PERCEPTIONS OF STUDENTS’ TECHNOLOGY USE
FOR WRITING TASKS
AND BEST PRACTICE TEACHING STRATEGIES
REGARDING WRITTEN EXPRESSION

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ABSTRACT

The purpose of this phenomenography research study was to explore how instructors perceived their students’ use of technology when completing writing tasks in a virtual learning environment. The foundation of this study was that online writing teachers would recognize which methods were effective with middle school students and they would begin implementing those approaches inside the virtual classroom to enable students to develop into robust writers. The phenomenography study consisted of data collected from three different sources: interviews, classroom observations, and a participant self-assessment. The results of this phenomenography study developed a more comprehensive understanding of the perceptions of students’ technology use for writing tasks and best practice teaching strategies regarding written expression. The writing tasks, whether asynchronous or synchronous, provided practice with the writing process and appeared to support students’ growth as writers. While synchronous interaction had some advantages, such as being able to speak and sometimes see the other person, participants often found asynchronous communications were just as effective.
Dedication

I would like to dedicate this study to my beautiful children with which God so richly blessed me.

Josiah Jayms – My first born, doubled crowned, doubled blessed son. I gave you life, but you have filled mine. Never stop asking questions; especially when no one around you knows the answers. I love your poetry, music and lexis. Truly you are a blessing to your people (II Kings 23:25).

Hannah Havah – My second “only child”. You are a happy life! Always be yourself, leftie. You force others to think differently and I love that about you. I appreciate your art and your passion for dance. May you always dance like King David (II Samuel 6:14).

I’ll love you both forever. I’ll like you both for always. Forever and always my little chickadees you’ll be (Munsch, 1995).
Acknowledgments

First and utmost to my Lord and Savior, Jesus Christ of Nazareth, I pray that I always study to show myself approved (II Timothy 2:15).

I would like to acknowledge and thank my committee members

Chair – Dr. Steve Davidson
Methodologist - Dr. Mark Taylor
Content Area - Dr. Tony Dalton
Reader - Dr. Andy Rines

Thank you to my partner in education through this all, Teresa Kirkland. We entered this program under the “no friend left behind” pact and we are ending this journey with “every friend succeeds”. You were there when I was sure that I was too old for this adventure. You shared the headaches, heart aches and long nights and you did it with three beautiful children. You are wonder woman! I want God’s very best for you. I will be watching to see as He finishes the work He began in you (Philippians 1:6).

I would like to thank Dr. Price, lovingly known as Dr. P. Thank you for the safe and challenging learning environment. I made mistakes, but you assured me that it was not the end of my world. You were correct.

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Chapter 1

Introduction and Background of the Study

While it was important to provide appropriate interventions to address a student’s literacy deficits, it was equally important to assess instruction and assignments to ensure students were engaged and motivated. According to the National Literacy Act (1991), literacy was defined as one’s capability to read, write, express, compute and resolve problems, to function on a job and in society, to accomplish one's goals, and advance one's knowledge and potential.

Often, educators considered students’ struggle with written expression as the underlying apprehension for their students’ literacy deficits. While many students possessed these literacy deficits, there was often more explanation for why students struggled with literacy. It was possible that in addition to deficits, there was also a reluctance to participate in any form of written task.

A reluctant writer was anyone who did not show interest in written tasks. Students struggled with writing for a variety of reasons. Some reasons included dysgraphia, boredom, meager knowledge of the basic subskills, and/or lack of interest in the topic. Additionally, some students contended to organize their thoughts and utilize the system of writing. Struggling writers were slow and inefficient in retrieving the right word(s) to clearly express their idea(s) to their audience. Other students grappled to develop their ideas fluently and suffered from poor ideation. Any of these prevented writers from fully demonstrating their knowledge and understanding.

Many teachers assumed that students arrived at their classrooms possessing the appropriate literacy skills necessary to complete the progressively challenging writing
tasks (Irvin, Meltzer & Dukes, 2007). The rigor of necessary tasks increased, but at-risk students continued to fall farther behind. While instruction focused on bridging these gaps, teachers attempted to ascertain if their classroom practices were contributing to the problem.

Writing was a skill developed for academic reasons but were vital beyond one’s education, occupation, and considered a life skill. In school, students trained to write and express their learning on an assortment of subject matter, connected their understanding, and expressed themselves to their teachers and peers. Many students agonized with linguistic delays or impairments, which caused them to struggle in constructing written language. Students with physical and/or sensory impairments, who also had inadequate access to needed assistive technologies, experienced restricted education opportunities (Wollak, 2011).

Thirty-three percent of American high school graduates sought to further their education but did not meet the readiness standards for college-level English composition coursework (ACT, 2005). If writing was imperative, then writing instruction must be improved. The National Commission on Writing (2003) described four challenges to educators: a) increased time spent on student-generated writing, (b) improved assessment procedures of students’ writing, (c) utilization of newly emerged writing technologies, and (d) specialized training on writing methods for all teachers (nwp.org, 2003).

Statement of the Problem

There were abundant sources of writing skills deficits that contributed to the students’ struggles with written expression, and no single solution would address them all. It was important for individual schools and districts to assess where their programs
were lacking and provide appropriate supports to lessen those gaps. One area that all teachers assessed was whether they were actually engaging and motivating their students.

Engagement described whether a student found interest and enthusiasm in a task in order to put forth the effort, participation and cognitive function (Parsons et al., 2015). The writing lesson/prompt needed to be engaging and relevant to the student. Before students were engaged, they were motivated (Irvin, Meltzer & Dukes, 2007). Motivation accounted for why a student was interested enough to become engaged. Motivation and engagement were closely linked, and it was impossible to have engagement without motivation.

Motivation occurred for multiple reasons. In a classroom, there were multiple strategies used to motivate students at any given time. Each student had their own sources of motivation. Some students found motivation for developing literacy skills based on external rewards. These were the students who found satisfaction in the good grades, prizes, and verbal praise. While this seemed to work well for younger students, secondary students did not often perform as well with this type of motivation.

In contrast, there were some students who were motivated intrinsically. These students developed motivation based on the desire to gain internal satisfaction instead of external gain. They wanted the feeling of a job well done. Those who were intrinsically motivated tended to make the greatest growth in literacy development.

Newer technologies such as alternative keyboards, speech-to-text software, spellcheckers, editing software, digital cameras, authoring tools, and electronic media channels have stimulated educators to employ several supplementary tactics and tools
than before to assist students in constructing their individual information and thoughts to present and share them more successfully (Sadik, 2008).

**Purpose of the Study**

The purpose of this phenomenography research study was to explore how instructors perceived their students’ use of technology when completing writing tasks in a virtual learning environment. The concentration of this study was on online writing teachers who taught middle school students who were enrolled at a virtual online public K-8 school in Tennessee. Students were required to reside in Tennessee in order to enroll. Likewise, online instructors resided in a diversity of geographic settings within the state. All online writing teachers held degrees connected to the writing field and had expert knowledge, held a valid Tennessee teaching license, and they were assessed for their capability to deliver meaningful feedback to their students. Determination on how middle school students would maximize their complete potential as writers using technology, three online administrators, teachers and learning coaches were interviewed to explore explicit teaching methods and approaches they have implemented with their middle school students and how the participants assessed the success of those procedures. The answers of these interviews were studied using the constant comparative method.

**Research Questions**

Q1. What was the nature and extent of middle school students using technology to complete writing tasks in a virtual learning environment?

Q2. What were the pedagogical practices of virtual instructors regarding the use of technology in developing middle school students’ writing skills?
Rationale for the study

The foundation of this study was that as soon as online writing teachers began to recognize which methods were effective with middle school students, they would then begin implementing those approaches inside the virtual classroom to enable students to turn out to be robust writers. Additionally, these instructors could involve these students in meaningful use of technology with both their writing products and writing processes. As a result, middle school students would undertake a leading role in their instruction, encouraging post-secondary academic achievements, by integrating additional technology use into their virtual classrooms.

Researcher Positionality Statement

The researcher had a B.S. in Elementary Education and an Ed.S. in Curriculum and Instruction, had seven years of experience in classroom instruction at the elementary level and 18 years of experience as a middle school teacher. After 10 years of teaching writing skills to middle school students with identified written expression deficits in the traditional brick and mortar school, the researcher transitioned to teaching in the virtual learning environment. The researcher was assigned to work with the most comprehensive middle school students that met state requirements for the alternative state assessment. The researcher found that utilizing technology for writing tasks helped students to overcome their individual obstacles. Not only were they able to complete writing tasks for class assignments, but they also were very successful when completing the written portion of the Multi-State Alternative Assessment.

The researcher’s individual level of effectiveness based on students’ state testing scores was a 5 on a 1-5 scale. While the researcher’s school’s literacy score was a 3 on a
The researcher was curious if colleagues were utilizing technology with their students, how often, and if they had incorporated technology into writing tasks. This would prompt meaningful change. Each subject area of the state’s testing had a writing subpart in addition to the separate writing assessment given.

The work experience in both brick and mortar and the virtual educational setting afforded many opportunities to observe the effects of various types of writing instruction, which produced inconsistent results regarding student written expression. The researcher’s role in the study was to evaluate and compare specific writing instructional methods incorporating technology. Some of the methods studied were personally utilized in the researcher’s experience as an educator.

**Definition of Terms**

**Asynchronous** was defined as non-real time class activities, such as assignments, quizzes, tests, communications between student and teacher that would span days or even months (Worthington, 2013).

**Online writing instruction** referred to a series of interactions which occurred in networked classrooms, email threads, or web-based conferences where a teacher or writing professional engaged with a student writer (Dvorak & Ranft, 2005).

**Synchronous** pertained to real-time classes where students communicated with their instructor and/or other students (Grogan, 2015).

**Transactional distance** referred to teachers and students interacting in two unique spaces separate from one another (Moore, 2013).

**Virtual learning environment** frequently occurred in a learning management system. While participants vigorously communicated during the length of the course, the
advantage of a virtual environment was that managers and teachers would review a
database of finished coursework and share perceptions as well as understandings with
scholars as chosen (Brooke, 2013).

Summary

There were many diverse approaches that were utilized to help students become
engaged and motivated in the classroom. It was imperative to remember that any method
required adaptation to the individual student, classroom and learning situation. Students
were increasingly more tech-savvy each year. They acquired skills in an assortment of
ways and easily picked up on technology, devices, and infographics. Technology was not
to replace instruction but used to facilitate engagement with reluctant students
(Wainwright, 2016).

For students, technology went beyond Internet access, a teacher presenting with a
PowerPoint during a lecture, or the sporadic use of a desktop computer while at school.
Secondary students wanted to use the technology and devices they engaged with outside
of the classroom. Many schools created policies that banned the use of personal tech
devices within the school walls. Some students felt they were being denied an important
element of their youth culture (Kuntz, 2012).

Teachers had much to ponder regarding integrating technology into writing
programs. Many new programs like those listed below in Table 1.1 were accessible
beyond the software that were typical on most computers like: spreadsheets, slide
presentation, word processing, editing of photos, and movie-making (Williams, 2014).
<table>
<thead>
<tr>
<th>Program Name</th>
<th>Web Address</th>
<th>Writing Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glogster</td>
<td><a href="http://www.glogster.com">www.glogster.com</a></td>
<td>multimodal posters</td>
</tr>
<tr>
<td>Lexipedia</td>
<td><a href="http://www.lexipedia.com">www.lexipedia.com</a></td>
<td>work with words</td>
</tr>
<tr>
<td>Wordle</td>
<td><a href="http://www.wordle.net">www.wordle.net</a></td>
<td>work with words</td>
</tr>
<tr>
<td>Storyspace</td>
<td><a href="http://www.eastgate.com/storyspace/index.html">www.eastgate.com/storyspace/index.html</a></td>
<td>hypertext creation</td>
</tr>
<tr>
<td>ThingLink</td>
<td><a href="http://www.thinglink.com">www.thinglink.com</a></td>
<td>linked images</td>
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<td>Storyboard That</td>
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<td>Storybird</td>
<td>storybird.com</td>
<td>illustrating stories</td>
</tr>
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<td>Capzles</td>
<td><a href="http://www.capzles.com">www.capzles.com</a></td>
<td>interactive timelines</td>
</tr>
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<td>Bitstrips</td>
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<td>create comics</td>
</tr>
<tr>
<td>Comix</td>
<td><a href="http://www.makebeliefscomix.com">www.makebeliefscomix.com</a></td>
<td>create comics</td>
</tr>
</tbody>
</table>

Table 1.1 Writing Programs
Chapter 2: REVIEW OF THE LITERATURE

History of Writing

Since the earliest civilizations, mankind has sought to communicate in written forms. Archeologists have discovered cave paintings that seemed to depict a story about everyday life events. The first writing system, Cuneiform (See Figure 2.1), was developed in 3500-3000 BCE by the ancient Sumerians of Mesopotamia. Using a stylus, writers would press wedge-shaped word-signs into soft clay. These pictographs evolved to phonograms, which modern languages understand as words (Mark, 2018).

Figure 2.1 Neo-Assyrian lexical list of names of stones on a clay tablet. Trustees of the British Museum. Republished under the British Museum Standard Terms of Use for non-profit educational purposes. Original image by The Trustees of the British Museum. Uploaded by Ibolya Horvath, published on 03 May 2016.

The Greeks developed the Phoenician writing system (See Figure 2.2) based on the Cuneiform system. Their system was created on phonetic consonant sounds. There were 22 letter/number symbols and there were no vowels. The Greeks and Romans wrote in horizontal lines from right to left. The Phoenician writing system used similar shapes and names to those used by the Sumerians (Ager, 2018).
Writing developed in ancient China (See Figure 2.3) as a means of fortune telling. One would etch marks onto bones and shells and then heat until cracked. If one had supernatural powers, then he and or she could interpret the writing. Over centuries, these etchings would develop into the Chinese script (Olson, 2014).
Types of Writing Systems

Logographic Writing Systems

Chinese was the best-known logographic writing system (See Figure 2.4). Although it was possible to write Chinese with an alphabet similar to the one used in the English language, the traditional way of writing Chinese was to use logographs or characters (Crystal, 2011). A logogram was a symbol used to epitomize a complete word, unlike phonograms, which denote phonetic sounds. Logographic symbols could be easily understood regardless of which language one speaks. Logographic writing seemed to have universal meaning, which permitted people of diverse cultures to communicate. Due to the number and complexity of logograms, mastery required numerous years of education and often created a society of functionally illiterates. Logograms did not permit all people to easily express themselves in written form.

Figure 2.4 Polychrome hieroglyphic. Trustees of the British Museum. Uploaded by Osama Shukir Muhammed Amin, published on 20 March 2018 under the following license: Creative Commons: Attribution-NonCommercial-ShareAlike.

Syllabic Writing Systems

A syllabic writing system assigned phonetic values to symbols. These symbols represented syllables rather than isolated sounds. There were a small number of non-
phonetic symbols that were used to represent numbers, punctuation, and commonly used words. An example of a syllabic writing system was the Cherokee syllabary (See Figure 2.5). Sequoya, a member of the Cherokee Nation, invented signs indicative of the English alphabet, but the phonetic sounds of the Cherokee signs did not match their corresponding sign in the English alphabet. It was believed that Sequoyah merely utilized the form of the English character set and gave new syllabic meaning to them. There were other signs in the Cherokee writing system that do not bear a resemblance to any English letter. Consequently, Sequoya was credited as the inventor of the Cherokee alphabet (sequoyahmuseum.org, 2009)

![Cherokee Syllabary](image)

*Figure 2.5 Sequoyah’s Syllabary Copyright 2018 by Sequoyah Birthplace Museum: Public Domain.*
Featural Writing Systems

The term featural was presented by Geoffrey Sampson to classify the Korean alphabet (See Figure 2.6). The shapes of the symbols used in a featural writing system were not random but translated phonological sounds of the phonemes that they represented. The Korean alphabet was unique in that this featural writing systems created three levels of phonological symbols (Sampson, 1998).

Figure 2.6 Korean calligraphy by one of the nation's most renowned calligraphers Han Ho (penname Han Seokbong) titled "Jeungryu yeojaeng seochep" (1543~1605). Original image by Han Ho. Uploaded by Mark Cartwright, published on 15 September 2016 under the following license: Public Domain.

The Canadian Aboriginal writing system (See Figure 2.7) was based on consonant-vowel pairs used to write several indigenous Canadian languages. These native language systems were quite distinct from the Latin alphabetic writing systems. The Canadian Aboriginal featural writing system was mastered with ease, and by the late
19th-century, Canada had attained top rating in world literacy rates (Lewis & Dorais, 2003).

![Figure 2.7 Cree. Shared on Omniglot.com by Simon Ager the linguist who runs Omniglot. Copyright © 1998-2018 Simon Ager.](image)

**America’s Writing Crisis**

The National Assessment of Educational Progress (NAEP) administered a national writing assessment each year that measured how well America’s students were writing. NAEP presented its first computer-based writing assessment in 2011. The results reported only 27% of students performed at or above the proficient level (nationsreportcard.gov, 2011). This would indicate that 70% of American students in grades 4–12 were low-achieving writers (Persky, Danne & Jin, 2003). This data prompted some scholars to declare America’s schools in “a writing proficiency crisis” (Graham & Perin, 2007, p. 10). Community stakeholders, administrators, teachers, parents, and certainly American students themselves knew about the literacy crisis in this country (Jacobs, 2008).
America’s writing crisis exposed that students in America’s K-12 schools were not mastering standards on standardized grade-level writing assessments. This writing crisis was not only suggestive of students in the middle grades but also in at the secondary level. Thirty-four percent of American high school students that took the ACT failed to meet proficiency levels (ACT, 2015). The scores showed a large population of America’s graduates were not prepared for the rigor of college-level composition courses. To support struggling entering freshmen, postsecondary institutions were offering more foundational and remedial writing courses.

America’s writing crisis continued beyond graduation. American corporations responded to a survey and revealed being disappointed by their employees’ writing skills (The National Commission on Writing, 2004). American firms which participated in the survey expected employees to have clear written communication, be competent writers with a variety of workplace genres, and represent their company well.

Essential skills needed for higher education were comparable for employment (American Diploma Project, 2017). Regrettably, American schools were not preparing students adequately for the writing demands of a career. On the job, writers must compose documents that use correct and unfamiliar conventions while considering a multitude of audiences. Employers expected collaboration on business documents, and they considered each member’s contribution when considering retention and promotion.

The National Writing Project (2009) highlighted the importance of writing in every facet of one’s life in this statement on their website, "Writing was essential to communication, learning, and citizenship. It was the currency of the new workplace and global economy. Writing helped us to convey ideas, solve problems, and understand our
changing world. Writing was a bridge to the future."

**Theories of Writing Instruction**

**Stage Model Theory of Writing**

In the 1960s, Janet Emig outlined the writing process in stages (See Figure 2.8) fashioned after the thought process of a German physicist, Hermann von Helmholtz. Categorized his thinking process into stages: 1) Preparation: thorough investigation across disciplines, 2) Incubation: going away from the problem and not consciously thinking about it, 3) Illumination: unexpected idea. 4) Verification was added by Graham Wallas in 1926: checking the idea through testing. Emig acknowledged that the process of writing seemed to follow comparable stages (Rosen, 1979). Murray (1972) simplified Emig’s writing stages into a basic three-step process: prewriting, writing, and rewriting.

*Figure 2.8* Janet Emig, (The Composing Processes of Twelfth Graders) Written by Peter Anderson Posted in 101 Series, Education, Genre, IRSYDHT, Know Your Theory!, The Writing Process, Writing June 16, 2016.
Cognitive Process Theory of Writing

In a process model (See Figure 2.9), the most important elements of investigation were uncomplicated mental processes, such as generating ideas. These processes were progressive and had a hierarchical structure. The generation of ideas was a sub-process of planning. Additionally, each of these individual processes may have occurred at any time in the writing process (Flower & Hayes, 1981).


Social Cognitive Theory of Writing

Writing tasks required meaning (See Figure 2.10), as well as understanding from
both the writer and the audience. When students participated in meaningful writing tasks, they explored, evaluated, and appreciated their own thought process, opinions, and bias on any given topic. Students began to develop insights about their abilities to complete the writing tasks. They compared their past performance to modeling from other writers. The social cognitive theory promoted self-efficacy for writers. Research supported that students' views about their own writing were contributory to their achievement as writers (Pajares 2003).

*Figure 2.10* Albert Bandura’s Theory. © Dods Group plc 2017.

**Sociocultural Theory of Writing**

Contrasting the cognitive process theory (See Figure 2.11), which emphasized the intellectual procedure of writing, sociocultural theory highlighted incentive, affect, and social stimuli as essential to writing. By the 1980s, Vygotsky resolved that writing should be meaningful for children. He held that a fundamental need to communicate would stimulate children to want to write. Vygotsky proposed that writing tasks be merged into the daily lives of children as necessary and relevant for a lifetime (Vygotsky, 1981).
Multimodal Theory of Writing

Through multiple studies conducted over a span of 15 years came the concept of students using multiple symbols (See Figure 2.12) to generate their thoughts. Dyson (2013) observed children utilizing symbols, letters, words, drawings, and oral language to develop complex meaning. Open-ended writing sessions for the students to rehearse, perform, play, and draw were promoted. The sharing of student created texts was also supported.
National Writing Project

In 1974, educators gathered to collaborate on best practices for writing. Gray (2000) and his colleagues were motivated to create a variety of specialized training opportunities for educators and schools eager to advance written expression instruction and implement writing across all content areas. Together they formed the National Writing Project (NWP) and the teachers-teaching-teachers approach of professional development. Within two years, the NWP had expanded from the one local area of schools to include 14 locations in six states. By the early 1990s, NWP received grants to extend the network of educators and was approved as a federal education program allowing expansion to underserved areas. The U.S. Department of Education continued to fund the NWP, serving in all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. This fulfilled Gray’s and the NWP’s objective.

Different Types of Writing

Descriptive

Descriptive writing included many vivid sensory details that made text more interesting and engaging for readers. In descriptive writing, writers described a person, place, object, idea, feeling, or action. Descriptive writing used precise and figurative language like similes, metaphors, and analogies that vividly expressed feelings to the reader. There were several techniques writers used to organize descriptive writing: chronological sequence, spatial (setting), and order of importance (readingrockets.org, 2018).

Narrative

Narrative writing was telling a story often about a personal experience. The goal
of the writer was to entertain the audience. The narrative had a setting, characters, and a plot. In the setting, the reader discovered when and where the story took place. Other characters were included, but the story was focused on the main character’s problem, activity, or experience. The events that transpired were called the plot of the story. The plot followed a beginning, middle, and end sequence. During the middle of the story, the writer revealed the most significant part of the tale. This main event was a problem to be resolved or a momentous life-changing experience for the main character. The main event required a sophisticated blend of exploits, vivid descriptions, interesting dialogue, thoughts and feelings. In the end, the main character reflected on the experience and realized the importance of this life lesson (empoweringwriters.com, 2018).

**Persuasive**

Writers utilized reason, repetition, argument, and comparisons as techniques to persuade readers to change their view. Persuasive writing was used in speeches, newspapers, television, magazines, and the Internet. The elements of persuasive writing included: an introduction that clearly stated the position, evidence that backed the position, and a conclusion that reiterated the key points. Persuasive writing tasked students to research what people believed about an issue so that they could influence the reader to change his/her position. Persuasive writing challenged students to differentiate fact and opinion. Persuasive writing supported students’ understanding of how to have healthy discussions and respect alternative positions (readwritethink.org).

**Explanatory**

Explanatory writing included a variety of texts: autobiography, biography, experiment instructions, informational report, directions, and how-to guides. Older
students were required to write explanatory essays as part of high-stakes assessments. Writing in the explanatory genre supported students in growing their knowledge and understanding of a topic. Explanatory writing was not only utilized in the educational setting but also in many professional careers to better understand a process or procedure (writinga-z.com).

**Evidence-Based Writing Instruction**

The process approach to writing instruction provided explicit procedures delivered to students via lecture and teacher-led discussion. The writing lesson had very clear and detailed objectives and the students’ assignments commonly involved ensuing instructions or emulating exemplars. Comments on the students’ writing was provided generally by the teacher. When teachers received professional development in the procedure writing approach, the quality of students’ writing was moderately effected (Graham, 2007).

Explicit instruction in teaching writing shared some overlap with the process approach to writing instruction. Explicit methods taught students sentence combining, grammar, summarization, strategy, and text structure. Lesson plans comprised of planning, revising, or editing text. First, teachers had to model the process followed by at least three or more days of instruction before the pupils were able to independently use the approach. The research found no effect from grammar instruction; however, the quality of students’ writing was moderately impacted by the direct instruction of sentence combining (Graham, 2007).

Scaffolding students’ writing comprised teacher assistance throughout the writing process. These scaffolds might have included structuring written tasks, having peers help
each other as they composed, teacher feedback, and providing an exemplar. These scaffolding procedures differed from the explicit teaching in that the teacher sought to provide the writer with some form of support in the hopes that students would gain written expression skills. Data showed that the quality of students’ writing was strongly and positively impacted through collaborative arrangements. There were two modes of alternative composing: dictation and word processing which teachers allowed as replacements to students completing writing tasks by hand. Student peers and adults could serve as scribes. Technology could be utilized for both alternatives. Students in grades 4-12 experienced a moderate impact on their writing when using word processing (Graham, 2007).

**Best Practices for Implementing Writing**

**Motivation**

There were an abundance of causes that contributed to the struggles students faced with written expression, and no single solution would address them all. It was important for individual schools and districts to assess where their programs were lacking and provide appropriate supports to lessen those gaps. One area that all teachers must assess was whether they were actually engaging and motivating their students (Cole, 2009).

Engagement described whether a student found interest and enthusiasm in a task in order to put forth effort, participation and cognitive function (Parsons, Malloy, Parsons & Burrowbridge, 2015). Practically speaking, this described if a student was into a lesson or not. Before students were engaged, they must have been motivated (Irvin, Meltzer & Dukes, 2010). Motivation accounted for why a student was interested enough to become
engaged. Motivation and engagement were closely linked, and it was impossible to have engagement without motivation.

Motivation occurred for multiple reasons. In a classroom, there must have been multiple strategies used to motivate students at any given time. Some students found motivation for developing literacy skills based on external rewards. These were the students who found satisfaction in the good grades, prizes, and verbal praise. While this seemed to work well with younger students, secondary students did not often perform as well with this type of motivation (Cole, 2009).

In contrast, there were some students who were motivated intrinsically. These students developed motivation based on the desire to gain internal satisfaction instead of external gain. They wanted the feeling of a job well done. Those who were intrinsically motivated tended to make the greatest growth in literacy development. Students with low motivation often had low confidence in their literacy skills and development (Guthrie & Davis, 2003). Because of their struggles and low achievement, they could not find motivation to continue working on tasks that were too difficult or required too much work. They did not believe they had the ability to accomplish the work and would give little to no effort.

It was extremely important for teachers to develop motivation in students who had a history of failure or low ability (Irvin, Meltzer & Dukes, 2010). Even if these students felt like they could accomplish the task, they were hesitant to try again for fear of failure. Students’ motivation might be developed in multiple ways. Since there were multiple components that developed motivation, multiple strategies should be used to help students become more motivated.
While motivation could be developed, it must be directed toward engagement. The shift from motivation to engagement occurred when the desire to do a task turned into effort to complete the task. Once a student was engaged, he and or she was capable of developing sustained interaction and practice that led to building better literacy skills. It was also the best time for explicit instruction to occur, which led to greater achievement (Parsons, Malloy, Parsons & Burrowbridge, 2015).

**Authentic Relevant Tasks**

Many students, especially adolescents, had strong literacy skills outside of the classroom (Irvin, Meltzer & Dukes, 2010). This was most clearly seen through their use of texting and social media. They exhibited specialized reading and writing skills that allowed them to converse in multiple ways with friends and others through the internet. Their motivation and engagement were high because the task was relevant to them. It held a three-point purpose - the topic needed to be discussed, it was important to them, and the task needed to be completed when they wanted to do it.

Tasks inside the classroom should maintain these same purposes when possible. Teachers must bridge what students knew and used outside of the classroom with assignments inside the classroom while providing appropriate literacy instruction and feedback that would allow students to become better readers and writers (Irvin, Meltzer & Dukes, 2010). Most assignments inside the classroom were viewed just as something that needed to be completed. Once a student saw some sort of meaning or purpose in their assignment, he and or she would be more likely to become engaged. According to Parsons and Ward (2011), once engaged, a task led him and or her to learning and producing a product that may have not been possible through other means.
Students found purpose in completing authentic tasks (Parsons, Malloy, Parsons & Burrowbridge, 2015). They also began to see a true picture of why content reading was important in their everyday life (Parson & Ward, 2011). These were tasks that provided real-life situations and opportunities to address real-life problems. When students were engaged in these tasks, they were not only more likely to complete them but to also learn through the process (Parsons, Malloy, Parsons & Burrowbridge, 2015). Students have taken an active part in their own education, which led to greater motivation (Parsons & Ward, 2011).

Choice

Research recommended that teachers should offer students choices in writing tasks but cautioned teachers to offer fewer choices to less experienced students while offering several choices to more advanced students (Wigfield, Guthrie & Perencevich, 2004). Other research suggested that giving students too many choices, more than five, possibly would demotivate and overwhelm them, prompting students to wonder if they had chosen the best topic rather than actually undertaking the task (Iyengar & Lepper, 2000). Widely held research supported providing students with choices for at least some, if not all, writing assignments in order to promote student ownership as well as support pupils to draw on their own experience, interests, and inquiry (Patall, Cooper & Winn, 2010).

As teachers guided their students through inquiry, students identified areas of interest, generating ideas, questions, and investigated problems and issues. Inquiry may have helped students to focus on individual experiences, common topics, or themes. It was through the inquiry process that students advanced their writing skills to
communicate ideas, write for diverse purposes and audiences, and used a diversity of writing methods. Notably, not all students chose to write with the same purposes or for identical audiences. The inquiry process led students to discover written communication as important and relevant in their everyday lives (Inquiry, 2000).

**Collaboration**

Collaborative writing in class was a technique used to prepare schoolchildren for future projects where group dynamics were vital. When students wrote together, they were discussing, revising, and collectively making choices due to continuous feedback. This collaborative classroom technique placed the student at the center of the writing tasks and provided interaction with his and or her classmates while the teacher offered encouragement and guided students through self-correction. Collaborative writing offered a creative pedagogical instrument for teachers, encouraged individual participation, increased students’ confidence, boosted productivity, and created fun writing activities (Montero, 2005).

**Technology**

Research supported that meaningful technology integration helped students to develop their abilities to produce innovative learning, solve problems, and utilize both creative and critical thinking skills (Sadik, 2008). Students were increasingly more tech-savvy each year. They were able to learn in an assortment of ways and easily picked up on technology, devices, and infographics. Technology was not to replace instruction but could be used to facilitate engagement with reluctant students (Wainwright, 2012).

Teachers had much to ponder regarding integrating technology into writing programs. Various innovative software was accessible past the spreadsheet, slide
presentation, word processing, photo-editing, and movie-making programs that normally came on countless computers (Williams, 2014). Instructors incorporated the use of programs that allowed students to create posters, comics, illustrate their stories, and link images inside their written assignments.

Students desired interaction with technology beyond using the Internet and access to common software programs typically found on a desktop computer. Secondary students wanted to use the technology and devices they engaged with outside of the classroom. Many schools created policies that banned the use of personal tech devices within the school walls. Some students may have felt they were being denied an important element of their youth culture (Kuntz, 2012).

Common Core Standards implied the integration of technology, but did not specifically name the devices, software, or programming. Assuredly, the standards were vague because technology was ever evolving, and there would be no way to keep the standards current with new tech being developed every day. Teachers should not have limited themselves to technology they were comfortable with using. There were numerous options that would engage even the most reluctant student, and many were free (Donston-Miller, 2013).

**Possible Technology Uses**

**Technology to Support Students’ Creativity**

Common Core English Language Arts (ELA) Standards included the ability to independently comprehend and evaluate texts across multiple content areas, respond appropriately to purpose, and use technology as a beneficial support (Common Core State Standards Initiative, 2016). Common Core’s call for rigor, collaboration, and technology
use was a perfect union when completing writing tasks. ELA teachers could support students’ development by providing activities where the students had a choice and were encouraged to use multimodal avenues to generate their ideas (Robinson, 2017).

When teachers integrated technology into ELA, they could increase students’ comprehension of concepts, spur creativity, and assimilate multiple intelligences (Gardner, 2011). Technology use could assist students in concisely and vividly communicating their message(s) to the reader.

Technology to Support Student Engagement

As teachers changed their delivery modes of instruction to meet the standards of technology use and collaboration, the utilization of social software also supported student engagement (Cole, 2009). While there were pitfalls to integrating social technologies into an educational setting, they offered students the ability to share, edit, and collaborate content. Students were engaged with social platforms in their personal lives and welcomed educational tasks involving creating instead of merely memorizing (Kolb, 2015). Often, educators discounted the use of social software in the classroom, but there were safeguards that allowed teachers to monitor their students’ online work and approve their content and text prior to digital publishing.

Integration of various technologies and software programs did not in itself promote meaningful student technology use, but the student’s understanding of how and why to apply technology (Earle, 2002). Students who were encouraged to use a particular digital technology and work through the writing process to produce their own digital stories might not be as successful as the students were acquainted with desktop production and taught explicit editing tools within the software program (Sadik, 2008).
Technology to Support Special Needs

An assortment of technologies were available to support students with physical and learning disabilities and differences in their writing. These assistive technologies included word processing, spell checker, word prediction, speech-to-text, and text-to-speech, and enhanced students’ writing skills (MacArthur, 2000). Students with physical limitations frequently experienced substantial challenges with written tasks, whether utilizing handwriting or keyboarding because of their restricted strength and endurance.

Newer technologies such as alternative keyboards, speech-to-text software, spellcheckers, editing software, digital cameras, authoring tools, and electronic media outlets had stimulated writing teachers to employ various tactics and tools than previously to assist pupils in constructing their own information and thoughts to present and share them successfully (Sadik, 2008).

Medical conditions such as cerebral palsy and spina bifida were frequently accompanied by deficits in gross and fine motor development, thwarting typing ease (Lewis et al., 1998). Teachers could incorporate assistive technologies into their classrooms to support writing instruction and increased success for students with physical and educational disabilities (Parette, 2008).

Augmentative and alternative communication (AAC) and assistive technology could support student communication and learning. AAC could specifically facilitate non-verbal students and students with autism to more effectively communicate (expressive) as well as more clearly understand others (receptive) (Wood, 2007).

Technology in the learning environment supported Universal Design for Learning (UDL). UDL was an educational framework constructed on research that guided
educators to develop flexible learning environments in order to accommodate individual learning differences. UDL was an inclusionary model commonly used across the curriculum nationwide. UDL utilized technology to deliver extremely personalized supports for students that were not only sensory- and motor, but also cognitive and linguistic-oriented (Hitchcock & Stahl, 2003).

**Pitfalls and Failures of Technology Use**

Historically, research studies viewed internet use in classrooms as an information repository from which schoolchildren were to gather knowledge (Greenhow, Robelia & Hughes, 2009). Additional studies were conducted to examine students’ ability to locate reliable internet sources as well as their ability to discern fact from opinions (Hoffman, Wu, Krajcik & Soloway, 2003). In the late 90s, scholars suggested that students’ use of the Internet should move from the mere access and selection of information to complex thinking skills such as the explanation of multimedia information (Windschitl, 1998).

As students utilized technology and the Internet more, educators and stakeholders have realized the importance of teaching digital citizenship. Digital citizenship led students to understand how to be safe when online and how to be a responsible and productive user when collaborating with others (iste.org, 2018). In addition to teaching the technical skills needed to access and utilize technology, schools were commissioned to develop policies and procedures for the ethical issues involving students’ online activities (Drotner, 2008). Students’ online activities included blogging, texting, editing images and sound, gaming, and socializing files through mobile phones. Most of these actions occurred outside of the school day, thus questioning the involvement of educators and school policies. There were few research studies on which schools could find best
practices, procedures, and protocols for student use of technology; prompting many in the education field to ban or block popular Internet sites and other technologies on institute systems (Boyd & Ellison, 2007).

**Online Learning**

Online learning was the fastest growing model of education and required its instructors to be more innovative in their teaching methods (Allen & Seaman, 2011). Students and instructors might have a feeling of isolation due to transactional distance (Moore, 2013). Therefore, online platforms were designed to give students and teachers various ways to interact with one another. Strong online classrooms would incorporate videos, webcams, microphones, and headsets inside an interactive space to support learning, community, and collaboration (McConnell et al, 2012).

Online education promised flexibility in scheduling but required students to be self-motivated and independent learners. Without teacher support, students reported having difficulty staying focused, on schedule, and meeting deadlines. Online classes required the same amount of time as classes taken face-to-face, in addition to the time required for working on assignments and studying. Some students reported they contributed additional time working for their online classes than they would in traditional classes and that they missed the face-to-face interaction with their peers and teachers (Bates, 1997).

Technology has transformed manufacturing, communication, engineering, commercial trade, and medicine; seemingly every area of modern civilization except education (Kopp, 2014). Wendy Kopp founded Teach for America over 25 years ago as a means to integrate gaming technology use in the field of education. Teach for America
recruited graduates, professionals, and top people in their respective fields to pledge to teach for two years in disadvantaged urban and rural communities. The goal was not only to support and impact students’ learning but also to influence educational policy, procedures, best practices, and pedagogy surrounding technology in schools.

In December of 2015, the United States Congress passed the Every Student Succeeds Act (ESSA) supporting effective use of technology in the classroom. The National Education Technology Plan (NTEP) outlined America’s vision for equal, active collaborative learning that could take place everywhere and be accessible at any time. School districts across America struggled to keep pace with the changes. The NTEP received feedback from school leaders and community stakeholders and responded with federal financial support for the cost of broadband Internet to be accessible for schools which served low-income students (NETP, 2017).

**G Suite for Education**

Many teachers implemented and utilized Google Classrooms to establish a sense of community. Google offered several features that were a tremendous benefit and time saver for teachers. Google Classroom was a great way to share documents, readings, and activities with students without printing the items. A paperless process could improve classroom productivity and diminish costs related to printing, which was probably a major reason why so many school districts decided to attempt Google Classrooms (Singer, 2017).

Students were able to create, collaborate, submit, and store their work paperlessly to the teacher using Google Classroom. Google Classroom allowed teachers to easily track who had and had not turned in work, swiftly detect which students were struggling
with assignments, and provided the students proof that they had turned in their work. This was much like a digital gradebook; a way for teachers to track assignments, yet there were a few drawbacks. The gradebook function was not available for multiple teachers to simultaneously use and students did not have access to view their grades (Janzen, 2014).

One feature everyone enjoyed was the instant collaboration between teachers and students within the Google Classroom (Bennett, 2016). There were limitations in the Google Classroom regarding multiple roles and multiple teachers. An individual user could only be assigned one role, and a class could only have one teacher, which did not permit co-teaching.

Within the Google Classroom, teachers could give comments and feedback to students in real time. When students shared their document, the teacher could leave suggestions, comments, and notes for the student to improve the existing assignment. The student then had the option to reply to the teacher in the comments or to delete the comment when the fix had been completed. Students could react badly to the edits in their work. Some might even shut down without ever expressing their thoughts. The student’s focus could be directed more on fixing the edits rather than on his and or her writing or learning (edu.google).

There were thousands of extensions for the Google Classroom that benefited students with special needs. Students who had an identified learning difference struggled to complete classroom assignments, organize their notes, or experienced deficits in specific academic skills. Teachers could search for apps based on the student’s individual needs to support their learning inside the Google Classroom. There was also the opportunity for Google Classroom to be used as a challenge for advanced learners.
Google Classroom was an efficient way for students and teachers to collaborate, and there were time-saving benefits that eased the teacher workload, but Google Classroom was not without limitations. Incorporation of plug-ins for quizzes and tests or the integration of Learning Management System (LMS) was not possible (Singer, 2017).

Google Classroom’s flexibility supported teachers in “flipping” their classroom. Because Google Classroom could be accessed and used on various mobile devices, teachers were able to organize, distribute, and collect assignments and support various methods of communication and collaboration, meeting the needs of flipped instructional strategies (Janzen, 2014).

In May 2017, Google announced that the general public now had access to Google Classroom. Previously, only official educational domains were allowed access. This announcement opened the Google Classroom features for all homeschoolers. In fact, any person who owned a Google account had access to Google Classroom (The Keyword, 2017).

Since its release in August 2014, Google Classroom was created to be user friendly and accessible. Less than five years from its launch, Google Classroom outsmarted its competitors, Apple and Microsoft, with their low-cost laptops, free classroom apps, and mobile access to unique learning spaces. In addition to free online educational tools, Google Classroom offered free technical support available 24 hours per day, seven days per week, along with top notch security (edu.google).

Apple’s longtime vice-president of education, John Couch, published a book *Rewiring Education: How Technology Can Unlock Every Student’s Potential* on the
future of education. While the book detailed how technology could take us “beyond, to
discover, create and innovate like never before.” Couch’s book also shared his frustration
at the sluggish stride of revolution in education. He argued that the devices Apple built
were not being utilized to their full potential in schools (Young, 2018).

Many educators questioned Google’s motives in its quest to revolutionize public
education. Largely, the conversation about the utilization of Google classroom to
integrate technology brings Americans full circle to age-long question of the true purpose
of public schools. Was it the role of teachers to support students’ learning of content or
workforce skills? Many stakeholders cited Google as contributing to the digital divide
(Tepe, 2017).

Assessing Writing Within Google Docs

Within Google Docs, there was a free add on extension app called WriQ, which
helped teachers assess students’ writing created within the Google Docs platform. This
tool was able to check grammar, spelling, and punctuation. The app even allowed
teachers to track students’ progress over time (Gracey, 2018).

Teachers often reported tasks associated with scoring students’ writing as being
tedious and time-consuming. Reading through one student’s writing and providing
meaningful feedback required hours. Multiplied by the number of students taught, in
addition to developing a process to measure student progress over time, it was easy to
ascertain how daunting a task teaching written expression could be (Bell, 2018).

WriQ provided educators with a quick method to evaluate their pupils’ writing
while track their progress over the year. WriQ utilized helpful metrics like: words per
sentence, word and sentence count, correct and incorrect word sequences, grammar, punctuation, time spent writing, and spelling errors. Instructors had the ability to examine and fine-tune the metric data as desired, then delivered it along with their written comment directly to their pupils within their Google Doc (Gracey, 2018).

Teachers could detect if more multiple students had contributed to the paper, which was helpful to have when asking students to collaborate on writing projects. Teachers had the option to choose a genre: informative, narrative, or argumentative and select “Score this document”. Within seconds, another window appeared with a record of mistakes that WriQ created (See Figure 2.13).

![Image](image.jpg)

**Figure 2.13** Teacher dashboard. © Shake Up Learning 2018 Kasey Bell.

WriQ also provided rubrics explicit to the grade and genre selected by the teacher. (See Figure 2.14). Teachers could easily complete the rubric by simply choosing the
description on the rubric that best matched the schoolchild’s writing in each scoring area.
Once complete scoring using the rubric, teachers had the opportunity to enter any additional feedback, which was inserted into the student’s document. The teacher’s ability to track students’ progress was possibly the most beneficial feature of WriQ. (See Figure 2.15).

Figure 2.14 Writing Rubrics. © Shake Up Learning 2018 Kasey Bell.

Figure 2.15 Student Progress. © Shake Up Learning 2018 Kasey Bell.
Apprehensions

Digital Divide

Over 20 years have passed since the launch of technology as a way to equalize accessibility to information and cutting-edge education for the underserved students of poverty. Technology was postured to close the gap among the unfortunate and the affluent, promising equal access for all. Technology has not achieved this goal and actually has created a “digital divide.” The digital divide symbolized differences in access to technology due to geographic location, socio-economics, or other factors beyond human control (Steele-Carlin, 2002).

Internet access advocacy group Education Superhighway reported that 21 million students did not have access at school nor in their homes to even the minimal bandwidth required for digital learning. The e-rate broadband had made some progress in closing the digital divide, but students faced barriers when working on homework assignments due to unreliable Internet. As schools across America increased their utilization of technology, parents relied on the Internet to stay informed about their child’s attendance, grades, and performance. Students and parents without reliable access were required to search out public Internet access sites or failed to complete the assignment (educationsuperhighway, 2018).

Once the families gained access to the Internet, they subsequently faced the challenge of working with various technologies and software platforms. Parents needed training on how to help their child utilize these educational tools. Digital equality was more than access. Students and parents needed to be taught prerequisite skills prior to being successful in digital learning (Brotman, 2016).
The federal government’s E-Rate program, along with state funding efforts, have helped a majority of schools meet the FCC’s goal of 100 Mbps/1000 students. However, low-income and rural students had an especially difficult time completing homework assignments that required the use of the Internet or technology. CoSN.org was working with school districts to increase students’ household connectivity. They helped districts strategize ways to meet their unique challenges. One solution was for school leaders to collaborate with local governments and community stakeholders to gain digital access. Access to dependable, high speed Internet service, along with digital devices, was progressively vital for learning and inclusion in today’s digital society (CoSN.org, 2018).

**Pre-requisite Skills**

Today’s students grew up in the age of technology, yet not all students possessed the same skills. Students with access at home to devices, software, and the Internet typically had the technological skills required for digital learning. Conversely, others that had limited or no access fell further behind in proficiency. Students behind on technology skills struggled to master content knowledge at the same rate of their peers (all4ed.org, 2011).

Learners needed basic knowledge of computer terminology, such as browser, application and network, in order to connect, access, and utilize Internet browsers for research. Students also needed to understand basic computer hardware: how to keyboard, use the mouse to maneuver, comprehend the difference between files and folders, and save documents. Students were required to understand software installation, security and virus protection. Using software applications to create, collaborate, send, receive, reply, and print information were desirable skills. Most online classrooms required students to
participate in discussion boards. Schoolchildren would need the ability and technical knowledge to access, read, post, and reply within the discussion board platform (McDonald, 2018).

**Testing Validity**

As the availability of technology increased, schools began to utilize computers for assessments. There were many benefits associated with computer-based testing in the classroom. Computers offered immediate scoring, reports on demand, and lessened the likelihood that students could cheat. Teachers were able to offer flexibility in the test administration schedule. School systems noted a reduction in costs compared to preparing paper-based testing materials (Chavous, 2018).

With all the positive reasons for online testing, there were several concerns. Stakeholders questioned the validity of online testing scores. This was especially imperative to teachers working in states that utilized a teacher evaluation model directly tied to students’ test scores. Parents were concerned about their child receiving a lower score and grade due to his/her lack of familiarity with computers. Research showed that students’ scores from online testing were comparable to the scores obtained on paper-based assessments (Bergstrom, 1992).

While traditional schools might have administered online state testing, the testing sessions took place within the student’s daily learning environment. Most online students had limited to no acquaintance with their testing facilities and may have never met the other pupils or proctors in the testing area with them. In fact, some families traveled to a site 50 miles or further from their home for testing. No monetary consideration was given to the parents for providing transportation. In order to meet this obligation, parents made
hotel arrangements or stayed overnight with family and friends to minimize travel time and requested time off from work to guarantee their child was in attendance each day. Students in a virtual school were allowed flexibility with their daily learning, but the same is not true the weeks of standardized testing. Each state had stringent guidelines detailing how public schools administered state tests. Even the virtual schools were required to manage state tests face to face, in proctored settings. Face to face testing required months of groundwork to plan, establish and train staff on test administration, to allocate educators to testing sites throughout the state, to confirm amenities to provide the technical support, to supply accommodations required for students with special-needs, and to advise families exactly when and where to go. Education policymakers who managed online schools were frequently unaware of what students, parents, teachers, and administrators endured throughout several weeks of state testing. Fewer comprehended the logistics, expenses, and work involved (Chavous, 2018).

**Teacher Perceptions**

Near the dawn of the 21st century, Ertmer (2012) described two forms of barriers impacting teacher practice of technology use in the schoolroom. First, there were external barriers that teachers had to overcome, including hardware, software, training, and support. Additional considerations, were internal barriers, including their confidence in working with technology, views about how students learned, and their professed value of technology. As access to technology increased, this first barrier was eliminated for most educators, and researchers began to study the relationship between teachers’ pedagogical theories in the use of technology. Early research studies found that teachers used technology by having schoolchildren to complete drill and practice activities or to fill in
computer-generated worksheets. Similar studies found that teachers desired to integrate higher-level technology utilized by their students but were frequently restricted by “meeting individual student needs within a large classroom, balancing multiple objectives, and responding to external forces and expectations” (Ertmer, 2012).

Classroom ELA teachers reported that when technology was used for educational strategies such as accommodations, creativity, collaboration, and assessment, then fewer content standards were covered. Educators should be prepared to explicitly teach literacy skills throughout activities and tasks that fit both the current standards and address previous deficiencies. Create tasks that allow students to find meaning and relevancy beyond the classroom into the real-word. Provide opportunities for cooperative learning to help students develop literacy and language. Utilize technology to not only engage students, but also developed media-based literacy. Research also tended to report an emphasis on individual/small group instruction more than the use of technology. It was important to first assess whether students were engaged in the activities that were being used in the classroom and recognize that significant learning cannot take place without engagement. Be willing to try different activities or tasks to see how students respond to them. Constantly ask if students can find relevancy in the activity (Yarbro et al., 2016).

Technology created innovative learning environments that bridged physical and virtual settings to support collaboration and participation. Parents had more educational opportunities for their child (e.g., virtual settings, private, public, or home school options) than they did a decade ago. Students desired frequent interaction with technology in and outside of their educational setting, and were certain that increased access to technology would improve their preparation and engagement in school (DeGennaro, 2008).
Not as Tech Savvy

Millennials seem tired of generational simplifications, perceiving that teacher assumptions are negatively affecting them academically. One of the major misconceptions teachers had about students was the impression that millennials were “digital natives.” Students reported not knowing how to use headers, footers, or page numbering in Microsoft Word and receiving fewer points on graded assignments (Alyssa Foley, Student as quoted in Abamu, 2018). Online professors stated that many of their students used online social platforms for entertainment but had no knowledge how to utilize these for educational and career use. Students suggested that teachers help prepare their students for college with one-day workshops on using Google Docs (Alejandra Cervantes, Student as quoted in Abamu, 2018).

The Pew Research Center (2018) reported that 17% of homes in the United States did not have access to the Internet. Many students reported they used smartphones for their Internet connections, making online collaboration and writing long essays impossible. Students asked educators to develop self-help videos and provide free access to software programs they could utilize in their future careers.

Traditional Writing vs. Technology Assisted Writing

Prior to the digital age, writing tasks focused primarily on traditional print and pencil and paper writing. Students utilized technology to complete writing tasks (Conner-Zachocki, 2015). Technology-assisted writing was becoming more routine in the classroom as more schools were engaging in digital literacy initiatives (Curwood, Magnifico & Lammers, 2013). Digital literacy incorporated skills used for creating, revising, and examining technology-based resources. Within the virtual environment,
educators were required to outline, oversee, and communicate policy, procedures, and protocols beyond traditional written language and print-based skills.

Supporters of digital writing argued that writing was easier to learn than reading and ought to be taught first. Additionally, typing was easier and faster to learn than manual writing (Genlott & Gronlund, 2013). Other research highlighted the benefits of old-style pen and paper writing, supporting relationships between handwriting, reasoning, and memorizing skills (Goldberg, Russell & Cook, 2003). It is important to communication that most research to date has focused on students at the university level or students with disabilities. There was limited research on digital writing in early learning and non-existent for middle school grades.

Within a class of 4th graders in Sweden, a study was conducted exploring three different modes of writing: pen and paper, tablet, and tablet with speech to text digital tools. The study specifically tracked students’ ability to write more in length, spell correctly, correct structure, and their ability to use digital sources for content. The study determined that students used more action verbs when writing digitally and wrote more about their feelings when using pen and paper. The students using the tablet wrote longer texts and the students with speech to text digital tools wrote even longer texts. The data showed that students using the tablet had the most increase in correct writing (structure, spelling, vocabulary). The researchers were surprised to learn that struggling writers showed their best structural writing when using pen and paper (Goldberg, Russell & Cook, 2003).

**Summary**

Writing was a system utilized to convey a message to the reader(s). Arguably,
writing was a more reliable form of communication than speech because the reader could refer to the written text for clarification as often as needed. Most writing was chronicled onto a durable medium, such as paper or digital storage. Writers often used non-durable and playful methods to express their thoughts, such as writing on a grease board, utilizing chalk on a sidewalk, sand in a Zen garden or on a beach shore, skywriting, or paint on a prominent rock in East Tennessee.

While the impact of literacy has become more apparent through the implementation of Common Core, there was a great recognition of a literacy crisis among those who lack sufficient literacy skills. Despite intense focus on building those skills in all grades, the problem is still prevalent. The US literacy rate has not changed in the last 10 years (Crum, 2017).

The impact of low literacy levels not only affected immediate academic achievement, but also affected long-term success. Many employers recognized reading and writing comprehension as being very important for new hires (National Endowment for the Arts, 2007). Those who had basic or below basic reading levels often had a more difficult time finding a job, especially in the fields of management, business and finances. Adults with inferior levels of literacy were likely to earn a lower salary than those who had higher literacy levels (Kutner, 2007).

Writing was a vital educational, occupational, and life skill. In academic situations, students practiced writing to express their learning on an assortment of subject matters to their teachers and classmates. Often, students experienced linguistic delays or language impairments, which exacerbated their struggles in constructing written language. Students’ learning was limited due to the physical or sensory impairments that
restricted their access (Wollak, 1970).

Research supported that meaningful technology integration helped students to develop their abilities to produce innovative learning, solve problems, and utilize both creative and critical thinking skills (Sadik, 2008). Teachers had much to ponder when it came to assimilating technology into writing curricula. Several innovative software packages were accessible beyond those that were installed typically on most computers (Williams, 2014).

Common Core standards implied the integration of technology, but understandably did not specifically name the devices, software, or programming. Teachers should not limit themselves to technology they are comfortable with using. There are numerous options that would engage even the most reluctant student, and many are free (Donston-Miller, 2013).

Near the dawn of the 21st century, Ertmer (2012) described two forms of barriers impacting teacher usage of technology in the schoolroom. First, there were external barriers that teachers had to overcome, including hardware, software, training, and support. Internal barriers included their confidence in working with technology, views about how students learned, and their professed value of technology.

English Language Arts teachers reported that when technology was used for educational strategies such as accommodations, creativity, collaboration and assessment then fewer content standards were covered (Yarbro et al., 2016). As access to technology increased, educators and researchers began to study the relationship between teachers’ pedagogical theories in the use of technology (Ertmer, 2012).

Technology created innovative learning environments that bridged physical and
virtual settings to support collaboration and participation. Parents have more educational opportunities for their child (e.g., virtual settings, private, public, or home school options) than they did a decade ago. Students desire frequent interaction with technology in and outside of their educational setting; and are certain that increased access to technology will improve their preparation and engagement in school (DeGennaro, 2008).

Since the causes of literacy deficiencies were numerous, there should also be numerous solutions. Students’ engagement and motivation to literacy cannot be overlooked. Engaged students are motivated to move beyond their current understanding to learn more. Teachers should offer an assortment of tasks that permit students to be actively engaged in learning and producing. Authentic tasks, cooperative learning and technology are three classroom strategies that can be utilized to develop this engagement and motivation. Each of these developed writing, speaking, reading, listening, and language in a way that allows students to address some of their deficiencies and continue learning on grade level.

In an effort to improve students’ written expression skills, students should be supported with authentic practice with a variety of genres, instruction with clearly defined expectations, and examples of complex writing for review to prepare them for writing beyond their school years (Smit, 2010).

Research supported the use of technology showcasing increased performances on writing assessments (Dahlström & Boström, 2017), while other studies contend that students utilizing technology had a decrease in their performance (Mueller & Oppenheimer, 2018). While there is research supporting technology use for struggling writers and accessibility (Trewin, Laff, Hanson & Cavender, 2009) there are also
contradictory results from other studies reporting the dangerous effects on students’
cognitive and fine motor skills due to the shift from handwriting to keyboarding (Mangen
& Balsvik, 2016).

It is significant to communicate, researchers, teachers, and parents must continue
to study the impact of technology on students’ literacy skills (Mitcham, 1999). All should
proceed with caution when accessing technology and embrace the opportunities provided,
the barriers that could be overcome, and the availability of different learning
environments (Bezemer & Kress, 2016). Teacher perceptions are a meaningful aspect in
the phenomenon of technology use in instruction. Before one can change perceptions, one
must discover these perceptions. This research study sought to identify some of the most
common teacher perceptions regarding the use of technology as an educational tool for
written expression.
Chapter 3: Methodology

Description of Research

This study investigated the perspectives of virtual administrators, instructors, and learning coaches regarding how middle school students utilized technology to complete writing tasks in a virtual setting.

This study sought to answer the following research questions:

Q1. What was the nature and extent of middle school students who used technology to complete writing tasks in a virtual learning environment?

Q2. What were the pedagogical practices of virtual instructors regarding the use of technology in developing middle school students’ writing skills?

This chapter presented a description of the research, the specific research approach, participants and setting, data collection procedures, ethical considerations, and the data analysis procedures. This chapter concluded with a discussion, limitations of the study, followed by the summary.

Research Approach

The purpose of this study was to describe and explain how various techniques using technology influenced the development of middle school students’ written expression. Qualitative methods relying on a phenomenography framework were used for this study. Qualitative methods were effective for exploring values, opinions, attitudes, behaviors, and contexts of specific groups of individuals. What separated phenomenography from other qualitative approaches was that the researcher attempted to describe the different ways a group of people understood a phenomenon (Marton, 1981). Further, a phenomenography study assumed each person’s experiences drove his/her
individual reality and that the meaning assigned to an experience possible differed among individuals. Thus, it acknowledged that experience was subjective. Analysis of information collected using this approach allowed identification of common experiences or themes, as well as a variation; for example, why and under what circumstances individuals’ attitudes, opinions, and behaviors differed. This phenomenography study allowed the researcher to describe and explain how various techniques using technology influenced the development of middle school students’ written expression.

**Study Participants and Setting**

The sample for this study was selected from the population of administrators, instructors, and learning coaches co-laboring in the teaching of middle school students in a Tennessee online public K-10 school. An email list of possible participants was provided by the school’s registrar. Approximately 1,700 students were served in the virtual school in grades K-10. Of a population of over 1,000, nine adult stakeholders in the school, three administrators, three middle school instructors, and three learning coaches were selected for the study.

**Data Collection Procedures**

Carson-Newman University granted IRB approval in October 2018 and the research district in November 2018 also granted permission to conduct the study before participants were recruited or data was collected. Nine participants were voluntarily recruited through emails. The researcher was an employee at the research school and utilized the school-wide email system to contact potential participants. When people responded by answering via email, they were informed the nature and the purpose of the study, as well as additional pertinent information, to guarantee they could make a
knowledgeable conclusion regarding study participation. Informed consent documents were sent via email to individuals who stated they wanted to participate.

Participants were required to electronically sign the consent form and send it back to the researcher via email with additional contact information, so that the interview could be arranged. The first three administrators, the first three online instructors, and the first three learning coaches having participated in online schooling for at least two years and who sent back a signed informed consent document were selected for participation. Additional respondents were informed of the likelihood to be included later if the need arises. After the participants were enlisted, online or telephone interviews were arranged, contingent to the interviewee’s choice. Interviews were audio-recorded after getting consent from the interviewees, prior to the beginning of the interview, so they could be precisely transcribed at a later date.

The interviews took less than an hour, during which the researcher utilized the questions contained within in Appendix C to gain an understanding of the participants assessments of operative techniques in utilizing technology to complete written tasks with their middle school students. The interviews transpired in a remote online platform, and only the researcher had access to the interview or the transcribed data. Interviews were chronicled on the researcher’s private password-protected computer.

Additionally, three recordings from each of the three online instructors’ live classes were reviewed by the researcher. The researcher noted the number of times the teacher used traditional writing techniques versus digital processes. The researcher also studied the methods of the instructors regarding the writing process.

Next, the researcher disseminated online surveys to be completed by each of the
participants. The short survey asked participants to explain their perceptions of technology use by middle school students in completing writing tasks. Three short answer questions and Likert-style questions were used in the survey. Participants were also provided the opportunity to share past and/or present examples of student-generated writing using either the traditional or digital process. All student names and other identifying markers were removed by the participants prior to submission to the researcher.

Finally, the submitted student artifacts were sorted into two groups: traditional and digital. Traditional writing was defined as being created using pencil and paper while digital writing utilized technology in some form to complete the writing task.

**Ethical Considerations**

One significant ethical consideration was pertinent to informed consent. The informed consent forms were emailed to participants, and these participants were asked to sign and return them to the researcher by email. As part of the informed consent forms, participants were informed that the information and their identities would remain anonymous and confidentiality would be provided to the extent allowed by the law.

The researcher took great cautions to safeguard the participants’ anonymity and confidentiality was maintained. The researcher’s personal computer was password-protected, and all files holding participant information and replies were also password-protected. These included, but were not restricted to, digital recording files holding the raw data from the interviews, transliterated interview files, survey answers, shared artifacts, contributor codes, and information that had been coded. The researcher alone had the passwords to these files and guaranteed these files were not uploaded to clouds or
online storing devices where anonymity and confidentiality may be unwittingly compromised.

Additionally, the researcher did not divulge the raw data or any categorizing data concerning the participants with affiliates of the research district. Furthermore, when publicizing the outcomes, the researcher did not use any recognizing data that would connection individual persons with exclusive replies.

Because the research did not contain more than nominal risk to participants, the benefits of the study offset the dangers. Nevertheless, one risk persisted; specifically, that online writing teachers might sense that their careers were in danger and, though they decided to partake in the study, may have been reluctant to reply fully and consistently. Hence, the researcher reminded the participants that anonymity would be assured.

This study contained an area of potential bias related to technology and digital composition that prompted the researcher to take qualifying countermeasures (Maxwell, 2013). First, the researcher was a technology promoter in the role as a teacher. The researcher’s passion for using technology to enable learning has been evident throughout the years at the research school. Some of the participants knew the researcher valued using multimodal forms of expression as an alternative means of composition. This purposeful positioning could have biased participant responses. Subsequently, the researcher requested that the study participants disregard the researcher’s classroom attitudes and positions by offering their individual positions and beliefs autonomously.

**Data Analysis Procedures**

After each interview, the researcher used a program to assist with transcribing the data. Next, the information from the conferences were coded using a three-step process:
(a) open coding, (b) axial coding, and (c) selective coding (Corbin & Strauss, 2015). To preserve the procedure of coding and examining the data, the researcher used open coding in the construction of documents, together with the questions and the transcribed replies to detect the developing themes, as well as pertinent case studies connected to the data.

During the next stage, axial coding stage, the researcher linked the key ideas recognized from the data by means of inductive or deductive thinking procedures (Corbin & Strauss, 2015). Precisely, by continued questions and comparisons among grander and lesser concepts, the researcher acknowledged associations amid categories and subcategories recognized during the open coding stage. Simultaneously, the researcher determined what, if any, relationships existed among the data.

During the selective coding phase, the researcher acknowledged and chose one category which had unswerving connections to the additional categories and subcategories that authenticated the associations between the categories (Corbin & Strauss, 2015). The researcher continued open to further work, so the associations amongst the categories were evidently described. Subsequent scrutiny, the data were studied and ordered constructed on the categories or themes, including the participants’ individual words as sustenance and authentication. The categories and themes, along with the participants’ words, were then applied to develop replies to the research questions.

**Limitations**

All study participants resided in a variety of geographic locations within Tennessee. The sample for this study was selected from volunteers that had at least two
years of experience within the online school and did not represent the total population of the research school, which could result in a biased sample (Best & Kahn, 2005). Additionally, the population of participants was involved with the teaching of middle school students in a Tennessee online public K-10 school. Population could have been a limitation because the data was only representative of teachers’ perspectives from one school within the research district, the research school was a virtual setting, the study was limited to sixth through eighth grade and did not include other kindergarten through twelfth-grade teachers throughout the district.

**Summary**

The researcher comprehended that relying on their rationale alone was not practical as the sole researcher for this study. The researcher sought to present data rather than influence the reader to accept a particular understanding. This method was deliberately taken to ensure the trustworthiness of the study. It was also important that the research findings were transparent and methodological procedures were followed to ensure that all threats to trustworthiness were considered. In addition, all data were reported; data supporting and contradicting the researcher’s interpretation were presented.

The researcher engaged in several suitable approaches to build trustworthiness. Multiple sources of data were used in this study; a practice referred to as triangulation (Kornbluh, 2015; Maxwell, 2013). Data sources in this study included: 1) a writing and technology baseline questionnaire that was administered prior to any observations, 2) instructional plans for both traditional and digital process-writing tasks, 3) personal interviews with the study participants, and 4) Likert Scale survey that collected participants’ perceptions about traditional and digital composition.
In addition, the researcher regularly engaged in member checks for respondent validation to ensure that interpretations accurately represented participants’ meanings to avoid making subjective interpretations of the data (Maxwell, 2013). The researcher reviewed the transcript of the interview with the respondent to ensure the data was sound. After the respondent completed the survey, the researcher met and went over their individual data and asked clarifying questions. The review enabled the researcher to check participant responses against their own personal biases and misunderstandings that may have occurred when analyzing the data.

Peer debriefing was yet another important trustworthiness technique employed by the researcher to ensure the gathering of valid data. The researcher worked together with other colleagues who held impartial views of the study. Through the study, the impartial peers examined the researcher’s transcripts, survey reports, and general procedure. At each phase of the study, feedback was provided by the peers to enhance credibility and ensure validity.

Finally, to hone the scope of the study, precise selections were made concerning the population and the focus of the grade level for this study. First, to reduce the population, only administration, middle school teachers, and learning coaches of middle school students at the research school were chosen for the population. Additionally, to further limit the scope of the study, the participants were restricted to those who collaborated in teaching middle school students in a virtual educational setting.
CHAPTER 4: FINDINGS

This phenomenography study allowed the researcher to describe and explain how various techniques using technology influenced the development of middle school students’ written expression. The purpose of this study was to investigate the perspectives of administrators, instructors, and learning coaches regarding how middle school students utilized technology to complete writing tasks in a virtual setting. The researcher investigated which strategies writing instructors used with their middle school students within the virtual environment and uncovered which technologies online writing instructors believed were most helpful to enable middle school students to strengthen their writing skills in an online learning environment. Specifically, administrators, instructors and learning coaches of virtual middle school students provided information on how they supported their students synchronously and asynchronously, how they communicated revision needs, how they encouraged them to think critically about the writing process, and how they gave feedback to students about their writing.

Specific demographic data was not collected as age, experience, and education were not relevant to the problem and purpose of this research. However, it was noted that the participants were all females. Since coding was used to ensure anonymity and confidentiality to the extent allowed by law, administrator respondents were referred to with the letter “A” and the number for their interview, so “A3,” for example, means this respondent was the third online administrator to be interviewed, the letter “T” represented the online middle school writing teachers that were interviewed and the letters “LC” represented the learning coaches of online middle school students that were interviewed. The results were organized by themes as they related to each research question.
Analysis of Interview Data

After each interview, the researcher transcribed the respondent’s answers to the questions. Transcripts were sent to the participants for member checks. There were no revisions or clarifications revealed. The researcher participated in peer debriefings throughout the research process. The peers listened to raw data shared by the researcher and concurred with the researcher’s process and interpretation of the data. Once all of the interviews were completed, the researcher compiled answers per question in one document to assist with the triangulation process. Table 4.1 displays an example of the researcher’s coding process in relation to research question one: What was the nature and extent of middle school students who used technology to complete writing tasks in a virtual learning environment? The statements in the left column were from the raw data in the words of the participant. The researcher clustered replies into open codes for accounts with similar meaning/intent. Then the researcher grouped those open codes into comprehensive categories (axial codes). Finally, the researcher identified themes and gathered the axial codes into selective codes. These selective codes represented the themes stated by the participant.
Table 4.1 Data Sorted in Levels of Coding for Research Question One: What was the nature and extent of middle school students who used technology to complete writing tasks in a virtual learning environment?

<table>
<thead>
<tr>
<th>Raw Data</th>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;The writing prompt is discussed in live classes prior to the student responding.&quot;</td>
<td>Live class discussion</td>
<td>Synchronous</td>
<td></td>
</tr>
<tr>
<td>&quot;I give the students a word or topic to conduct a web search.&quot;</td>
<td>Research in class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I work together with the students in live classes to get them started and will reduce workload if needed.&quot;</td>
<td>Class collaboration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Students and teachers can app share their screen in bbc or they can take a snapshot and place on the interactive whiteboard.&quot;</td>
<td>Application share</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;The students used the tools of the virtual classroom to draw, or snip pictures of what they found during their web search.&quot;</td>
<td>Snips</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;The google classroom allows the students and teacher to open a document in real time. The teacher can give help editing and make suggestions. The student can submit. The teacher can grade and return to the student.&quot;</td>
<td>Screenshots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Well, I use google classroom and I have created a digital rubric for each essay that students can use as a checklist (yes/no). This gives the students very clear expectations.&quot;</td>
<td>Tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Later, students upload to the google classroom or send in an email.&quot;</td>
<td>Whiteboard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I repeat verbal instructions.&quot;</td>
<td>Google docs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I email written instructions.&quot;</td>
<td>Real time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I call parents and learning coaches.&quot;</td>
<td>Editing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Specific verbal feedback is given in live online classes.&quot;</td>
<td>Revisions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Also notes are typed on the students' digital document and on the rubric.&quot;</td>
<td>Suggestions</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rubric</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upload</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Digital workspace</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Encouragement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Within the context of synchronous writing tasks, the participant revealed: interactive tools, digital workspace, personalized feedback, and encouragement.
Table 4.2 displays an example of the researcher’s coding process in relation to the second research question: What were the pedagogical practices of virtual instructors regarding the use of technology in developing middle school students’ writing skills? The statements in the left column were from the raw data in the words of the participant. The researcher clustered replies into open codes for accounts with similar meaning/intent. Then the researcher grouped those open codes into comprehensive categories (axial codes). Finally, the researcher identified themes and gathered the axial codes into selective codes. These selective codes represented the themes stated by the participant.
Table 4.2 Data Sorted in Levels of Coding for Research Question Two: What were the pedagogical practices of virtual instructors regarding the use of technology in developing middle school students’ writing skills?

<table>
<thead>
<tr>
<th>Raw Data</th>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collaboration</strong></td>
<td>Writing stages</td>
<td>Discussion</td>
<td>Anchor text</td>
</tr>
<tr>
<td><strong>Incorporating Technology</strong></td>
<td>Real time</td>
<td>Editing suggestions</td>
<td>Digital grading</td>
</tr>
<tr>
<td><strong>Student Technology Use</strong></td>
<td>Real time</td>
<td>Digital document</td>
<td>Digital turn-in</td>
</tr>
<tr>
<td><strong>Digital Writing</strong></td>
<td>Digital document</td>
<td>Digital workspace</td>
<td>Digital rubric</td>
</tr>
</tbody>
</table>

Within the context of synchronous writing tasks, the participant revealed: specific writing instruction, incorporating technology, student technology use, and digital writing.

- "We work together in the virtual classroom to review the writing process."
- "We come up with 3 main ideas, develop a thesis, then the outline."
- "Writing prompt is discussed in live classes prior to the student responding."
- "Also read a passage prior to the writing prompt that relates."
- "Google classroom allows the students and teacher to open a document in real time."
- "The teacher can give help editing, make suggestions."
- "The teacher can grade assignments and return to the student."
- "Teachers can app share their screen in bbc or they can take a snapshot and place on the interactive whiteboard."
- "Google classroom allows the students to open a document in real time."
- "The student can submit for the teacher to grade."
- "Google classroom gives the student a document to type in."
- "Students can app share their screen in bbc or they can take a snapshot and place on the interactive whiteboard."
- "Students can upload to the google classroom or send in an email."
- "Students then begin to work online in the Google classroom to complete the essay."
- "All technology is available to the students 24/7 for them to complete independently."
- "Digital rubric for each essay that students can use as a checklist (yes/no) this gives the students very clear expectations."
Results

As shown in Figure 4.1, prior to conducting the interviews, the researcher inquired about the interviewees’ comfort with using technology and utilizing technology as a writing and publishing tool. On a scale of 1 to 5, with one being a “real struggle” to a five being “very confident,” 88.9% of the respondents were comfortable with their ability to support middle school students with software programs.

![Figure 4.1. Participants’ Comfort Level with Technology](image)

Figure 4.1 exhibits participants’ comfort with supporting students within software programs.

Figure 4.2 displays responses from the nine participants who were also asked how often their students utilized technology as a tool when completing writing tasks. The majority, or 55.6%, reported that their middle school student(s) often used technology at some point during the writing process, while 22.2% answered sometimes or occasionally.

![Figure 4.2. Technology as a Tool in the Writing Process](image)

Figure 4.2 exhibits students’ use of technology as a tool in the writing process.
Figure 4.3 illustrates the discovery that 33.3% of the interviewees’ middle school students often utilized technology as a tool for publishing their writing and 44.4% reported they sometimes used technology as a publishing tool. Additionally, 22.2% of virtual middle school students never used technology for publishing their writing.

![Figure 4.3. Technology used for Publishing Writing](image)

Figure 4.3 displays students’ use of technology for publishing writing.

Evaluation of Findings

**Research question one.** What was the nature and extent of middle school students who used technology to complete writing tasks in a virtual learning environment? Based on the participants’ responses to interview questions and in respect to answering the first research question, the findings fell within two main themes: synchronous and asynchronous writing tasks. Within the context of synchronous writing tasks, the participants revealed: interactive tools, digital workspace, personalized feedback, and encouragement. Regarding asynchronous writing tasks, the participants revealed: clear expectations, personalized feedback, encouragement, and variety of tasks.
Synchronous Writing Tasks

Digital Workspace

Google Classroom was utilized school-wide in the middle school grades of the researched virtual school. T1 expounded on the benefits of writing within the Google Classroom by stating “It allows the students and teacher to open a document in real time. The teacher can give help editing and make suggestions. The student can submit finished assignments to the teacher. The teacher can grade and return to the student all within one virtual space.” While interviewing learning coaches, LC2 noted other student use “we utilize Google for reference and spell check. LC3 believed that Google Classroom has taught her son “more about tech.” LC3 credits online school for her son’s improved typing skills. LC3 stated that her son “enjoys using Google slides for his reports and that he looks up information on Google.”

Interactive Tools

Blackboard Collaborative (BBC) is another platform used school-wide within the research school. T1 described how she utilized BBC. “Our writing prompt is discussed in live classes prior to the student responding. Students and teachers can application share their screen in BBC or they can take a snapshot and place their writing onto the interactive whiteboard.” LC2 mentioned that “we utilize google to learn how to use BBC software tools; to learn their function.”

In addition to the two mentioned schoolwide platforms, T3 reported also using Zoom “to interact, discuss and brainstorm ideas in class.” Conversely, T2 reported that she is “not doing a lot of writing this year.” She stated that “previously, when the school
used Moby Max, I incorporated writing all of the time. This year, the school is utilizing iSPIRE for English Language Arts and I have not gotten to the level of understanding to utilize the writing portion.”

**Encouragement**

The participants were asked what strategies they used to keep middle school students engaged with technology. T1’s strategies included redirecting the student(s) to the task by repeating verbal instructions, following up with emailed written instructions, making a phone call to parents and/or learning coaches. T1 also stated that “working together with the student(s) in live classes to get them started” was another valuable strategy.

T2 shared that student(s) like “using their keyboard to type on the interactive whiteboard in the virtual classroom.” T2 reported strategies like allowing student(s) “to audio/video record or dictate their writing due to poor spelling skills or if they are a struggling reader” were quite advantageous.

While T3 set up digital lessons in the Google classroom, she presented her students choices. “The students have many options how to complete any given task. Not every option is tech related. Sometimes we use paper and pencil.”

**Communication**

Participants were asked how technology was used to communicate with students about their writing. T1 stated that “specific verbal feedback is given in live online classes, notes are typed on the students' digital document and on the rubric” as means of communication. In addition to “verbal praise in live classes,” T2 “displays” in the virtual
classroom “class/group certificates earned for mastery on skills in iXL.” T2 “emails individual mastery certificates to students, sends positive reinforcement emails to students, and uses virtual stickers, while in the online class, to notify the student of correct answers so they can move on to the next task.” In addition to emails, T3 sends “private chat messages” while in BBC or on Zoom.” T3 also provided “feedback on Google Docs” returned to students.

Asynchronous Writing Tasks

When asked about offline writing assignments, T1 stated “Really, they are the same. It does not matter if students are given online or offline assignments, all technology is available to the students 24/7 for them to complete the tasks independently.” T2 used an audio clip of “a song as a way to engage, excite them about writing.” T3 reported that students were “given the option to use a variety of tech tools: PowerPoint, Prezi, Google slides and iMovie” when completing their offline writing tasks.

The learning coaches were primarily responsible for working with students on offline tasks. LC1 reported that her students complete async assignments “by using the computer with internet access and allowing them to research everything” is how technology is used to support writing tasks. LC2 stated “We use Microsoft Word and PowerPoint often to instill an understanding of the programs. We also incorporate search engines even when not necessarily needed to broaden knowledge.” In addition to typing within previously mentioned software programs, LC3 reported that “I sometimes let him tell me while I type. He's a fast talker so we record him on my phone.”
Encouragement

Learning coach participants were asked how technology was used to encourage their middle school student(s) to complete async writing assignments. LC1 allowed her students to use multiple devices: computer, tablet, and cellphone to complete their creative writing assignments. LC1 reported using the internet to research “different ways to write” to help her students have a “better understanding of the writing process.” LC2 stated, “Honestly, my student does not need much encouragement to use technology. I will point out if something in the writing process could benefit from technical research.” Likewise, LC3 reported that her student “naturally gravitates towards technology” when asked to complete writing tasks.

Communication

Learning coach participants were asked how they communicate with their students about offline writing assignments. LC1 replied, “By allowing them to express themselves verbally about their assignment and if they need any help, I am there to help them.” LC2 reported that “Praise works for a student of any age! Pointing out and recognizing their strengths helps them build on them and improve even more.” LC3 stipulated “We read it (completed writing assignment) aloud together and I verbally tell him where he can improve.”

Research question two. What were the pedagogical practices of virtual instructors regarding the use of technology in developing middle school students’ writing skills? Based on the participants’ responses to interview questions, the following themes were noted: specific writing instruction, incorporating technology, and digital writing.
These themes were all observed as constructive and supportive toward guiding students on the way to becoming stronger writers and were relevant in answering the second research question.

**Specific Writing Instruction**

Administrators of the researched virtual school were asked about the pedagogical practices of their middle school writing teachers. A1 reported that middle school writing teachers “used both research-based learning and project-based learning while incorporating the use of technology” but that no schoolwide instructional approach was being implemented. A2 reported that writing teachers “mainly use digital thinking maps.” A2 stated that at the beginning of the year the English Language Arts teachers were given an administration-created common acronym PowerPoint to use in classes with their students to support the writing process. A2 further shared that this acronym PowerPoint was emailed to all learning coaches to support in-class, out-of-class partnerships. A2 also shared about a “school wide initiative” of live virtual instruction where “teachers provide across the curriculum problem solving.” She stated that, next semester, the focus would “move to testing support and writing skills.”

In contrast, A3 said that middle school writing teachers’ instruction “differ by grade level, pod, and individual teacher preferences.” A3 observed teachers “model the writing process in BBC and supply exemplars in Google classroom.” A3 reported that a few teachers use “cold writes (5-10 mins) daily” while other teachers have students keep an “ongoing journal with different student created titles.” A3 stated that a few middle school teachers “break writing down into smaller sections, model how to write a thesis, give examples for students to read, and provide verbal feedback in live virtual classes.”
The one concern voiced by all three administrator participants was the amount of time required of teachers grading writing assignments. Administration has collectively suggested using peer grading and feedback. At the time of the research project, none of the middle school writing teachers were utilizing the recommendation from their administration team.

**Incorporating Technology**

When researching how teachers incorporate technology within their virtual classrooms, A1 responded that a variety of “technology is used to deliver instruction including the use of PowerPoints, short video clips, virtual field trips, the webcam and microphone use during classes.” T2 shared that while in the virtual platform BBC, the students used the interactive “whiteboard and the Blackboard tools to rearrange the paragraphs to place them in the correct order.” T2 “would check for understanding by using the following tools: having the students give her green checks for understanding, red x’s for re-teaching, chat box, microphone, approval thumbs up, and smiley faces if they were following along.”

In addition to common software programs and school-based virtual platforms, T1 reported that “working together in the virtual classroom (BBC first) to review the writing process, coming up with three main ideas, developing a thesis and outline prepares students to begin to work online in the Google classroom to complete the writing assignment.”

The research school received the lowest state assessment scores in literacy in the school’s history, and A2 shared that she is “not sure” if there is a school-wide literacy
A1 perceived “The most helpful teaching methods for students were the use of breakout rooms for discussion between the student and teacher and with student peers. The use of webcams and microphones helped the students stay engaged and allowed them to take more control over their own learning.” A2 shared that the “school-wide use of Big Universe supports digital writing linked to content area texts while allowing teachers to monitor students' progress.” In contrast, A3 thought that when “teachers choose their own digital chapter books it ensures students are reading rigorous texts and stimulates students' writing.”

T1 stated that students’ use of “Google classroom, digital rubrics and a checklist gives the students very clear expectations.” T2 reported that “whole group instruction” while in live classes was the best support for students. T3 perceived “real time create, read, feedback and revise” as the best feature of students’ use of technology, i.e. Google classroom. “There is no waiting for the student. It might be overwhelming for the teacher at times.”

Learning coaches believed there were several advantages when students utilized technology for written assignments. LC2 stated, “Working on PC with a word processing program is ideal. A physical keyboard and instant access to search engines assists in revision.” LC3 suggested that specific functions of the software aided the student’s
learning. “He likes the color lines in Microsoft Word. He knows something is wrong and asks me for help.”

**Digital Writing**

When the researcher refocused the question to inquire about the extent of technology used by students to complete writing tasks, A1 replied, “I would say the students used technology approximately 90% of the time when both learning about writing and presenting their own writing skills. The other 10% of the time, I would have to say they use paper and pencil so they could still utilize and practice those fundamental skills.” A2 perceived the “school-wide use of Google classrooms and CASE” as the best methods for supporting students “digital papers.” A3 thought the “use of a variety of electronic devices” was most advantageous for engaging middle school students.

T1 stated that the virtual environment of the researched school “naturally supports” digital writing. T1 posted “video links on the students' online daily schedule, played clips in live classes, gave the students a word or topic to conduct a web search of images to stimulate students’ writing. I often use art work to engage the students.” Similarly, T2 responded, “I think the students like to use graphics in their writings. I also use online mad libs which allow the students to type words in blanks to create funny, humorous, and silly writings.” T3 indicated that “the writing tasks are actually what engages the students and the tech is just the platform.”

**Summary**

The researcher investigated which strategies writing instructors used with their middle school students within the virtual environment and uncovered which technologies
online writing instructors perceived to be most helpful to support middle school students when strengthening their writing skills in an online learning environment. Specifically, administrators, instructors, and learning coaches of virtual middle school students provided information on how they supported their students synchronously and asynchronously, how they communicated revision needs, how they encouraged students to think critically about the writing process, and how they provided feedback to students about their writing. Within the context of synchronous writing tasks, the participants revealed: specific online writing platforms, personalized feedback, and encouragement were most helpful. In terms of asynchronous writing tasks, the participants reported: clear expectations, personalized feedback, encouragement, and variety of tasks were most supportive. Specific writing instruction, incorporating technology, and digital writing were all detected as constructive and beneficial toward guiding students on the way to becoming stronger writers. Chapter 5 details the qualitative study’s findings, the conclusions of the findings, recommendations for future research, and the limitations of this study on the perceptions of students’ technology use for writing tasks and best practice teaching strategies regarding written expression.
CHAPTER 5: FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS

Chapter five was divided into five sections in order to discuss the findings of this phenomenography study. The chapter began with a summary of the study, followed by a presentation of the findings of the study, and an examination of the existing literature related to the findings. The third section explored the conclusions of the study. The fourth section of this chapter examined possible limitations to the study. The final section of chapter five suggested recommendations for future research to be conducted regarding best practice teaching strategies regarding written expression in virtual learning environments. These recommendations also included additional research on ways technology can be used for writing tasks in a virtual classroom.

Summary of the Study

The purpose of this phenomenography research study was to explore how instructors perceived their students’ use of technology when completing writing tasks in a virtual learning environment. The foundation of this study was that online writing teachers would recognize which methods were effective with middle school students and they would begin implementing those approaches inside the virtual classroom to enable students to develop into robust writers. Additionally, these instructors could involve these students in meaningful use of technology with both their writing products and writing processes. As a result, middle school students would undertake a leading role in their instruction, encouraging post-secondary academic achievements, by integrating additional technology use into their virtual classrooms.
Prior to the digital age, writing tasks focused primarily on traditional print and pencil and paper writing. Students utilized technology to complete writing tasks (Conner-Zachocki, 2015). Technology-assisted writing was becoming more routine in the classroom as more schools were engaging in digital literacy initiatives (Curwood, Magnifico & Lammers, 2013). Digital literacy incorporated skills used for creating, revising, and examining technology-based resources. Within the virtual environment, educators were required to outline, oversee, and communicate policy, procedures, and protocols beyond traditional written language and print-based skills.

The analysis of data from this phenomenography study provides a greater understanding of teachers’ perceptions of students’ technology use for writing tasks and best practice teaching strategies regarding written expression.

Research Questions

The researcher conducted the phenomenography study to examine teachers’ perspectives related to the following research questions:

Q1. What was the nature and extent of middle school students using technology to complete writing tasks in a virtual learning environment?

Q2. What were the pedagogical practices of virtual instructors regarding the use of technology in developing middle school students’ writing skills?

Findings

All nine participants from this study co-labored in the teaching of middle school students in a Tennessee online public K-10 school serving approximately 1,700 students. Through the analysis of data collected from the participants by open-ended, one-on-one,
semi-structured interviews, review of live classroom recordings, and a participant self-
assessment on a Likert scale of the nine participants, the questions for the research study 
were answered. The findings of the study were from three different sources: interviews, 
classroom observations, and a participant self-assessment in a trustworthy practice 
referred to as triangulation (Kornbluh, 2015; Maxwell, 2013). Detailed subsequently is a 
summary of the findings related to the themes that developed from the transcripts, live 
class recordings and access to one participant’s Google Classroom.

**Digital Workspace**

While Google Classroom was utilized school-wide in the middle school grades of 
the researched virtual school, it was interesting to note that none of the participants were 
Google certified teachers. Although free, Google certification required a substantial 
investment of time. For example, online training for Google Certified Educator (GCE) 
Level 1 took approximately 12 hours to complete (edu.google). The researcher 
recommended that the research school’s administration team mandated teachers to 
become Google Certified Educators. The required hours counted towards the 18 hours of 
required professional development each teacher must complete. Google Certification 
ensured that each teacher was trained to fully utilize all of the Google classroom features. 
Administration’s implementation of this recommendation further aligned the research 
school with its district partner.

**Interactive Tools**

Many educators questioned Google’s motives in its quest to revolutionize public 
education. Largely, the conversation about the utilization of Google classroom to
integrate technology brings Americans full circle to the age-long question of the true purpose of public schools. Was it the role of teachers to support students’ learning of content or workforce skills? Many stakeholders cited Google as contributing to the digital divide (Tepe, 2017).

Google search was used by one participant to learn the functions of the interactive tools in Blackboard Collaborative (BBC), another platform used school-wide within the researched school. Students who were encouraged to use a particular digital technology and work through the writing process to produce their own digital stories might not be as successful as the students who were acquainted with desktop production and taught explicit editing tools within the software program (Sadik, 2008). Students and parents needed to be taught prerequisite skills prior to being successful in digital learning (Brotman, 2016).

Most troubling was T2’s admission of “not doing a lot of writing this year” because she has “not gotten to the level of understanding to utilize the writing portion.” The National Commission on Writing (2003) described four challenges to educators: a) increased time spent on student-generated writing, (b) improved assessment procedures of students’ writing, (c) utilization of newly emerged writing technologies, and (d) specialized training on writing methods for all teachers. The researcher recommended that the administration of the research school offer additional training and resources for writing teachers through live demonstrations, video recordings and a LiveBinder with reference materials. The researcher was a member of the research school’s professional development committee and volunteered to take a lead role in the implementation of the recommendations.
Encouragement

The participants reported using a variety of techniques to encourage students with their writing tasks, such as follow up with emailed written instructions, phone call to parents and/or learning coaches, and working together in live classes to get students started. Collaborative writing offered a creative pedagogical instrument for teachers, encouraged individual participation, increased students’ confidence, boosted productivity, and created fun writing activities (Montero, 2005).

T2 shared that allowing student(s) “to audio/video record or dictate their writing due to poor spelling skills or if they are a struggling reader” were quite advantageous. Numerous technologies were available to support students with physical and learning disabilities and differences in their writing. These assistive technologies included word processing, spell checker, word prediction, speech-to-text, and text-to-speech, and enhanced students’ writing skills (MacArthur, 2000). Research supported that meaningful technology integration helped students to develop their abilities to produce innovative learning, solve problems, and utilize both creative and critical thinking skills (Sadik, 2008). The researcher recommended that the administration “flip” their staff meetings. A week prior to a “flipped” staff meeting, administration creates a non-traditional way of delivering information needed by meeting participates to collaborate during the “flipped” meeting. Some of the greatest features of the “flipped” meeting were freedom of choice and leadership opportunities for the teachers. The faculty and staff find a voice once lessened by administration. This change would allow teachers to share the ways they were utilizing technology to overcome barriers, motivating reluctant writers, and supporting learning differences.
T3 presented her students with writing task choices. Research recommended that teachers should offer students choices in writing tasks but cautioned teachers to offer fewer choices to less experienced students while offering several choices to more advanced students (Wigfield, Guthrie & Perencevich, 2004). Other research suggested that giving students too many choices, more than five, possibly would demotivate and overwhelm them, prompting students to wonder if they had chosen the best topic rather than actually undertaking the task (Iyengar & Lepper, 2000). Widely held research supported providing students with choices for at least some, if not all, writing assignments in order to promote student ownership as well as support pupils to draw on their own experience, interests, and inquiry (Patall, Cooper & Winn, 2010).

“The students have many options how to complete any given task. Not every option is tech related. Sometimes we use paper and pencil,” reported T3. Newer technologies, such as alternative keyboards, speech-to-text software, spellcheckers, editing software, digital cameras, authoring tools, and electronic media outlets had stimulated writing teachers to employ various tactics and tools than previously to assist pupils in constructing their own information and thoughts to present and share them successfully (Sadik, 2008). The researcher recommended the research school include one engaging writing website listed within Table 1.1 in to the school’s weekly teacher newsletter to support teachers’ efforts to integrate technology into writing.

**Communication**

The participants used a variety of techniques to provide students with feedback. Use of the mic during live classes provided the teacher participants the platform to give “specific verbal feedback.” Teacher participants also typed notes on the students' digital
document, gave instant feedback with “private chat messages” and used virtual stickers to
indicate that the student had given the correct answers and could “move on to the next
task.”

Teachers must bridge what students knew and used outside of the classroom with
assignments inside the classroom while providing appropriate literacy instruction and
feedback that would allow students to become better readers and writers (Irvin, Meltzer
& Dukes, 2010). Writing instructors created tasks that allow students to find meaning and
relevancy beyond the classroom into the real-word. Educators inquired if students could
find relevancy in the activity (Yarbro et al., 2016).

Specific Writing Instruction

Administration of the researched school detailed different accounts about specific
writing instruction of middle school teachers. A1 observed “both research-based learning
and project-based learning while incorporating the use of technology” yet no school-wide
instructional approach was being implemented. A2 described writing teachers as “mainly
using digital thinking maps” and an administration-created common acronym PowerPoint
to support the writing process. Finally, A3 defined middle school writing instruction as
“differing by grade level, pod, and individual teacher preferences.” Within the limited
scope of the researcher’s observations, the teachers were using a hybrid approach of
Emig’s writing stages combined with Dyson’s multimodal theory of writing.

All three administrator participants were concerned with the amount of time
required of teachers grading writing assignments. Teachers often reported tasks
associated with scoring students’ writing as being tedious and time-consuming. Reading
through one student’s writing and providing meaningful feedback required hours. Multiplied by the number of students taught, in addition to developing a process to measure student progress over time, it was easy to ascertain the daunting nature of teaching written expression (Bell, 2018).

Administration has collectively suggested using peer grading and feedback but not the use of free Google writing apps like WriQ. WriQ provided educators with a quick method to evaluate their pupils’ writing while tracking their progress over the year. WriQ utilized helpful metrics like: words per sentence, word and sentence count, correct and incorrect word sequences, grammar, punctuation, time spent writing, and spelling errors. Instructors had the ability to examine and fine-tune the metric data as desired, then delivered it along with their written comment directly to their pupils within their Google Doc (Gracey, 2018).

**Incorporating Technology**

The researcher observed a variety of technologies used to deliver instruction, including digital platforms, interactive tools, basic computer software programs, short video clips, virtual field trips, webcams and microphones. Technology was not to replace instruction but could be used to facilitate engagement with reluctant students (Wainwright, 2012). Teachers had much to ponder regarding integrating technology into writing programs. Various innovative software was accessible past the spreadsheet, slide presentation, word processing, photo-editing, and movie-making programs that normally came on countless computers (Williams, 2014). Instructors incorporated the use of programs that allowed students to create posters, comics, illustrate their stories, and link images inside their written assignments.
Most surprising to the researcher was the lack of a school-wide writing plan after the research school received the lowest state assessment scores for literacy in the school’s history. Each subject area of the state’s testing had a writing subpart in addition to the separate writing assessment given. The researcher recommended that the research school conduct a survey of the teachers to learn about all writing programs, acronyms, and processes utilized within the school and determine which ones were effective for the students in the virtual setting.

Research discovered America’s writing crisis and exposed students in America’s K-12 schools were not mastering standards on standardized grade-level writing assessments. This writing crisis was not only suggestive of students in the middle grades but also in at the secondary level. Thirty-four percent of American high school students that took the ACT failed to meet proficiency levels (ACT, 2015).

**Student Technology Use**

The researcher observed a variety of technology used by the students in completing written assignments. Interactive classrooms in BBC were utilized for peer discussions of digital anchor texts and pre-writing discussions. Digital platforms such as Big Universe and Google Classroom were used to locate digital sources, create digital documents and turn in paperless writing assignments.

Online learning was the fastest growing model of education and required its instructors to be more innovative in their teaching methods (Allen & Seaman, 2011). Therefore, online platforms were designed to give students and teachers various ways to interact with one another. Research suggested that strong online classrooms would
incorporate videos, webcams, microphones, and headsets inside an interactive space to support learning, community, and collaboration (McConnell et al, 2012).

**Digital Writing**

T1 stated that the virtual environment of the researched school “naturally supports” digital writing. Integration of various technologies and software programs did not in itself promote meaningful student technology use, but the student’s understanding of how and why to apply technology (Earle, 2002). Students who were encouraged to use a particular digital technology and work through the writing process to produce their own digital stories might not be as successful as the students who were acquainted with desktop production and taught explicit editing tools within the software program (Sadik, 2008).

T3 indicated that “the writing tasks are actually what engages the students and the tech is just the platform.” Engagement described whether a student found interest and enthusiasm in a task in order to put forth the effort, participation and cognitive function (Parsons et al., 2015). The writing lesson/prompt needed to be engaging and relevant to the student. Before students were engaged, they were motivated (Irvin, Meltzer & Dukes, 2007). Motivation accounted for why a student was interested enough to become engaged. Motivation and engagement were closely linked, and it was impossible to have engagement without motivation.

**Conclusions of the Findings**

The results of this phenomenography study developed a more comprehensive understanding of the perceptions of students’ technology use for writing tasks and best
practice teaching strategies regarding written expression. The writing tasks, whether asynchronous or synchronous, provided practice with the writing process and appeared to support students’ growth as writers. While synchronous interaction had some advantages, such as being able to speak and sometimes see the other person, participants often found asynchronous communications were just as effective.

While this study was limited to the virtual setting, the findings would also benefit the traditional brick and mortar school setting. Regardless of educational setting, students with motoric challenges or writing struggles found technology supports gave ease in the writing process. Teachers reported increased student engagement when writing assignments included the use of technology.

The purpose of this study was to discover how teachers perceived their students’ use of technology when completing writing tasks in a virtual learning environment. The participants failed to identify which methods were effective with middle school students. Each participant was implementing his/her own approaches. Additionally, not all of the participants were utilizing technology with both the writing products and writing processes.

**Limitations**

All study participants resided in a variety of geographic locations within Tennessee. The sample for this study was selected from volunteers that had at least two years of experience within the online school and did not represent the total population of the research school, which could result in a biased sample (Best & Kahn, 2005). Additionally, the population of participants was involved with the teaching of middle
school students in a Tennessee online public K-10 school. Population could have been a limitation because the data was only representative of teachers’ perspectives from one school within the research district, the research school was a virtual setting, the study was limited to grades 6-8 and did not include other K-12 teachers throughout the district.

**Recommendations for Future Research**

The researcher recommended additional research into technology use for writing tasks and best practice teaching strategies regarding written expression. Further research might include a study involving elementary teachers in grades 3-5 and high school teachers in grades 9-10.

Students’ perspectives regarding which forms of technology offer the most supports when completing writing tasks should also be further researched. Millennials seem tired of generational simplifications, perceiving that teacher assumptions are negatively affecting them academically. One of the major misconceptions teachers had about students was the impression that millennials were “digital natives.” Students reported not knowing how to use headers, footers, or page numbering in Microsoft Word and receiving fewer points on graded assignments (Alyssa Foley, Student as quoted in Abamu, 2018). A study conducted from the students’ point of view would lead to new discoveries and open a real dialogue about students’ writing.

Additionally, this study failed to identify which methods were effective with middle school students. Each research participant was implementing his/her own approaches. The researcher recommended a study focused on specific methods utilizing technology with both the writing tasks and writing process.
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National Center for Education Statistics


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National Endowment for the Arts


National Commission on Writing

Appendices
Appendix A

District Research Approval
AGREEMENT BETWEEN K12 SERVICES INC. AND LAURA MASON

This agreement (“Agreement”) is made this 9th day of November, 2018 (the “Effective Date”), by and between K12 Services Inc., with a business address located at 2300 Corporate Park Dr., Herndon, VA 20171 (“K12”) and Laura Mason, with an address of P O Box 435, Sweetwater, TN 37874, 223 Pumpkin Hollow Rd, Madisonville, TN 37354 (“Student”), each individually a “Party” and collectively the “Parties.”

SCOPE

1.1 Student will be undertaking research for her own educational requirements on the subject of perceptions of students’ technology use for writing tasks and best practice teaching strategies regarding written expression (the “Study”). As part of the Study, Student will ask school teachers at Tennessee Virtual Academy (“TNVA”) to volunteer to participate in interviews so long as such work does not negatively effect their responsibilities to TNVA and K12 and so long as no individuals will be asked to breach any confidentiality requirements including those associated with the Family Educational Rights to Privacy Act. Student will make sure that any request will not have the appearance of being mandatory and that Student will make sure that the individuals understand that neither K12 nor TNVA are taking part in this Study. Student will also observe recordings from participating online instructors’ live classes to note the number of times the teacher used traditional writing techniques versus digital processes as well as the methods of the instructors regarding the writing process whereby Student shall ensure that there is compliance with all confidentiality requirements including those associated with the Family Educational Rights to Privacy Act.

1.2 Student understands that she will not be given access to any “education records,” as that term is defined in the Family Educational Rights to Privacy Act, of TNVA students. In the event that, notwithstanding this understanding, she is provided with “education records” of TNVA students, she agrees to promptly return such records to the Head of School of TNVA and to promptly destroy all of her records and notes reflecting or regarding such records. Student will not use, record or publish the names or other identifying information of any TNVA student in the course of the Study or any work product emanating therefrom.
RELATIONSHIP OF THE PARTIES

2.1 Nothing in this Agreement is intended to create an employment relationship, company, partnership, joint venture, association or other legal entity of any kind or for any purpose as between the Parties. No Party will have any authority to bind or commit the other Party, or cause the other Party to incur any liability or obligation, for any purpose without the express written consent of the other Party and either Party has the right to enter into the same or similar relationships with other Parties.

RIGHT TO PUBLISH

3.1 K12 understands that results or other information based in whole or in part on the Study may be embodied in presentations at symposia, lectures, or professional meetings, and may be published in journals, theses, dissertations, brochures or otherwise (collectively, “Presentations and Publications”). If, however, any Presentations and Publications contain K12-Identifying Information, K12 must be furnished notice including copies of any proposed Presentations and Publications at least four (4) weeks in advance of the earlier of their publication or submission to a third party. K12 shall have two (2) weeks after receipt of said copies, to object, in its sole discretion, to the use of the K12-Identifying Information. In the event that K12 makes such objection, Student shall remove from such Presentations and Publications the K12-Identifying Information. K12-Identifying Information shall mean all information, either by itself or in combination with other publicly available information, from which a person could reasonably be expected to be able to identify K12.

3.2 Student will comply with any request by K12 that the following statement be included in any publication related to the Study: “The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of K12 Inc.”

INTELLECTUAL PROPERTY AND OTHER AGREEMENTS
4.1 Nothing in this Agreement is intended to transfer, grant, deny, license or provide permission with respect to any rights in any intellectual property of a Party to this Agreement. For the sake of clarity, Student understands and agrees that all intellectual property rights in the work that she performs within the scope of her employment with K12 are and shall remain vested solely in K12 or its affiliates.

4.2 Nothing in this Agreement is intended to amend, alter, obviate or describe any of the rights and obligations of Student set forth in her executed Employee Confidentiality, Proprietary Rights and Non-Solicitation Agreement or in any other agreement entered into by Student relating to her past or present employment with K12 or its affiliates.

PROTECTION OF HUMAN SUBJECTS PARTICIPANTS

5.1 In accepting this agreement, Student warrants that the participation of all human subjects in this research project has been reviewed and approved by the cognizant Institutional Review Board in accordance with DHHS Regulations (45 CFR, Part 46). The Principle Investigator assigned for directing the performance of work of the Study is Laura Mason. If, for any reason, that person is no longer the Principle Investigator, Student shall notify K12 as soon as practicable but, in any event, within thirty (30) days thereafter, of the name of the new Principle Investigator.

TERM AND TERMINATION

6.1 This Agreement shall terminate 180 days from the Effective Date set forth above. Notwithstanding the forgoing, this Agreement can be terminated a) at any time for material breach upon provision of written notice and an opportunity to cure not to exceed 30 days, or b) for any reason upon one (1) month written notice, in which case reasonable efforts shall be made to minimize disruption of the Study.

USE OF NAME AND PUBLIC ANNOUNCEMENTS

7.1 Any use of the name of K12 or any of its affiliates, including any of its related logos, in any publications relating in any way to the activities described in this Agreement shall be subject to the prior written approval of K12.
LIABILITY

8.1 Student agrees to accept the responsibility for injury or damage to any person or persons or property that arise out of Student’s negligent acts or omissions in connection with this Agreement.

WARRANTIES AND REPRESENTATIONS

9.1 Neither Party guarantees any specific results of the Study.

9.2 Student represents that she understands that any grade, evaluation or degree she receives in connection with the Study is based solely on her own work and that K12 bears no responsibility for any such grade, evaluation or degree.

9.3 THERE ARE NO WARRANTIES, CONDITIONS, COVENANTS OR REPRESENTATIONS (EXPRESSED OR IMPLIED) INCLUDING WITHOUT LIMITATION THE FITNESS OF A PARTICULAR PURPOSE, OR MERCHANABILITY GRANTED BY EITHER PARTY IN THIS AGREEMENT.

OTHER OBLIGATIONS

10.1 Non-Assignment. Student shall not have the right to assign any duty or responsibility arising hereunder without the prior written consent of K12. Any assignment without such consent is void from its beginning.

10.2 Notices. All notices shall be in writing mailed via certified mail, return receipt requested, or by reputable overnight courier addressed as follows, or to such other address as may be designated from time to time. If to K12, to the Executive Vice President of School Services at the address set forth above. If to the Student, to her at the address set forth above. Notices shall be deemed given as of the date received.
10.3 Entire Agreement/Modification. This Agreement constitutes the entire agreement between the parties and may be amended only in writing signed by all parties.

10.4 Waiver. The failure of either party to enforce any of the provisions hereof will not be construed to be a waiver of the right of such party thereafter to enforce such provisions or any other provisions.

10.5 Severability. If any provision of this Agreement is declared void, such provision will be deemed severed from this Agreement, which will otherwise remain in full force and effect.

10.6 Survival. Sections 1.2, 3.1, 3.2, 4.1, 4.2, 7.1 and 8.1 of this Agreement survive the termination of the Agreement.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

LAURA MASON
By: ____________________________
Date: 11/9/18

K12 SERVICES INC.
By: ____________________________
Title:___________________________
Date: 11/9/18
Appendix B

Informed Consent Form
PROJECT TITLE: Perceptions of Students' Technology Use for Writing Tasks and Best Practice Teaching Strategies Regarding Written Expression

INTRODUCTION
You are invited to join a research study to look at the techniques in utilizing technology to complete written tasks with middle school students of a virtual public school in East Tennessee. Please take whatever time you need to discuss the study with your family and friends, or anyone else you wish to. The decision to join, or not to join, is up to you.
In this research study, I am investigating/evaluating the perceptions surrounding technology use by middle school students in completing writing tasks in an online school.

WHAT IS INVOLVED IN THE STUDY?
If you decide to participate you will be asked to participate in an open ended semi-structured interview. This will take approximately 15 minutes. You will be asked to complete a Likert scale survey. This will take approximately 15 minutes.

The investigator may stop the study or remove you from the study at any time she judges it is in your best interest. You can stop participating at any time. If you stop you will not lose any benefits.

RISKS
There are no risks involving this study. The IRB (International Review Board) of Carson-Newman University has given permission for this study. Additionally, the school system involved has granted permission for the study to take place.

BENEFITS TO TAKING PART IN THE STUDY?
It is reasonable to expect the following benefits from this research: gain a better understanding of what makes up a school culture. However, I cannot guarantee that you will personally experience benefits from participating in this study. Others may benefit in the future from the information I find in this study.
CONFIDENTIALITY
We will take the following steps to keep information about you confidential, and to protect it from unauthorized disclosure, tampering, or damage: Names will not be used in the study. Data files will be kept in a locked cabinet and kept on a password protected computer.

INCENTIVES
No incentives will be used in this study.

YOUR RIGHTS AS A RESEARCH PARTICIPANT?
Participation in this study is voluntary. You have the right not to participate at all or to leave the study at any time. Deciding not to participate or choosing to leave the study will not result in any penalty or loss of benefits to which you are entitled, and it will not harm your relationship with the researcher or anyone involved in the study.

CONTACTS FOR QUESTIONS OR PROBLEMS?
Call Laura Mason at 423.519.3125 or by email at llmason811@cn.edu if you have questions about the study, any problems, unexpected physical or psychological discomforts, any injuries, or think that something unusual or unexpected is happening. The chair of this study may also be contacted:
Dr. Steve Davidson, Associate Professor of Education, Carson-Newman University,
sdavidson@cn.edu

Participant: (print name)____________________________________Date: ______
Participant’s signature: _____________________________________________
Appendix C

Interview Questions
**Administration Questions**

What are the pedagogical practices of your middle school teachers regarding the use of technology in developing middle school students’ writing skills in this virtual learning environment?

What strategies do your middle school teachers use when incorporating technology to teach middle school students specific writing skills in this virtual learning environment?

Which teaching methods involving the use of technology do your middle school teachers identify as most helpful for their middle school students when completing writing tasks in this virtual learning environment?

What is the nature and extent of middle school students using technology to complete writing tasks in this virtual learning environment?

**Teacher and Learning Coach Questions**

How do you incorporate technology into your middle school students’ synchronous writing tasks?

How do you incorporate technology into your middle school students’ asynchronous writing tasks?

What strategies do you use to keep middle school students engaged with technology during the entire school year?

Which forms of technology do you think are most helpful when communicating revision needs? Why?

How do you encourage middle school students to utilize technology during each stage of the writing process?

How do you communicate a middle school student’s strength in a digital submission?
Appendix D

Technology and Writing Survey
Technology & Writing Survey

* Required

How comfortable are you with using technology? *

1  2  3  4  5

The struggle is real
   ○ ○ ○ ○ ○ ○ Very confident

How comfortable are you with supporting your student(s) with software programs? *

1  2  3  4  5

My student(s) know more than me
   ○ ○ ○ ○ ○ ○ Very confident

How often does your student(s) utilize technology as a tool for the writing process? *

○ Never
○ Occasionally
○ Sometimes
○ Often

How often does your student(s) utilize technology as a tool for publishing writing? *

○ Never
○ Occasionally
○ Sometimes
○ Often

Your role *

○ Learning Coach
○ Teacher
○ Administrator