

CALIFORNIA STATE UNIVERSITY SAN MARCOS

THESIS SIGNATURE PAGE

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE  
MASTER OF ARTS IN EDUCATION

TITLE: 21st Century Learning Practices: A Case Study of Student Response and Motivation in the Classroom

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DATE OF SUCCESSFUL DEFENSE: 03/03/2018

THE THESIS HAS BEEN ACCEPTED BY THE THESIS COMMITTEE IN

PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS IN EDUCATION

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21st Century Learning Practices: A Case Study of  
Student Response and Motivation in the Classroom

By

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A Research Paper  
Requirements for the  
Master of Arts Degree  
in

Education

California State University, San Marcos

Spring 2018

**Abstract**

The purpose of this mixed methods case study was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation. The data was collected in two phases based on data collection instruments. The first phase collected quantitative data through a whole class pre/post survey. The second phase collected qualitative data towards the end of the study through field observations, one group interview, and ten one on one interviews with participating students.

The two research questions used to guide this study were, “What is the impact of 21<sup>st</sup> century learning on development of the ‘Four C’s’?” and “What are the factors of 21<sup>st</sup>-century learning environments on students’ motivation to engage in learning activities?” The findings revealed a positive impact on students through the implementation of the “Four C’s” skill set from the use of technology, a project-based learning activity, and performance-based assessments. The students were more engaged in classroom activities and had more of a drive for learning.

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## Chapter 1

As our world evolves, so does education. Learning has been transformed tremendously over the last decade due, in part, to the technological revolution (Rosen, 2016). There is no “one size fits all” learning in classrooms that use instructional approaches aligned with 21<sup>st</sup> –century skill development. These learning skills are defined through the implementation of the “Four C’s,” which are the ability to collaborate, create, critically think, and communicate interactively as well as independently (Partnership for 21st Century Skills, 2010). Although creativity, critical thinking, communication, and collaboration are not new to education, they are now considered to be as a basic requirement for success in the 21<sup>st</sup>-century work environment (Soulé & Warrick, 2015).

Twenty-first century learners are challenged to create their own thinking and to demonstrate knowledge in various ways. Students learn by doing hands-on activities, project and problem-based learning, collaboration within group and class projects, as well as using technology for productivity, communication, and creativity (Vockley, 2006).

### Learning and Innovation Skills

Four specific skills are recognized to prepare students for current learning and development of innovative skills, referred to as the four C’s. The four C’s are critical thinking, communication, collaboration, and creativity (Partnership for 21st-Century Skills, 2017).

- *Critical thinking* is described as the ability to look at problems in a new way, and linking learning across subjects and disciplines.
- *Communication* includes students’ ability to share thoughts, questions, and ideas, and derive solutions.

- *Collaboration* is described as using one's talents, expertise, and knowledge to work together in a participatory culture to reach a goal.
- *Creativity* is characterized as one's ability to try new approaches to get things done. Accordingly, creativity plus novel approaches leads to innovation and invention.

Teachers can help students develop proficiency with the “Four C’s” through project-based learning, and performance-based assessment measures. In this thesis, I present findings from a case study of 31 fifth graders who engaged in a project-based learning activity over the course of eight weeks. The aims of this project were to help students gain skills to think critically, communicate effectively, collaborate, and create a product that demonstrated their learning about their state. The learning objectives of this project-based learning activity were to collaborate and research with group members about a given state, demonstrate understanding through an individually selected medium (poster, brochure, Google Slide, movie, or diorama) and plan a trip to a selected state based on prior knowledge, research, and mathematical reasoning.

During this 8-week case study (Yin, 2014), the student participants were introduced to specific skills in support of the “Four C’s.” Throughout the project, the students were required to collaborate amongst their group using technology, create a state project that demonstrated their findings, communicate their findings about their state to the rest of the class, and plan a trip to their state using an appropriate budget. Findings from this study provide insights related to how 21<sup>st</sup>-century learning practices embedded in a project-based learning opportunity impacted their learning and motivation in the classroom.

## Statement of Problem

According to the Partnership of 21<sup>st</sup> Century Learning, “21<sup>st</sup>-century learning focuses on teaching students to become critical thinkers, problem solvers, and innovators; effective communicators and collaborators; and self-directed learners” (Up to the Challenge, 2009). The purpose of this study was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation. In this research study, 21<sup>st</sup>-century learning practices are identified as project-based learning activities that incorporate technology. To assess student learning, performance-based assessments were used to uncover students’ understanding and practices associated with the “Four C’s.”

As educators prepare students for this new global society, teaching the core content subjects—math, social studies, the arts— must be enhanced by incorporating critical thinking, communication, collaboration, and creativity” (NEA, 2010). This approach was new to the educational context I work in; therefore, it was essential to see what 21<sup>st</sup> century teaching practices were beneficial to student motivation in the classroom. The aims of this research study were to examine students’ engagement and response to 21<sup>st</sup> century instructional activities and examine students’ motivation using technology, project-based learning activities, and performance-based assessments. Through these implementations, the students gave insight on what benefited their learning in the classroom. The research questions that this study was focused on were, “What is the impact of 21<sup>st</sup> century learning on development of the ‘Four C’s’?” and “What are the factors of 21<sup>st</sup>-century learning environments on students’ motivation to engage in learning activities?”

**Significance of Research**

Twenty-first century learning takes traditional learning to a different level. As 21<sup>st</sup>-century learning practices enter contemporary classroom contexts, it is important for teachers to know how to implement these practices. Twenty-first century educators must be willing to prepare their students for the ever-changing trends in education and ensure that students will not be left behind in our future world (Cox, n.d.). In order to meet the needs of our students, teachers need to implement and teach skills that will be beneficial to students' future lives. According to Partnership for 21<sup>st</sup>-century skills, "To meet the needs of the 21st century learner, schools will need to adopt a 21st century skills curriculum and employ methods of instruction that integrate innovative, research-proven teaching strategies, modern learning technologies, and real world resources and contexts" (p. 3). In classroom contexts, students are taught through standards based interdisciplinary learning to collaborate, create, communicate, and critically think about topics of study. The significance of this research is to help students develop skills and processes to be effective communicators, collaborators, and problem solvers. The benefit of twenty-first century skill development is that it has the potential to "provide all students the opportunity to become effective citizens, workers, and leaders" (Soulé & Warrick, 2015). This specific research focuses on what motivates the students to increase their participation and performance in the classroom setting through the use of 21<sup>st</sup>- century learning practices.

**Preview of Literature**

Educators can help students develop the skills that they will need to be successful in our world today. In this study, the 21<sup>st</sup>-century learning environment is defined as using technology in a meaningful way, utilizing project-based learning activities, and administering performance-based assessments in language arts, math, social studies, science, and the arts (Partnership for 21st Century Learning, 2007). In order for students to be successful with 21<sup>st</sup> -century learning,

students must exhibit the “Four C’s,” collaboration, creativity, communication, and critical thinking on their own. “Collaboration is a philosophy of interaction and personal lifestyle where individuals are responsible for their actions, including learning and respect the abilities and contributions of their peers” (Laal, Naseri, Laal, & Khattami-Kermanshahi, 2013). Twenty-first century learning opens a new door up for collaboration. Students can collaborate within project settings as well as through the use of technology.

Technology is making a major impact in education. Through the use of technology, students are able to demonstrate, create, and analyze different concepts taught in the classroom. There are a plethora of apps and websites that students can use to create, collaborate, and communicate their findings on a given concept. According to Cox, technology helps students learn at their own pace. By using technology, students can be more independent in the classroom setting (Cox, n.d.). According to (Kimble, 1999) states, “students usually learn more, and in less time, in classes with computer-based instruction. Students reported enjoying classes more when they received computer help and they learned as much or more from computer-based tutoring as from peer and cross-age tutoring” (p. 4). Technology gives students the ability to work at their own skill level giving them a personalized learning atmosphere. Being able to work at their own skill level is supported by project-based learning.

Project-based learning focuses on students creating projects that connect to real-life experiences. This practice allows students to work on self-organization, self-reliance, social learning, as well as motivation in the classroom (Bell, 2010). This practice gives the students the opportunity to learn through their own research, collaboration, as well as creativity. A 21<sup>st</sup> century learning environment allows for many different students to be successful. Performance-

based assessments also allow for many students to demonstrate their own understandings at their various skill levels.

Critical thinking is a major part of 21<sup>st</sup> century learning. Performance-based assessments provide tasks that “involve actual demonstrations, which involve integration of several processes, skills, and concepts” (Afflerbach & Kapinus, 1995). These assessments give better indicators of the depth of knowledge the student has as well as challenges the students to think further about a topic.

### **Preview Methodology**

The purpose of this study was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation. In order to collect and analyze data on the research questions, the researcher used a mixed methods approach (Creswell, 2006). The mixed method data were collected through a whole class survey and two types of interviews, one focus group interview and ten individual interviews. The survey was administered at the beginning and the end of this study. The survey focused on gathering general attitudes of how the participants felt about engaging in school activities.

The participants in this study were from one fifth grade class at a Title I K-8 elementary school. The fifth-grade class consisted of 18 females and 13 males. The participants were in a self-contained classroom and were able to be accessed throughout the study at any time.

Results from this study were analyzed and coded into specific categories. These categories showed common responses amongst the participants and gave insight into the response to the integration of 21<sup>st</sup>- century learning practices.

**Summary of Chapter**

The purpose of this study was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation. The collection of pre and post surveys, as well as group and one-on-one interviews, indicated how the students responded to the 21<sup>st</sup>-century practices and how they may or may not have been motivated in the classroom. By integrating 21<sup>st</sup>-century learning practices into the schools, students will be more prepared for their future skill sets.

**Definitions**

**Project-Based Learning:** teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging and complex question, problem, or challenge (Buck Institute for Education).

**Performance-Based Assessment:** measures students’ ability to apply the skills and knowledge learned from a unit or units of study. Typically, the task challenges students to use their higher-order thinking skills to create a product (Chun, 2010).

**21<sup>st</sup>-Century Learning:** skills that refer to collaboration, digital literacy, critical thinking, and problem-solving that prepare students to thrive in today’s world (Rich, 2010).

**Motivation:** Students motivated to learn about a topic are apt to engage in activities they believe will help them learn, such as attend carefully to the instruction, mentally organize and rehearse the material to be learned, take notes to facilitate subsequent studying, check their level of understanding, and ask for help when they do not understand the material (Zimmerman, 2000).

**Technology:** is used to support teaching as well as learning. Technology infuses classrooms with digital learning, expands course offerings, experiences, and learning materials; supports learning 24 hours a day, 7 days a week; builds 21<sup>st</sup>-century skills; increases students' engagement and motivation; and accelerates learning (U.S. Department of Education, n.d.).

## Chapter 2

Education systems strive to prepare students for the 21<sup>st</sup>-century. Today's classrooms are transforming from teacher-driven instruction to student-driven activities (Bogdan, 2011). Students are challenged to be "independent thinkers, problem solvers, and decision makers" (Silva, 2009, p. 630). In order to help students succeed in the future work world, pedagogical frameworks such as the "Four C's" ensure the students develop the necessary skills. The "Four C's" are critical thinking, communication, collaboration, and creativity and are now the main focus of the 21<sup>st</sup>-century framework (Lai, DiCerbo, & Foltz, 2017).

There are several ways the "Four C's" can be integrated into the classroom. First, students can use technological devices to produce work, collaborate, and explore content to create new understandings. Technology also allows for personalized learning. Through technology applications and programs, students can work at their own level which provides students with opportunities to make gains from their current skill level. Second, implementing a project-based approach to learning provides students with opportunities to practice the "Four C's". Project-based learning can help students focus on collaboration and provide an opportunity for students to learn from their peers. In addition, students are taught critical thinking skills that they have the opportunity to apply to real-life topics. Students' understandings of knowledge and skills are demonstrated through their own research (Soule, 2014). In order to assess student learning outcomes, 21<sup>st</sup>-century environments use performance-based assessments rather than multiple choice standardized tests. Performance-based assessments allow the students to think critically and communicate that thinking in their own way. These assessments also allow the learner to show what they know at their own skill level (Scott, 2017). These practices permit the learner to make deeper connections to the material; it gives each learner the opportunity to grow

at his/her own skill level, as well as encourages today's learners to be independent thinkers (The Partnership for 21st Century Learning, 2015). With the implementation of these teaching practices, students can develop deeper knowledge of content taught in the classroom and can become more engaged in the curriculum itself.

### **Use of Technology**

Technology plays a major role in 21<sup>st</sup>-century learning environments and practices. Using technology as a learning tool, teachers are “engaging students, promoting higher level thinking, and developing important skills for the future” (O’Neal, Gibson, & Cotten, 2017). Technology provides transformational ways to engage in 21<sup>st</sup>-century learning. According to Musti-Roa, Cartledge, Bennett, & Council (2015), some benefits of using technology are “active student response, the ability to individualize and differentiate instruction, consistent delivery of instruction, increased motivation, and resources for classroom management” (p.196). Although there are many benefits from using technology in 21<sup>st</sup>-century classrooms, there are some drawbacks. Teachers need to be trained on the using technology in the classroom and need to take the time to teach students the importance of their digital footprint while using the internet (Means, Olson, & Singh, 1995).

### **Personalized learning**

Technology can allow students to work at their own individual level, which is also known as personalized learning (Howton, 2017). Personalized learning is instruction that is paced to student learning needs and tailored to student learning preferences and interests (Ferriman, 2014). “Personalized learning is an educational approach that aims to customize learning for each student’s strengths, needs, skills, and interests” (Morin, 2016). Personalized learning allows the teacher to focus on specific areas that the individual student may need support. This can be seen in many different ways such as: learner profiles (students set goals and track data),

personalized learning paths (project-based learning and choice), competency-based progression (students can work at their own pace), and flexible learning environments (students are able to work in environments that are suitable for their learning needs) (Pane, Steiner, Baird, & Hamilton, 2015). Since students are working at their own level and have the ability to create, collaborate, communicate, and think critically in their own way, they have a better chance of being successful. Students can work within their skill level to develop understandings of content taught in the classroom. Daniels (2010) explained that when students are given choice, they could work among their own strengths and develop ownership over their learning. By giving the students a choice in their learning, teachers provide opportunities for autonomy. Students are able to take control of their learning by setting learning goals aligned with content standards and decide on how they are going to demonstrate proficiency of the content to be learned. Today's classrooms are not full of students all at the same level; teachers are given students who may face different challenges. According to Daniels (2010), when teachers provide students with choices and give them autonomy within the classroom setting it allows for more motivation in the classroom.

Classrooms are a space where students can explore on their own, create their own understandings, work at their own pace, question the text, as well as collaborate with others (Daniels, 2010). Personalized learning is “the purposeful design of blended instruction to combine face-to-face teaching, technology-assisted instruction, and student-to-student collaboration to leverage each student’s learning style and interests for deeper learning” (Howton, 2017). Technology is a helpful tool that encourages students to be independent learners, collaborate amongst their peers, and to find understandings through their own discoveries. According to Cameron Pipkin (2015), “Hard data and peer-reviewed research are

confirming the great potential of a well-implemented personalized learning model for creating rich, engaging learning environments that result in dramatic improvements in student achievement” (Pipkin, 2015). Personalized learning creates an atmosphere for each student to work and be successful.

### **Project-Based Learning**

Project-based learning also referred to as PBL, is a 21<sup>st</sup>-century practice that encourages independent thinking and creating. Project-based learning can benefit students of all skill levels because it can motivate students, help students meet standards, and give students the opportunity to demonstrate “in-depth knowledge and thinking skills” (Larmer, Mergendoller, & Boss, 2015, p. 2). Project-based learning is an approach to learning where students are in charge of their own learning (Bell, 2010). The students have the opportunity to focus on an inquiry question, which essentially drives their research and acquired knowledge.

Project-based learning “offers a proven strategy to transfer skill competency in creativity, critical thinking, collaboration, and communication, the 4Cs that serve as the foundation for the 21<sup>st</sup>-century learning framework” (Cadle, 2017). PBL allows a student-driven curriculum where students take the lead in the content while the teacher guides the process (Lenz, 2011). Taking a project-based learning approach, students are presented with real-life scenarios or problems that are relevant to their studies and/or themselves. Thomas (2000) identified five traits regarding the implementation of project-based learning in classroom contexts: (1) projects are central to the curriculum, (2) emphasis is placed on questions and problems that drive learning, (3) projects involve the construction and transformation of students’ knowledge, (4) projects are at least somewhat student-driven, and (5) projects take the form of authentic or real-world projects. Inquiry projects provided opportunities for students to learn how to collaboratively identify a

challenging problem or question related to content, engage in sustained inquiry using technology tools, conduct meaningful research, and complete authentic projects. Project-based learning allows students to use their critical thinking skills to evaluate information, collaborate amongst their peers, create individual or group projects, and communicate their findings to the rest of the class (Cadle, 2017). One of the key elements of project-based learning is the fact that all students have the opportunity to work at their own skill level. They do not all produce the same work; however, they produce a project that fits their skills and findings (Krajcik & Blumenfeld , 2006) .

Research has shown positive outcomes and challenges in project-based learning. In recent studies, project-based learning has helped increase state test scores (Bell, 2010). Although it is challenging for teachers to integrate into the classroom due to the student-driven curriculum, project-based learning enhances students' motivation and engagement, and it also supports students through the "Four C's" skill set (University of Indianapolis, 2009). Project-based learning allows students to become more interested in their learning as a whole because they are more involved in their learning (Krajcik & Blumenfeld , 2006) .

### **Performance-Based Assessments**

Performance-based assessments allow the students to complete a task that demonstrates their knowledge aligned with their learning styles and skill strengths (Shepherd & Mullane, 2008). Tung (2017) explained, "This alternative, performance assessment, is personalized and rigorous, and improves teaching and learning – thereby benefiting both students and teachers" (p. 3)

Performance-based assessments focus on fitting the need of the students (Meisels, n.d). Performance-based assessments vary from "papers, skits, presentations, and debates to determine students' mastery of content" (Tung, 2017, p. 3). By giving students the choice in what they

produce to show their mastery, they become more engaged in the assignment, which will allow them to put forth their best effort. “The Four C’s” are the are integrated into performance assessments (Kay, 2011). Through performance assessments, students can be evaluated according to their proficiency of the “Four C’s.” They can be assessed on how well they collaborate with their peers about the performance task, communicate their ideas to show their understanding, create an understanding or model that exhibits their thinking, and their critical thinking skills on how they problem solved to get to their answer (Larmer, 2013). Students are assessed by how they plan, create, and demonstrate their findings. The responses could be demonstrated in a way that is most suitable for the individual learner (Afflerbach, Kapinus, & Delain, 1995). Performance-based assessments give every student equal opportunity to be successful because they directly connect “the development of students’ academic, intellectual, and social skills while bringing students and teachers together in a joint process of learning – the very purpose of school” (Barlowe & Cook, 2016, para. 58).

Performance-based assessments fit the needs of 21<sup>st</sup>-century learning. According to Chun (2010), “a performance task can simultaneously facilitate student learning and measure demonstrated ability. Thus teaching, learning, and assessment all take place as the student performs the task” (p. 24). These performance-based assessments focus on higher order thinking, real-life scenarios, authentic process, and authentic performance (Chun, 2010). A minor drawback to performance-based assessments is the amount of time it takes to administer these assessments. Since there are many steps in the process of performance-based assessments it could take a lot longer for students to take than a traditional assessment (Tung, 2017).

## **Summary of Chapter**

In order to better serve the students in elementary classrooms, it is important to design instruction in support of the skill set of the “Four C’s.” Instructional design that includes the use of technology in a meaningful way, utilizing project-based learning activities, and administering performance assessments.

Technology encourages 21<sup>st</sup>-century learning practices because students have the ability to work together through technology. Technology supports personalized learning and provides an opportunity for students to create, collaborate, communicate and critical think very easily. Project-based learning provides students with an opportunity for real-world situations and allows the students to create their own ideas or solutions to everyday problems. It encourages them to be problem-solvers and independent thinkers. Performance-based assessments give the students the opportunity to show their learning. Performance-based assessments allow individuals to perform at his/her own skill level and demonstrate his/her learning all at the same time.

Integrating 21<sup>st</sup>-century learning practices into the classroom gives students the opportunity to grow as individuals and learn the skill set of the “Four C’s.” With students at various levels, it is essential to see how students respond to these learning practices and how they can or cannot be used in the classroom setting based on their responses.

### Chapter 3

#### Methodology

The purpose of this study was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation. The review of literature uncovered the importance of integrating the “Four C’s” into the classroom setting through the use of technology, project-based learning activities, and performance-based assessments. “Mastering 21st century skills in the course of studying academic content within a career area empowers students to learn—and to actually put their knowledge to good use beyond their school years” (Partnership for 21st Century Skills, 2010). With the stress of implementing 21<sup>st</sup>-century learning skills in the classroom, it is important to see the response from the students and learn how these practices can enhance their learning.

In 21<sup>st</sup>-century learning environments, students are encouraged to become independent learners (O’Neal, Gibson, & Cotten, 2017). Teachers need to help the students develop the necessary skills to be successful in the 21<sup>st</sup>-century work world in their future. Teaching the students 21<sup>st</sup>-century learning skills goes hand in hand with motivation from the student. Daniels (2010) stated that students

“are looking for clear and specific instruction from their teachers so that they know what they need to accomplish (autonomy), knowledge that their teachers care about and are committed to the class (relatedness), and a belief that they *can* do what is being asked of them (competence)” (p. 25).

Twenty-first century learning practices allow teachers to operationalize these motivational factors. In support of students, teachers provide students with information to understand

expectations, distinguish the importance in the assignment, and work at their own level through these practices. The research questions that were used to guide this research were, “What is the impact of 21<sup>st</sup> century learning on development of the ‘Four C’s’?” and “What are the factors of 21<sup>st</sup>-century learning environments on students’ motivation to engage in learning activities?”

### **Design**

This case study (Yin, 2014) used a mixed methods approach to examine student motivation through the integration of 21<sup>st</sup> century learning practices and students’ perceptions regarding the “Four C’s”. I chose a mixed methods approach in order to evaluate the participants’ motivations in 21<sup>st</sup> century learning (Qualitative Research Consultants Association, n.d.) and to show student response from the beginning of the study to the end. In phase one of this study, the data focused on a quantitative approach to track changes in mindset about school over the course of the study by surveying how participants felt about traditional classroom practices. All participants from one fifth grade class of 31 students, 18 females and 13 males, were surveyed using a five-point scale.

In phase two of this study, I implemented 21<sup>st</sup> century learning practices into the fifth-grade classroom a project-based learning state activity. The skill set of the “Four C’s” collaboration, creativity, critical thinking, and communication, occurred through technology integration, project-based learning activities, and performance-based assessments. During the integration of these practices, I observed the students at work and took field notes based on how students were responding to collaboration, communication, creativity, and critical thinking. I then conducted a group interview with all participants in the class. This interview focused on the participants’ motivation (defined in this study by their attitudes toward school) in 21<sup>st</sup> century learning practices. These interviews focused on how the 21<sup>st</sup> century learning practices motivated

them to learn through the implementation of the “Four C’s” through the use of technology, project-based learning activities, and administration of performance assessments. Due to the fact that the interviewees were chosen randomly, the feedback provided data from students at different skill levels.

At the end of the study, I gave a final survey to the student participants. The goal of the survey was to gain understanding of students’ perceptions regarding the implementation of 21<sup>st</sup> century learning practices.

### **Setting**

This study was conducted in a low socioeconomic TK-8 elementary school. At the time of the study, the school had an approximate enrollment of 600 students with 62% English Language Learners and 76% of the enrolled students are on free and reduced lunch. This study focused on one fifth grade class at this school.

### ***Educational context***

This school provides 1:1 technology as well as the desire to transform into a 21st century learning community. Conducting research in this classroom gave insight on how students were motivated through the development of the “Four C’s” through 21<sup>st</sup> century learning practices. During this study, participants were introduced to the skill set of the “Four C’s.” The students were able to participate in a project-based learning activity that focused on their state report and a performance-based assessment that demonstrates their knowledge. Through this process, they were given opportunity to practice the skills of the “Four C’s.” Students collaborated amongst their peers regarding their state, created understandings and evidence that supported their findings, communicated their findings with the class, and used their critical thinking and prior knowledge to help them research and plan for their budgeted trip to their state. The students also

participated in a performance-based assessment that assessed the skill set of the “Four C’s.” All students participated in the integration of the 21<sup>st</sup>-century learning practices.

### **Participants**

The participants were from my classroom, and all 31 students were invited to participate in the study. In this particular fifth grade classroom, there are 31 fifth grade students (13 males, 18 females). This self-contained classroom includes 51% English Language Learners and 22% Migrant students. Three percent of students are considered fostered youth. The ethnicities of this group of participants is 96% Latino/Hispanic and 3% White. All students at this school receive free and reduced lunch. The variety of demographics in this classroom allowed me to receive a wide range of data based on the students’ needs and developments. Thirty-one students participated in this study. All participating students were surveyed and had the opportunity to participate in a group interview. Ten randomly selected students participated in individual interviews. The interviews were conducted to gather information regarding the impacts of 21<sup>st</sup>-century learning practices from students’ perspectives. Since I was the participants’ teacher, I was able to thoroughly explain the process of the study.

### **Data Collection Instruments and Procedures**

Data were collected using a pre and post survey (see appendix A), observation field notes, one group interview (see appendix B), and ten individual interviews (see appendix C). All questions on the survey and interviews were unique to this study. In the quantitative phase, I looked at changes over time based on students’ responses. A quantitative approach was taken in the surveys of this study because I averaged out student responses from each survey and determined if there was a growth in their perceptions of school or if the 21<sup>st</sup>-century learning practices had a negative impact on their perceptions of school. In the qualitative portion of this study, data were collected from field observations and interviews to give insight on the impact of

the students through the implementation of 21<sup>st</sup> century learning practices.

The pre/post survey was used to distinguish how participants felt about learning and how they feel about school in general. This survey was anonymous and confidential. Each participant was given a random number to enter on each survey in order for me to match the pre/post survey results. The pre/post administration was designed to capture changes in factors related to motivation. The pre-survey was administered in the beginning of the study. Using Google Forms, the students accessed the survey off of their Google classroom page. The students worked on this survey during their independent Daily 5 round. Upon logging in, each participant read the directions and worked at their own pace through the series of questions. This survey used a 5-point rating scale; “never” was assigned one point, “sometimes” was assigned 3 points, and “always” was assigned 5 points. When the students were finished with the survey, they logged out and continued to work independently on their Daily 5 round. Over the duration of 8 weeks, I implemented the “Four C’s” skill set with technology, project-based learning activities, and performance-based assessments.

I took field notes focused on what the participants were doing and how they responded to 21<sup>st</sup> century learning practices. The data was collected through observing classroom practices and taking notes. These observations occurred several different times in this study. I observed students during the research portion of their state for approximately two 40-minute sessions. I also observed the students during their project-based learning activity of creating a trip to their assigned state. This observation was broken into five 20-minute sessions. I documented observation notes during the performance-based assessment where I listened in on conversations, asked questions, and heard the students’ thought process through their task.

Towards the end of the study, I conducted a group interview amongst all 31 participants. The five-question group interview process gave the students an opportunity to discuss their motivations related to the implementation of 21st century learning practices. I gathered data through listening to the discussion about the five group interview questions. All data collected from the group interview were transcribed on to a Google Doc. At the end of the study, ten participants, selected randomly, participated individual interviews. I asked nine questions in each interview to gather information on what the participants liked as well as disliked about school. The interviews also provided insights related to each participant was motivated within the integration of the 21<sup>st</sup> century learning practices. I interviewed the participants for 10 – 15 minutes one time. Since I had contact with the participants through the interviews, the data collected was confidential but not anonymous.

The data collected provided insights regarding student's reactions to the 21<sup>st</sup> century learning practices. The interviews allowed the participants time to reflect on the practices and how they worked for them in the classroom. Through this process, I used descriptive coding to come up with four categories. "Coding is thus a method that enables you to organize and group similarly coded data into categories or "families" because they share some characteristic – the beginning of a pattern" (Saldana, 2015). Descriptive coding was used in this study because I wanted to focus on the motivations within the study. Descriptive coding uses one word to summarize a response from the participant (Saldana, 2015). Then the coded responses were categorized by common themes. These categories distinguished the different motivations from the students throughout the implementation of their 21<sup>st</sup> century learning. The four categories were: motivation, independence, frustration, and new change.

**Data Analysis**

In phase 1, the research took a quantitative approach. A whole class survey was administered to 31 fifth grade participants. This data gave me a general overview of the participants' motivations within the classroom at the beginning as well as the end of this study. Based on the types of statements, three categories were created. These categories consisted of attitudes, motivational factors, and connections. This survey was quantitative because I averaged out the student responses from the pre/post surveys to track changes in student perceptions about school.

In phase two, I took a qualitative approach, which covered the use of observations and interviews. Data was collected through notes on the participant reactions and progress in 21<sup>st</sup> century learning practices. At the end of the study, I was able to look back at the notes and distinguish what factors motivated students from the 21<sup>st</sup>-century learning practices. Students feel motivated when they have a sense of autonomy, they feel a sense of connectedness to the class or school, they feel like they are competent to meet the necessary challenges of the assignment (Daniels, 2010). This can be measured through the work that the participants are doing. For example, participants who are working to find the answer are motivated within the task. Participants who are fooling around or are disconnected from the assignment are not motivated within the task. Through the results of the field observations and interviews, I coded the findings into 4 different categories using descriptive coding (Saldana, 2015). These categories were based off the responses from the participants. The categories found throughout the results were motivation, independence, frustration, and acceptance. Based on the four categories created by the student responses, I gathered direct quotes from the participants, which justified their motivations to 21<sup>st</sup> century learning practices.

**Positionality**

As an educator and researcher, implementing new practices are important to make sure our students are prepared for their future. Through this study, it was beneficial for me to see the results and how these practices motivated the students in the classroom setting.

Due to the fact that I was the students' teacher, the roles were kept separate throughout the study. When conducting the research, I focused on the study and the data being collected and did not interact with the participants based on current grades, behavior, interests, etc. I kept all data confidential and did not use the data to plan future teachings. The data collected was used strictly for this study.

Participants may have had a difficult time being honest within their answers to surveys or interviews because the researcher was also their teacher. The participants' rights were explained to them; however, this possibly swayed some of the data.

**Summary of Chapter**

The purpose of this case study (Yin, 2014) was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the "Four C's" and students' perceptions related to their motivation. I used a mixed methods approach during this study. For the quantitative research, the students participated in a pre and post-survey. This data gave me an overall understanding of how each student felt about school and possible motivational factors in the classroom. I tracked the changes from their responses at the beginning of the study to the end of the study. During the qualitative portion of the study, the participants were observed on their interaction with a task, their motivation within a task, as well as their attitude. At the end of the study, students participated in a group interview. Ten participants, selected randomly, also participated in an individual interview. The data collected from this study was helpful in tracking

student motivation due to the fact that the participants were given the opportunity to express their feelings, ideas, as well as likes and dislikes in 21<sup>st</sup>-century learning practices. The next chapter focuses on the results of the data from this study.

## Chapter 4

### Results

In 21<sup>st</sup>-century learning environments, students are challenged to practice the skill set of the “Four C’s,” which encourage them to think critically, communicate, collaborate, and create understandings on their own. Using a mixed methods approach, the purpose of this case study was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation. The mixed methods approach allowed me to gather data to answer the research questions: “What is the impact of 21<sup>st</sup> century learning on development of the ‘Four C’s’?” and “What are the factors of 21<sup>st</sup>-century learning environments on students’ motivation to engage in learning activities?” In order to answer the research questions, I collected data from the 31 fifth-grade student participants, 18 female and 13 male. This data consisted of pre/post survey results, field note observations, one focus group interview results, and ten individual interview results.

Analysis of the data revealed three categories: attitude, motivational factors, and connections to education. After conducting the pre/post survey, the researcher sorted through these three types of statements to generalize students’ responses. In phase 2 of the study, I conducted field note observations, a group interview, and ten individual interviews. The responses were then coded and categorized by descriptive coding. Throughout the field observations and interviews, the responses were separated into four categories based on student responses: motivation, independence, frustration, and acceptance. The descriptive coding method (Saldana, 2015) was used to categorize and analyze field observations and interview responses. Through this analysis, I gained a better understanding of motivational factors in the classroom and the impact of the implementation of “Four C’s” in the classroom setting.

## Data Presentation

### *Motivation and Attitudes*

In this phase of the study, the research question focused on was “What are the factors of 21<sup>st</sup>-century learning environments on students’ motivation to engage in learning activities?” The pre/post survey statements helped me to analyze the survey. When creating the survey for this study, I created three types of statements that focused on attitudes about school, motivational factors in the classroom setting, and personal connections to education. When analyzing the student pre/post survey results, I calculated the change in growth from the two sets of responses. This survey showed that students had an increase in attitude toward school, were more motivated based on different motivational factors such as choice, collaboration, and project-based learning activities, and were generally more connected to education.

The first set of statements is identified as attitudes about school. Statements that involved general feelings about school and learning created this category. In this survey, there were four statements that focused on attitudes of school and learning. The students’ responses were scored using a five-point scale; “always” was assigned to five points, “sometimes” was assigned to three points, and “never” was assigned to one point. In the following table, the pre/post survey results are displayed by the average change in attitudes about school from pre to post survey. The table shows an increase or decrease of students’ attitudes based on the students’ responses to the post-survey. If the change was negative, there was a decrease in attitude; however, if there was a positive integer, there was an increase in attitude.

Table 1

*Pre/Post Survey Average Results for Attitude Statements*

| Attitude Statements               | PRE Total<br>Avg. | POST Total<br>Avg. | Change<br>Avg. |
|-----------------------------------|-------------------|--------------------|----------------|
| I enjoy coming to school.         | 2.8               | 3.9                | 1.1            |
| Learning, in fifth grade, is fun. | 2.8               | 4                  | 1              |
| I work hard at school.            | 3.9               | 4.8                | 0.9            |
| Learning at school is important.  | 3.7               | 4.4                | 0.7            |

As Table 1 shows, students were more excited about school and gained new insight into its value as a result of their learning environment. Throughout the implementation of the 21<sup>st</sup>-century learning practices, students were able to work on the skill sets of the “Four C’s”. The “Four C’s” skill set sparked interest from the student participants. They were more engaged during assignments and had more of a drive for learning.

The second set of statements identified were described as motivational factors within the classroom setting. These statements focused on the 21<sup>st</sup>-century practices that were implemented into the classroom. These factors included group interaction, partner interaction, the opportunity for choice, as well as enjoying the content taught in the class. In this survey, half of the questions focused on motivational factors. In Table 2, there an increase in growth regarding the motivational factor statements.

Table 2

*Pre/Post Survey Average Results for Motivational Factor Statements*

| Motivational Factor Statements         | PRE Total Avg. | POST Total Avg. | Change Avg. |
|--|----------------|-----------------|-------------|
| I get choice in what we learn          | 3.1            | 4.1             | 1           |
| I get to work with a partner           | 3.9            | 4.4             | 0.5         |
| I get to work in groups.               | 3.4            | 4.4             | 1           |
| I like what we learn.                  | 2.8            | 3.7             | 0.9         |
| I am motivated to learn new things.    | 2.7            | 3.8             | 1.1         |
| The work I do in class makes me think. | 3.1            | 4.1             | 1           |

It appears that many participants experienced an increase in motivation to learn, which could be from learning through project-based learning. The students could work within their own skill levels, collaborate with others, be challenged, and given the opportunity to choose the task that would help them develop their understandings of the content of their state. Due to the 21<sup>st</sup>-century learning practices, students have a choice in their learning, project-based learning activities, skill sets from the “Four C’s”, these factors influenced students’ motivation.

The third set of statements concentrated on the connections the students had to education. These statements focused on students having the ability to think of their education beyond the classroom setting. I fully explained the reasoning behind lessons or 21<sup>st</sup>-century practices so that participants were aware of why they were doing lessons and how it could benefit them in the future. In Table 3, there was a focus on two connection statements. The table shows the pre/post survey averages and the change average from each statement.

Table 3

*Pre/Post Survey Average Results for Connection to Education Statements*

| Connections to Education Statements   | PRE Total Avg. | POST Total Avg. | Change Avg. |
|---|----------------|-----------------|-------------|
| I'm able to use some of the things I learn at school in other parts of my life. | 2.6            | 3.4             | 0.8         |
| I can see how the things I learn now will help me in my future.                 | 2.1            | 3.8             | 1.7         |

Based on the data results in Table 3, the students were able to make more connections to their education than before the study. There were able to see the “why” behind assignments and why it was necessary to learn for their future. The students also had the ability to involve themselves with the “Four C’s” and a project-based learning activity. The “Four C’s” allowed them the opportunity to collaborate with their peers, communicate their ideas and findings, create based on their understandings, and critical think to develop their own thoughts and ideas. The implementation of the “Four C’s” and the project-based learning activity gave students the insight into today’s work world and how these skills can help prepare them for the 21<sup>st</sup>-century work world.

***Student Impacts***

Field observations were conducted to better understand the impact of 21<sup>st</sup>-century learning experiences on the students, interviews were also conducted amongst one focus group and ten individual interviews. In this portion of the study, I focused on the research question, “What is the impact of 21<sup>st</sup>-century learning on development of the ‘Four C’s’?” I wrote down information that was beneficial to the study and that showed accurate responses from the student participants.

Once the interviews were complete, I sorted through the responses, observations, and interviews. I categorized the results into four different codes using descriptive coding (Saldana, 2015). The codes from these results were found by analyzing the students’ responses. I was able to categorize the responses based on what the students said and did through the practices. Like responses were categorized. The categories were given a descriptive code that summarized the general response from those student participants. The codes that emerged include: motivation, independence, frustration, and acceptance. These codes gave insight in response to the research question, “What is the impact of 21<sup>st</sup>-century learning on development of the ‘Four C’s’?”, of this portion of the study. The qualitative results are in the table below.

Table 4

*Student Interview/Observation Responses*

| Codes/Themes | Student Responses to 21 <sup>st</sup> -century learning   |
|--------------|---|
| Motivation   | <ul style="list-style-type: none"> <li>• Liked working with partners on project-based learning activity.</li> <li>• “Performance-based assessments were easier for me to show my teacher what I know.”</li> <li>• “I love using the computers!”</li> <li>• “I like using computers because it is easy to find things I am looking for.”</li> <li>• Students were actively engaged.</li> </ul> |

| Codes/Themes | Student Responses to 21 <sup>st</sup> -century learning  |
|--------------|--|
| Independence | <ul style="list-style-type: none"> <li>• Very quiet and working.</li> <li>• “I like how we got to explore on our own.”</li> <li>• Work at own pace</li> <li>• “I enjoyed choosing what I wanted to learn about and finding my own information.”</li> <li>• Being able to learn on own without having to listen to the teacher talk all day.</li> </ul> |
| Frustration  | <ul style="list-style-type: none"> <li>• “I didn’t know what to do on my project.”</li> <li>• “The performance assessment was too hard!”</li> <li>• Groups were hard to work with.</li> <li>• Needed more direction</li> <li>• 10 students needing guidance</li> </ul>   |
| Acceptance   | <ul style="list-style-type: none"> <li>• “It was hard because I had to think more on my own.”</li> </ul>   |

| Codes/Themes | Student Responses to 21 <sup>st</sup> -century learning   |
|--------------|---|
|              | <ul style="list-style-type: none"> <li>• “I think 21<sup>st</sup>-century learning is helpful and it lets the students be in charge of learning.”</li> <li>• More implementation of 21<sup>st</sup>-century learning practices</li> <li>• Students are actively doing their assignments.</li> </ul> |

**Interpretation**

The purpose of this study was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation. Investigating the responses from the participants through interviews and surveys provided sufficient data to determine whether or not students are motivated by 21<sup>st</sup>-century learning practices. Through both phases of the research, it is evident that students, at various skill levels, responded differently to the implementation of the “Four C’s” as demonstrated through the use of technology, project-based learning activities, and performance-based assessments. The following subsections focus on how students reacted differently to the implementation of these 21<sup>st</sup>-century learning practices.

***Motivation***

The first code that emerged from students’ responses was motivation. With the integration of 21<sup>st</sup>-century learning practices and the development of the “Four C’s,” students

were generally more interested in the content being taught and the way it was being delivered. Responses revealed that students were motivated to perform and to want to be at school because learning has become “fun.” Jake’s (all students’ names are pseudonyms) response showed his interest in 21<sup>st</sup> –century learning practices. He explained:

“I feel more relaxed because I can do things at my own level. Sometimes I shut down and don’t do my work because it can be too hard for me. I think 21<sup>st</sup>-century learning lets me work at my own level. I can still do what the other kids do but in my own way.”

In the group interview, the participants had a discussion about performance-based assessments. There was a general consensus that these assessments were easier for them because “they could explain what they were trying to do and/or say without having to put it on paper.” When students feel like they can succeed, they are more motivated in the classroom because there is an opportunity of success for them (Daniels, 2010). While demonstrating through performance-based assessments, students were performing at various levels; however, every student was able to demonstrate their thinking in their own unique way that fits their learning style. I found that through these 21<sup>st</sup>-century learning practices, students had a higher rate of participation and came to school genuinely more excited to be at school and to learn. Based upon the responses of the students, they were motivated due to the 21<sup>st</sup> century learning practices and gained excitement about learning because they had the opportunity to collaborate, create, critical think, and communicate with their peers of the “Four C’s”. The students’ responses revealed that 21<sup>st</sup> century learning practices impacted students’ motivation in the classroom.

### ***Independence***

The second code that surfaced through the data analysis was independence. The students were able to be independent learners and thinkers as they engaged in project-based learning.

Twenty-first century learning practices encourage students to critically think and collaborate amongst their peers (Partnership for 21st Century Learning, 2007). Based on field observations, I observed my students engaged in deep learning through academic conversations. My observations captured students collaborating and involved in their learning. Many students shared responses from the group interview question, “What did you learn about yourself during these practices?” Gabriela stated, “I learned that I like exploring and learning on my own. I also like to work with others because it makes me learn more.” Josiah explained, “I noticed that I worked better with a partner. When I worked in a group, I was a little more distracted and it was hard for me to learn.” The students evaluated themselves through the process and determined what they learned about themselves as individuals as well as learners. Another group interview question that sparked a discussion was, “What strategies do you think teachers need to do in order for their students to ‘become more motivated’ in the classroom? Nate hesitantly replied:

“Umm, it’s not that I don’t like fifth grade but it is usually boring. I like when you let us work with our friends on our project-based learning activity. I feel like when I work with others, I am more interested in learning. I can’t really stay focused when we just read out of the book. I like when we get to do activities that help us learn.”

All in all, most participants enjoyed working and exploring in an independent context. They felt more involved in their learning, and they had more “buy-in” because they could make connections to learning in the real-world content knowledge. The students took ownership of their learning and gained confidence to be independent learners.

### ***Frustration***

Although most participants were ecstatic about the integration of 21<sup>st</sup>-century learning practices, some participants expressed frustration. The third code that emerged from the data is frustration. Frustration came from students who usually need extra support within the classroom setting. Frustration, in this study, was primarily based on students who had a difficult time working independently through the project-based learning activities. Based on my observations, these particular students were unsure of their abilities and were constantly looking for reassurance and had little confidence to independently engage in learning activities and practices. During an individual interview, Kayla answered the following question very quickly, “How do you like to learn in the classroom? What makes learning easy for you?” She states, “I like when we do things together. It helps me. Learning is not easy for me.” Kayla was very frustrated throughout this study. She was not interested in 21<sup>st</sup> century learning because she said it “was too hard.” Kayla was not the only student who felt this way. Other students voiced their concerns through the group interviews as well as other individual interviews. Other students struggled to work with their peers, Jonny explained, “I get very distracted when I work with my friends but I always pick my friends to be my partner.” Some students had a difficult time staying focused during group and partner activities because their friends easily distract them. Although they were frustrated, 21<sup>st</sup>-century learning practices challenged these students to step out of their comfort zone and possibly reevaluate themselves as learners. The impact that 21<sup>st</sup>-century learning practices had on the students was the fact that the students were able to analyze their strengths and weaknesses due to this project-based learning activity. They were able to confidently take a step back and see where they were challenged and how it could affect their learning. The students were becoming responsible for their learning and finding ways that they could work best in the classroom.

***Acceptance***

The final code that emerged from students' responses was acceptance. This theme focused on the idea that the students accepted the 21<sup>st</sup>-century learning practices such as collaborating with peers, creating ideas/solutions in their project-based learning activities, and were able to choose their learning activities. In the individual interviews, each interviewee had an interesting response to the question, "What do you think about doing more 21<sup>st</sup>-century learning in your class?" Tonya excitedly explained, "I would love to do more 21<sup>st</sup>-century learning in class. It will help us get to know each other more and it will help prepare us for our future." Another student says, "I think it would be a good idea because it helps us be in charge of our own learning." The students enjoyed "working together" and "being able to use technology in a new way, participate in project-based learning, and be assessed using performance-based assessments." They felt "challenged", as one student added, but they also felt more engaged in the classroom altogether.

The students, whether they thought it was difficult or not, understood the importance of the skills of the "Four C's" and can see how they are beneficial for the future skill set. As a group, the students agreed that they want to do a lot more project-based learning that includes 21<sup>st</sup>-century learning practices for two reasons: 1) The skills they learned will help to prepare them for their future and 2) these practices helped them to engage as learners. Students enjoyed different aspects throughout this study that sparked their interest whether it was choice, group/partner work, independence, hands-on activities, or personalized learning. In the end, the students had a new outlook on the learning process and were excited to see what else could come.

**Summary of the Chapter**

Using a mixed methods approach, the data collected gave a great insight on how students responded to using project-based learning in a 5<sup>th</sup>-grade classroom. The research questions: “What is the impact of 21<sup>st</sup> century learning on development of the ‘Four C’s’?” and “What are the factors of 21<sup>st</sup>-century learning environments on students’ motivation to engage in learning activities?” were answered by the data collected from the pre/post surveys, observations, and interviews. Overall, the students were more motivated to engage in learning activities in the classroom. The students were able to demonstrate their understanding and application of the “Four C’s” through the use of technology, project-based learning activities, and the administration of a performance-based assessment. The survey results revealed that students’ motivation increased through this process due to choice within their learning, group/partner work, and the opportunity to critical think in an independent environment. The results from the observations and interviews showed that most students were excited and motivated about 21<sup>st</sup>-century learning and that they were engaged in the learning activities. The students understood the reasoning for the integration of the 21<sup>st</sup>-century learning practices and were interested in preparing for their future. In the following chapter, there will be discussion regarding the findings of the study and how this information can be useful to educators.

### Chapter 5

The purpose of this study was to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation. The research questions that this study was focused on were, “What is the impact of 21<sup>st</sup>-century learning on development of the ‘Four C’s’?” and “What are the factors of 21<sup>st</sup>-century learning environments on students’ motivation to engage in learning activities?” A problem that exists in the integration of 21<sup>st</sup>-century learning practices focuses on the idea that teachers do not accurately know how to integrate 21<sup>st</sup>-century learning practices. In order to investigate this problem and find different motivational factors in the classroom, I conducted a case study that used a mixed methods approach which was completed in two phases to gain insight on how students responded to the integration of 21<sup>st</sup>-century learning practices.

In phase one of the research, data were collected through a pre/post survey of 31 students, 18 female, and 13 male. This survey tracked change over time based on the students’ response and motivation to 21<sup>st</sup>-century learning practices. The survey collected students’ responses using a five-point scale. In phase 1, I used a survey to gather quantitative data; therefore, the responses were averaged out from each survey and the change in response was calculated to show the students’ perceptions related to motivation to learn.

In phase two, I conducted field observations, a group interview, and ten individual interviews as the qualitative portion of the study. The group interview consisted of all 31 participants. The ten individual interviews were randomly selected and consisted of 7 females and 3 males. Through the interview process, I used descriptive coding and categorized the student responses’ to 21<sup>st</sup> –century learning into four categories: motivation, independence, frustration, and acceptance. These categories gave insight on how the students were motivated

through the implementation of the “Four C’s” through the use of meaningful technology, project-based learning activities, and the performance-based assessment.

### **Summary of Findings**

Phase one of the mixed methods study was a pre/post survey. This was administered about 8 weeks apart from each other providing enough time for the researcher to implement the “Four C’s” through 21<sup>st</sup>-century learning practices. The students’ responses were scored on a five-point scale; “always” was assigned five points, “sometimes” was assigned three points, and “never” was assigned one point. While analyzing the survey results, I categorized the survey statements into three categories: attitude, motivational factors, and connections to education. In order to track student perceptions, I averaged out the responses from each statement within the category for the pre-survey as well as the post-survey. I found the difference or change between the two numbers to give us the amount of growth.

These categories showed increased student perceptions from the beginning of the study to the end of the study. Factors that impacted motivation were based on choice within their learning, the ability to work with groups and/or partners, and the use their critical thinking skills to make new understandings or discoveries. There was also a shift in attitude. Students came to school feeling generally more excited to be there and more invested in their learning. This survey also showed that students were able to make more connections to their learning due to the implementation of 21<sup>st</sup>-century learning practices.

In phase two of this mixed methods study, I collected data from field observations, a group interview, and ten individual interviews. The interviews each contained 5-10 questions. After analyzing the field observations and interviews, four themes developed and coded from the data including: motivation, independence, frustration, and acceptance.

Analyzing the four categories and field observations, 75% of the students were actively engaged and motivated by the “Four C’s” and implementation of meaningful technology, project-based learning activities, and the administration of performance-based assessments. The other 25% of students were disengaged and frustrated due to working independently, the skill level of the performance assessments, lack of guidance, and working with others.

### **Finding Interpretations**

The two themes that arose throughout this study were motivations and attitudes and student impacts. The results of these themes helped focus on answering the research questions, “What is the impact of 21<sup>st</sup> century learning on development of the ‘Four C’s’?” and “What are the factors of 21<sup>st</sup>-century learning environments on students’ motivation to engage in learning activities?”

The first theme that arose from the results of this survey was motivations and attitudes. Survey results and interview responses showed that students’ motivation and attitudes toward school increased throughout the duration of the study. This theme indicated that students showed more motivation in the classroom because of the implementation of 21<sup>st</sup>-century learning practices. Students felt like they were a part of their learning. They had choice within their learning, collaboration amongst their peers, personalized learning, and faced new challenges. These factors contributed to students’ motivation to engage in learning activities in the classroom.

Within these implementations came different attitudes about 21<sup>st</sup>-century learning. Even though some students were frustrated with part of the implementation, there was a good percentage of students who had a new interest in the classroom. They were more enthusiastic about learning and being responsible for their own learning.

The theme student impact indicated that there was a significant impact on student perceptions through the implementation of the study. Students were impacted in various ways whether it was motivation, challenge, frustration, or excitement. Students were able to analyze their learning and find ways to demonstrate their understandings to be successful. What worked for some students did not necessarily work for other students. These 21<sup>st</sup>-century learning practices encouraged students to evaluate their strengths and weaknesses and find ways to succeed through more independent practices. The data suggested that 21<sup>st</sup>-century learning did impact their learning in different ways such as independent work, choice within learning, project-based learning, personalized learning, and collaboration amongst peers. Due to the fact that students became more aware of their learning and more involved, they were more motivated to do better in the classroom. The students were generally more excited to work based on the project-based learning approach.

### **Implications for Educators**

The results of this case study (Yin, 2014) showed that 21<sup>st</sup>-century learning practices impacted students' thinking and motivation in the classroom setting. The results indicated that students are more motivated in the classroom due to different instructional factors such as the use of technology, project-based learning activities, choice, collaboration, and independence all of which are supported by the 4c's framework. Even though some students were frustrated, they were able to learn about themselves as learners and thinkers. In this study, 21<sup>st</sup>-century learning encouraged students to become more responsible for their learning and more involved in the process. Students were exposed to 21<sup>st</sup>-century learning which challenged them to become critical and independent thinkers. Some examples of this were students had the opportunity to create their own understandings through their own research and discoveries. They were challenged to use their prior knowledge to create connections and understandings to their new

findings. Throughout this process, students were encouraged to become accountable for their own learning. They were given the independence to create their own learning without a lecture from the teacher. The students had the ability to collaborate with their peers and share their ideas and findings.

One theme that emerged from the data was motivations and attitudes. This theme focuses different motivational factors and how they changed the students' attitudes within the classroom setting. For example, students had more choice in their learning. They were also given more time to independently critical think through research and project-based learning. The students also had the opportunity to participate in performance-based assessments, which allowed the students to demonstrate their understandings at their own unique skill level. Twenty-first-century learning provides the opportunity for students to excel at their own skill level. This study showed that students are more motivated when they can be successful. When students are successful, they will be more willing to perform and participate in classroom activities. Based on the findings from this study, it is important to implement 21<sup>st</sup>-century learning practices into the classrooms today because not only are they getting students ready for their future skill sets but also they focus on the needs of our students regardless of their skill level.

The second theme that arose was student impact. Students were able to discuss their feelings and attitudes about the implementation of 21<sup>st</sup>-century learning practices. It was insightful to see what different learners thought about the new practices and how it impacted their learning as a whole. Having open discussion allowed students to share their responses and ideas. Teachers should be mindful of how students learn. Sometimes the best way to know is to ask them. Through this process, students were able to really think about themselves as learners and how they would be most successful. For example, at the end of the study, a group interview

was conducted and the researcher received insight on how students felt about the implementation of 21<sup>st</sup> century learning. Students expressed that they “worked better in a group” or liked working “alone” better. They also evaluated themselves within the independent aspect. Some responses were “I find it difficult to learn on my own. I like when we work together so I know I am on the right track.” and “I like working by myself because I don’t get distracted as much.” Students need to take ownership of their learning because they are headed to a work world where they need to have the skills of critical thinking, creativity, collaboration, and communication. Giving the students the chance to be independent and find their strengths and weaknesses will allow them to figure out what they need to succeed. As Jake explained, “I noticed I am sort of distracted when I work with my friends but when I stay at my table, I work better because I am not talking about other things.” Julie commented, “It is easier for me to create a Google Slide to show what I am thinking rather than writing an informational paper on it because I like to use pictures and show what I learned in a colorful way.” By introducing the skill set of the “Four C’s” through the use of technology, project-based learning, and performance-based assessments into our classroom settings, students were able to prepare for their future.

These findings indicate that the students were impacted based on the project-based learning activity. It gave the students the opportunity to collaborate, communicate, create, and think critically. This information benefits educators because the results highlight the positive outcomes of 21<sup>st</sup>-century learning. Each individual student was able to perform 21<sup>st</sup>-century learning tasks at their own skill level. Students come from various backgrounds, various skill levels, and various home lives, in the classroom student should be able to excel at their own unique level.

While it is helpful for teachers to understand the effects of implementing 21<sup>st</sup>-century learning practices with their students, the findings reported here are also important to administrators, support staff, community members, families, and most of all, students.

### **Limitations**

During this study, there were two limitations that may have affected the findings. The first limitation was that I was the student participants' teacher. The students were comfortable with me due to fact that I am their teacher; however, they could have felt swayed in their responses because they did not want to make me mad or upset. Keeping this in mind, it was important that I did not interject any feelings or information that was not part of the research.

The second limitation was the time frame that this study took place in. Due to lack of time, there was not enough time to really allow the students to engage themselves into 21<sup>st</sup>-century learning practices. They were introduced to the 21<sup>st</sup>-century practices and were able to interact in these practices for about 8 weeks; however, with more time, students may have felt a different reaction or attitude towards 21<sup>st</sup> –century learning practices.

Despite these limitations, I felt that the data were accurate. Since I was there teacher, it would be ideal to work with students from various classrooms so the participants do not feel pressured within their answers and reasoning. Future research is necessary for my school context to study students' engagement and motivation within project-based learning over time.

### **Future Research**

This research investigated the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students' perceptions related to their motivation. At the school that this study took place, there is a wide range of children (Transitional-Kindergarten to Eighth grade). After reviewing the data, I strongly believe that it would be useful to research 21<sup>st</sup>-century learning practices in various grade levels. It would be interesting to investigate the

responses from various groups such as gender, grade level, English Language Learners, Special education, and GATE learners respond to these practices. By expanding the sample size, research can gather more data on the affordances of 21<sup>st</sup>-century learning practices that incorporate the “Four C’s” and the students’ perceptions related to their motivation.

### **Summary of Chapter**

In order to investigate the affordances of 21<sup>st</sup>-century learning practices that incorporated the “Four C’s” and students’ perceptions related to their motivation, I conducted a case study (Yin, 2014) in my fifth-grade classroom that gave insight on what motivated students in 21<sup>st</sup>-century learning. After coding the student responses from the interviews and observations and averaging out the change in perceptions from the survey, the results showed that students were more motivated using 21<sup>st</sup>-century learning practices. Students were motivated by group and partner work, having a choice in the classroom, personalized learning, and facing new challenges. Twenty-first learning practices can benefit teachers in the classroom. Classrooms are becoming more student-driven allowing students to take a bigger role in their education. Results also showed that students became more aware of their learning and progress during this implementation. Although there were some limitations, I am confident that the results were accurate. These limitations consisted of me being the researcher of my own class and the lack of time for the study. There was not much time to integrate 21<sup>st</sup>-century learning practices in my classroom. In future research, it would be ideal to research various grade levels and various groups of students such as specific genders, English Language Learners, Special Education students, and GATE learners.

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**Appendix A**

Survey  
Child 7-10 years old

Please circle your answer to the following questions. These answers will be anonymous. Take your time and be sure to answer truthfully. If needed, you may skip any statements that make you feel uncomfortable.

(Never) 1 ----- 5 (Always)

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. I enjoy coming to school.  | 1 | 2 | 3 | 4 | 5 |
| 1. I get a choice in what we learn.   | 1 | 2 | 3 | 4 | 5 |
| 2. I get to work with a partner.  | 1 | 2 | 3 | 4 | 5 |
| 3. I get to work in groups.   | 1 | 2 | 3 | 4 | 5 |
| 4. I like what we learn.  | 1 | 2 | 3 | 4 | 5 |
| 5. Learning, in fifth grade, is fun.  | 1 | 2 | 3 | 4 | 5 |
| 6. I am motivated to learn new things.  | 1 | 2 | 3 | 4 | 5 |
| 7. I work hard at school.   | 1 | 2 | 3 | 4 | 5 |
| 8. I'm able to use some of the things<br>I learn at school in other parts of my life. | 1 | 2 | 3 | 4 | 5 |
| 9. Learning at school is important.   | 1 | 2 | 3 | 4 | 5 |
| 10. The work I do in class makes me think.  | 1 | 2 | 3 | 4 | 5 |
| 11. I can see how the things I learn now will<br>help me in my future.                | 1 | 2 | 3 | 4 | 5 |

**Appendix B**

## Group Interview

For children 7-10 years of age

I would like to thank you for your willingness to talk to me about 21<sup>st</sup> century learning.

Today we are going to discuss, as a class, our response to 21<sup>st</sup> century learning. You will be able to decide how you felt about 21<sup>st</sup> century learning, your likes/dislikes, as well as your motivation through the process of this study. You are free to tell me to stop our conversation or decide that you do not want to participate in this study at any time you wish.

Your parents have signed a letter that says it is okay for us to talk. You may choose to not answer any questions that make you feel uncomfortable. If there is any additional information you would like to share, we will take time at the end of this interview.

1. What did you like/dislike about project-based learning?
2. What did you like/dislike about using the computers?
3. What did you like/dislike about performance-based assessment?
4. What did you learn about yourself during these practices?
5. What strategies do you think teachers need to do in order for their students to “become more motivated” in the classroom?

End of Interview:

Is there anything else that you would like to share with me?

Thank you.

### Appendix C

#### Child One-on-one Interview Guide For child 7-10 years of age

I would like to thank you for your willingness to talk to me about the way you learn and the process of your classroom.

We are going to talk about how you like to learn, what you like/dislike about school, your thoughts about 21<sup>st</sup> century learning practices, as well as your future. You are free to tell me to stop our conversation or decide that you do not want to participate in this study at any time you wish.

You may choose to not answer any questions that make you feel uncomfortable. If there is something you would like to share about yourself or about 21<sup>st</sup> century practices that is ok to talk about. Your parents have signed a letter that says it is okay for us to talk.

1. What is your favorite subject to learn in school?
  - a. Why?
2. Tell me what you like about school.
3. Tell me what you dislike about school.
4. How do you like to learn in the classroom? What makes learning easy for you?
5. Tell me what you thought about your project-based learning project.
6. Tell me how you feel about using technology in the classroom.
7. Tell me how you feel about your performance - based assessment.
8. What do you think about doing more 21<sup>st</sup> century learning in your class?
9. What do you want to be in the future?

End of Interview:

Is there anything else that you want to share?

Thank you.