THE INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE CONTENT AREAS AND ADOLESCENT MOTIVATION

by

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B.S. University of Central Florida, 2008

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Education
in the Department of Teaching, Learning, and Leadership
in the College of Education
at the University of Central Florida
Orlando, Florida

Fall Term
2010

ABSTRACT

This study was designed to investigate the types of Information and Communication Technologies (ICTs) integrated into the content area classrooms of two local high schools, and whether the use of these ICTs motivated adolescent students to read and write in the content areas. The investigator created a student survey, student, teacher, and other support faculty interview protocols, and a classroom observation protocol to collect data for the study.

The investigator faced several challenges which prevented her from spending adequate time in the schools. Due to these challenges, sufficient data was not obtained to form conclusions about the research questions. This thesis will present the review of literature, methodology, and plan for completing the study in the future.

To my family,

for their love and encouragement throughout this process.

ACKNOWLEDGMENTS

I would like to thank my Thesis Chair, Dr. Vicky Zygouris-Coe, and my Thesis Committee Members, Dr. Nance Wilson and Dr. Michelle Kelley for their guidance, dedication, and hard work over the course of my graduate studies at UCF. Their knowledge and passion for what we do is unmatched, and I am forever indebted to them for inspiring me to become the best student and educator I can be.

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CHAPTER 1: INTRODUCTION

Conceptual Frameworks

An abundance of recent research addresses the importance of secondary literacy instruction. Aside from expanding the realm of literacy instruction to include literacy instruction across all content areas, research suggests that student success also depends on student motivation and engagement in the content they are learning. It is said that motivation is what gets students to attempt a task, engagement is when they continue to attempt a particular task, and that motivation and engagement have a direct affect on achievement. It is true; we are more likely to be successful with a task if we invest time in attempting the task, and we are more likely to attempt an even more challenging task if we are successful with our previous attempts.

Knowing this, and knowing that students are highly motivated to use Information and Communication Technologies (ICTs) in their everyday lives, it is a logical question to ask if the integration of ICTs into secondary content-area classrooms will motivate students to interact with and engage in content-area literacy tasks.

Purpose of the Study

Literacy instruction, though not always considered to be, is a vital part of content-area instruction. Because the concept of literacy instruction is changing to include twenty-first century technologies to support the cognitive and motivational needs of students, the concept of literacy instruction in the content areas should also be changing. The purpose of this study is to determine whether the use of Information and Communication Technologies (ICTs) in secondary content area classrooms motivates adolescent students to read and write in the content areas.

Questions of the Study

The questions of this study include:

(1) What types of ICTs are being used in the participating classrooms?

(2) How are the ICTs being used (by both teachers and students) in the participating classrooms?

(3) Does the use of these technologies motivate and adolescent students to become more active readers and writers in the content areas? If so; in what ways, and why do these technologies motivate adolescent students?

Significance of the Study

The results of this exploratory study will attempt to provide high school content area teachers, reading/literacy specialists, and principals with more insight into what motivates today's adolescent learners to become active readers and writers in the content areas. With the data, though general assumptions cannot be made from the accessible sample in this study, content area teachers, reading/literacy specialists, and principals at the high school level can learn how the participating classrooms at the two schools integrate ICTs into the secondary classroom, and if and why the use of these technologies motivate students.

Definition of Terms

The following terms are frequently used throughout the Review of Literature and Methodology chapters. Below, a brief description of each term is given.

Adolescence: a stage of human intellectual and social development between the ages of 13 and 18.

Content Area Literacy: reading, writing, speaking, listening, and viewing in the content areas; content areas include core subjects such as Language Arts, Social Studies, Science, and Mathematics.

Content Area Literacy Instruction: instruction in the mental processes supporting effective reading, writing, speaking, listening, and viewing in the content areas of Language Arts, Social Studies, Science, and Mathematics.

Engagement: a behavior characterized by a continued interest in, and active participation with, a task.

Information and Communication Technologies (ICTs): twenty-first century technology tools by which people receive and distribute information electronically.

Literacy: reading, writing, speaking, listening, and viewing effectively to understand and communicate ideas.

Motivation: a behavior characterized by an initial interest in completing a task.

New Literacies: the new skills necessary to read and write effectively in the twenty-first century that are emerging due to the rapid creation and development of ICTs.

Limitations

The limitations of this study include the duration of the study, access to a student and teacher sample, the size of the sample, the researcher herself, and the topic of study.

Sustained and ongoing observation in the classrooms would allow for more data on how technology tools are used in the selected classrooms and how the use of these tools promotes student engagement in the content areas.

Access to more classrooms, teachers, and students would provide a more comprehensive look at the current use of technology in local schools.

Because the sample is a convenient sample, assumptions and generalizations about the target population cannot be made.

The researcher herself is a limitation because the data collected from field notes and observations is not entirely objective. The researcher attempted to compensate

for this by including other, more objective measures such as the teacher and student interviews and student surveys.

The study topic itself is also a limitation because student motivation and engagement cannot easily be measured.

CHAPTER 2: REVIEW OF LITERATURE

The Reading Achievement of Adolescents

The most recently released national and state reading assessment results paint a Monet-like picture that's worth one-thousand poignant words. To distant critics, the picture renders a beautiful depiction of hope on the horizon; a hope caused by a slight improvement in overall student reading achievement compared to the previous years' results. But to those looking more closely, the picture reveals much more. It reveals an achievement slump for adolescent readers and thereby a likely deficit of effective secondary reading instruction.

Trends in Nationwide Reading Achievement

In 2009, the United States Department of Education's National Center for Education Statistics (NCES) released a report that compared various years of the reading performance results from the National Assessment for Educational Progress (NAEP) Long-Term Trend Assessment in order to analyze the long-term trends in student reading achievement since its inception. The report examined trends in the reading performance of 9-, 13-, and 17-year-old

students nationwide based on twelve selected years' assessment results spanning from 1971 to 2008 for each age group. The assessment years selected for the comparison were 1971, 1975, 1980, 1984, 1988, 1990, 1992, 1994, 1996, 1999, 2004, and 2008. The NCES used the scale score results and averages of the NAEP for each age group across the years to determine the trends.

According to the scores included in the report, all three age groups showed some improvement in reading achievement in 2008 compared to 2004. The 9-year-olds showed the greatest improvement from 2004 to 2008 out of all three age groups, and performed higher on the assessment in 2008 than any other year included in the study. The average score for 9-year-olds increased by four points from 2004 to 2008, and twelve points from 1971 to 2008. The average score for 13-year olds increased by three points from 2004 to 2008 and five points from 1971 to 2008; however, the 2008 averages did not differ much from the other years' averages included in the comparison. The average score for 17-year-olds also increased by three points from 2004 to 2008, but showed only a one-point increase from the 1971 score average. Even with the three-point increase from 2004 to 2008, the average score for

2008 was significantly lower than eight other years included in the study; sometimes by as much as four points (NCES, 2009).

Fitting with these results, the International Reading Association (IRA, 2001) and the National Middle School Association (NMSA, 2001) reported that student reading performance declines when students reach middle and high school and Fang and Schleppegrell (2010) noted that over eight million students in grades 4 through 12 have difficulty reading grade-level texts. Even more alarming, the NAEP trends assessment showed that 71 percent of all students had achieved only partial mastery of the skills and knowledge expected of them at their given grade level (Radcliffe, Caverly, Hand, & Franke, 2008).

Trends in Statewide Reading Achievement

Toward the end of each year in the state of Florida, every student in grades 3 through 10 takes the Florida Comprehensive Assessment Test (FCAT). The FCAT is a standardized assessment that assesses students' knowledge and skills in reading, math, science, and writing. The Reading and Math sections are given every year, whereas the

Science and Writing sections are only given to certain grade-levels. Students must test at or above their grade level to be promoted to the next grade for the next school year. There are five achievement levels (1-5). Students whose scores fall in a Level 3 are considered "at grade level". Levels 1 and 2 are considered "below grade level", and Levels 4 and 5 are considered "above grade level".

In June 2010, the Florida Department of Education released a document that compared the reading scores of students in grades 3 through 10 for every year from 2001 to 2010. The document included the grade-level, assessment year, number of students, mean developmental scale score, mean scale score, percent of students at each achievement level (1-5), and the percent of students at achievement level 3 or higher (FLDOE, 2010).

In 2010, 72 percent of third-grade students, 72 percent of fourth-grade students, 69 percent of fifth-grade students, 67 percent of sixth-grade students, 68 percent of seventh-grade students, 55 percent of eighth-grade students, 48 percent of ninth-grade students and 39 percent of tenth-grade students perform at or above grade-level. The percent of students at or above grade-level for all grade levels was higher in 2010 than in 2001 (FLDOE, 2010).

While there has been an increase in number of students performing at or above grade-level at all grade-levels over the past nine assessment years, it's hard to ignore the dramatic decline in student achievement in grades 8, 9, and 10.

The Nature of Reading in the Content-Area Classroom

So where does the problem lie? Why do so many adolescents struggle with reading, even when many of those same adolescents were reading well in the elementary school setting? Some blame it on the student; some on the teacher; some on the content. The truth is that the reading that takes place in an elementary classroom is significantly different from that which takes place in most middle and high school classrooms. There are variances in the purposes for reading, types of reading materials used, reading processes, modes of reading, reading interests, and class time dedicated to reading and reading instruction. Because of this, the teacher must understand the needs of the student and the demands of reading in the content areas, and then become the bridge that meaningfully connects the two together.

The Demands of Content-Area Reading

Chall (1996) outlined six developmental reading stages through which students progress. These stages are often grouped into two broader stages where a supposed shift in reading processes occurs. This shift is where students move from "learning to read" to "reading to learn" (Chall, 1996). Chall and Jacobs (2003) further studied the transition, which is said to begin when students enter into the fourth grade and continue through the middle and high school grades, when the introduction and use of expository texts becomes an overwhelming component of classroom reading. The purpose of the study was to determine the underlying causes of the decline in reading achievement during and after this shift. They found that students who struggled with the transition had difficulties in fluency and vocabulary knowledge, and as a result of these difficulties, they also struggled with comprehension (Chall & Jacobs, 2003).

Chall and Jacobs (2003) understood the demands of content-area reading. From the study, they recognized that in the earlier grades, students were able to use context to construct meaning when they came to a word they didn't

know. However, as the texts became increasingly difficult, students were able to do that less and less. Chall and Jacobs (2003) claimed that "…if children are lacking in certain aspects of [earlier] reading, later reading development will usually suffer" (p. 3). But according to other sources, even if children acquire the skills necessary for success in reading in elementary school, those skills alone are hardly sufficient for continued reading success in middle and high school (Irvin, Meltzer, & Dukes, 2007; IRA & NMSA, 2001; Robinson & McKenna, 2008). As Fang and Schleppegrell (2010) stated, "…this emphasis on the strategies and skills that are the mainstay of elementary reading instruction fails to recognize the significant differences in reading demands that emerge in secondary schooling" (p. 587).

Torgesen and his colleagues from the Center on Instruction (2007) discussed the implications of Chall's widely-accepted transition, which is often used to sum up the differences between elementary and middle and high school reading processes. Like many others, they argued that the process of learning to read does not simply stop at the end of third grade. Instead, they are moving from learning to read primarily narrative texts (Irvin, Meltzer,

& Dukes, 2007) to learning to read primarily expository or informational texts (Torgesen et al., 2007). So, yes, students are using texts to learn about content-area topics, but they are also still learning and developing the skills and strategies needed to effectively read and understand those texts.

What are the skills that students need to effectively read and comprehend content-area texts? The reading of academic texts is not, or should not, be a passive act. Lee and Sprately (2010) said that readers actively create and recreate meaning of text as they are reading; using the reading strategies and prior knowledge they are already equipped with to help them comprehend. The reading strategies they speak of are the following general reading strategies: asking questions, making predictions, testing hypotheses, summarizing, and monitoring comprehension. The authors refer to "prior knowledge" as what readers already know about the text they're reading such as the words (vocabulary), sentence structure (syntax), text structure (genre), and topic. Students need to relearn the strategies taught to them in the elementary grades in ways that make those strategies relative to expository texts, and having

prior knowledge of the vocabulary and topic will assist in the application of those strategies to the texts.

As was mentioned in Lee and Sprately (2010), a student's prior knowledge of both the vocabulary and the topics presented in a text are important in overall comprehension. Fisher and Frey (2008) also spoke of the importance of vocabulary knowledge on the comprehension of content-area texts. They stressed that "missing just five percent of the words in a text makes it nearly incomprehensible" (p. 6), and, characteristic of most texts in the content-area classroom, is a drastic increase in specialized and technical vocabulary. Having background knowledge on a topic can assist with identifying words and their meanings; however, students are highly unlikely to have a breadth of knowledge on all of the content-specific topics they encounter in middle and high school (Robinson & McKenna, 2008).

Fisher and Frey (2009) affirmed that background knowledge "…is probably the best predictor of reading comprehension" (p. 2) and that there is a strong relationship between vocabulary and topic background knowledge. To illustrate the importance of prior knowledge on comprehension, the authors used a highly-scientific text

where decoding and fluency were non-issues when reading. Yet, the text was nearly incomprehensible. The cause was two-fold; a lack of knowledge about the topic and a lack of technical vocabulary knowledge. Having known something about the topic, or having known some of the technical vocabulary would have significantly helped with comprehending the text in an efficient manner.

Reading Instruction in the Content Areas

Irvin, Meltzer, and Dukes (2007) suggested two possible reasons aimed at explaining the deficit of reading effective reading instruction in content-area classrooms. The first reason is that teachers may believe that they are not responsible for providing students with reading instruction. The second reason is that teachers may "…lack the expertise in literacy to address the needs of their students" (p. 52). Likewise, Robinson & McKenna (2008) state that "…most reading instruction falls in the language arts program with the exception of remedial and special services" (p. 110). However, from the review of what is known about the demands of disciplinary reading, it is apparent that reading instruction cannot be the sole

responsibility of teachers of language arts, nor can it be afforded that content-area teachers lack expertise in literacy instruction.

Robinson and McKenna (2008) stated that reading from textbooks is typical in content-area classrooms, even though many students are reading below the reading level of those textbooks. Likewise, Radcliffe et al. (2008) reported that textbooks are often not used to their full potential because of this fact. Instead of teaching students the necessary strategies and skills needed for reading content-area texts effectively, teachers often outline important information for students or eliminate the textbook altogether with the hopes that, through lecture, students will still gain the content knowledge regardless of their lack of reading skills (Irvin, Meltzer, & Duke, 2007; Robinson & McKenna, 2008).

The immense amount of specific and technical vocabulary used in content-area texts is known. The importance of vocabulary knowledge on reading comprehension is known. However, regardless of vocabulary's undeniable importance to reading comprehension, research has not much affected classroom practice (Pearson, Hiebert, & Kamil, 2007; Flanigan & Greenwood, 2007). The fact is that several

questions and concerns from teachers about vocabulary knowledge and instruction remain. Many classroom teachers attribute their lack of vocabulary instruction in the classroom to either having limited time to teach vocabulary, being unsure of which vocabulary words to teach, lacking knowledge of appropriate word-learning strategies to use in the classroom, or any combination of the above (Blachowicz, Fisher, Ogle, & Watts-Taffe, 2006).

The Characteristics of Adolescents

Adolescence: a stage of life often characterized by a search for oneself through independence and a rebellion from all things suggested by parents. In order to reach adolescents, teachers must understand the developmental changes that their adolescent students go through. Adolescents go through many changes; however, the most relevant to education are their intellectual and social changes.

The Intellectual Characteristics of Adolescents

Caskey and Anfara (2007) stated that the period of adolescence is a time of extreme intellectual growth.

Because students are beginning to function at higher cognitive levels, they also begin to ask questions and are curious about the world around them. They use what they already know to find out more about what interests them. Because students learn new things from building on their prior experiences, new experiences relatable and meaningful to their own lives become crucial to their learning. Caskey and Anfara continued, "…youth are most interested in real-life experiences and authentic learning opportunities; they are often less interested in conventional academic texts" (p. 2).

The Psychosocial Characteristics of Adolescents

Adolescents tend to strive less to please adults, such as parents and teachers, and strive more towards pleasing their peers. Students at this age are trying to find their niche. With this, however, they begin to compare themselves to their peers and will point out weaknesses in others and in themselves. This affects the chances they are willing to take in new and challenging academic tasks for fear of failure, especially if they discouraged from previous attempts (Hoffman, 2007). Students need to build positive

and trusting relationships with their peers and with adults, because while they may not act like it, they are still very dependent on both (Caskey & Anfara, 2007).

Motivating and Engaging Adolescents

After examining the nature of reading in the content areas and the characteristics of adolescents, it's easy to see why middle and high school students lack the interest in academic reading. The texts are often difficult; students need to develop new skills to navigate through those texts. The content is often disconnected; the students need to see the relevance of this learning to their own lives and previous learning. The environment for reading is either nonexistent or uninviting; students need a motivating and engaging environment. The next question is a loaded question. How do we motivate and engage adolescents in reading and learning about the topics we need them to read and learn about?

The Effects of Motivation and Engagement on Achievement

Irvin, Meltzer, and Duke (2007) noted a cyclical relationship between motivation, engagement, and

achievement. They said that teachers need to begin with motivation by tapping into students' interests and getting them excited about what they are reading or studying. Next, they said that teachers need to provide support to students. This support ensures that the work is not too easy, but also not too difficult, and allows for teachers to model good habits and strategies to students. It also allows for continued practice for students; and practice improves skills. Students then successfully achieve, and are more likely to try even more difficult academic tasks (Irvin, Meltzer, & Duke, 2007).

A Framework for Motivating and Engaging Adolescents

Quate and McDermott (2009) explained six components of a motivating and engaging classroom in their book *Clock Watchers: Six Steps to Motivating and Engaging Disengaged Students Across Content Areas.* They termed their components "The Six Cs", and they are: caring classroom community, checking in and checking out, choice, collaboration, challenge, and celebration. Their suggested components came from their extensive research on motivation, which reminded them that "…motivated and engaged learners are curious,

need to feel competent, and must be convinced that they are in control" (p. 8-9).

The first component is creating a caring classroom community. Research indicates that emotion and learning are interrelated (Quate & McDermott, 2009). Students need to feel safe, respected, and represented in the classroom. Creating a caring environment involves building strong relationships. Within the classroom, there are two types of relationships; student-student relationships and teacher-student relationships. During adolescence, students are looking for acceptance from their peers (Caskey & Anfara, 2007), so it is no surprise that the relationships students have with each other will affect how they participate and engage in class activities.

The relationship students have with their teacher is also a very important factor of the sense of community felt in a given classroom (Quate & McDermott, 2009; Guthrie, Alao, & Rinehart, 1997). Guthrie, Alao, and Rinehart (1997) noted that students' expectations for themselves decrease, beginning especially in the middle school grades, partly because "…teachers tend to emphasize the excellence of high-achieving students, rather than emphasizing the performance of all students" (p. 440). Another reason is

because as students get older, they become very self-conscious about their abilities in completing academic tasks. When students attempt challenging tasks and fail, their perception of themselves as learners decreases, and the chance of them attempting more challenging tasks also decreases (Hoffman, 2007; Guthrie, Alao, & Rinehart, 1997). The teacher plays an important role in building students' self-efficacies by setting high expectations, providing support, recognizing accomplishments, and encouraging students to try again (Quate & McDermott, 2009).

The second component suggested by Quate and McDermott (2009), checking in and checking out, involves assessment. In the midst of an era marked by standardized tests, many teachers probably cringe when they hear the word "assessment". However, assessment can be very motivating to students, especially when they can see their growth and know that their efforts are "paying off". The use of pre- and post- assessments was recommended by the authors. Pre-assessments, usually not collected for a grade are used to gauge what students already know, can activate background knowledge, and can give students a purpose for reading and learning. Post-assessments are used to show the acquisition

of new knowledge in comparison to the pre-assessments (Quate & McDermott, 2009).

The third component, choice, supports adolescents' need for independence and ownership over what they do. Brozo and Flynt (2007) pointed out that as students move into adolescence, "choices about many things outside of school increase significantly, yet options in school remain limited" (p. 173). But when students are provided with choice in the books they read, the topics they study, and/or the projects they complete, they are more motivated (Brozo & Flynt, 2007; Quate & McDermott, 2009; Pitcher et al., 2007). Quate and McDermott (2009) assert that while choices are highly motivating to students, teachers need to structure the choices they provide strategically.

The fourth component, collaboration, is not only supported by research on adolescents' need for social interaction among peers (Caskey & Anfara, 2007), but is also supported by the research that confirms that collaboration increases comprehension (Brozo & Flynt, 2008; Fisher & Frey, 2009). Students in the elementary grades are frequently put into small groups for more individualized instruction and discussion of class readings. However, it seems as though those teaching practices fade away in the

middle and secondary classrooms. In a study where textbook reading in a content-area classroom was done through literature circles, students were motivated to read and discuss what they were reading because of the dynamics of the group roles (Wilfong, 2009). Defining roles is certainly important when designing group work for your students. With roles, students have a purpose for reading and some responsibility. It is also important to assign roles because students can then be held accountable for both individual and group work (Quate & McDermott, 2009).

The fifth component, challenge, is a tricky one. Quate and McDermott (2009) discussed Csikszentmihalyi's research on learning theory and explained that to motivate and engage students in an academic task requires that the task is neither too easy nor too difficult. If the task is too easy, students will become uninterested and unmotivated because they will not be learning anything new. If the task is too difficult, students are likely to give up. The importance of the Zone of Proximal Development (ZPD), introduced by psychologist Lev Vygotsky, comes into play here. The academic tasks should be just above what a student can do on his/her own, but be attainable with the

support of a more capable peer or teacher (Hoffman, 2007; Quate & McDermott, 2009).

The sixth component is celebration. Celebration is important for self-efficacy and for students to know that their work was worth the effort. Celebrations can be large or small, but they should occur frequently in order to keep the motivation going in the classroom (Quate & McDermott, 2009).

In addition to these six components, Brozo and Flynt (2008) also suggested that teachers need to attempt to connect out-of-school literacy practices with in-school literacy practices. In doing so, teachers will address several, if not all, of the six components Quate and McDermott (2009) suggested to motivate and engage students in reading and learning. What are some of the differences between in- and out-of-school literacies? In-school literacy practices are traditionally associated with print materials, and most of print materials adolescents are exposed to in the secondary schools are limited to textbooks. With the rapid increase of and access to technology, out-of-school literacy practices of adolescents are now, in the twenty-first century, rapidly changing from print materials to non-print materials.

Literacy in the Twenty-First Century

Five minutes is all it takes to understand the tremendous impact that technology currently has on the world and its people. *Did You Know? 3.0*, a five-minute video produced by McLeod & Brennan (2008), depicts the astounding development of technology, the exponential growth in the number of technology users, the overwhelming abundance of available information due to these developments and increases, and the fascinating impact it all has on our world. The video closes by posing the following question: So what does it all mean? So, what does it all mean? It would be foolish to believe that technology, in such an information- and technology-driven era as today, has little or no impact on education. It would be even more foolish to believe that technology has little or no impact on literacy education. New literacies are emerging. With these new literacies comes a new idea of what it means to be "literate", and a need to refocus literacy instruction to make the concept of literacy more relative to students' everyday lives and needs.

Defining New Literacies and Information and Communication Technologies (ICTs)

The term "new literacies" has taken on various meanings. Some have used the term to describe the new forms of digital, visual, or media texts produced from the Internet and other Information and Communication Technologies (ICTs), whereas others have used the term to describe the skills, strategies, and dispositions needed to make meaning from reading and writing on the Internet and through the use of other ICTs (Leu, O'Byrne, Zawilinski, McVerry, & Everett-Cacopardo, in press). For example, Larson (2008) thought of "new literacies" in the first sense by stating "…today's students encounter and interact with new literacies, including electronic books, Internet-based reading and writing, and online communication experiences" (p. 121). Here, the researcher described the Internet and other ICTs as the "new literacies" themselves.

However, in a recent position statement published by the The International Reading Association (IRA, 2009), the IRA used the following four features to define the term "new literacies":

(1) The Internet and other ICTs require new social practices, skills, strategies, and dispositions for their effective use;
(2) New literacies are central to full civic, economic, and personal participation in a global community;
(3) New literacies rapidly change as defining technologies changes; and
(4) New literacies are multiple, multimodal, and multifaceted; thus, they benefit from multiple lenses seeking to understand how to better support our students in a digital age. (p. 2)

Therefore, the IRA uses the term "new literacies" in the second sense; to describe the necessary skills and strategies needed to comprehend the digital texts available through the Internet and other ICTs. In addition, the IRA continues by labeling search engines, webpages, e-mail, instant messaging, blogs, podcasts, e-books, wikis, nings, YouTube, and video as ICTs, not "new literacies" (2009). For the purposes of this research, the use of the two terms will mirror that of the IRA.

Adolescent Use of ICTs and New Literacies

It's true; adolescents do read and write, even if they claim they don't. Adolescents love communicating with their peers and expressing themselves; and let's face it, we're living in a digital world where doing both of those things has become relatively easy. With the increasing popularity

of social networking sites, adolescents can tell their friends the latest news, read up on what their friends are doing, and share videos, news articles and the like with the simple click of a button. With that click, their voice is being heard and they are communicating with their peers about things that are important to them. But even more importantly, they are reading, writing, and searching for the resources they share with their friends; it's adolescent literacy at work.

Research in the field indicates that adolescents take on specific roles as literacy practitioners with the use of ICTs, just as they take on specific roles in the print-based world. The role for reading and interpreting information through the use of ICTs is called the "consumer" role. The role for producing material through the use of ICTs is the "producer" role (Considine, Horton, & Moorman, 2009). In short, these two terms mirror the "reader" and "writer" terms traditionally used to describe students' literacy practices. Considine, Horton, & Moorman (2009) cite research from Lenhart & Madden (2005) to identify the practices and engagement of adolescents in each of these roles:

> …teens are not just consumers of Internet content but are not actively engaged as Internet content creators. This includes sharing creations such as artwork, photographs, stories, and videos; working on webpages or blogs for others; and creating and maintaining their own websites, online journals, or blogs. (p. 473)

Luckin, Clark, Graber, Logan, Mee, & Oliver (2009) also surveyed the use of ICTs in students' daily lives. They found that students were using social networking sites for communication and sharing, e-mail, instant messaging, wikis, blogs, online games (including games that allowed for multiple players), podcasts, forums, and discussion boards. In addition to the roles of producer and consumer, Luckin and her colleagues (2009) suggested a third role of "collaborator" to include the acts of sharing information and discussing with others through the use of ICTs before publishing content.

The Disconnect between the Out-of-School and In-School Literacy Practices of Adolescents

So, there is proof that students are actively engaging in literacy practices using ICTs outside of school. However, research also shows that students don't see themselves as competent readers and writers. With the

development and implementation of the *Adolescent Motivation to Read Profile,* Pitcher, et al. (2007) found similar results to the previously mentioned studies; many adolescents spend a significant amount of time on the computer at home writing e-mails, reading articles from popular news websites, and playing games. They confirmed, "…adolescents in this study are reading and writing many hours daily in multiple, flexible, and varied ways and formats" (p. 394). Here again, students are taking on the roles of consumers, collaborators, and producers in the literacy world of the twenty-first century.

Dismally, their research also found that these same students did not consider themselves good readers nor did they consider reading a fun thing to do (Pitcher, et al., 2007). This raises the question of which literacies are truly valued by teachers and in the classroom. It does not seem as though these students felt that their digital reading and writing participation and experiences qualified as valid literacy tasks.

Much of the reading and writing students currently take part in within the context of school is with the use of print-based texts (of which are mostly textbooks) and paper and pencil or word-processed essays. However, the way

students are reading, writing, and communicating outside of school are in different formats. Because of these differences, what students believe to be quality literacy practices according to their parents, teachers, and schools, may not include the literacy practices they use in their everyday lives. Pitcher, et al. (2007) concluded from their study:

> Students may be defining reading and readers only in an academic context, and this context is often not inclusive of the types of reading and writing they are engaging in outside of the classroom; therefore, they may not be viewing their out-of-school literacies as valid reading and writing. (p. 394)

Aside from the differences between modes of reading, writing and communicating, the topics available to students outside of school vary greatly from the topics offered to students in school. Adolescent students desire to read information that is relative to their daily lives, and most textbooks don't offer that. As Alvermann (2008) noted, "Conventional text-bound teaching in the content areas belies how contemporary youth locate and use information that has relevance for them" (p. 17). Finding quality resources on the internet, or other forms of multimedia can help bring together out-of-school literacies and in-school

literacies, and can make students feel like academic reading is more relevant to their lives.

So why isn't the use of the Internet and other ICTs more prevalent in schools? Reasons such as the availability and accessibility of the Internet and other ICTs within schools, the generational differences between many teachers and students, competing discourses, and many other reasons have been at the forefront of the recent debates among educators on whether the integration of ICTs is a necessity or luxury (O'Brien & Scharber, 2010; Alvermann, 2008). However, organizations and experts in the field believe that integration of the Internet and other ICTS in the general curriculum is necessary if students are to become competent readers, writers, and collaborators in life beyond grade school.

Why Information and Communication Technologies May Motivate Students to Read in the Content Areas

There are many reasons why ICTs, when integrated appropriately into content-area curriculum, may motivate students to read and interact with texts related to content-area topics. Much research has confirmed that today's learners are motivated to use ICTs in their daily

lives outside of school (Luckin, et al, 2009), and moreover, today's learners prefer these ICTs over traditional text readings and assignments assigned in schools (Considine, Horton, & Moorman, 2009).

We know that traditional content-area texts, such as textbooks, can be particularly challenging in a number of ways. One way that textbooks are challenging is in the text itself. The use of the Internet and other ICTs in addition to textbooks can provide students with multiple texts to compare information, build background knowledge, and make meaning from (Leu, O'Byrne, Zawilinkski, McVerry, & Everett-Cacopardo, in press). When students have background knowledge and can make connections to difficult texts, comprehension of those difficult texts becomes easier (Fisher & Frey, 2008). When students feel that the content is accessible, their self-efficacy increases (Brozo & Flynt, 2008; Hoffmann, 2007), and their motivation to attempt reading other or more difficult text continues (Brozo & Flynt, 2008; Quate & McDermott, 2009).

Another way that textbooks are challenging is that they contain a wealth of information that is seemingly irrelevant to what students typically consider to be important in their daily lives. We know that when

information seems to have little relevance to students' lives, students are less motivated to participate or read the material (Brozo & Flynt, 2008). If students are able to connect what they are learning in textbooks to information and experiences present in their everyday lives, they find purpose for their reading. As Lenters (2006) noted, "[students were] motivated to read when they had authentic purposes to do so" (p. 136). Here, the purpose for using ICTs was to show relevancy of content concepts to students' everyday lives, which gave students a reason to read the information in their textbooks.

Because many students are familiar with the Internet and other ICTs because of their use of ICTs outside of school, they could have a sense of confidence when using these technologies inside school settings. This, again, addresses the issue of self-efficacy, but it also updates the traditional ideas of reading, writing, and communicating to fit with the types of reading, writing, and communicating these students will be doing in their lives past twelfth grade.

Finally, many of the ICTs allow for easy collaboration. Collaboration can be between students within the same classroom or even students across the world.

Communication with peers is central to adolescence (Hoffmann, 2007; Caskey & Anfara, 2007) and is extremely important in motivating them to perform academic tasks (Brozo & Flynt, 2008; Quate & McDermott, 2009). Luckin (2009) also said that setting up ICTs for collaboration "…might support deeper levels of engagement through feedback, peer review, and the development of a sense of audience and shared purpose" (p. 101).

The Responsibility of Educators

Using technology in the classroom can be overwhelming to some teachers. And an honest fact is that many students are more knowledgeable of the latest technologies than many teachers are (Boling, Castek, Zawilinksi, Barton & Nierlich, 2008). However, it is important that teachers learn these new technologies and effectively integrate the use of them into their classrooms. Effective teachers motivate their students and prepare them for becoming competent citizens. With the rapid growth of technology and new literacy resources available to students, it is necessary that teachers not only incorporate ICTs in the classroom, but also teach them how to appropriately use

these new technologies. The International Reading Association (2009) wrote the following on the importance of integrating ICTs in the classroom:

> To become literate in today's world, students must become proficient in the new literacies of 21st-century technologies. As a result, literacy educators have a responsibility to effectively integrate these new technologies into the curriculum, preparing students for the literacy future they deserve (p. 1).

It is time for teachers, schools, and policymakers to understand the changing concept of literacy, and that this change is going to be ever-changing due to the substantial and increasingly substantial growth in technology. Instead of focusing strictly on content-based or traditional literacy standards, it is important that students are taught about the tools and thinking processes needed to succeed in life after grade school.

Summary of Review

The intellectual and psychosocial characteristics of adolescents do not match many of the content-area texts they are confronted with in middle and high school. Content-area teachers need to provide the intellectual support by providing students with challenging and multiple texts that support content-area reading. The teachers also need to support the psychosocial characteristics of adolescents by creating a motivating and engaging learning environment.

The use of ICTs can attempt to merge some of the goals from both the intellectual and the psychosocial needs of adolescents and reinvigorate the adolescents' interest in school and learning. A key element in the cycle of achievement in learning, motivation, will no longer be left out of the mix for adolescents, and may help produce more lifelong learners. As Considine, Horton, & Moorman (2009) stated, "If there is a crisis in today's schools, it probably has more to do with students' perceptions that school is boring and largely irrelevant to preparation for life outside school" (p. 473).

CHAPTER 3: METHODOLOGY

Purpose of the Study

Literacy instruction, though not always considered to be, is a vital part of content-area instruction. Because the concept of literacy and literacy instruction is changing to include twenty-first century technologies to support the cognitive and motivational needs of students, the concept of literacy instruction in the content areas should also change. The purpose of this study is to determine whether the use of Information and Communication Technologies (ICTs) in middle-school content-area classrooms motivates students to read and interact with text in the content areas.

Research Design

This study is a qualitative exploratory study. Because student motivation and engagement cannot be clearly defined or succinctly measured, this study explores if, how, when, and why the integration of technology in the classroom motivates students. The results of this study do not give definitive conclusions, but rather attempt to give insight into what motivates adolescents to engage with

content-area literacy tasks, such as reading and writing, through the lens of both the learner and the educator.

Context (Schools)

Two schools were selected for the study. Both schools are public high schools and are located in Central Florida. School A is located in a neighboring school district to School B.

School A is a public high school with a magnet program for Information Technology. The students who attend this school are students who apply to the magnet program only; therefore it is not a "zoned" school where students who live in nearby neighborhoods attend simply because they are "zoned" for that school. In this school, the use of available technology resources is apparent in every classroom. Each student has a laptop with a wireless internet connection and storage on the school server, every classroom has a Smart Board®, many textbooks are e-textbooks (Science and Technology textbooks are exclusively e-textbooks), and there are ten desktop computer labs on campus available to the teachers and students. In addition to the resources available in the content classrooms,

students also have available elective classes that are technology-focused with various computer programs.

School B is a public high school located in an urban, high-poverty area. There is a significant difference in the current available technology tools and the prevalence of the use of technology tools when compared to School A.

Setting (Classrooms)

The research will take place in secondary content area classrooms. The content areas included in the study will be Science, Social Studies, Math, and Language Arts. The Science, Social Studies, and Language Arts classrooms included in the study are in School A. The Math classroom included in the study is in School B.

Population

In this study, the target population is adolescent students in grades nine through twelve across the content areas of Science, Social Studies, Math, and Language Arts. The accessible population is one classroom in each of the previously mentioned content areas.

Sampling

The sample of students and teachers in this study is considered a convenient sample. These schools were recommended to and selected by the investigator because they were two schools known to be integrating the use of technology into secondary content area classrooms. Classrooms at each school were selected based on teachers volunteering to participate in the study. The teachers who agreed to classroom observations also participated in the teacher interviews. Only the students from the selected classrooms who provided parental consent will participate in the study. Students selected for interviews were selected by the classroom teachers based on criteria set by the investigator. The investigator set criteria to have a balance in gender, and a range in academic ability and achievement among student participants. Because the sample used in this study is considered a convenient sample, logical generalizations about the total population cannot be made.

Participants

The participants included in the study are high school students in grades nine through twelve, content area

teachers in grades nine through twelve, literacy/reading specialists at the participating schools, and technology facilitators at the participating schools.

Instrumentation and Data Collection

To collect data for this study, the investigator created a classroom observation checklist, a student survey, and student, teacher, and other support faculty interview protocols. Multiple instruments were designed to gain multiple and comprehensive perspectives on the affects of technology integration on adolescent motivation and engagement in the content areas.

Classroom Observation Checklist

The classroom observation checklist was designed to collect information on the three following areas: the classroom environment, the role of Information and Communication Technologies (ICTs) classroom instruction, and student engagement with ICTs.

When looking at the classroom environment, the investigator is to take note of the classroom organization (especially in relation to available ICTs) and the presence and use of technology in the classroom. When looking at the

classroom organization, she will determine if the classroom is organized so that technology is central to the function of the classroom and lesson. She will also determine if the availability of technology in each classroom promotes individual, small group or whole group learning (i.e. are there technology resources for every student, do students share the resources, etc.?).

When looking at the presence of technology in the classroom, the investigator will examine the more objective components of the use of ICTs in the classroom by students and teacher, the various tools being used, and how they are being used.

When examining the instruction that takes place in the classroom, the investigator will note the ways the teachers use technology to support content-area instruction and learning, and whether the teachers teach their students how to use the available technologies.

To determine the level of student engagement, the investigator will observe student behavior to determine if the students are on task, if they seem comfortable with using the technology tool, and if they readily work together or help each other with the use of the technology

tool. She will also observe how or if the students are taking ownership and making choices about their learning. She will also herself if the students are connecting and applying what they read in their content area textbooks and other print materials to what they are learning when using the available technology tools. Most importantly, the investigator will observe if the students seem excited about what they are learning through the use of ICTs.

Student Survey

The student survey was designed to gain a general overview about how all student participants included in the study feel about using technology in general and in the classroom. It consists of ten statements where students rate their agreement with the statements on a scale from SA (Strongly Agree), A (Agree), U (Undecided), D (Disagree), or SD (Strongly Disagree). The statements are designed to examine whether the students feel confident about the technology tools they use, whether they feel more confident and successful in content learning when using the tools, whether they are more interested in learning about the topics in their content classes as a result of using ICTs,

and whether they feel like they have more choices and control over their learning, etc. through the use of ICTs.

Student Interview Protocol

The student interview protocol was designed to gain further insight into how some student participants feel about using technology in general and in the classroom. The questions were designed to gain a more in-depth understanding on whether these students enjoy using the technology tools in the classroom and why, whether they feel comfortable and at ease when using the tools available to them, whether they feel that the tools are important to their learning and understanding of the content and why, and whether or not the use of technology motivates them to engage more with the content they learn about and texts they interact with in school.

Teacher and Other Support Faculty Interview Protocols

The teacher and faculty interview protocols were designed to gain perspective on how teachers and other faculty members feel about the integration of technology in the classroom. Some of the interview questions focus on the challenges teachers face. This includes challenges teachers have with teaching the content they teach, meeting the

needs of their students, motivating their students to learn difficult content, and integrating technology into the curriculum. Other questions focus on the types of technology tools that the teachers and students use, how often they are used and for what purpose, who uses them, and the goals behind the use of these tools. Other questions were designed to examine the relationships between technology integration and student motivation and engagement. In addition, the teacher and faculty were asked to comment on how they continue to learn about available technology tools, how to use them, and the pros and cons of using these tools in the classroom.

Limitations

The limitations of this study include the duration of the study, access to a student and teacher sample, the size of the sample, the researcher herself, and the topic of study.

Sustained and ongoing observation in the classrooms would allow for more data on how technology tools are used in the selected classrooms and how the use of these tools promotes student engagement in the content areas.

Access to more classrooms, teachers, and students would provide a more comprehensive look at the current use of technology in local schools.

Because the sample is a convenient sample, assumptions and generalizations about the target population cannot be made.

The researcher herself is a limitation because the data collected from field notes and observations is not entirely objective. The researcher attempted to compensate for this by including other, more objective measures such as the teacher and student interviews and student surveys.

The study topic itself is also a limitation because student motivation and engagement cannot easily be measured.

Data Analysis

The investigator faced several challenges which prevented her from spending adequate time in the schools. Due to these challenges, adequate data was not obtained to form conclusions about the research questions.

Conclusion

Today's adolescents' active use of ICTs is undeniable. Born into the "information age" and a time where rapid technological growth is the norm, adolescents are not only aware of the technology tools that exist, but are also capable operators of these tools and interested in using them. These tools aid students in easily creating and editing information – from anywhere, at any time - that can be shared globally with the simple click of a button. Because it is apparent that today's adolescent students are effective consumers and producers of information using these new technologies in their everyday lives, it is logical to question whether the integration of these technologies in the classroom will motivate them to become active readers and writers with content area material in school.

The investigator plans to complete this study in order to form conclusions about the research questions. It is predicted that results will create new questions for further research. These questions will likely include:

(1) Is it the novelty of the tools that makes using ICTs "exciting"?

(2) Is it the accessibility and mobility of the tools the motivating factor?

(3) Is it students' ability and familiarity with using ICTs what motivates them to use them?

(4) Are students' perceptions of using the tools different from their perceptions of using print-based materials?

APPENDIX A: DEFENSE ANNOUNCEMENT

Announcing the Final Examination of Ms. Lindsey D. Blackwell for the degree of Master of Education

Date: November 4, 2010
Time: 7:30 a.m.
Room: ED315R

Thesis Title: The Integration of Information and Communication Technologies in the Content Areas and Adolescent Motivation

This study was designed to investigate the types of Information and Communication Technologies (ICTs) integrated into the content area classrooms of two local high schools, and whether the use of these ICTs motivated adolescent students to read and write in the content areas. The investigator created a student survey, student, teacher, and other support faculty interview protocols, and a classroom observation protocol to collect data for the study.

The investigator faced several challenges which prevented her from spending adequate time in the schools. Due to these challenges, adequate data was not obtained to form conclusions about the research questions. This thesis will present the review of literature, methodology, and plan for completing the study in the future.

Outline of Studies:
Major: Reading Education

Educational Career:
B.S., 2008, University of Central Florida

Committee in Charge:
Dr. Vassiliki Zygouris-Coe
Dr. Nance Wilson
Dr. Michelle Kelley

Approved for distribution by Vassiliki Zygouris-Coe, Committee Chair.

The public is welcome to attend.

APPENDIX B: IRB APPROVAL LETTER

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Lindsey D Blackwell**

Date: **October 28, 2010** **(CORRECTED November 17, 2010)**

Dear Researcher:

On October 28, 2010, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Initial Review
Project Title:	The Integration of Information and Communication Technologies in the Content Areas and Adolescent Motivation
Investigator:	Lindsey D Blackwell
IRB Number:	SBE-10-07159
Funding Agency:	None

NOTE: Please obtain approval from the appropriate school districts and school principals before beginning this research. Please forward copies of all approvals to the UCF IRB for filing.

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Joseph Bielitzki, DVM, UCF IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 10/28/2010 02:17:30 PM EDT

Janice M Turchin

IRB Coordinator

APPENDIX C: INSTRUMENTS

Classroom Observation Protocol

Environment

Classroom Set-Up (especially in relation to available technology)

Is it central to the function of the classroom/lesson?

Is the set-up conducive to group work?

The Presence of Technology in the Classroom

Tools being used…

How they are being used…

Instruction

Does the teacher use technology to support content-area instruction?

Does the teacher teach students how to use the available technologies?

Student Engagement

Are the students on task? Do they seem comfortable? Are they working together?

Are they taking ownership over their learning/making choices about their learning?

Are students connecting/applying what they are learning from the textbook(s) to what they are learning when using the available technology?

Are they excited about what they are learning?

Student Survey

Directions: Please read each statement and then indicate whether you agree or disagree with the statement by putting an X in the box that most accurately describes your belief.

SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly Disagree

Statement	SA	A	U	D	SD
1. I spend a lot of time outside of school using the computer, internet, and other technology to read, write, and/or create things.					
2. I like to use technology outside of school.					
3. I spend time in class using technology.					
4. I like to use technology in the classroom.					
5. I like when my teacher uses technology as a part of our lessons.					
6. I feel confident using the technology resources available to me at school.					
7. My teacher helps me learn how to use the technology resources we use in class.					
8. I enjoy searching for and reading information on the internet.					
9. I enjoy creating things using computer programs and sharing the things I create with others.					
10. I enjoy school assignments and projects more when they involve technology.					
11. I feel like I have more choices in my learning when my					

teacher allows me to use technology.					
12. I feel like I learn more when using technology because I am interested in how the information is presented.					
13. I feel like I learn more when using technology because I feel like it is more like what I do outside of school.					
14. I am motivated to learn more about topics I study in school because of the information available to me through technology.					
15. I prefer to use technology (such as the internet, e-books, blogs, etc.) when learning than print materials (such as newspapers, books, and paper and pencil assignments).					

Student Interview Protocol

(1) Do you like using technology in the classroom? Tell me some of the reasons you like using technology…

(2) Do you feel comfortable using the technology tools available to you in the classroom? How would you rate yourself as a technology user?

(3) Do you feel that the ways you use technology in school are important to your learning?

(4) Does using technology motivate you to read and learn more about the topics you are learning about in school?

Teacher Interview Protocol

(1) Talk about your classroom… What are some of the challenges you face when trying to both teach the content you need to teach and meet the needs of the students you teach? What do you feel motivates your students to learn?

(2) What types of technology tools do you use in the classroom? How often do you use them and with whom? What are your goals for this integration?

(3) Is it challenging to integrate technology? Do you feel like there is a loss in content coverage?

(4) Have you observed any impact on student motivation and/or learning with the use of technology? What does technology do to engage students in the content? In what ways?

(5) How do you continue to learn about technology and the use of technology in the classroom? Are you a confident user of technology?

Reading/Literacy Specialist and Technology Facilitator Interview Protocol

(1) What types of technology resources are used by reading and content-area teachers at your school?

(2) Are there challenges with integrating technology? If so, what are some of the challenges you've experienced?

(3) Do these resources enhance content instruction?

(4) How do these resources get students to interact with content area material?

(5) Do you feel that students are motivated when using these resources? What are some of the signs that they are motivated?

APPENDIX D: THESIS APPROVAL FORM

UNIVERSITY OF CENTRAL FLORIDA
COLLEGE OF GRADUATE STUDIES

THESIS APPROVAL

Students should complete the following information and obtain all signatures except that of the College of Graduate Studies Dean. College of Graduate Studies Dean signs only after the entire thesis or dissertation process has been completed, including delivery of all paperwork and upload of the final thesis or dissertation document. Only one copy should be delivered to the College of Graduate Studies in Millican Hall 230.

Student Name: Lindsey Blackwell Student PID: L1922224

Thesis Title: The Integration of Information and Communication Technologies in the Content Areas and Adolescent Motivation

Defense Date: November 4, 2010

Department: School of Teaching, Learning and Leadership

College: College of Education

Degree: Master of Education

The members of the Committee have reviewed the results of turnitin.com submission, participated in the defense, and approve the thesis named above:

Name (without title)	Title	Signature
Vassiliki Zygouris-Coe	Chair	Vicky Zygouris-Coe
Nance Wilson	Committee Member	
Michelle Kelley	Committee Member	Michelle Kelley
	Committee Member	
	Committee Member	
	Committee Member	

It is recommended that this thesis be used in partial fulfillment of the requirements for the degree of Master of Education from the School of Teaching, Learning and Leadership in the College of Education.

Name (without title)	Title	Signature
Rex Culp	Associate Dean for Research & Graduate Studies	
Sandra L. Robinson	Dean	
Patricia J. Bishop	Vice Provost and Dean of Graduate Studies	

The committee, the college, and the University of Central Florida are not liable for any use of the materials presented in this study.

TD06 Rev. 06/18/2009

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