at the second annual CALDER research conference 2008.

Lambert, N. M., & McCombs, B.L. (Eds.). (1998). *How students learn: Reforming schools through learner-centered education.* Washington, DC: American Psychological Association.

Lave, J. (1988). *Cognition in Practice*. Boston MA: Cambridge.

Lazar, J., & Preece, J. (1999). Designing and implementing Web-based surveys. *Journal of Computer Information Systems, 39*(4), 63-70

Lee, C. Y. (2000). Student motivation in the online learning environment. *Journal of Educational Media & Library Sciences, 37*(4), 367-375.

Lee, J., Hong, N. L., & Ling, N. L. (2002). An analysis of students' preparation for the virtual learning environment. *Internet and Higher Education, 5*(3), 231-242.

Leech, N.L., Barrett, K.C., & Morgan, G.A. (2008). SPSS for intermediate statistics: Use and interpretation (3rd ed.). New York, NY: Lawrence Erlbaum Associates, Publishers.

Legon, R. & Runyon, J. (2007). Research on the Impact of the Quality Matters Course Review Process. 23rd Annual Conference on Distance Teaching and Learning.

Lehmann, E.L. (2006). Nonparametrics: Statistical methods based on ranks. Upper Saddle River, NJ: Prentice-Hall, Inc.

Lepper, M.R., & Hodell, M. (1989). Intrinsic motivation in the classroom. In C. Ames, & R. Ames(Eds.), *Research on motivation in education* (vol. 2, pp. 73–105). San Diego, CA: Academic Press.

Levin, T., & Long, R. (1978). *Effective Instruction*. Alexandria, Va: Association for Supervision and Curriculum Development.

Liaw, S. & Huang, H. (2000). Enhancing interactivity in web-based Instruction: A review of literature. *Educational Technology*, 40(3), 41-45.

Lin, C.J. (1999). *The effects of self-efficacy and task values on students' commitment and achievement in web-based instruction for Taiwan higher education.* Dissertation Abstracts International, 60, 6-A, 1905.

Little, A. (2008). *An examination of motivational strategies and academic achievement in an online high school learning environment*. Retrieved from Proquest Digital Dissertations. (AAT 3313849).

Locke, E. (1968). Toward a Theory of Task Motivation and Incentives. *Organizational behavior and human performance*, 3(2), 157-189.

Lorenzo, G. & Moore, J. (2002). Five Pillars of Quality Online Education. *The Sloan Consortium Report to the Nation: Five Pillars of Quality Online Education.*

Mackey, K., & Horn, M. (2009, October). Florida Virtual School: An Education Case Study. *Innosight Institute*. Innosight Publications, Inc.

Malone, M.R., & Lepper, M.R. (1987). Making learning fun. In R. E. Snow & M. J. Farr (SeriesEds.), R. E. Snow & J. F. Marshall (Vol. Eds.), *Aptitude, learning, and instruction,* vol. 4:Conative and affective process analyses (pp. 223–253). Hillsdale, NJ: Lawrence Erlbaum Associates.

Manfreda, K.L., Bosnjak, M., Berzelak, J., Hass, I., & Vehovar, V. (2008). Web-surveys versus other survey modes: A meta-analysis comparing response rates. *International Journal of Market Research*, 50(1), 79-104.

Mayoux, L. (2010). *Qualitative Methods.* Prove and Improve Organization, Inc..

McCabe, S.E. (2004). Comparison of Web and mail surveys in collecting illicit drug use data:A randomized experiment. *Journal of Drug Education, 34* (1), 61–72.

McCallumore, K., & Sparapani, E. (2010, Spring). The importance of ninth grade on high school graduation rates and student success in high school. *CBS Business Network.*

McClelland, D.C. (1965). Toward a theory of motive acquisition. *American Psychologist, 20*(2),232-240.

McCleskey, J. (2009, August). Five Strategies to Enhance Learner Motivation in E-Learning Design. *Learning Solutions Magazine.*

McCombs, B. L., & Whisler, J. S. (1997). *The learner-centered classroom and school***.** San Francisco: Jossey-Bass.

McConnell, C., Hoover, G., & Sassed, C. (2001). Using the ARCS model to design motivating curriculum. *Allied Academies International Conference. Academy of Educational Leadership. Proceedings*. *6*(1), 119-123. Retrieved from ABI/INFORM Global database. (1559312191)

McGuiness, A. (2005, May). Strategies for Self Directed Learning: Motivating Today's Learner. *AST Instructor's Workshop*.

Means, T.B., Jonassen, D.H., & Dwyer, F.M. (1997). Enhancing Relevance: Embedded ARCS strategies vs. purpose. *Educational Technology Research and Development, 45*(1), 5-17.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.* Washington, DC: U.S. Department of Education.

Merriam, S.B., & Caffarella, R.S. (1999). *Learning in adulthood* (2nd ed.). San Francisco: Jossey-Bass.

Merriam, S.B., Caffarella, R.S., & Baumgartner, L.M. (2007). *Learning in Adulthood: A Comprehensive Guide.* San Francisco: John Wiley & Sons, Inc.

Merriam, S.M. (2008). Adult learning theory for the twenty-first century. *New directions for adult and continuing education, 19*(1), 93-98.

Meyer, K.A. (2003). Face-to-face versus threaded discussions: The role of time and higher-order thinking. *Journal of Asynchronous Learning Networks* 7(3): 55–65.

Mickey, K. (2010, March). *Moving Online: K-12 Distance Learning Market Forecast 2010*. Simba Information.

Midgley, C., Anderman, E., & Hick, L. (1995). Differences between elementary and middle school teachers and students: A goal theory approach. *Journal of Early Adolescence,* 15, 90-113.

Midgley, C., Feldlaufer, H., & Eccles, J.S. (1989). Change in teacher efficacy and student self-and task- related beliefs during the transition to junior high school. *Journal of Educational Psychology*, 81, 247-258.

Moore, M. (1989). Editorial: Three types of interaction. *The American Journal of Distance Education, 3*(2), 1-7.

Moore, M.G. (1998). Introduction. In C.C. Gibson (Ed.), *Distance learners in higher education: Institutional responses for quality outcomes*. Madison, WI: Atwood.

Moore, M.G., & Kearsley, G. (1996). *Distance education: A systems view*. Belmont, CA: Wadsworth Publishing Company.

Morrel-Samuels, P. (2003). Web surveys' hidden hazards: Companies replacing paper surveys with Web-based versions. *Harvard Business Review, 81* (7), 16–17.

Murnane, R.J.& Phillips, B.R. (1981). Learning by doing, vintage, and selection: Three pieces of the puzzle relating teaching experience and teaching performance. *Economics of Education Review,* 1fR(4), 691-693.

Murphy, E. (2004). Recognizing and promoting collaboration in an online asynchronous discussion.British Journal of Educational Technology 35(4): 421–431.

Nagel, D. (2009, October 28). 10.5 Million PreK-12 Students Will Attend Classes Online by 2014. *Transforming Education through Technology Journal*.

Naime-Diefenbach, Bahia Naime (1991). Validation of Attention and Confidence as independent components of the ARCS motivational model. Ph.D. dissertation, The Florida State University, United States -- Florida. Retrieved November 4, 2010, from Dissertations & Theses: Full Text.(Publication No. AAT 9124631).

Nash, R. (2005). Course completion rates among distance learners: Identifying possible methods to improve retention. *Online Journal of Distance Learning Administration, 5* (8),104.

Neo, M., Neo, T.K., & Yap, W.L. (2008). Students' perceptions of an interactive multimedia-mediated web-based learning environment: A Malaysian perspective. *Proceedings Ascilite Melbourne.*

Noell, G. H. (2005). Assessing teacher preparation program effectiveness:A pilot examination of value added approaches. Unpublished manuscript.

North Central Regional Educational Laboratory (NCREL). (2002). *Policy issues 11: Virtual schools and e-learning in K-12 environments: emerging policy and practice.* Naperville, IL.: Learning Point Associates.

Northrup, P.T. & Rasmussen, K.L. (2000, February). Designing a Web-based program: Theory to design. Paper presented at the annual conference of the Association for Educational Communications and Technology, Long Beach, CA.

Nwagbara, C.I. (1993). Effects of the relevance components of the ARCS model of motivational design. Unpublished doctoral dissertation, Purdue University.

Orellana, A. Hudgins, T. & Simonson, M. (2009). *The Perfect Online Course: Best Practices for Designing and Teaching.* Charlotte, N.C.: Information Age Publishing.

Pagano, R.R. (2010). Understanding statistics in the behavioral sciences (9th ed.). Belmont CA: Wadsworth Cengage Learning.

Parker, L.E., & Lepper, M.R. (1992). Effects of fantasy contexts on children's learning and motivation: Making learning more fun. *Journal of Personality and Social Psychology, 62*(2), 625–633.

Parsad, B., & Lewis, L. (2008). Distance education at degree-granting postsecondary institutions: 2006–07 (NCES 2009–044). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Perraton, H.D. (2000). *Open and distance learning in the developing world*. London ; New York: Routledge.

Petrides, L.A. (2002). Web-based technologies for distributed (or distance) learning: Creating learning-centered educational experiences in the higher education classroom. *International Journal of Instructional Media, 29*(1), 69-77.

Phipps, R., & Merisotis, J. (1999). *What's the difference?: A review of contemporary research on the effectiveness of distance learning in higher education*. Washington, DC: The Institute for Higher Education Policy.

Picciano, A. (2002, July) Beyond Student Perceptions: Issues of Interaction, Presence and Performance in an Online Course. *JALN. 6* (1), 21-40.

Picciano, A. & Seaman, J. (2009, January) K–12 online learning: A 2008 follow-up of the survey of U.S. school district administrators. Sloan Publications.

Pink, D. (2009). *Drive: The Surprising Truth about What Motivates Us*. New York: Riverhead Books.

Porter, S.R., & Whitcomb, M.E. (2003). The impact of contact type on web survey response rates. *Public Opinion Quarterly*, 67(4), 579-588

Raziano D.B., Jayadevappa, R., Valenzula, D., Weiner, M. & Lavizzo-Mourey, M. (2001). Email versus conventional postal mail survey of geriatric chiefs. *Gerontologist, 41* (6):799–804.

Redd, Z, , Brooks, J., McGarvey, A. (2001). Background for Community Level Work on Educational Adjustment in Adolescence: Reviewing the Literature on Contributing Factors. *Child Trends*.

Reeve, J. (1998, July). Autonomy Support as Interpersonal Motivating Style: Is it Teaching. *Contemporary Educational Psychology*. 23(3), 312-330.

Reeve, J. (1996). *Motivating others: Nurturing inner motivational resources*. Needham Heights, MA: Allyn & Bacon.

Repetto, J. (2003). Transition to Living. *Exceptionality, 11*(2), 77-87.

Repetto, J., Cavanaugh, C., Wayer, N., & Liu, F. (2010). Virtual Schools: Improving Outcomes for Students with Disabilities. *The Quarterly Review of Distance Education, 11*(2), 91-104.

Resnick, L. (1987). Learning in school and out. *Educational Researcher, 16* (9), 13-20.

Rice, J. (2010, August). The Impact of Teacher Experience: Examining the Evidence and Policy Implications. *National Center for Analysis of Longitudinal Data in Education Research*. 11(1), 1-6.

Rice, K., Dawley, L., Gasell, C. & Florez, C. (2008). Going virtual: Unique needs and Challenges of K-12 Online Teachers. White paper prepared for the North American Council for Online Learning. Washington, DC.

Ridley, D.R., & Sammour, H.Y. (1996). Viable alternative means of instructional delivery: Online courses as an alternative teaching method. *College Student Journal, 30*, 337-339.

Rigby, C.S., Deci, E.L, , Patrick, B.C., & Ryan, R.M. (1992). Beyond the intrinsic – extrinsic dichotomy: Self-determination in motivation and learning. *Motivation and Emotion, 16*(3), 165-185.

Rivkin, S.G., Hanushek, E.A., & Kain, J.F. (2005). Teachers, schools and academic achievement. *Econometrica*, 73(2), 417–458.

Robelen, E. (2010, September 9). Race to Top Winners Embed STEM Projects in Plans. *Education Week.*

Roberts, L.L., Konczak, L., & Macan, T. (2004). Effects of data collection method on organizational climate survey results. *Applied H.R.M. Research 9* (1), 13–26.

Roblyer, M.D. (2006, September) Virtually Successful: Defeating the Dropout Problem through Online School Programs. *The Phi Delta Kappan, 88*(1), 31-36.

Roblyer, M.D. & Ekhami, L. (2000). How Interactive are Your Distance Courses? A Rubric for Assessing Interaction in Distance Learning. Westgate, Inc.

Roblyer, M., & Wienckle, W. (2003). Design and use of rubric to assess and encourage interactive qualities in distance courses*. The American Journal of Distance Education*, 17(2), 77-98.

Rockoff, J.E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review*, 94(2), 247–252.

Rogers, C. (1969). *Freedom to Learn*. Columbus, Ohio: Merrill.

Rose, R.M., & Blomeyer, R.L. (November, 2007) Access and Equity in Online Classes and Virtual Schools. *North American Council for Online Learning.*

Rosenholtz, S.J. (1986). The organizational context of teaching. In *Learning to Teach*. University of Illinois at Champaign-Urbana.

Rotter, J.B. (1989). Internal versus external control of reinforcement: A case history of a variable. *American Psychologist, 45,* 489-493.

Rourke, J. (2001). *Schools within a school*. EBSCO Full Display, 1259106.

Rovai, A. (2001). Building a classroom community at a distance: A case study. *Educational Technology Research and Development. 49*(4), 33-48.

Rovai, A., Pontoon, M., Weighting, M. & Baker, J. (2007). A comparative analysis of student motivation in traditional classroom and e-learning courses. *International Journal on E-Learning. 6* (3), 413-432.

Ryan, R. & Deci, E. (2000). Intrinsic and Extrinsic Motivation: Classic Definitions and New Directions. *Contemporary Educational Psychology 25***,** 54–67.

Saldana, J. (2010). *The Coding Manual for Qualitative Researchers*. New York: Sage Publishing.

Sanders,W L., Ashton, J.J., &Wright, S.P. (2005). Comparison of the effects of NBPTS certified teachers with other teachers on the rate of student academic progress. Unpublished manuscript.

Sax, L.J., Gilmartin, S.K., & Bryant, A. (2003). Assessing response rates and nonresponse bias in Web and paper surveys. *Research in Higher Education, 44* (4),409–32.

Schmidt, W. (1997). World-Wide Web survey research: Benefits, potential problems and solutions. *Behavior Research Methods, Instruments & Computers, 29*(2), 274-279.

Schunk, D. & Meece, J. (2006). *Self-Efficacy Development in Adolescence. Adolescence and Education.* Greenwich, CT: Information Age Publishing.

Sell, R. L. (1997). Research and the Internet: An e-mail survey of sexual orientation. *American Journal of Public Health, 87* (2), 297.

Shannon, D. M., & C.C. Bradshaw. (2002). A comparison of response rate, response time, and costs of mail and electronic surveys. *Journal of Experimental Education, 70* (2),179–92.

Shapley, K.S. (2008). *Evaluation of the Texas Technology Immersion Pilot (eTxTIP): Year 2 results.* Paper presented at the 2008 Annual Meeting of the American Educational Research Association, New York.

Shih, T. & Fan, F. (2008, April). Comparing Response Rates from Web and Mail Surveys: A Meta-analysis. *Field Methods, 20* (3), 249–271.

Shroff, R., Vogel, D. & Coombes, D. (2008, Spring) J. Assessing individual-level factors supporting student intrinsic motivation in online discussions: a qualitative study. *Journal of Information Systems Education, 19* (1).

Shu, T.C. (2005). Comparing mail and Web-based survey distribution methods: Results of surveys to leisure travel retailers. *Journal of Travel Research, 43* (4): 422–30.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57* (1), 1-22.

Siedentop, D. & Eldar, E. (1989) Expertise, Experience, and Effectiveness. *Journal of Teaching and Physical Education*, 8, 254-260.

Silvernail, D. (2008). *Maine's impact study of technology in mathematics (MISTM).* Paper presented at the 2008 Annual Meeting of the American Educational Research Association, New York.

Sims, R. (1997). Interactivity: A forgotten art? *Computer in Human Behavior, 13* (2), 157-180.

Skinner, B.F. (1954). *Motivation and personality*. New York: Harper and Row.

Skinner, B.F. (1968). *The Technology of Teaching*. New York: Appleton-Century-Crofts.

Slavin, R. (2003) Educational Psychology, 7th Ed. *Theory and Practice.* Boston, MA: Pearson Education, Inc.

Sloan , R. (2001). Sloan e-learning course goes the distance for Merrill Lynch employees. *MIT Tech Talk, 46*,(2).

Sloane, H.N. & Jackson, D.A. (1974). *A Guide to Motivating Learners*. Englewood Cliffs, N.J.: Educational Technology Publishers.

Smith, C. K., (1996, May). *Convenience vs. connection: Commuter students' views on distance learning.* Paper presented at the Annual Forum of the Association for Institutional Research, Albuquerque, New Mexico. (ERIC Document Reproduction Service No. ED 397 725)

Smith, J. (1997). Effects of eighth-grade transition programs on high school retention and experiences. *Journal of Educational Research, 90*(3), 144-153.

Smith, J.S., Akos, E, Lira, S., & Wiley, S. (2008). Student and stakeholder perceptions of the transistion to high school. *The High School Journal, 91* (3), 32-42.

Smith, R. (2008, June). Motivational Factors in E-Learning.

Smith, R., Clark, T., & Blomeyer, R.L. (2005). *A synthesis of new research in K-12 onlinele learning*. Naperville, IL: Learning Point Associates.

So, H.J., & Kim, B. (2005). Instructional methods for computer supported collaborative learning (CSCL): A review of case studies. Paper presented at the 10th CSCL Conference, Taipei, Taiwan.

Song, S.H. (1998). *The effects of motivationally adaptive computer-assisted instruction developed through the ARCS model*. Unpublished doctoral dissertation.

Song, S.H., & Keller J.M. (2001). Effectiveness of motivationally adaptive computer assisted instruction on the dynamic aspects of motivation. *Educational Technology, Research and Development,* 49(2), 5-22.

Sorensen, C.K. & Baylen, D.M. (2004). Learning online: Adapting the seven principles of good practice to a Web-based instructional environment. *Distance Learning.* 1(1), 7-17.

Sperry, D. (2009). *Experiences and descriptions of motivational factors in online learning: Rural community college students' perspectives*. Ph.D. dissertation, Capella University, United States -- Minnesota. Retrieved June 27, 2009, from Dissertations & Theses: Full Text database. (Publication No. AAT 3339300)

Steiner, V. (1995). What is distance education? *Learning Resource Network Library*. Distance Learning Organization Library.

Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). Mahwah, NJ: Routledge Academic.

Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance Education*, 22 (2), 306-331.

Swan, K. & Shih, K. (2005, October) On the nature and development of social presence in online course discussions. *Journal of Asynchronous Learning Networks* 9(3).

Talvitie-Siple, J. (2007) *Students' motivation to learn: An evaluation of perceptions, pedagogy, and design in one e-learning environment*. Ed.D. dissertation, The University of North Carolina at Chapel Hill, United States -- North Carolina. Retrieved June 29, 2009, from Dissertations & Theses: Full Text database. (Publication No. AAT 3283495).

Tourangeau, R., Couper, M.P., & Steiger, D.M. (2001). *Social presence in Web surveys*. Paper presented at the Federal Committee on Statistical Methodology Research conference, Arlington, Virginia, November 14–16.

Truell, A., Bartlett, J.E., & Alexander, M.W. (2002). Response rate, speed, and completeness:A comparison of Internet-based and mail surveys. *Behavior Research Methods,Instruments, and Computers, 34* (1), 46–49.

Tuten, T.L. (1997). Getting a foot in the electronic door: Understanding why people read or delete electronic mail (ZUMA Working Paper No. 97/8). Mannheim, Germany: ZUMA.

Twigg, C.A. (2001). Quality assurance for whom? Providers and consumers in today's distributed learning environment. The Pew Learning and Technology Program. Center for Academic Transformation at Rensselaer Polytechnic Institute.

Tyler-Smith, K. (2006). Early Attrition among First Time E-Learners: A Review of Factors that Contribute to Drop-out, Withdrawal and Non-completion Rates of Adult Learners undertaking eLearning Programmes. *MERLOT Journal Online Learning and Teaching, 2*(2), 73-85.

Uguroglu, M., & Walberg, H.J. (1979). Motivation and Achievement: A Quantitative Synthesis. *American Educational Research Journal, 16*, 375-389.

University of Kentucky. (2006). Theories of Teaching and Learning. *Teaching and Academy Support System at the University of Kentucky.*

U.S. Department of Education. (2010, March). *Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act*.

U.S. Department of Education. *Fact Sheet: Investing in Innovation Fund*.

Vallerand, R.J., Blais, M.R., Briere, N.M. & Pelletiers, L.G. (1989) Construction and Validation of Motivation in Education. *Canadian Journal of Behavioral Sciences, 21,* 323-349.

VanDenKerkhof, G. E., Parlow, L.J., Goldstein, H.D. & Milne, B. (2004). In Canada, anesthesiologists are less likely to respond to an electronic, compared to a paper questionnaire. *Canadian Journal of Anesthesia, 51* (5), 449–54.

Visser, L. (1998). *The Development of Motivational Communication in Distance Education Support*. Den Haag: CIP- Gegevens Koninklijke Bibliotheek.

Visser, J., & Keller, J.M. (1990). The clinical use of motivational messages: An inquiry into the validity of the ARCS model of motivational design. *Instructional Science, 19*, 467-500.

Visser, L., Plomp, T., Amirault, R., & Kuiper, W. (2002). Motivating Students at a Distance: The Case of an International Audience. *Educational Technology Research & Development, 50*(2), 94-99.

Visser, L., Plomp, T., & Kuiper, W. (1999, February 10-14, 1999). Development Research Applied to Improve Motivation in Distance Education. Paper presented at the Association for Educational Communications and Technology, Houston, TX.

Walberg, H.J., & Uguroglu, M. (1980). Motivation and Educational Productivity: Theories, Results, and Implications. In L.J. Fyans, Jr. (ed), *Achievement Motivation: Recent Trends in Theory and Research.* New York: Plenum.

Wang, S., & Reeves, T. (2006, September 15). The effects of a web-based learning environment on student motivation in a high school earth science course. *Education Tech Research Dev, 55*, 169-192.

Watson, J., Gemin, B., Ryan, J., & Wicks, M. (2009). *Keeping Pace with K-12 Online Learning: An Annual Review of State-level Policy and Practice*.

Watt, J.H. (1999). Internet systems for evaluation research. In *Information technologies in evaluation:Social, moral, epistemological and practical implications*, ed. G. Gay and T. L. Bennington, 23–43. San Francisco: Jossey-Bass.

Weber, D. (14 August, 2010). Back to school: toughest test of all: 9th grade. *Orlando Sentinel.*

Wedemeyer, C.A. (1981). *Learning at the back door: Reflections on non traditional learning in the lifespan.* Madison: University of Wisconsin Press.

Weiner, B. (1990). History of motivational research in education. *Journal of Educational Psychology, 82*(4), 616-622.

Weinstein, R. , Madison, S. & Kuklinksi, M. (1995). Raising expectations in schooling: Obstacles and opportunities for change. *American Educational Research Journal*, 32, 121-159.

Wlodkowski, R.J. (1993). *Enhancing adult motivation to learn*. San Francisco: Jossey-Bass.

Wlodkowski, R. (1999). *Enhancing adult motivation to learn*. (Rev. ed.) San Francisco: Jossey-Bass.

Wortmann, K., Cavanaugh, C., Kennedy, K., Beldarrain, Y., Letourneau, T., & Zygouris-Coe, Z. (2008, October). *Online Teacher Support Programs: Mentoring and Coaching Models.* North American Council for Online Learning.

Yacci, M. (2000). Interactivity demystified: A structural definition for distance education and intelligent computer-based instruction*. Educational Technology*, 40(4), 5-16.

Zemke, R., & Zemke, S. (1981). 30 Things we know for sure about adult learning. In *Training: The magazine of human resources development* (June). Minneapolis, MN, USA: Lakewood Publications.

Zhang, C., & Fulford, S. (1994). Are interaction time and psychological interactivity the same thing in the distance learning television classroom? *Educational Technology, 34*(6), 58-64.

Zhao, Y. (1998). Design for adoption: The development of an integrated web-based education environment. *Journal of Research on Computing in Education, 30* (3), 307-355.

Zhao, Y., Lei, J., Yan, B., Lai, C., & Tan, H.S. (2005). What makes the difference? A practical analysis of research on the effectiveness of distance education. *Teachers College Record, 107*(8), 1836-1884.

Zheng, L., & Smaldino, S. (2009). Key Instructional Design Elements in Distance Education. In A. Orellano, T. Hudgins, & M. Simonson (Eds.) *The Perfect Online Course: Best Practices for Designing and Teaching.* (pp. 107- 123). Charlotte, N.C.: Information Age Publishing.

Zimmerman, B., & Cleary, T. (2006) Adolescents' Development of Personal Agency: The Role of Self-Efficacy Beliefs and Self-Regulatory Skill. *Adolescence and Education*. Greenwich, CT: Information Age Publishing.

BIOGRAPHICAL SKETCH

Julia is an experienced educator with background as a classroom high school language arts teacher, a virtual secondary school curriculum designer and facilitator, and an instructional designer for adult distance learning courseware. She was invited to be part of the creative team at Florida Virtual School, and designed and facilitated the first online language arts curriculum for English II and American Studies. She is currently a senior instructional systems designer at General Dynamics and is an experienced designer and facilitator of web-based and instructor-led training. Julia has completed advanced cooperative learning training at The Cooperative Learning Institute (University of Minnesota) with Roger and David Johnson. She has undergraduate degrees in English and music from Northwestern University and a Master of Arts in Teaching from Rollins College.