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A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

**A Curriculum Development for 21st Century Learners: Using Project Based Learning to
Teach the Four Cs Required for Today and Tomorrow's Workforce**

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March 3, 2022

Submitted in partial fulfillment of the requirements for a Masters of Arts in Curriculum and
Instruction degree.

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A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

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TABLE OF CONTENTS

Abstract.....ix

SECTION ONE

Introduction.....1

SECTION TWO

Literature Review.....4

 21st Century Skills (21C Skills).....4

 Four Cs of Learning.....5

 Critical Thinking.....6

 Communication.....8

 Collaboration.....10

 Creativity.....11

 Project Based Learning (PBL).....13

 Gold Standards of PBL.....15

 Challenging Problem or Question.....16

 Sustained Inquiry.....17

 Authenticity.....18

 Student Voice & Choice.....21

 Reflection.....22

 Critique & Revision.....24

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

Public Product.....	25
Technology Integration Within the Classroom.....	26
4th Grade Content Standards.....	29
Summary.....	30
SECTION THREE	
Theoretical Perspective.....	31
Learning by Doing.....	32
The Project Method.....	33
21st Century Learning.....	35
Curriculum Design: Project Based Learning (PBL).....	35
Theoretical Conclusion.....	36
SECTION FOUR	
Curriculum.....	39
SECTION FIVE	
Conclusion.....	57
REFERENCES.....	60

LIST OF TABLES

Table 1. 4th Grade Ohio Learning Standards (2021), Embedded within the Historic
Natives
PBL.....40

LIST OF FIGURES

Figure 1. Theories & Frameworks Building Up.....38

ABSTRACT

The purpose of this study is to present a 21st century curriculum designed specifically for fourth grade students. The curriculum utilizes the Four Cs of learning and Project Based Learning frameworks, in order to provide best practices for all students to achieve academic success and 21st century skill development. The following question framed the literature research that was conducted to develop this curriculum: How can we create a curriculum that covers required academic content standards while incorporating 21st century skills in order to prepare our students to be successful in their future endeavors? The question was answered through literature research regarding best practices for incorporating 21st century learning within the classroom. The research was combined with culturally relevant pedagogy criteria to develop a cross curricular curriculum that teaches, English language arts, social studies, science, social emotional standards, as well as, 21st century skills. The sample unit plan is a guide for other educators interested in incorporating this curriculum into their own classrooms.

SECTION ONE

Introduction

The world's workforce as we know it today will likely not resemble the workforce of generations to come. Our society is constantly changing and requires specific skill sets for workers that may or may not have come to light yet. The American labor and service industry trade jobs that we once could rely on in our country, are no longer a viable option. Many of the jobs referred to as blue-collar or skilled labor, are being outsourced to companies overseas (Slaughter, 2009). According to the NEA (2017) there has been a rapid decline in work considered routine by researchers and organizations. Jobs are not as predictable in their demands, as in the past. An increase can be seen in jobs involving “nonroutine, analytic, and interactive communication skills” (NEA, 2017, p. 5). Skills such as critical thinking and the ability to interact with a diverse group of people with many linguistic and cultural backgrounds are needed.

New jobs are constantly being developed as innovations emerge from all around the world. As stated by the National Education Association (NEA) (2017), “As our global economy expands, our need to prepare this next generation for new careers becomes even more imperative. If we seize this moment and work together, America's students will be our most valuable assets to compete in the 21st century” (p. 2). Generations of tomorrow need to start preparing now, for their 21st century careers. What was considered a good education 50 years ago, is no longer enough to prepare students for success in college, careers, and citizenship in the 21st century (NEA, 2017). As Franklin D. Roosevelt once

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

said, “We cannot build the future for our youth-but we can build our youth for the future” (NEA, 2017, p. 2). The education system that was established is no longer relevant for our society and economy today (NEA, 2017). According to the NEA, it is the responsibility of school systems to respond to the changing world and adjust accordingly. Teachers have always set forth to educate youth on academic content, now it falls on educators to also prepare them to be successful in their future careers, by teaching them skills that help them thrive in today’s world. Such skills are known as the Four Cs of 21st century learning: critical thinking, communication, collaboration, and creativity (NEA, 2017).

The purpose of this study is to create a Project Based Learning (PBL) unit designed to not only cover academic content standards, but also 21st century skills needed to be successful in today’s world. Project Based Learning (PBL) is defined by PBLWorks (n.d.) as, “a teaching method in which students learn by actively engaging in real-world and personally meaningful projects” (What is PBL?, para. 1). Project Based Learning (PBL) was selected as the delivery method for the curriculum, because its framework embeds all of the Four Cs of 21st century learning. Educators that follow the gold standards of Project Based Learning framework, can ensure each of the Four Cs are incorporated within their lessons design. The curriculum is designed to take place over the course of 4-8 weeks and is self-paced by each individual working group. This curriculum is intended for upper elementary students and teaches students the Four Cs of 21st century learning. Upon completion of the project, students will have participated in activities that aid in the development of their own 21st century skill sets.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

As a 4th grade teacher, I have struggled to locate a curriculum that already exists that covers required content standards, while incorporating the vital 21st century skills needed to be mastered, before entering the workforce. I once had a parent speak to me at parent teacher conferences about how surprised they were to find out their student was creating slides to present to an audience and practicing presenting them. The parent went on to say that they have to do this daily in their job, and are so happy to know their child is already learning a skill they will need in the future. What I took away from that conversation was that this parent was grateful the focus wasn't just on their child learning academic content standards in school, but on preparing them to be successful in the workforce, by developing skills they will need. I believe the world we live in today is a rapidly changing one that requires an evolution of skills. Therefore, it is vital that all generations to come develop 21st century skills, in order to fully thrive in tomorrow's society.

SECTION TWO

Literature Review

This literature review will serve as an examination into the frameworks and teaching practices that prepare students for their futures outside of the classroom. It will address teaching practices that have the ability to not only prepare students to enter into society, but to be successful citizens that contribute to it, as they can carry 21st century skills developed in the classroom with them. Teaching frameworks/ methods that will be reviewed include 21st century skills (21C Skills), Four Cs of learning, Project Based Learning (PBL), gold standards of PBL, and technology integration. In addition to the teaching frameworks/ methods, 4th grade content standards will be addressed. By the end of this review, an understanding of the urgency of teaching 21st century skills to prepare students for their futures will be clear, as research presented backs up the benefits of incorporating such skills into teaching practices.

21st Century Skills (21C Skills)

The concept of 21st century learning is a widely known concept in the education world today. The term 21st century skills is usually used to refer to particular core competencies such as collaboration, digital literacy, critical thinking, and problem-solving. It is ultimately “learner-driven” learning (Rich, 2010). The focus of lessons is not on the teacher instructing. Instead it is on the students taking ownership of their own learning, by driving it themselves. Teachers become facilitators of student learning and guide students on their journeys. As Ark (2019) states, “Given the pressing issues of our

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

time, it's critical that we mobilize the ingenuity of our youth to meet society's growing challenges" (para. 10). It is believed by advocates that 21st century skills should be taught in schools in order to help students thrive in today's world (Rich, 2010). The 21st century skills movement has been around for more than a decade (NEA, 2017). "Twenty-first-century learning embodies an approach to teaching that marries content to skill" (Rich, 2010, p.3). It is no longer enough for 21st learners to "know things." They need to stay curious about finding out things (Rich, 2010). "Learning for the 21st century is both personal and personalized. It is purposeful and honors learner variability. It combines skill sprints and extended challenges" (Ark, 2019).

According to Organisation for Economic Co-Operation and Development (2008), learning science researchers found there was a set of key findings that emerged from their research. Those findings include the importance of learning deeper conceptual understanding, rather than superficial facts and procedures, the importance of learning connected and coherent knowledge, rather than knowledge compartmentalized into distinct subjects and courses, the importance of learning authentic knowledge in its context of use, rather than decontextualized classroom exercises and the importance of learning collaboratively, rather than in isolation. As a result, learning scientists are calling for change in today's schools.

Four Cs of Learning

The National Education Association (NEA) (2017) established a partnership for 21st century skills (P21) and developed a framework known as the "Framework for 21st Century Learning" in 2004. The original framework had 18 different skills and proved to be too long and complicated. As a result, the NEA determined which of the 21st century

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

skills were the most important for k-12 education. The skills selected are now known as the Four Cs. The Four Cs, include Critical Thinking, Communication, Collaboration, and Creativity. The framework describes each of the Four Cs, as well as, how to approach teaching each skill within the classroom (NEA, 2017). According to the National Education Association (NEA) (2017) the Four Cs need to be integrated within classrooms across the nation. Subject areas should integrate the Four Cs in order to ensure students are prepared to be contributing members in our society and the global workforce. The Four Cs include the ability to sufficiently think critically, collaborate with others, and communicate thoughts and ideas. The NEA (2017) argues “Using the ‘Four Cs’ to engage students is imperative. 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” (p. 3).

Critical Thinking

Critical thinking, one of the Four Cs, is a skill that empowers people to solve issues. In our society this is greatly needed as national and global issues, like global warming and pandemics, currently need individuals to think critically to find solutions to these current events. Many more unknown scenarios and issues will arise in our future that will require our current generation of students to think critically to solve problems. The NEA (2017) addresses how critical thinking was once viewed as a skill set only accessible by students considered gifted. This is a false notion. All students have the ability and should be taught to think critically. Having the ability to think critically includes reasoning effectively, thinking systematically, making judgments and decisions, as well as, solving problems. The NEA (2017) defines critical thinkers as those who can

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

analyze how parts of a whole interact with each other to produce overall outcomes in complex systems, effectively analyze and evaluate evidence, arguments, claims, and beliefs, analyze and evaluate major alternative points of view, synthesize and make connections between information and arguments, interpret information and draw conclusions based on the best analysis, reflect critically on learning experiences and processes, solve different kinds of unfamiliar problems in both conventional and innovative ways, identify and ask significant questions that clarify various points of view and lead to better solutions.

According to an action research study conducted by Cash (2017), critical thinking skills significantly improve when implementing project-based instruction. Cash's research was conducted within suburban South Carolina schools in United States history classrooms. Students involved in the study completed pre and post tests to measure improvement levels. The tests consisted of Document-Based Questions, from the United States History Advance Placement Exam, in South Carolina. While the population of the study is different from the population intended for the curriculum I have developed, I can't help but wonder if the same critical thinking skills would be improved within upper elementary classrooms, as the curriculum is a Project Based Learning unit that focuses on social studies content. A longitudinal study conducted by Miri, Ben-Chaim, and Zoller (2007) on high school science education, looked into the impact of direct critical thinking instruction on critical thinking skills. The study consisted of students who were exposed to teaching strategies designed for enhancing higher order thinking skills and students who were taught traditionally. The study revealed the sample population compared to the control group that focused on inquiry learning, open-ended class discussion, and

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

interdisciplinary “real world” problems connected to learning context made significant improvements. Students improved in their critical thinking skills, compared to the control group on two critical thinking measurements. The California Critical Thinking Disposition Inventory and The California Critical Thinking Skills Test were used as two critical thinking measurements within the study. A 2013 longitudinal case study conducted by Tamin and Grant found similar results when they studied six different teachers ranging in grade levels from 4th-12th grade. The study found critical thinking to be one of the skills enhanced by Project Based Learning. This study reflects possible 21st century skill development outcomes of the curriculum created, as the Project Based Learning curriculum is intended to be implemented in upper elementary classrooms. Each study shows that Project Based Learning has the ability to enhance students' critical thinking skills thus, developing one aspect of students' 21st century skill sets.

The curriculum that has been developed incorporates critical thinking as students engage in scenarios that require the use of this skill. Students participate in a Project Based Learning unit that provides the opportunity to work and collaborate with others. They must effectively analyze and evaluate evidence found to help them make a claim that answers the project's driving question. Through the process they will make connections between information and arguments, interpret research and draw conclusions, ask questions to help clarify points and will participate in reflection.

Communication

Students today must be able to effectively analyze and process an immense amount of communication (NEA, 2017). The second of the Four Cs, communication is more important than ever in the 21st century. Individuals who lack effective

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

communication may struggle in their professional ventures and personal lives, as this skill is needed not only in the workplace but in all aspects of life. As technology has become more prevalent in societies globally, the ability to communicate clearly and effectively is key. Jobs that require workers to communicate effectively are less likely to be automated, as the skills require individuals to explain, negotiate, and participate in other forms of intense human interaction. Having the ability to express oneself clearly, articulate opinions, effectively relay instructions, and motivate individuals through speech, have and continue to be valued skills in the workforce and in public life (NEA, 2017). The National Education Association (2017) considers communicating clearly as having the ability to effectively express thoughts and ideas orally, nonverbally, and in written form. Individuals also are able to listen and decipher the meaning of communication delivered, use communication for a wide range of reasons (e.g. to inform, instruct, motivate, and persuade), use a wide range of media and technologies, and communicate effectively in diverse environments.

Communication is abundant throughout this curriculum. Through Project Based Learning (PBL), students will engage in communicating with their peers, teachers, and community. This will take place as they work in groups to complete their projects or meet with peers to discuss their project progress. They will have to inform, listen, and decipher the meaning of information discussed during these interactions. Some students will choose to use technology to create slide shows in order to communicate clearly and effectively their learnings from the PBL. All students will present their projects orally to an audience in order to inform them on their topic of study.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

Collaboration

Collaboration, third of the Four Cs, is more prevalent in the 21st century workforce than ever before. Many jobs that required individuals to work solely on their own, now require individuals to work in teams locally, nationally, and even globally to complete work assignments and meet goals. As stated by the NEA (2017), “Collaboration is essential in our classrooms because it is inherent in the nature of how work is accomplished in our civic and workforce lives” (p. 19). Our world is interconnected and there are many benefits of collaborative work globally. It is more clear than ever before that collaboration is vital for students and employees, due to globalization and the rise of technology in our world (NEA, 2017). A quote provided by the NEA, by author James Surowiecki addresses how groups are remarkably more intelligent than one individual. Diverse groups have the ability to come up with better ideas and make more intelligent decisions. Within Rich’s (2010) article it is discussed how working in teams accomplishes more than individuals working alone, and how doing so mirrors the 21st century workplace. Effective collaboration consists of an individual having the ability to work successfully and respectfully with others, being flexible and willing to compromise to accomplish a common goal, and sharing responsibilities while valuing individual contributions made by others. “Collaboration, a valuable skill in the 21st century, allows students to synthesize their classmates’ learning with their own” (Cash, 2017, p. 35).

This curriculum provides ample opportunities for students to work collaboratively. For students who select to work in groups, they will do so throughout the project. During that time students will learn how to work toward a common goal, share responsibilities, value and listen to group members' thoughts and ideas, and respect each

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

other in order to be successful. Students that decide to work independently and those working in groups will be afforded opportunities to meet with their peers outside of their project groups routinely, in order to relay their progress and questions on the project. Students will be able to assist each other in areas that they may be struggling in during this time. They will also receive feedback during these meetings on areas they have done well in and areas in which they could grow. Following the meetings students will return to their working groups, and share their meeting notes in order to make necessary changes to their projects in order to grow.

Creativity

The last of the Four Cs, Creativity is now considered a key driver in today's global economy (NEA, 2017). "In today's world of global competition and task automation, innovative capacity and a creative spirit are fast becoming requirements for personal and professional success" (NEA, 2017, p.24). "Educated workers need a conceptual understanding of complex concepts, and the ability to work with them creatively to generate new ideas, new theories, new products, and new knowledge" (OECD, 2008, p.1). The National Education Association (2017) defines creativity as having the ability to think creatively, work creatively with others, and implement innovation. Thinking critically means individuals can use a wide range of ideas and creation techniques (such as brainstorming), create new and worthwhile ideas (both incremental and radical concepts), elaborate, refine, analyze, and evaluate original ideas to improve and maximize creative efforts. Working creatively with others means individuals can develop, implement, and communicate new ideas to others effectively, be open and responsive to new and diverse perspectives; incorporate group input and

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

feedback into the work, demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas, view failure as an opportunity to learn; and understand that creativity and innovation are part of a long-term, cyclical process of small successes and frequent mistakes. Implementing innovation means an individual is able to act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur (p. 25). Tamin and Grant's (2013) study with 4th-12th graders used qualitative data from their longitudinal case study and determined through project-based instruction implementation creativity among other skills were enhanced. This study indicates the curriculum created may possibly assist in student's 21st century skill development in creativity and more. Tamin and Grant's (2013) study implies, Project Based Learning (PBL) is a good teaching method to assist in student 21st Century Skill development.

Students are able to implement and grow their creativity skills within this curriculum that has been created. Students participate in a Project Based Learning unit that requires them to create two final products. One of which may be a slideshow or poster. They must also create a 3D model. Students are given guidelines to follow throughout the creation, but are able to adopt new ideas and creation techniques during the process. Leading to creative presentations and 3D models. During the creation process, students will work collaboratively with group members and work to incorporate group member's ideas and listen to constructive feedback in order to ensure all guidelines set are met and group aspirations are accomplished.

Project Based Learning (PBL)

According to Ark (2019), there are four ways in which to expand access to 21st century learning to help young people thrive now and as adults. Those include more projects, more leadership, more work-based learning, and more guidance. “Project-based instruction allows journeys beyond facts where students can discover how their knowledge translates into skills applicable to their future (Cash, 2017, p. 35). Project Based Learning (PBL) has shown to improve academic growth in students that were engaged in them (PBLWorks, n.d.). As stated by Himmele and Himmele (2011), “Creating classroom opportunities for developing higher-order thinking is essential for helping students become the critical thinkers, problem solvers, innovators, and change makers upon which every society thrives” (p. 13).

PBL is a process that involves students working over an extended period of time with a goal in mind. Students work individually or in groups to work toward a common goal. Projects may involve students building or creating something, responding to questions, solving real world problems, or addressing other needs (Duke, 2016). Skills that make up Project Based Learning are those that directly align with 21st century skills. The skills incorporated align with the demand for work and citizenship in today's society. The Four Cs are embedded within PBL and are among other 21st century skills utilized like technology integration and place-based or environmental education. Lenz and Larmer (2020) recommend four key ways to ensure projects build agency and support students, as they take on collaborative, creative projects. The recommendations include, designing projects that make an impact on the school, community, or world, using

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

questions to guide inquiry, providing students with choices, and teaching project management skills.

An action research study on high school students, conducted by Cash (2017), analyzed the impact of implementing project-based instruction on critical thinking skills in United States history classrooms. It revealed that project-based instruction benefited more than just student's critical thinking skills. It also improved their achievement, curriculum relevance, and acquisition of 21st century skills. While this study was conducted with high school students, it leads me to wonder if similar results would be seen within social studies upper elementary classrooms, as the curriculum created is intended for elementary students. Research conducted by Geier et al. (2008) on the impact of project-based instruction on student achievement in Detroit Public middle school science classrooms, found project-based instruction to have a positive impact on student achievement. Students that were exposed to this type of instruction outperformed their peers that participated in traditional instruction on the Michigan Education Assessment Program. A mixed methods longitudinal study by Summers and Dickinson (2012) was conducted comparing two high school social studies classrooms, on the impact of project-based instruction as well. One high school incorporated project-based instruction curriculum while the other stuck with traditional instruction. This study concluded that the project-based curriculum "provided a rigorous alternative to traditional instruction and increased students' academic achievement" (Summers & Dickinson, 2012, p. 98). The study was conducted on high school students only. It would be useful to see how Project Based Learning influences students in elementary grades. It will be

interesting to see how Project Based Learning (PBL) might be beneficial in the elementary school setting.

“Project-based instruction allows journeys beyond facts where students can discover how their knowledge translates into skills applicable to their future” (Cash, 2017, p. 35). Cash (2017) states, when students are able to see relevant application of skill project-based learning requires, their motivational level increases. There is an overall widespread lack of commitment to project-based instruction implementation at the school and district level, which have left those pioneering teachers without the necessary skills to effectively manage this instructional shift and assess student learning (Brush & Saye, 2014). According to Thomas (2000) most teachers find aspects of Project Based Learning (PBL) challenging. To include the planning, management, and assessment processes that are necessary to implement one. It is believed that teachers who find PBL challenging would benefit from a supportive context for PBL administration (Thomas, 2000). Training is key with any curriculum and can help educators be successful and confident on their journeys of learning, planning, management, and implementation.

Gold Standards of Project Based Learning (PBL)

The gold standards of teaching Project Based Learning (PBL) are intended to assist educators in the process of creating valuable PBL lessons/units. Gold Standard PBLs focus is on students acquiring certain key knowledge, understanding what they have learned, and having success in the skills embedded within the projects (Larmer, Mergendoller, & Boss, 2019). Seven project based teaching practices should be present in all PBLs created. They are considered essential project design elements. The first of the

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

seven, design and plan is crucial, as teachers create or adapt projects to meet the needs of their students, while ensuring some degree of student voice and choice. Second is the practice of aligning projects to standards and making sure key knowledge and understanding from subject areas are included. Building the culture is the third practice, which includes explicitly and implicitly promoting students independence and growth in groups and individually. Managing activities is the fourth. It addresses teachers facilitating students in their organization, scheduling, research, and more. The fifth, scaffolding student learning, employs different instructional strategies and tools to ensure all students are supported in order to meet the PBL goals. Assessing student learning, the 6th teaching practice, includes using formative and summative assessments that include self and peer assessment of team and individual work. The final teaching practice, engage and coach, highlights teachers' engagement in the learning and creating process with the students. Teachers take this time to identify students in need of specific skill-building, redirection, encouragement, and celebration (PBLWorks, n.d.).

Challenging Problem or Question

PBLWorks (n.d.) considers the challenging problem or question as the heart of the project, because it is what the entire project is about. Projects that present a problem are to be investigated and solved, while projects that have questions are intended to be explored and answered (Larmer et al., 2019). “Regarding problem-solving, around a fifth of the students in all OECD countries in 2003 could be considered “reflective, communicative problem solvers”, who are able to analyse a situation, make decisions and manage multiple conditions simultaneously, with just under a third being ‘reasoning, decision-making problem-solvers’ and a third counted as “basic problem solvers”. This

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

leaves around 16% considered as “weak or emergent problem solvers' ', who are generally unable to analyze situations or solve problems that call for more than the direct collection of information.” (OECD, 2008, p. 2) The results show that far too many students are not prepared to enter society's workforces as they lack problem-solving abilities. Problems or questions are intended to make learning more meaningful for students. Learning can be more meaningful for students when they are presented with a central problem or question that is driving their projects (Larmer et al., 2019).

Within the curriculum created, students are presented with a driving question to answer. They are guided to an answer throughout the project by researching essential questions on their topic of study. The questions were created in order to make student's learning more meaningful, as they are required to analyze and interpret research they conduct during the duration of their projects.

Sustained Inquiry

PBLWorks (n.d.) describes inquiry as a more active, in-depth process of seeking information or to investigate. Within PBL it is iterative, when students are faced with a challenging problem or question. Resources are used throughout the process, as the students ask questions themselves, to help them answer their original question or problem. The questions they ask help them to dig deeper, until a solution or answer is developed for the original question/problem (Larmer et al., 2019). A study conducted by Geier et al. (2008) found that students exposed to the inquiry-based treatment condition outperformed their peers on state testing in Michigan. A qualitative meta-synthesis conducted by Strobel and Van Barneveld (2009) found that inquiry-based learning

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

resulted in long-term retention and internalization of content within classrooms that implemented Project Based Learning instruction versus traditional teaching methods.

Students engage inquiry throughout the curriculum created. They are tasked with writing questions/ things they still wonder about after they have researched and answered essential questions embedded within the project. Students go on to later answer these questions in order to dig deeper on their topic of study, to help them answer the driving question of the project.

Authenticity

PBLWorks (n.d.) defines authenticity within education as referring to how “real world” a learning task is. It increases student motivation and learning. Projects can have an authentic context and involve the use of real-world processes, tasks and tools, and quality standards. They can have an authentic impact on others and also have personal authenticity when it pertains to students’ own concerns, interests, cultures, identities, and issues in their lives (Larmer et al., 2019). “By the 1980s, cognitive scientists had discovered that children retain material better, and are able to generalise it to a broader range of contexts, when they learn deep knowledge rather than surface knowledge, and when they learn how to use the knowledge in real-world social and practical settings” (OECD, 2008, p. 2). Educators need to connect student’s learning with their real life, in order to equip them with the skills necessary for success. A connection between real-world relevance and the curriculum must be made in order to sufficiently meet students’ needs. “The best preparation for a complex and rapidly changing future is learning to make a contribution today. Extended community-connected challenges build agency, design thinking and entrepreneurial mindset” (Ark, 2019). Ark (2019) stated that 21st

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

century learning is vital for individual learners, and builds vibrant communities. High school students have indicated pointless curriculums to be their reasons for not finishing high school (Harada, Kiriho, & Yamamoto, 2008). Cash (2017) claims that high school dropouts leave due to the limited application of the school curriculum in their own lives. According to Solomon (2003), students discover their learning is valuable when they are able to connect real-life problems that call for adult skills.

Place-based education or environmental education focuses on using the local community and environment around a school to assist in teaching concepts in language arts, mathematics, social studies, science and other subjects across the curriculum. The teaching method is intended to provide students with hands-on, real-world learning experiences. Sobel (2014) claims, “This approach to education increases academic achievement, helps students develop stronger ties to their community, enhances students’ appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens” (p. 65). Through the process of place-based education, students not only learn about their assigned topics, they develop a set of higher-order cognitive skills. Observation, analysis, and problem solving are among the skills developed within the learning process. The skills they develop can be carried with them and used in different settings (Sobel, 2014). Glenn (2000) states, “The school reform movement is calling for well-educated individuals who have a deep and abiding knowledge of the world in which they live. Society is asking for citizens who are prepared to take active roles in their communities” (p. 5).

A quantitative study published in 2000, was conducted by the National Environmental Education and Training Foundation (NEETF) on place-based education

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

(Glenn, 2000). The study included schools in Kentucky, North Carolina, Texas, and Wisconsin. All participating schools were using the environmental (place-based education) approach, as a core instructional strategy to be implemented within their classrooms (Glenn, 2000). The study conducted was on elementary students and showed reading scores improved, along with math scores. Performance in social studies and science also saw improvement and classroom discipline problems declined. In addition, through observations and several test instruments, the study found students developed the ability to make connections and transfer their knowledge from familiar to unfamiliar contexts (Glenn, 2000). Using the environment to aid in education not only assists in teaching mandated standards, it helps students make connections to their community. Glenn's (2000) study is a great indicator that this type of approach to teaching would reap great benefits in an upper elementary classroom, such as the target group for the curriculum that has been created. Sobel (2014) discusses how a study conducted among an elementary school in Kentucky showed students that engaged in an outdoor classroom, where the teachers turned the curriculum out into the community, showed valuable results. The study found incorporating the community resulted in students developing a set of higher-order cognitive skills in observation, analysis, and problem solving that they could carry with them outside of the school setting. Sobel (2014) states, "As the diversity of the natural landscape on schoolyards increases, there's an increase in children's appreciation of experiences in the natural world. These changes in environmental attitudes prove the affective basis for stewardship behavior—for acting in ways that improve the quality of the environment" (p. 72). Using students' environments in which

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

they are familiar within lesson implementation, adds value to their education. If students are not able to relate, the lessons are less likely to have a lasting impact.

The curriculum developed incorporates authenticity, as it relates to the student's real lives. Not only is the curriculum specific to Ohio, the state they live in, it also relates to real life interactions. Students actively study interactions among cultures within Ohio in regards to cooperation, conflict, and compromises that took place. They are able to relate these terms and interactions to their daily lives throughout the learning process. In addition, students use tools such as chromebooks and the internet to assist in their learning. Such tools are authentic to their daily lives as they use these tools in settings outside of the classroom.

Student Voice & Choice

Learning for the 21st century combines learner voice and choice with thoughtful guidance to shape learning journeys (Ark, 2019). Slaughter (2009) argues, “Students need to partner with us to be creators of content. They should not simply take in all that we, as teacher, dish out” (p. 19). Larmer et al. (2019), of PBLWorks claim giving students a role in their education allows them to take a more vested interest in their work. They develop a sense of ownership which results in them caring more about the project and working harder. Students should feel their voice is being heard and can speak freely with class discussion or group work. This process may prove to be a difficult one for some educators (PBLWorks, n.d.). A hurdle many teachers face when implementing PBL is giving up some degree of control over their classroom and trusting in their students. Teachers become facilitators in the learning process while students take on a more meaningful role in their learning. Choices provided to students can change frequently and

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

may include choices in partners, project topics, activities completed, and different presentation platforms.

A study conducted on upper elementary classrooms by Donnini (2015), revealed that voice had a role in student learning, in addition to building upon the culture of the classroom, structure, and expectations. Voice and choice share a close relationship and often overlap with another. Students and teachers that participated in the study described having a voice entailed having a say during the learning process. Voice can look like a student asking for help or more time, sharing thoughts and ideas, or communicating their learning to others. Donnini (2015) writes, “Giving students voice and choice in creating these structures increases ownership and actively engages the learners to sustain a collaborative classroom culture that is more social, differentiated, and personalized” (p.136).

Student voice and choice is incorporated in the curriculum presented. Students engage in interactions with their peers allowing others to speak and speaking themselves in order to share thoughts and ideas or communicate learning from research conducted. They are also given choices throughout the project. Students select preferred topics of study, whether they would like to work in a group or independently, and what final product they would like to create to communicate their learning. Their voice is used not only during the creation of the project, but also when communicating their learnings to an audience when presenting their final products.

Reflection

Reflection is viewed by many as a powerful tool that can help students within the classroom (Alrubail, 2015). Throughout a PBL, students and teachers reflect on what

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

they're learning, how they're learning, and why they're learning (Larmer et. al., 2019). Informal reflections can be part of the classroom culture with dialogue or can be explicit part of the project with journals, scheduled formative assessments, discussion at project checkpoints, and public presentations of student work. These practices solidify what students have learned and think about how their learning may apply elsewhere, beyond the project. The NEA (2017) defines individuals as critical thinkers that have many different abilities. One of those abilities include being able to reflect critically on learning experiences and processes (p. 9). Alrubail (2015) believes there are many benefits to reflection. Those include giving students the significance: an opportunity to see the importance of their own learning process, process recognition: identifying what was done well, what needs work, and what needs to be changed, solution/strategies: giving students opportunities to come up with solutions and strategies to improve their learning, motivation: providing motivation to learn and enjoy the learning process by reflecting on thoughts, feelings, and emotions, finally analysis: allowing students to understand the “why” of learning the concept, theories, and ideas taught. Studies have shown that reflective learning improves the quality of learning experiences (Harrison, Short, & Roberts, 2003). Harrison et al. (2003) conducted action research at the University of Birmingham with the Geography Earth and Environmental Sciences Department School, the research explored the benefits of students' reflective thinking through reflective collaborative learning. The research indicated overall reflective thinking via collaborative reflective learning had many benefits. The researchers found it promoted knowledge sharing, enhancement in pedagogical methods and theory, increased understanding of learner characteristics, and fostering of professional self-development.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

The curriculum created allows for reflection during implementation and at the conclusion of the Project Based Learning unit. During implementation students participate in weekly meetings with their peers and teacher to reflect on progress. Progress is reviewed by utilizing work logs completed throughout the week by groups. They also routinely reflect on their progress when meeting checkpoints incorporated within the PBL. Upon the completion of the unit students will take a reflection survey to reflect on their overall work and contributions to the project, as well as, their groups members, if applicable.

Critique & Revision

Larmer et al. (2019), describe critique and revision as giving and receiving feedback. Students need to learn how to give and receive feedback in order to improve project processes and products, using rubrics, models, and formal feedback/critique protocols as their guides. Individuals outside the classroom can contribute by providing expert feedback on topics. “This common-sense acknowledgement of the importance of making student work and student products better is supported by research on the importance of “formative evaluation,” which not only means teachers giving feedback to students, but students evaluating the results of their learning” (Larmer, Mergendoller, & Boss, 2019, para. 15).

The curriculum presented provides rubrics and guidelines/ instructions for students throughout each step within the project. Students are able to use these tools to critique and revise their work. Weekly meetings with their peers and teachers also provide feedback for students in order to assist them in making necessary revisions to their work.

Public Product

PBLWorks (n.d.) gold standards of Project Based Learning (PBL) explains a “product” can be many things such as, tangible, media, or digital artifact, a presentation about the solution to a problem or answer to a driving question, or a performance or event. Public products are great motivators as they encourage high-quality work. When students have to present their work to an audience outside of their classrooms, the performance bar raises, since students do not want to look bad in front of the public. Public products help create learning communities within classrooms and schools. Making student work public effectively communicates with student’s families, community members, and the wider world what students are capable of doing when engaging in PBL. It sends a message to the public that a school or classroom is about more than just test scores (Larmer et. al., 2019). A case study conducted on 4th-12th graders in public and private schools by Tamin and Grant (2013) on project-based instruction implementation that included pre-service teachers, revealed students working with projects were more motivated to complete the assignment and had greater pride in their work. Larmer et al. (2019) state that when students create projects for public presentations, they become much more concerned about the quality of their presentations. Having to present or share ideas with larger groups increases students' motivation to learn the content (Cash, 2017).

This curriculum includes students creating a public product that is to be presented to a live audience. Audience members include individuals within their school building, family and friends, as well as community members. Students are given a choice of creating a poster or slide show to communicate their learning to an audience. They also create 3d models that will be shared during their presentations.

Technology Integration within the classroom

Technology in classrooms can help students grow in their academics when implemented correctly and strategically. The NEA (2017) claims that “In the 21st century, citizenship requires levels of information and technological literacy that go far beyond the basic knowledge that was sufficient in the past” (p. 5). Teachers have a responsibility to know and utilize technology properly within their classrooms. As discussed by Slaughter (2009), 21st century classrooms need educators to assess how technology might assist in delivering relevant instruction. The industrial society we once lived in is now over, and we have entered into the era of technology. However, some educators are tied to instructional methods of the past. It is not necessary to stop using effective teaching strategies when utilizing technology tools. Better learning can take place when teachers effectively integrate instructional moves to leverage better learning with digital tools (Kolb 2020).

The Triple E Framework was developed to assist educators in evaluating their lessons that utilize technology. Teachers are given the opportunity to put aside the false notion that technology improves all lessons and become critical consumers of making mindful choices, when it comes to the technology they choose to integrate in their teaching (Kolb 2020). Kolb (2020) states, “The framework is intended to help educators create lessons that allow students to use technology to meet and add value to learning goals as active, social, creative learners, in authentic ways” (p. 7). Research was used in order to assist in the creation of the framework with its theoretical foundation stemming from research and philosophers, such as John Dewey, a well-known 20th century American philosopher that has influenced educational values (Kolb, 2020).

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

The Triple E Framework consists of three components: Engagement in learning goals, Enhancement of learning goals, and Extension of learning goals. As addressed by Kolb (2020), student engagement in learning goals should consider if the technology used is not just capturing the interest of the student, but rather engaging them actively in the content of the lesson. Teachers should ask themselves if the technology allows students to focus on the task of the assignment, if it motivates students in the learning process, and if there is a shift in behavior observed, such as students taking on active learning roles, rather than passive ones. Enhancement of learning goals, refers to the value-added to the lesson by the technology. The tool should, in some manner, aid, assist, or scaffold learning in a way that was not easily done in a traditional approach. Learning is more personalized and designed for the student. Questions that should be asked in the development process include, whether the tool aids students in developing or demonstrating a more sophisticated understanding of the content, if the tool creates scaffolds to make concepts or ideas easier to understand, and if it creates paths for students to demonstrate understanding. Extension of learning goals addresses connecting student learning to the authentic world. Educators should ask themselves if the technology creates opportunities to learn outside of the school day, if it creates a bridge between school and everyday life, and if it allows students to build skills they can use in everyday life (Kolb, 2020).

The job market in the Midwest has changed over time as production trades have steadily disappeared. It is vital that we provide children with a solid technological foundation in order to add relevance to their lives within the classroom (Slaughter, 2009). As stated by Slaughter (2009), “The use of technology forms the bridge into real-world

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

relevance and creates a more authentic learning experience for students” (p. 19). Kolb (2020) discusses how research that has been done on technology within classrooms has clearly shown over the past decade, that it should be integrated based on what educators already know about good teaching and pedagogical practices. Kolb also highlights the importance of learning with her philosophy, “Learning first, technology second in practice”. Students that are able to utilize technology in and out of the classroom, are more likely to have their learning transfer from the classroom to the real world. Slaughter (2009) argues that it is necessary to take advantage of the many emerging technologies today, in order to promote collaboration across content areas within a school or district. It is important to understand that incorporated technology should add value to the lesson and learning targets. If no value is found to contribute to the lesson, the technology should be removed from the plan.

“The internet, which has enabled instant global communication and access to information, likewise holds the key to enacting a new educational system, where students use information at their fingertips”, as stated by Milton Chen Senior Fellow & Executive Director, Emeritus, The George Lucas Educational Foundation; author of *Education Nation: Six Leading Edges of Innovation in Our Schools* (Rich, 2010, para. 10). Karen Cator Director, Office of Educational Technology, U.S. Department of Education states, “Technology allows for 24/7 access to information, constant social interaction, and easily created and shared digital content. In this setting, educators can leverage technology to create an engaging and personalized environment to meet the emerging educational needs of this generation” (Rich, 2010, para. 7). “Project-based instruction increases relevancy

and makes technology integration a key focus of the learning experience” (Cash, 2017, p. 36).

Technology is the base of the entire curriculum created. It is dependent on utilizing chromebooks and the virtual resources provided, for success and completion. Students navigate Google suite applications, as well as, internet search engines. All technological applications used are intended to enhance the learning and achievement levels of each student.

4th Grade Content Standards

Ohio provides its educators with content standards for 4th grade learning that are to be taught and mastered within the classroom by students during an academic year. However, due to the standardized testing society we live in today, these standards are often taught, but students are not retaining the information. Social Studies high-stakes tests, according to Grant (2006a; 2006b), measure at best trivial learning since state curriculums cover more content than what is assessed on the tests. Research conducted by Cash (2017) on high school history students, found that the breadth of material from which potential test questions emerge drove teachers to move quickly through content and target instruction at the lowest levels of cognition. Extensive research done by Au (2009, 2013), studied the impact of high-stakes tests on curriculum and classroom teachers. The study concluded that high-stakes testing results in narrowing of the curriculum and aligning instruction to the test. In the social studies classroom, this approach often results in rote memorization of historical trivia (Cash, 2017, p.22). Bloom (1994) explains that it is possible to target complex cognitive processes, while simultaneously learning lower-level skills. “Implementing a social studies pedagogy

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

designed around project-based instruction in the context of content allows students to create projects that represent their learning, present solutions to social problems, and simultaneously master the content assessed by high-stakes test” (Cash, 2017, p. 23).

Project Based Learning has the ability to ensure content standards are being covered and retained as students are more invested in their learning.

Summary

In order to meet the needs of students, our economy, and society, teaching methods implemented within classrooms need to teach 21st century skills (NEA, 2017). Teaching methods such as, Project Based Learning (PBL), embed 21st century skills within their framework that allow students to develop the necessary skills to thrive in our society (Himmele & Himmele, 2011). This curriculum will utilize the Project Based Learning framework in order to develop 21st century skills in students. The Four Cs of learning are embedded within the curriculum to foster student’s 21st century skill development. “It is our responsibility to prepare our young people for the unique demands of a 21st century world” (NEA, 2017, p.2). Through a curriculum that is designed to teach academic content standards while utilizing the PBL framework, educators can ensure they are providing their students with the necessary tools to be successful in the 21st century workforce.

SECTION THREE

Theoretical Perspective

The curriculum developed was directly influenced by the work of John Dewey and William Kilpatrick, as well as, the Four Cs of 21st century learning. The Four Cs served as a guide in selecting a suitable framework that promoted 21st century skill development. The Project Based Learning framework was chosen, as it incorporates both Dewey and Kilpatrick's theories and the Four Cs of 21st century learning within its framework. The foundation of the project stems from the PBLWorks (n.d.) gold standards of Project Based Learning. Both Dewey and Kilpatrick, as well as the entire PBL framework, center around the notion of the importance of engaging students in learning, that is meaningful and has purpose. Both John Dewey and William Kilpatrick found that the traditional education system was not meeting the needs and desires of its students. The 20th century philosophers built relevant theories of education, such as the "Learning by Doing" theory and "The Project Method" theory, that are still relevant today. PBLWorks' (n.d.) developers also saw a gap in traditional methods of teaching when meeting the needs of students, and developed their framework in order to close the gap. The curriculum developed utilizes the Project Based Learning framework that has embedded within the framework Dewey's "Learning by Doing" theory, Kilpatrick's "The Project Method" theory, as well as, the Four Cs of 21st century learning. The pedagogy and framework are outlined below.

Learning by Doing

John Dewey is one of the most influential educational philosophers to this day. His theories are still very much relevant in today's society. The theory that influenced my curriculum development and beliefs as a teacher is known as Dewey's "Learning by Doing" approach. It is an approach that immerses students in activities that teach them how to do something, rather than teachers presenting information to students for them to absorb. Dewey once said, "Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking, or the intentional noting of connections; learning naturally results" (1916, p. 181). Dewey's "My Pedagogic Creed" (1897/2013) publication serves as a window to the beliefs he held on education. Within his work he addresses how it is impossible to foretell definitely what civilization will be in the future. Therefore, it is impossible to prepare children for a precise set of conditions. Dewey suggests that in order to prepare a child for the future, they must be given command of themselves. He believed children need to be trained, so that they are "full and ready to use all of their capacities" (Dewey, 1897/2013, para. 6). Dewey viewed such preparation for a child as them being able to use their eyes, ears, and hands as tools ready to command. That their judgment is capable of understanding the conditions in which they must work, and their "executive forces" are trained in such a manner that they are able to "act economically and efficiently" (Dewey, 1897/2013, para. 6). Such learning is able to take place with the "Learning by Doing" approach. Dewey believed that schools should represent present life as real and vital to the student's community. He felt that much of education failed to neglect the fundamental principle of the school as a form of community life. Dewey argues that teachers control far too much of the stimulus and

control within classrooms (1897/2013). This notion points to students taking responsibility and assuming more control of their own learning. “The teacher is not in the school to impose certain ideas or to form certain habits in the child, but is there as a member of the community to select the influences which shall affect the child and to assist him in properly responding to these influences” (Dewey, 1897/2013, para. 20) Dewey felt that teaching the whole child resulted in the child being able to use all of the capacities to which they developed within school, in roles within society outside of the classroom (1897/2013).

The Project Method

“The Project Method” developed by William Kilpatrick, which also guided my curriculum development, is a concept of teaching students with the intention of learning by doing. It does so by immersing them in projects with purpose. Kilpatrick classified four different types of projects. Type 1, the purpose is to embody an idea or plan in external form. Kilpatrick provides building a boat, writing a letter, or creating a play as examples for type 1 projects. Type 2, the purpose is to enjoy an experience. Listening to a story, hearing a symphony, or appreciating a picture were provided examples of type 2 projects. Type 3, the purpose is to straighten out an intellectual difficulty, to solve a problem. Kilpatrick provides the examples of determining whether or not dew falls and determining how New York outgrew Philadelphia as an example. Type 4, the purpose is to obtain an item, skill, or knowledge. One example provided by Kilpatrick includes learning to write. Kilpatrick points out that the different types of projects do overlap and one type may be used as a means to another “as end” (Kilpatrick, 1918/2013, p. 16).

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

“The Project Method” revolves around the “Purposeful Act”. “Education based on the purposeful act prepares best for life while at the same time constitutes the present worthy life itself” (Kilpatrick, 1918/2013, p. 7). Creating projects that have clear purposes allow for better preparation for later life (Kilpatrick, 1918/2013). Once a purpose is established within a project, it dominates each of the succeeding steps providing unity to the whole project. Within Kilpatrick’s publication of the “The Project Method, The Use of the Purposeful Act in the Educative Process”, he states that projects have the capacity to present every variety of purposes that are present in life. “As the purposeful act is thus the typical unit of the worthy life in a democratic society, so also should it be made the typical unit of school procedure” (Kilpatrick, 1918/2013, p. 7). Kilpatrick describes the purpose of projects as supplying the motive power. The purpose supplies the motive power, which guides the project's processes, until its completion (1918/2013). Purpose means efficiency under the proper guidance of teachers (Kilpatrick, 1918). Kilpatrick paints the traditional teacher as the enemy and a traditional school system as oppression, when reviewing the effectiveness of the “Purposeful Act” pedagogy (1918/2013). “It is the special duty and opportunity of the teacher to guide the pupil through his present interests and achievement into the wider interests and achievement demanded by the wider social life of the older world” (Kilpatrick, 1918/2013, p. 12). Kilpatrick believed that involving students now with practices that engage them in wholehearted purposeful acts within projects, could result in better preparation for later life. With teacher guidance students are able to develop skill sets for success. Eventually the teacher will no longer be needed to ensure success, as students' skill sets will have been developed enough for them to find success independently.

21st Century Learning

21st century learning embodies an education that is purposeful. It incorporates experiences that prepare children to be effective lifelong learners and contributors (Ark, 2019). Core competencies associated with 21st-century skills are collaboration, digital literacy, critical thinking, and problem-solving (Rich, 2010). In an effort to provide clear 21st century core competencies for 21st century learning, the National Education Association (NEA) (2017) developed the Framework for 21st Century Learning in 2004. The framework was later revised and named the Four Cs, as the original framework proved to be too daunting. The intention of the Four Cs framework is to help prepare 21st century students for a global society, by providing a guide for educators on how to incorporate the Four Cs within their classrooms. The Four Cs of the 21st century learning framework include critical thinking, communication, collaboration, and creativity. Further explanation of each of the Four Cs may be found within the literature review section of this paper.

Curriculum Design: Project Based Learning (PBL)

Project Based Learning (PBL) was selected as it is an approach to teaching that engages students in learning, with the teacher facilitating the learning. Seven project based teaching practices should be found within all high quality PBLs. They include: a challenging problem or question, sustained inquiry, authenticity, student voice & choice, reflection, critique & revision, and public product. A breakdown of the components that make up Project Based Learning design elements, can be found within the gold standards of Project Based Learning (PBL) section in the literature review section of this paper. The PBL curriculum created incorporates all of the 21st century learning skills known as

the Four Cs (Critical Thinking, Communication, Collaboration, Creativity), by simply following the gold standards of Project Based Learning design elements.

Theoretical Conclusion

Common themes can be found across the philosophies and frameworks discussed. The importance of building students' knowledge and skill sets in order to prepare them for their present and future lives is a major overarching theme. Another theme which is evident, is the importance of utilizing students' interests and their communities in which they live, in an effort to provide relatable lesson content to students. Dewey refers to such practices as connecting communities to education (1897/2013), while Kilpatrick refers to this as connecting projects to capacities of student's real lives (1918/2013). PBLWorks (n.d.) developers incorporate the design elements of "Authenticity" and "Public Product" within their gold standards of Project Based Learning framework. They do this in order to push the importance of the same concept as well. "Authenticity" is how "real-world" the learning is for the students (PBLWorks, n.d.). "Public Product" is when students create some sort of presentation and share it publicly with community members and possibly the wider world (PBLWorks, n.d.). It can be argued that Dewey and Kilpatrick would support these PBL design elements, as they relate directly to their beliefs of connecting communities to education, and education relating to student's real lives.

Another point common amongst the theorists and framework is the need to give students more responsibility in their own learning. Dewey discusses this when he mentions students should be given command of themselves while in the midst of being trained by their teachers (1897/2013). Kilpatrick also discusses this when he states that teachers are to guide students in their interests and achievements (1918/2013).

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

PBLWorks (n.d.) developers have provided this concept within their gold standards of Project Based Learning framework. The design elements which incorporate the concept include the “Student Voice & Choice” and “Sustained Inquiry” element. “Student Voice & Choice” is when teachers allow students to have ownership of their projects, by providing them opportunities to give their input and make selections/choices throughout the project. “Sustained Inquiry” allows for students to ask their own questions related to their project topics and use resources to answer those questions, in order to ask deeper questions, until satisfactory answers are developed (PBLWorks, n.d.). Both “Student Voice & Choice” and “Sustained Inquiry” support Dewey and Kilpatrick’s stance that students should be guided by their teachers and take command of themselves when it comes to their education. While only four of the gold standards of Project Based Learning have been discussed in relation to Dewey’s and Kilpatrick’s theories, clear connections can be seen in the remaining PBL elements (challenging problem or question, reflection, critique & revision). For instance, the challenging problem element provides students with the “motive power” (Kilpatrick, 1918/2013, p. 9). PBLWorks states that John Dewey has and continues to inform their ideas about Project Based Learning (n.d.). In conclusion, it is believed by the theorists and frameworks presented, that it is the responsibility of the education system to incorporate the reviewed themes within classrooms. Doing so will benefit the child not only today, but in the future.

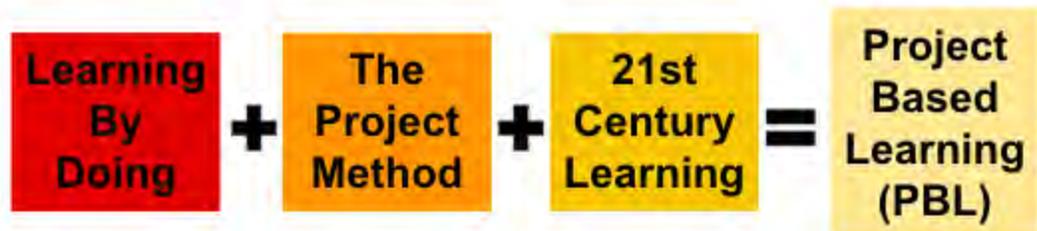
As an educator I believe that it is important for students to be immersed in their learning and not spoon fed it. Students should take ownership of their own learning and have vested interest in what they are doing. In addition, I believe students should not only be learning grade level content within the classroom, they should also be learning 21st

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

century skills in order to ensure success in future endeavors. These beliefs are what led me to the Four Cs of 21st century learning framework. With the guidance of my personal beliefs and theories of John Dewey and William Kilpatrick, I selected the Project Based Learning (PBL) framework as the delivery method for my curriculum. The PBL framework was selected as it incorporates all the mentioned concepts. Each concept reviewed in this section builds on another and continues to add benefit with new additions made. The graphic below outlines the concept of each theory/framework building upon another.

Figure 1

Theories & Frameworks Building Up



SECTION FOUR

Curriculum

The purpose of this section is to provide a manual for educators on the Historic Natives Project Based Learning (PBL) unit curriculum. The manual will serve as a guide in order to help assist teachers in the implementation process. Recommended steps will be suggested in a particular order. However, some steps will be repeated throughout the process, or completed out of the order originally presented. The steps and order will vary and depend on the demands and needs of the student population within a classroom. All materials and resources for the Historic Natives PBL can be found at

https://drive.google.com/drive/u/1/folders/1RTLhViHQb4ThByD2hw12ML0-IvPjy0_r.

From there, all digital assignments and resources can be duplicated and saved to individuals' own Google Drives. Once resources are duplicated, they may be edited and tailored to best meet each teacher's needs.

The curriculum developed covers a breadth of Ohio's Learning Standards (2021). Incorporating PBL within classrooms allows educators to cover a vast scope of content across the curriculum. Educators have the ability to incorporate any topic of study, when utilizing the Project Based Learning approach to teaching. Historic Natives of Ohio was chosen as the main topic of study for this curriculum, as it is directly linked to a 4th grade Ohio social studies learning standard. The standards covered across the curriculum within this developed PBL unit are as follows.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

Table 1

4th Grade Ohio Learning Standards (2021), Embedded within the Historic Natives PBL

English Language Arts	
RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
RI.4.9	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
RI.4.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.
W.4.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
W.4.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
W.4.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.
W.4.6	With some guidance and support from adults, use technology, including the internet, to produce and publish writing as well as to interact and collaborate with others, while demonstrating sufficient command of keyboarding skills.
W.4.7	Conduct short research projects that build knowledge through investigation of different aspects of a topic.
W.4.8	Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information and provide a list of sources.
W.4.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.4.10	Write routinely over extended time frames for research, reflection, and revision and shorter time frames for a range of discipline-specific tasks, purposes, and audiences.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

Table 1 (continued)

English Language Arts	
SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others’ ideas and expressing their own clearly.
SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.4.4	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant descriptive details to support main ideas or themes; speak clearly at an understandable pace.
SL.4.5	Add audio recording and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
SL.4.6	Differentiate between contexts that call for formal English and situations where informal discourse is appropriate; use formal English when appropriate to task and situation.
L.4.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.4.2	Demonstrate command of conventions of standard English capitalization, punctuation, and spelling when writing.
L.4.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
Social Studies	
3	Various groups of people have lived in Ohio over time including American Indians, migrating settlers and immigrants. Interactions among these groups have resulted in cooperation, conflict and compromise.
Science	
4.EESS.1	Earth’s surface has specific characteristics and landforms that can be identified.
4.ESS.2	The surface of Earth changes due to weathering.
4.ESS.3	The surface of Earth changes due to erosion and deposition.
Social Emotional	
A3. 2.b	Seek help and acknowledge constructive feedback from others that addresses challenges and builds on strengths.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

Table 1 (continued)

Social Emotional	
A4. 1.b	Identify and describe how personal choices and behavior impacts self and others.
B.2 2.b	Identify school, family and community resources, with adult support, that may assist in achieving a goal.
B2. 3.b	Plan steps needed to reach a short-term goal.
B3. 1.b	Identify strategies for persevering through challenges and setbacks.
B3. 2.b	Identify the cause of a challenge or setback with assistance, develop a plan of action.
C1. 3.b	Demonstrate empathic reactions in response to others' feelings and emotions.
C3. 2.b	Participate in cross-cultural activities and acknowledge that individual and group differences may complement each other.
D1. 1.b	Apply active listening and effective communication skills to increase cooperation and relationships.
D1. 2.b	Demonstrate the ability to give and receive feedback in a respectful way.
D3. 1.b	Identify and demonstrate personal behaviors to prevent conflict.
D3. 3.b	Generate ideas to reach a compromise and find resolution during conflict.
E1. 2.b	Implement strategies to solve a problem.
E3. 3.b	Consider various perspectives and sources of information when participating in group decision-making.

Historic Natives PBL

A Project Based Learning Unit for 21st Century Learning

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Otterbein University 2022

Table of Contents

Curriculum Introduction.....45

Curriculum Manual.....45

Standards.....53

Sources Utilized.....55

Introduction to the Curriculum

The purpose of this manual is to provide educators with a guide for implementing the Historic Natives Project Based Learning (PBL) Unit. It will serve as a point of reference throughout their journey. Steps for implementation may not occur in the order presented and may also occur multiple times throughout the unit. All resources for this unit can be found at the following link

https://drive.google.com/drive/u/1/folders/1RTLhViHQb4ThByD2hw12ML0-IvPjy0_r.

Once individuals have accessed the Google Drive folder, they may utilize all materials and change them as necessary by making a copy and saving items to their own Google Drives. Schoology or Google Classroom are recommended in order to assign components of the project to students. This curriculum relies on the use of technology and utilizes computers, as well as, the internet.

This unit was designed to follow units of study that covered how to write informative essays using the painted essay model, used within the Wit & Wisdom curriculum program, primary and secondary sources, identifying reliable sources, prehistoric natives, and landforms.

Manual/ Guide For Implementation

Step 1: Project Launch

The project launch is the very first step in the unit and should be done before all other steps. It is intended to pique the interests of the students and get them excited for the project.

The teacher will first play the [“Historic Natives PBL: Launch Video”](#). Following the video, the teacher will display the [“Historic Natives PBL: Preference Survey”](#)

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

digitally on the board, and explain to the students that the class will begin a Project Based Learning Unit on Historic Natives that lived in Ohio. They will then let the students know the different native group options found on the survey, and go over the entire survey and how to fill it out. Students will select 1st and 2nd choices for the native group they would like to study, followed by their preference of working independently or in a group. Following the survey, the teacher will review the survey results and group students before the next class, using the student preference survey results and teacher judgment.

Step 2: PBL Project Introduction

PBL Project Introduction will take place directly following the PBL Launch. The introduction is intended to show students what the entire project entails and how it is set up.

Teachers will begin by displaying the [“Historic Natives PBL”](#) digitally on the board within the classroom. At the bottom of the Google sheet are tabs for navigation within the document. Teachers will begin first on the [“Welcome Page”](#) tab. Students will be instructed when they access this tab that they must first fill in the red sections found within the tab that ask for the name of the historic natives they will be studying and all group member names.

The [“Work Log”](#) tab will then be presented to the students. It should be explained that this is a very important part of the project. Each day students work on their projects, the group will fill out the work log to indicate what they have worked on, what they will do next time, and what they can improve on. When they return the next day to resume working they will refer to their work log to see where they should pick up and what they need to improve on that day. Students should be told that the work log provides

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

information to the teacher as well. The teacher can see how well groups are progressing on their work and what they may be struggling with in order to help.

Introduce the second section of the [“Work Log”](#) titled “My Teachers & Peers Thoughts and Suggestions on My PBL” found on the right side. Explain to the students that the work log also has another section. This section will be filled out at each meeting the group members have. Each week groups will meet at least one time with the teacher to go over progress, questions, and concerns. The teacher will provide assistance in areas as needed for each group. Individuals from each group will also meet once a week with one person outside of their group to explain their group's progress, ask any questions they may have, and provide assistance if able and necessary on items. Students will provide feedback to their peers within the meeting to include, “I like” statements and “I wonder” statements, in order to provide positive feedback and feedback for growth. Each meeting is to be documented in the “My Teachers & Peers Thoughts and Suggestions on My PBL” section of the [“Work Log”](#). Groups will review all their notes from previous meetings prior to beginning their next work session together.

The [“Driving Question”](#) tab will then be presented. Explain to students that anytime they come to a box that is yellow with the word, Checkpoint, they should stop and follow the directions given in that box. Read the Checkpoint #1 directions aloud to the students found on the [“Driving Question”](#) tab. Let students know that after they complete the [“Welcome Page”](#) they will then start with “Checkpoint #1” and that the directions for ONLY the first and fifth (last) checkpoint are found on the [“Driving Question”](#) tab. Read the driving question to the class. Let students know that the entire purpose of this project is to answer this question. They will be collecting information

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

throughout the project that will help them answer the question and they will write an essay as a group to answer it. Remind students that they have been writing informative essays and paragraphs using the painted essay format in Wit & Wisdom during English language arts class. Let them know they will continue to use this model when they answer the driving question. Show them the graphic organizer to the right of the driving question. Explain that the graphic organizer is to be filled out first and once it is filled out they will combine all of their sections to create their essay in the space below the driving question.

Introduce the [“CHECKPOINTS: ?? Wonderings??”](#) tab to students. Let them know that when they click on “Checkpoint #1” back on the [“Driving Question”](#) tab that we already went over, they will be taken here. Tell students that each time they are directed to this tab, they are to write down 2-5 things they wonder about after they have completed something they PBL has directed them to do.. For example, “Checkpoint #1” “TASK 1” says, “Now that you have read the PBL driving question, what are 2-5 of your wonderings?”. Model for the students what a wondering is (I wonder why the sky is blue?). Make sure you explain each wondering should be related to the topic they are studying and be sparked by what is mentioned in each checkpoints task. So the first set of wonderings they would write, should be about their historic natives and possibly something they wonder about related to their natives engaging in cooperation, conflict, and compromises. Point out that the colors of the boxes will help them see what each checkpoint wants them to do. For example “Checkpoint #2” has two tasks. In “Task 1” they must write 2-5 wonderings. After “Checkpoint #2” “Task 1” students then go to

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

“Checkpoint #2” “Task 2” where it tells them to go back and answer their wonderings from “Checkpoint #1”.

Introduce the [“EQ: Essential Questions”](#) tab to the students. Let students know that these questions will help them gather information on their natives, so they obtain background knowledge on them and are able to answer the [“Driving Question”](#). Show students that each question has a spot for the answer and a spot for them to record where they found their answer. They must provide the source they used to find each answer and put it in the correct box (primary, secondary). Review what primary and secondary sources are with students. Point out that after each section they will see a yellow section indicating they have a checkpoint to complete. Remind students to not ignore these checkpoints. Tell them when they get to a checkpoint, click on the link and it will take them to the [“CHECKPOINTS: ?? Wonderings??”](#) tab and they should follow the directions the checkpoint gives. Once the checkpoint is completed, students will see directions in yellow again on what to do next.

Make your way back to [“Checkpoint #5”](#) located on the [“Driving Question”](#) tab at the bottom. Tell students that once they have answered all the essential questions, completed all wonderings, and answered the driving question, they will then click on the final checkpoint, [“Checkpoint #5”](#). This checkpoint will show them all of the options for their final product (presentation). Click on the checkpoint and review all options available. Click on each option to review each option's directions and the project rubric. Let students know that each group must make a choice between doing a slideshow or a tri-fold poster to present their information. All groups must complete a 3D model of their historic native's homes.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

Show the students the [“**Sources**”](#) tab. Let students know that all of the answers to their questions for the project can be found by using one of the sources within the table. Tell students that each group has specific sources that they can use that are listed within the sources chart. Let them know that they are also able to use sources outside of this chart, but must select sources wisely.

Show the [“Tips 4 Finding RELIABLE SOURCES”](#) tab. Remind students that they have already learned how to identify reliable sources in previous lessons. Let them know that if they need a refresher they can refer to this tab, as they are able to use sources outside of the ones provided by the teacher.

Review the [“Rubric”](#) tab with the students. Let them know that this rubric will be used to grade them on their PBL. Tell students that there is a section on the rubric that says reflection survey results. This score comes from when they all will rate themselves and each other on how they did on the project. They will have to provide reasons and evidence for their ratings when it comes time to do the survey, at the end of the entire project. Also let them know that they can refer to this rubric at any time during the PBL to ensure they are performing at a level 3 in all categories.

3rd- PBL Work Days (Repeated Throughout PBL)

Work days are those which take place following the project launch and introduction. During these days, students will work through their [“Historic Natives PBL”](#) assignment with their groups, have meetings, create a presentation, and practice presenting.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

4th- Meetings (With Teacher & Peers) (Repeated Throughout PBL)

Two different types of meetings will occur throughout the duration of the Project Based Learning unit. The first type of meeting will take place with the teacher and PBL groups. The second type of meeting will take place with students and their peers.

Teacher meetings will occur weekly with each group. These meetings will be used to go over progress, discuss what groups are doing well on and what may need improvement, creating goals, answering questions or discussing confusions, assisting with project tasks, and reviewing group conduct. At the closing of the meeting the teacher will go into the groups [“Work Log”](#) tab and type up the notes from the meeting in the “My Teachers & Peers Thought and Suggestions on My PBL” section.

Peer meetings will also occur weekly. Each student will meet with a peer outside of their PBL group to discuss what is going well in their groups and what their groups can improve on, share questions they may have or discuss any confusions with each other in order to try and get an answer, assist if able on parts of the project, and provide positive and growth feedback in the form of “I think” and “I wonder” statements. At the closing of the meeting, each person will go into their groups [“Work Log”](#) in the “My Teachers & Peers Thought and Suggestions on My PBL” section and type in notes from the meeting, making sure to include the “I like” and “I wonder” statements that were provided to them.

5th- Daily Reminders for Students (Repeated Throughout PBL)

Before each work session students will need daily reminders. Remind students to fill out the [“Work Log”](#) tab after each work session, pay attention to the yellow boxes for Checkpoints, and to type up the source they use for each answer they find.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

6th- Presentations

A week before the designated presentation day, share the [“Historic Natives PBL Invitation”](#) with student families, friends, community members, and colleagues. The invitation allows for virtual attendance, but may be modified to fit whatever platform preference.

During work sessions students will practice presenting their presentations. They may create note cards or print out their slides for reference during their presentations. Let students know that note cards are there to help them if they forget what to say or are nervous. However, they are not intended to be read from the entire time, nor should they be reading from slides or posters. Model how to present without relying on the notecards, slides, or posters. Tell students each day they will practice with the goal that they do not need their note cards and are looking at their audience most of the time. Other groups that are ready to practice will present to each other and provide feedback on presentations in the form of “I like” and “I wonder” statements.

7th- Reflection

At the conclusion of the PBL, the teacher will present the closing reflection activity. The teacher will go over the [“Historic Natives PBL: Reflection Survey”](#) with the students. Students will be told that they will rate themselves 3, 2, or 1 on their performance on the PBL, as well as their group members. They will also be told that they must provide several reasons and evidence why that rating should be given. The survey link will then be shared with the students and they will fill it out and submit it. Following the completion by all students, the teacher will fill out the [“Historic Natives PBL: Reflection Survey Results”](#) document using the results from the survey. They will record

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

all scores for each individual student and determine the average score. This score will be plugged into each student's rubric for the project.

8th- Grading

Teachers will print the [“Historic Natives PBL: Rubric”](#) out for each individual student. Teachers will then fill out the rubric and plug in the reflection survey results into the rubric. From there, the average will be taken in order to determine an overall score for each student.

Standards

4th Grade Ohio Learning Standards (2021), Embedded within the Historic Natives PBL (this table was previously shared at the beginning of the Capstone Curriculum section)

English Language Arts	
RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
RI.4.9	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
RI.4.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.
W.4.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
W.4.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
W.4.5	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.
W.4.6	With some guidance and support from adults, use technology, including the internet, to produce and publish writing as well as to interact and collaborate with others, while demonstrating sufficient command of keyboarding skills.
W.4.7	Conduct short research projects that build knowledge through investigation of different aspects of a topic.

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

W.4.8	Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information and provide a list of sources.
W.4.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.4.10	Write routinely over extended time frames for research, reflection, and revision and shorter time frames for a range of discipline-specific tasks, purposes, and audiences.
SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.4.4	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant descriptive details to support main ideas or themes; speak clearly at an understandable pace.
SL.4.5	Add audio recording and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
SL.4.6	Differentiate between contexts that call for formal English and situations where informal discourse is appropriate; use formal English when appropriate to task and situation.
L.4.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.4.2	Demonstrate command of conventions of standard English capitalization, punctuation, and spelling when writing.
L.4.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
Social Studies	
3	Various groups of people have lived in Ohio over time including American Indians, migrating settlers and immigrants. Interactions among these groups have resulted in cooperation, conflict and compromise.
Science	

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

4.EESS.1	Earth’s surface has specific characteristics and landforms that can be identified.
4.ESS.2	The surface of Earth changes due to weathering.
4.ESS.3	The surface of Earth changes due to erosion and deposition.
Social Emotional	
A3. 2.b	Seek help and acknowledge constructive feedback from others that addresses challenges and builds on strengths.
A4. 1.b	Identify and describe how personal choices and behavior impacts self and others.
B.2 2.b	Identify school, family and community resources, with adult support, that may assist in achieving a goal.
B2. 3.b	Plan steps needed to reach a short-term goal.
B3. 1.b	Identify strategies for persevering through challenges and setbacks.
B3. 2.b	Identify the cause of a challenge or setback with assistance, develop a plan of action.
C1. 3.b	Demonstrate empathic reactions in response to others’ feelings and emotions.
C3. 2.b	Participate in cross-cultural activities and acknowledge that individual and group differences may complement each other.
D1. 1.b	Apply active listening and effective communication skills to increase cooperation and relationships.
D1. 2.b	Demonstrate the ability to give and receive feedback in a respectful way.
D3. 1.b	Identify and demonstrate personal behaviors to prevent conflict.
D3. 3.b	Generate ideas to reach a compromise and find resolution during conflict.
E1. 2.b	Implement strategies to solve a problem.
E3. 3.b	Consider various perspectives and sources of information when participating in group decision-making.

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SECTION FIVE

Conclusion

Now is the time to build our youth for the future. Educators must prepare them to enter the workforce by providing them with the necessary tools for success. In today's global society, those tools include 21st century skill sets. The traditional education system that was established is no longer capable of meeting the needs of our society and economy (NEA, 2017). The world is changing and our education must change along with it.

As an educator it has been a challenge throughout my career to find a curriculum that has the ability to teach content standards and 21st century skills. Curriculums that have been provided to me by districts I have worked in, have not incorporated both components. The provided curriculums only focused on teaching content standards and did not include 21st century learning. This is what led me to explore teaching theories, practices, and frameworks that have the ability to prepare students for their futures, by teaching 21st century skills. The Four Cs of learning; critical thinking, communication, collaboration, and creativity are 21st century skills intended to prepare students for the global 21st century society in which we live (NEA, 2017). Research has shown that Project Based Learning has positively affected student achievement (Geier et al., 2008). In addition, research has also indicated 21st century skill development occurs when students are engaged in project based instruction (Tamin & Grant, 2013).

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

Using the knowledge I obtained through my research, I constructed a curriculum. The curriculum created has many strengths, primarily the inclusion of the Four Cs of learning within the Project Based Learning (PBL) framework. Additional strengths of the curriculum include students being engaged in a PBL that is cross curricular and integrates technology. While this curriculum is cross curricular, a limitation in the curriculum can be seen as it incorporates all subject area standards except math.

The Historic Natives PBL curriculum created will be implemented within my fourth grade classroom. It will be implemented during my social studies and science block of teaching. Two classes will participate in the PBL unit. It will take place over a course of 4-8 weeks. In an effort to refine the curriculum and allow it to reach its full potential, I will review the curriculum's strengths and weaknesses after implementation and make necessary adjustments and modifications for future use. I recommend educators interested in implementing the curriculum review all aspects of the curriculum ahead of time, and make necessary changes to meet their needs. An empirical study may be conducted utilizing this curriculum to better understand its effectiveness relating to student achievement and 21st century skill development.

In addition to implementing the curriculum within my classroom, I will be sharing my curriculum with my colleagues. I have also been asked to lead a professional development session, explaining how I approach Project Based Learning within my classroom. I will also make myself available to teachers who would like to learn more about the curriculum or ask me about the frameworks in which I utilized to create my PBL. I highly recommend those interested in starting or continuing their journey with Project Based Learning (PBL) attend professional development courses offered in their

A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

area, or by PBLWorks. Educators can visit the PBLWorks website to explore and register for workshops offered, to further their knowledge on PBL.

My hope is that this curriculum provides educators with a useful unit they can utilize to teach content standards, as well as 21st century skills. I anticipate that this curriculum will help students develop their 21st century skills to better prepare them for their future endeavors.

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A CURRICULUM DEVELOPMENT FOR 21ST CENTURY LEARNERS

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