

Spotsylvania County Meaningful Day Program

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Abstract

The Spotsylvania County Meaningful Day Program (SCMDP) engages students in a one-day, hands-on learning experience that promotes critical thinking about agriculture, forestry, watershed management, and watershed ecology. The SCMDP was modeled after the Virginia Soil & Water Conservation Districts' (VASWCD) Meaningful Watershed Educational Experience (MWEE), to fulfill Spotsylvania's Elementary Schools environmental literacy requirements as part of the Chesapeake Bay Agreement. The SCMDP uses experiential learning theory as building blocks for educational knowledge to be shared from the partnering agencies to the students. This research project investigated the station facilitators and fourth grade teachers to understand how they perceived the SCMDP, and MWEE programs, and how they related to the educational topics of environmental literacy and experiential learning. Findings revealed that half of the participants were unaware of the goal of these programs, and did not know how to integrate the principles of experiential learning theory into the stations or their teaching. Recommendations include offering professional development for the facilitators and teachers, updating the stations to adapt to the changing Standards of Learning, and working with all agencies and teachers to offer consistent communication about the future programs.

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Introduction

The 2014 Chesapeake Bay Watershed Agreement (CBWA) contains an Environmental Literacy Goal that obligates states in the area to prepare every student with the knowledge and skills essential to responsibly preserve and reestablish their local watershed (Sprague, et al., 2019). The environmental literacy planning outcome states, “each participating Bay jurisdiction should develop a comprehensive and systemic approach to environmental literacy for all students in the region that includes policies, practices and voluntary metrics that support the environmental literacy Goals and Outcomes of the Chesapeake Bay Watershed Agreement” (Chesapeake Bay Program, 2020c). One of the five themes specific to the 2014 CBWA identifies engaged communities, meaning to increase public involvement in the Bay stewardship, enabling environmentally literate students to graduate from high school and expand public access to the Bay (Chesapeake Bay Foundation, 2020a). The Virginia Department of Education (VDOE) defines environmental literacy as “having the knowledge, skills, and dispositions to solve problems and resolve issues individually and collectively that sustain ecological, economic, and social stability” (Virginia Department of Education, 2019b). This means that the goal is to constantly “increase students age-appropriate understanding of the watershed through participation in teacher-supported, meaningful watershed educational experiences and rigorous, inquiry-based instruction, with a target of at least one meaningful watershed educational experience in elementary, middle, and high school depending on available resources” (Virginia Department of Environmental Quality, 2017). However, “the Standards of Learning (SOL) for Virginia Public Schools establish expectations of what students should know and be able to do at the end of each grade or course in English, mathematics, science, history/social science and other subjects. The SOL in certain disciplines support Environmental Literacy explicitly and in others

implicitly” (Virginia Department of Education, 2020). Additionally, while the CBWA Environmental Literacy talks about providing at least one meaningful watershed educational experience in elementary, middle and high school depending on available resources (Chesapeake Bay Program, 2020c) it never addresses the amount of time required to achieve a meaningful watershed educational experience.

Inquiry-based instruction has become a hallmark of science education and increasingly of integrated content areas such as science, technology, engineering and mathematics (STEM) education (Crippen & Archambault, 2012). Inquiry-based instruction very clearly contains surface, deep, and implicit structures as well as engages students to think and act like scientists, which is considered a signature pedagogy of science education (Crippen & Archambault, 2012). As pointed out in the *National Science Education Standards* (National Research Council, 1996), students who engage in inquiry-based instruction engage in many of the same activities and thinking processes as scientists who are seeking to expand human knowledge of the natural world (National Research Council, 2000, p. 222). Inquiry-based learning along with problem-solving, simulation, programmed instruction, and basic encounter groups are all congruent with experiential learning (Roberts, 2006).

A Meaningful Watershed Educational Experience (MWEE) is an exploratory or investigational project that involves students in thinking critically about the Bay watershed (VA Assn of Soil & Water Conservation Districts, 2020a). MWEEs are the cornerstones of student environmental education surrounding the Chesapeake Bay watershed. MWEEs seek to seamlessly connect environmental literacy standards-based classroom learning with outdoor field investigations to create a deeper understanding of the natural environment (Chesapeake Bay Program Education Workgroup, 2016). MWEEs should be learner centered and focused on inquiry, problems, and

issues to be investigated through collection, analyzing and sharing data (Chesapeake Bay Program Education Workgroup, 2016). MWEEs consist of four phases and each phase should include time for reflection, allowing students to refocus on the issue. Those four phases are 1) issue definition, 2) outdoor field experiences, 3) action projects, and 4) synthesis and conclusions (Chesapeake Bay Program Education Workgroup, 2016). The Virginia Soil & Water Conservation Districts (VASWCD) MWEE are not meant to be quick, one-day activities. Instead, they are intended to be a wide-ranging scheme that allows students to gain a deep understanding of the subject being presented (VA Assn of Soil & Water Conservation Districts, 2020a). The VASWCD intent with the MWEE is for students to participate in contextual investigation, hands-on activities and reflection that is appropriate for students' ages and grade levels (VA Assn of Soil & Water Conservation Districts, 2020a).

Each state or local education agency is responsible for establishing locally relevant approaches to environmental literacy that includes MWEE. However, not all schools in the Commonwealth are located near the Chesapeake Bay, which means that not every student has the opportunity to visit the Bay. Hence, the creation of the Spotsylvania County Meaningful Day Program (SCMDP). This is done by inviting all fourth-grade students from Spotsylvania County's seventeen elementary schools to participate in the SCMDP through September and October. SCMDP offers students the ability to learn about forestry, watershed management, watershed ecology, and agriculture in a "living classroom" for the day. The goal of this one-day program is to provide a hands-on experiential field trip that can be used as the cornerstone activity in achieving their environmental literacy goal, along with providing students with the unique opportunity to form a better understanding of local environmental concerns, increase environmentally conscious behavior, and become better stewards of the earth.

The 2014 CBWA set 2025 as a deadline to achieve five goals, with a mid-point assessment in 2017. This assessment found some school districts were making great strides in helping their students become environmentally literate, while many others were making little progress (Chesapeake Bay Foundation, 2020a). The Chesapeake Bay Program is a program that is committed to tracking progress toward the goals and outcomes of the CBWA (Chesapeake Bay Program, 2020b). The Chesapeake Bay Program sent out an Environmental Literacy Indicator Tool (ELIT) which also measures the degree of environmental literacy preparedness among school districts across the watershed. Combined with the 2017 subset, a 2019 study showed that only 55% of the local education agencies responded to the ELIT. Through the ELIT in 2019, 35% of the elementary schools reported providing system-wide MWEEs to at least one grade level, while 32% reported providing some MEWWs to at least one grade level (Chesapeake Bay Program, 2020a). More specifically, in Virginia, there were 94 local educational agencies that reported to the 2019 ELIT, 27% of Virginia's reporting elementary schools reported providing system-wide MWEEs to at least one grade level, while 30% reported providing some MWEEs to at least one grade level, 26% reported there was no availability of MWEEs provided to their school, and 18% did not respond (Chesapeake Bay Program, 2020a) as seen in Figure 1. Data collected through the ELIT in 2019 for elementary grades show the proportion of districts with system-wide MWEEs have reverted to levels on par with 2015, after a slight increase in 2017.

MWEE Availability in Watershed Jurisdictions (2019)
 Local Education Agencies' Self-Identified Rate of MWEE Availability

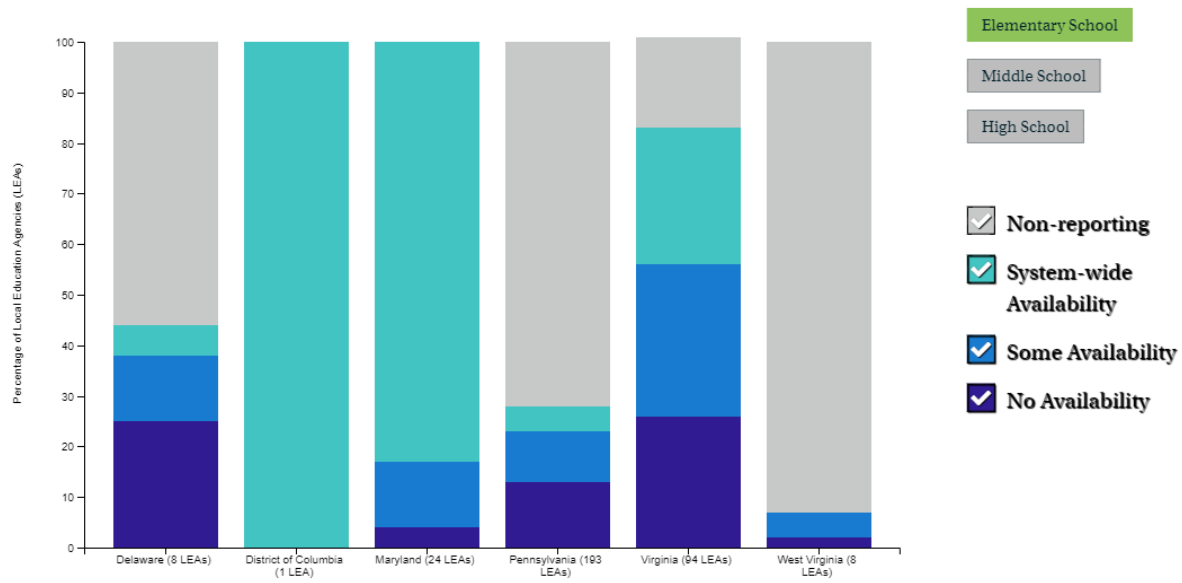


Figure 1
 (Chesapeake Bay Program, 2020a)

Scholarly evaluation is the key to developing a better understanding of the many aspects of experiential activities that can positively or negatively affect the learning process (Young et al., 2008). The purpose of this case-study research project (Creswell & Poth, 2018) was to collect baseline information on what knowledge the station facilitators and fourth-grade teachers have about the SCMDP and the MWEE program. This work examined how they related to educational topics under the environmental literacy umbrella using the experiential learning theory. A well-designed SCMDP experience has the potential to boost student engagement and eagerness for learning, academic accomplishment, 21st century skills, ecological stewardship, and civic accountability.

At the completion of this case study, the SCMDP coordinator will take the gathered information, and work to provide the appropriate support and/or resources identified to enhance each stations’

activity allowing for a higher quality experiential learning opportunity for the students.

Additionally, the SCMDP coordinator will be able to provide the appropriate support and/or resources identified for the teachers, to strengthen the overall experiential learning process for the Environmental Literacy goals at the completion of the SCMDP.

The research questions that have been identified for this research project are:

1. How do the station facilitators design the experiences for meaningful student engagement?
2. What support and/or resources do the station facilitators need to enhance the experiential learning experience?
3. How do teachers prepare students prior to attending the program?
4. How do teachers apply the experience after they've returned to their classroom curriculum?
5. What support and/or resources do the teachers need to enhance the experiential learning experience?

Literature Review

Station Literature

The four areas that are taught at the stations during SCMDP are agriculture, forestry, wetlands, and watershed ecology. At each station the topics remain broad and encompasses the Commonwealth as a whole. This allows the students to be tested on general knowledge and not specifically Spotsylvania County. At the Agricultural Station, students are taught that agriculture is Virginia's largest industry and creates the basis for several correlated enterprises including

food and fiber production, processing, distribution, and advertising (Chesapeake Bay Program, 2020c). The industry has an economic impact of \$70 billion annually and provides more than 334,000 jobs in the Commonwealth (Virginia Department of Agriculture and Consumer Services, 2020). In Virginia, agriculture spans an extensive field of happenings, from the traditional raising of field crops, vegetables, livestock, nursery products, to the breeding of commercial livestock, bottling of wines, and growing of fish (Virginia Department of Education, 2019d). Students are taught that there are five geographic regions of Virginia (Virginia Farm Bureau Mutual Insurance Company, 2019), and the current top ten agricultural commodities grown in Virginia, and which regions they are most commonly produced in (Lidholm, 2019).

At the Forestry station, students are taught that forests cover 62 percent of the state's land area and can grow in areas with rich soils, as well as in areas that may be less suited for other uses, such as agriculture (Virginia Department of Education, 2016a). Students are taught what a natural resource is, and are given examples of how forests are natural resources (Virginia Department of Education, 2016a). Students also learn different products that come from trees, learn to identify different trees by using a hands-on approach and identifying trees surrounding the Forestry station, as well as identifying different layers of the forest. Finally, students learn that one of the most important jobs of the forest to Virginia is its protection of Virginia's watershed from erosion and sedimentation (Virginia Department of Forestry, 2014). Before the students leave the Forestry station, the station facilitator gives them a pamphlet of all the Public lands around Spotsylvania County as an invitation to continue learning by exploring the woods and public lands on their own time with their families.

At the Watershed Ecology station, students go through a quick introduction to some words and definitions, such as "wetlands," "estuaries," and "ecology." After the student's introduction to

the station, they start exploring the area set up by the station facilitator, to see what kinds of animals could live there, going through and identifying the four main components of a habitat – water, food, shelter, and space. As the students explore the surrounding area, they mark down signs of wildlife tracks, food possibilities, water sources, and shelters or dens. Throughout their exploration, students are set up to find capes and skulls from various animals at which point, they are asked to identify the species and provide supportable backup. At the end of the exploration students gather back with the instructor to go through what food and water sources they found, any wildlife tracks they might have seen, and any shelters that might be a home to an animal. Then they talk about the capes and skulls where the instructor informs them what species they are from and shows them how they can start learning to identify different species on their own.

At the Watershed station, students learn that water is as critical to Virginia's well-being, as it is to societies around the globe. Water supports nearly every human endeavor from farming and forestry to the generation of electric power and all types of manufacturing (Virginia Department of Education, 2016b). Protecting our water is the responsibility of all Virginians, including state government (Virginia Department of Education, 2019d). Students are taught various ways to protect our water resources, water quality and what common challenges our waterways are facing, along with what the students can do to help. After their introduction to watershed and the importance of water, students observe a quick demonstration showing how grass can slowdown soil erosion, and then they go through a scavenger hunt to find different parts of the local watershed and areas that could be affecting the local watershed in either a positive or negative way.

Educational Value of Field Trips

Successful methods to grow students' interest in science include observational activities and field trips, which create genuine learning opportunities for students regardless of content area (Behrendt & Franklin, 2014). Students who directly participate during a field experience generate a more positive attitude about the subject (Behrendt & Franklin, 2014). There is an extensive assortment of ways in which children learn and play outside, allowing the outdoors to become a natural extension of the indoor classroom (Burriss & Burriss, 2011). Research suggests that experiences in these types of informal learning settings contribute to students' knowledge and skills in a way that differs from school-based instruction (Whitesell, 2016). Research has also suggested that students enjoy and potentially learn more from field trips when they participate in hands-on activities, have semi structured opportunities to direct their own learning, and have opportunities for social interactions (Whitesell, 2016). Learning outcomes are fundamentally influenced by the structure of the field trip, setting novelty, prior knowledge and interest of the students, the social context of the visit, teacher agendas, student experiences during the field trip, and the presence or absence and quality of preparation and follow-up (DeWitt & Storksdieck, 2008).

Conservation Education

Conservation education aims to increase individual's knowledge, change their attitudes, and enhance other characteristics to promote environmentally responsible behavior (Zint et al., 2002). Through conservation education, people develop the critical thinking they need to understand the complexities of ecological problems. It also encourages people to act on their own to conserve natural resources and use them in a responsible manner (United States Department of Agriculture Forest Service, 2012).

Lieberman and Hoody (1998) believe using the Environment as an Integrating Context (EIC) serves as a “framework for interdisciplinary, collaborative, student-centered, hands-on, and engaged learning” (Lieberman & Hoody, 1998). Higher performances on standardized measure of academic knowledge in reading, writing, math, science and social studies are one advantage of EIC programs. Other benefits of EIC programs are reduced classroom management problems, increased engagement and enthusiasm for learning and greater grade and ownership in accomplishments (Lieberman & Hoody, 1998). When involved in outdoor activities, there is a stronger knowledge base and feelings regarding environmental issues leading towards students more likely protecting the environment (Kenney et al., 2003). Literature plainly validates the importance of outdoor play for children’s cognitive, social-emotional, and physical development (Burriss & Burriss, 2011).

Organizational Educational Philosophy

The VASWCD has an Educational Foundation that is was established in 1990 and is a nonprofit organization. The mission of the VASWCD Educational Foundation is “to provide and promote leadership in the conservation of natural resources through stewardship and education programs” (VA Assn of Soil & Water Conservation Districts, 2020b). The VASWCD facilitates projects such as Envirothon, Youth Conservation Camp, scholarship opportunities, MWEE support, and annual poster contest and awards programs (VA Assn of Soil & Water Conservation Districts, 2020b).

The United States Department of Agriculture, Forest Service which oversees the Virginia Department of Forestry, has a Conservation Education program that educates people of all ages to understand and appreciate our country’s natural resources and how to conserve those resources for future generations (United States Department of Agriculture Forest Service, 2012).

Through organized educational experiences and activities targeted to varying age groups and population, conservation education enables people to realize how natural resources and ecosystem affect each other and how resources can be used wisely (United States Department of Agriculture Forest Service, 2012).

Virginia Cooperative Extension (VCE) is an educational outreach program of Virginia's land-grant universities, Virginia Tech and Virginia State University, as part of the National Institute for Food and Agriculture (NIFA) (Virginia Polytechnic Institute and State University, 2020). The Smith Lever Act formalized extension in 1914, establishing USDA's partnership with land-grant universities to apply research and provide education in agriculture (United States Department of Agriculture - National Institute of Food and Agriculture, 2014). VCEs' job is to bring the resources and education from the two land-grant universities, to the people of the commonwealth (Virginia Polytechnic Institute and State University, 2020).

Since the 1930's, state parks have been sharing information on the value of natural places and nature itself. The Virginia Department of Conservation and Recreation (DCR) manages 40 Virginia State Parks, and works with local parks to offer educational programs to educate the public about the importance of preserving Virginia's heritage, recreational opportunities, improving water quality, and wildlife's quality of life (Virginia Department of Conservation and Recreation, 2018). DCR proudly sponsored Lake Anna State Park's Station during SCMDP.

Theoretical Framework

Experiential learning is an important part of field trips, and when done correctly, can be a solid foundation of an educational field trip. Philosophers at least as far back as Aristotle have considered the role of experience in learning (Merriam & Bierema, 2014a). Kolb (1983) defines

experiential learning as authentic, first-hand, sensory-based learning where learning consists of grasping an experience and then transforming it into an application or result through experiential activities which enable students to explore, touch, listen to, watch, move things, disassemble, and reassemble (Ramachandiran & Dhanapal, 2016). Learning is not an assortment of ideas; it is about how students feel, how they see themselves, what they do, and who they are with.

“Learning is an integrated process where the learner, the educator, the physical environment, and culture are all changed by each other” (United States Department of Agriculture National Institute of Food and Agriculture, 2019). The experiential learning model allows youth to participate in engaging, stimulating activities that have a real-world basis. These experiential activities help the learners connect what they are learning to prior knowledge and apply it to new situations or problems. These are all aspects of the 4-H Program which strives to provide positive youth development (United States Department of Agriculture National Institute of Food and Agriculture, 2019).

The learning theory that is primarily utilized during the SCMDP is the experiential learning Model (ELM) developed from the experiential learning theory devised by David A. Kolb. The experiential learning theory is based off the idea “learning is the process whereby knowledge is created through the transformation of experience” (Kolb, 1983a, p. 38). As the name suggests, experiential learning theory relies on the importance of experiential activities such as investigation, workshops, laboratories, and hands-on sessions. “However, it does not prioritize these forms of learning, but instead takes the student through each stage which ensures that useful links are made” (Sukavejworakit et al., 2018). To successfully learn from experiential activities, the learning process must be rigorously planned to incorporate multiple aspects of the learning cycle (Young et al., 2008).

Kolb's theory consists of four stages that learners go through; concrete experience, reflective observation, abstract conceptualization, and active experimentation (Merriam & Bierema, 2014b, p. 108). Kolb takes these four stages and states that if learners are going to be effective, they need to experience all four stages during their learning process. By going through the concrete experience learning stage, students need to be fully engaged, open minded, and without prejudice to their new learning experience. Students must also be able to reflect on and have a basic understanding of their learning experience from multiple viewpoints. Additionally, students need to be able to generate notions that mix their new learning experience into understandably comprehensive concepts. Finally, students must be able to use these new founded concepts to make better informed future decisions and solve problems (Kolb, 1983b).

While the SCMDP is not a nationally accredited 4-H Curriculum, it has adopted the 4-H expression of "learn by doing" (National 4-H Council, 2019). The National 4-H Program has a reputation for using a learn-by-doing approach for teaching youth (Diem, 2001). As 4-H transitioned towards a youth development focus in 4-H project work during the 1980's, 4-H curriculum began to be modeled after Kolb's theory of experiential learning. The ELM takes Kolb's experiential learning cycle and envelopes five steps on the preferred learning styles described by Kolb (Thomas & Gentzler, 2013). As seen in *Figure 2*, the five steps involved in the Experiential Learning Model is: experience, share, process, generalize, and apply. The ELM was then adapted from Kolb's Experiential Learning Theory for the 4-H and youth development. The ELM that the National 4-H Program uses has three basic phases as seen in *Figure 3*: an experience or problem situation; a reflective phase in which the learner examines the experience and creates learning from his/her reflection; and an application phase in which the new

knowledge or skills are applied to a new problem or situation (National 4-H Learning Working Group, 2016).



Figure 2
(National 4-H Learning Working Group, 2016)

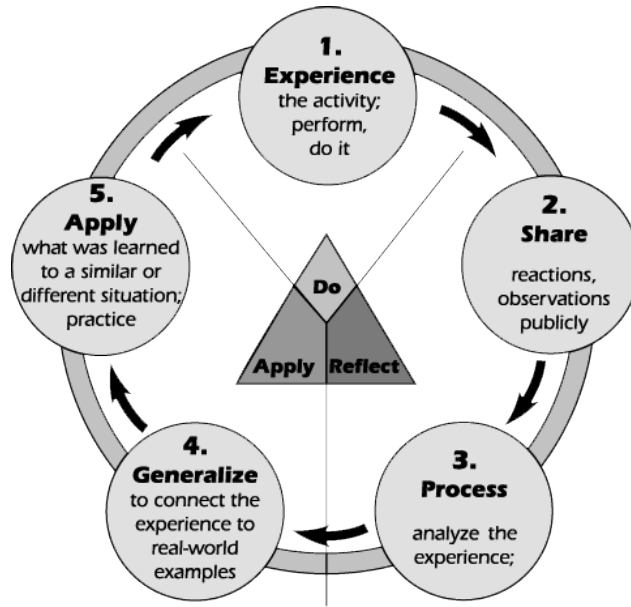


Figure 3

(The University of Tennessee Institute of Agriculture, 2019)

To break down the Experiential Learning Model as it relates to the SCMDP as depicted in *Figure 3*; before attending the SCMDP, school educators take students on a field trip to Oakley Farms. While at the SCMDP, students will learn about watershed management, watershed ecology, agriculture and forestry. Prior to attending SCMDP, the coordinator will request teachers to encourage students to research and participate in classroom discussion. While at the program, students engage in hands-on learning and experiences, such as having to count the rings in a tree cookie to determine the trees age, having to identify between cotton and wool solely from the feel of the two materials, having to identify different species of animals that could live in a watershed ecosystem, and other educational activities. This is all part of the first step, the *experience*.

During each station, the station facilitator has a set time to call students back after the hands-on activity to reflect on what the students learned. This is done in two steps. In the first step, the

students share what information they gathered from their observations. The second step is when the facilitator takes the students observations a step further and asks why it's important and how it impacts the students personally. These two steps provide a chance for students to develop logical thoughts, articulate those thoughts, relate to others in the group, and compare experiences and opinions (Diem, 2001).

The last two steps, generalize and apply, offer activities or inquiries for students to help review the knowledge they have gained. It allows them to apply what they have learned to other examples and situations they have experienced in their lives, as well as to future experiences they will encounter (Diem, 2001). These two steps should be done back in the classroom with their teachers either an oral or written report, or completing another activity set out by their teacher. You can see how this all breaks down in Figure 4.

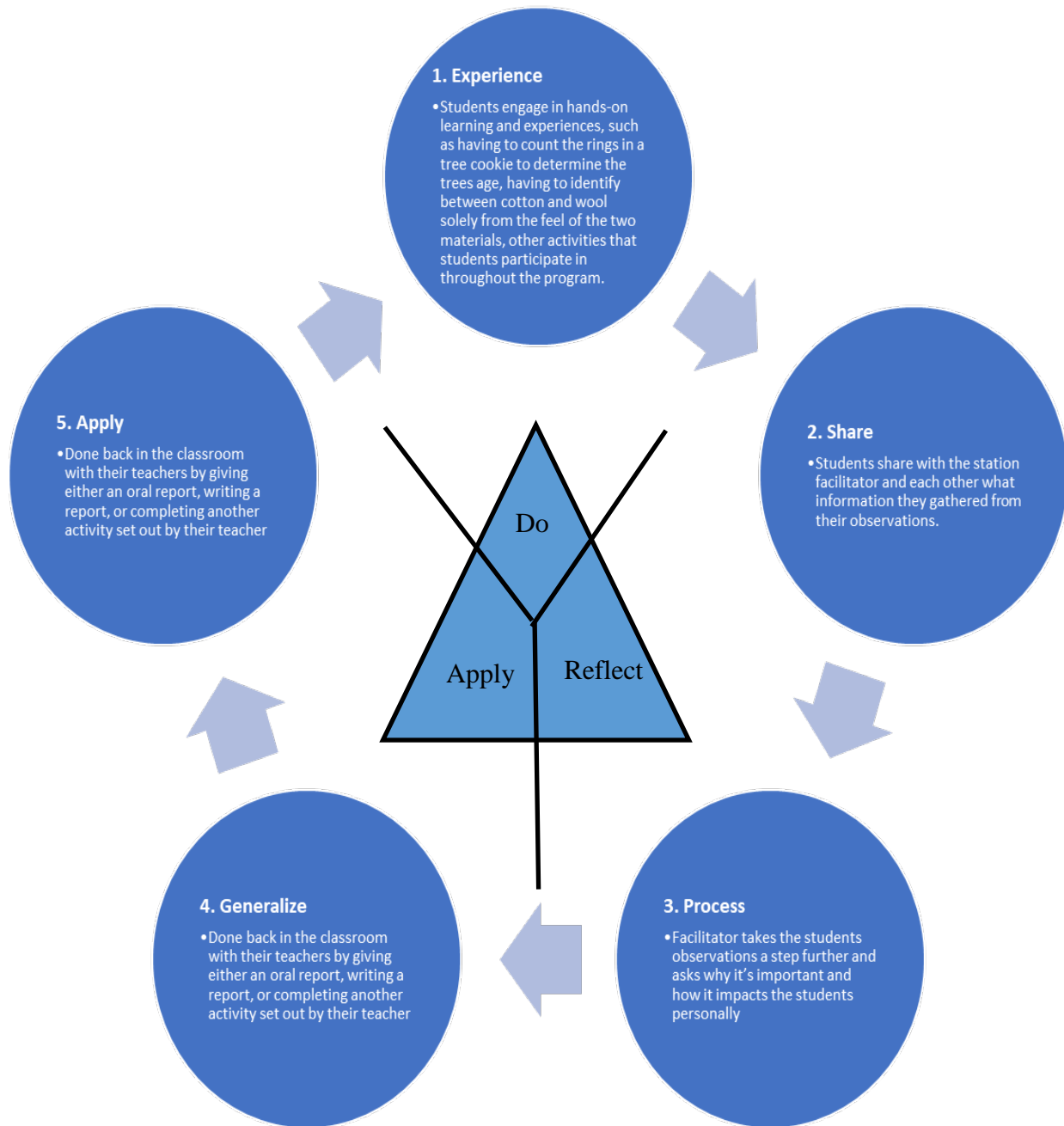


Figure 4

Methods

This was a case study using semi-structured interviews to understand the station facilitators and teachers' viewpoints on how the SCMDP uses experiential learning to enhance the student's education towards the Environmental Literacy goals set forth by the CBWA. A qualitative approach was chosen to capture the experience from two groups to try and understand how the experiential learning model is followed through the educational experience of the students participating in the 2019 SCMDP (Creswell & Poth, 2018). These two groups were chosen to analyze and compare their feedback, because they are responsible for this program.

The COVID-19 Pandemic was a factor in the selection of this population, knowing that schools and participating organizations in Spotsylvania County were not accessible to collect data in person. This was a focused sample of participants using semi-structured interviews as the means to collect data (Creswell & Poth, 2018). A case study with a defined population was chosen to try and capture the participants reflections on the SCMDP and help identify areas of improvement or other important feedback to the planning team for the next iteration. Knowing that only a small number of people organize and participate in SCMDP also drove the decision of choosing a qualitative case study (Creswell & Poth, 2018).

Recruitment

Thirty-seven participants were asked to participate in the interview for the project. Out of those thirty-seven, six agreed. The six participants were three station facilitators and three teachers who participated in SCMDP in 2019. Saturation of data collection was achieved through this case study (Creswell & Poth, 2018). Participants participated in one semi-structured interview lasting no longer than 30 minutes, conducted over Zoom.

Interview guide

Based on the literature about the Chesapeake Bay Agreement and experiential learning, two interview guides were constructed based on the A Priori Proposition Tables (see Appendix 2) (Kolb, 1983b). The interview guide for the station facilitator participant group (see Appendix 3) was developed to gain insight on who the station facilitators are and how they came to their position, their level of understanding on the various topics that create the foundation of the SCMDP, and how they designed their respective station's lesson plans. The interview guide for the teacher participant group (see Appendix 4) was developed to gain insight on the teacher's background and how long they have participated in SCMDP, their level of understanding on the various topics that create the foundation of the SCMDP. The interview guide for the teacher participant group, also included questions on how the teachers prepare their students for a successful SCMDP trip and what they did upon returning to their classroom to debrief from the student's field trip. The interview guides were similar and considered the different roles that each group plays in the part of facilitating the SCMDP for fourth-grade students.

Spotsylvania County Schools

In 2019, there were 17 elementary schools in Spotsylvania County. To gather a broad range of teacher experience, the project researcher broke the schools down into four divisions. Schools that are considered "above average," "average," "below average," and "Title I schools." The first three divisions (above average, average, below average) are based on the school's overall test scores, academic progress, and equity overview provided by GreatSchools profile data sources and information. The Academic Progress Rating is a growth proxy rating based on a model using unmatched cohorts, or school-level data rather than student-level data. The Academic Progress Rating was created using 2018 and 2019 Virginia Standards of Learning

(SOL) and End-of-Course data from VDOE, and 2018 demographic data from NCES (GreatSchools, 2020). The Test Score Rating examines how students performed on standardized tests compared with other schools in the state. The Test Rating was also created using 2019 Virginia Standards of Learning data from VDOE, and End-of-Course data (GreatSchools, 2020). The Equity Overview Rating looks at how well this school is serving the needs of its disadvantaged students relative to all its students, compared to other schools in the state, based on test scores provided from the VDOE. The Equity Rating was created using 2018 demographic data from NCES, using 2019 Virginia Standards of Learning data End-of-Course data from VDOE (GreatSchools, 2020). Using the GreatSchools criteria, there were three elementary schools that were above average, nine elementary schools that were average, and five elementary schools that were below average. Additionally, there were nine elementary schools that were a listed as a Title I School by the VDOE (Virginia Department of Education, 2019a). A Title I school is classified as a school with a high number or percentage of low-income students that receive financial assistance under the Elementary and Secondary Education Act, as amended by Every Student Succeeds Act to support instructional programs and help ensure that all children meet challenging state academic standards (U.S. Department of Education, 2018).

Procedures/Process

After agreeing to participate, the six participants were interviewed in a one-on-one setting over Zoom to comply with the social distancing requirements set forth by the COVID-19 pandemic. Three station facilitators and three fourth -grade teachers participated in the interview. Participants agreed to a time and the Zoom link was sent prior to the meeting. Participants understood that they could stop or opt out of the interview at any time.

Station Facilitator's Participant Profiles

Station Facilitator E

Station Facilitator E has a Bachelor's Degree in Agronomy and a Master's Degree in Pest Management from a four-year institution. Station Facilitator E worked as the Agricultural and Natural Resources, Crop & Soil Extension Agent for Virginia Cooperative Extension. Station Facilitator E has been attending SCMDP for seven years at the Agricultural Station.

Station Facilitator G

Station Facilitator G studied at a Community College where they earned an Associate's Degree, before transferring to a four-year institution to study Forest Management. They are employed at the Virginia Department of Forestry. Station Facilitator G has participated in SCMDP for 14 years as a Station Facilitator at the Forestry Station.

Station Facilitator O

Station Facilitator O has a Bachelor's Degree in Environmental Geology from a four-year institution. Station Facilitator O first worked for the Virginia State Parks as an Environmental Educationalist and participated in SCMDP for two years as a co-instructor for the Wetlands Ecology Station. Station Facilitator O now works as the Education Coordinator with Tri County/City Soil & Water Conservation District and is the Station Facilitator for the Wetlands Station. Station Facilitator O was also part of a dissolved committee that met with the teachers to revamp some of the stations to meet the updated science SOLs.

4th Grade Teacher's Participant Profiles

Teacher F

Teacher F received their Bachelor's Degree in Psychological Sciences and a Master's Degree in Elementary Education from a four-year institution. Teacher F is a fourth-grade teacher at an above average elementary school in Spotsylvania County and has attended SCMDP for two years.

Teacher I

Teacher I received their Bachelor's Degree in Elementary Education from a four-year institution. Teacher I worked as a Third Grade Teacher for eight years before moving up to Fourth Grade and has been a Fourth-Grade teacher for 25 years at an average elementary school in Spotsylvania County and has attended SCMDP for 20 years.

Teacher K

Teacher K received their Bachelor's Degree in Elementary Education and two Master's Degrees, one in General Education and one in Instructional Leadership, from two four-year institutions. Teacher K is a Fourth Grade General Education Teacher at a below average elementary school in Spotsylvania County and has attended SCMDP for eight years.

Results

After the six interviews were conducted, full transcripts were generated using Otter.ai (Otter.ai, 2020) and coded using open coding, focused coding, and then putting the codes into themes. Using an inductive process allowed the project researcher to understand the experience that each of the participants shared from their viewpoint (Creswell & Poth, 2018). The baseline

understanding of what the station facilitators viewed as important in relation to the SCMDP and how they prepared their stations, will impact the way that the SCMDP coordinator works with the station facilitators and their organization to increase the effectiveness of their instructional delivery method. Likewise, the baseline understanding of what the teachers viewed as important in relation to the SCMDP and how they prepare and debrief their students from the SCMDP, will impact the way that the SCMDP coordinator works with the teachers and school system.

Ultimately, the results from both participant groups will be used to create a more educational program for the students.

The four major themes were:

1. SCMDP Overall Goal
2. Stations Design by Station Facilitators
3. Background Knowledge
4. Teachers Preparation and Review of the SCMDP with Students

Theme 1: SCMDP Overall Goal

Both groups felt that the goal of SCMDP was to educate children and meet the SOL's set forth by the Commonwealth of Virginia. While the responses from the two groups varied, the very basic goal was "educate children in the Agriculture and Natural Resources of Virginia." Both groups agreed that the goal was "to introduce the fourth graders of Spotsylvania to the field of natural resources, and to help the school system meet their science and natural resources SOLs along the way," as best stated by Station Facilitator G. The saturated response from the fourth-grade teachers was that the SCMDP was a great experience for the students to be outside, getting

hands-on experience with nature while getting familiar with the “Virginia Studies” SOLs that they teach later throughout the school year.

Theme 2: Station Design by Station Facilitators

Facilitators recalled being new to their positions and that planning the station took “a year or two to figure out, that part of the goal of SCMDP was to help schools meet some of their SOLs.” In the past two to three years, the overall sentiment from the three facilitators was “there is not a lot of planning” done prior to the event and they took what they used in the year prior and used it again. Station Facilitator G worked with another employee when they were new to their position by setting up a trail walk while the other station facilitators learned from others, or took the time to revamp their station using feedback from students from previous years “continue to build on those ideas.” Station Facilitator O stated that they start with a brief introduction about what is a watershed and a little bit about wetlands but emphasized that they don’t want to spend too much time talking, but rather get the students excited and started on their scavenger hunt. Then at the end of the student’s time to scavenger hunt, they have a brief conclusion where the students “teach” Station Facilitator O what they learned through their scavenger hunt. Two out of the three station facilitators acknowledged that they didn’t always keep environmental literacy, meaningful watershed educational experience, or experiential learning in mind when they were planning and facilitating their respective station’s lesson plans, and both station facilitators admitted that they thought the only goal of SCMDP was to address a few of the students SOLs.

Theme 3: Background Knowledge

Participants were asked a variety of questions about their background knowledge on experiential learning, the CBWA, and the purpose that the MWEE was seeking to fulfill for the fourth-grade students. The purpose of these questions was for the project researcher to gain a better

understanding of what the station facilitators and fourth-grade teachers knew or didn't know, which would inform the project researcher of what information both groups of participants needed to make the SCMDP more successful and align with the goals of the program.

Chesapeake Bay Watershed Agreement

All participants were asked if they had any knowledge or exposure to the CBWA. If they had previous knowledge or exposure, they were then asked if they could give their definition, and then were asked if they were aware that there was an environmental literacy component to the Act. Out of the six participants, all three of the station facilitators had a shared understanding of the agreement and the purpose it served to help clean up the Chesapeake Bay and required different enterprises to assist with the cleanup, and one station facilitator knew that there was an environmental literacy component. Two of the fourth-grade teachers were familiar with the CBWA, but were unaware of the environmental literacy component. Station Facilitator O explained their understanding of the CBWA as:

“A way where multiple acting parties within a watershed, in this case, the Chesapeake Bay, whether that is homeowners, whether that is students, agencies, organizations that have come together. And they (those acting parties) are actively doing what they can to help protect the Chesapeake Bay watershed with whatever local waterways are near them.”

Environmental Literacy

The six participants were asked to explain what their working definition of environmental literacy was. Out of the six participants, the three fourth-grade teachers and one station facilitator were familiar and could “take an educated guess,” while the remaining two station facilitators were able to give accurate definitions. Station Facilitator O gave a succinct definition:

“anyone learning about environmental sciences and their ability to fully comprehend what it is that they’re learning, on the topic of environment. Not to just regurgitate information, but fully understand how it relates to their life, what actions they can take, and what they can do to help out.”

The remaining station facilitator and three fourth-grade teachers said something similar to Teacher K who stated “it's a publication that somebody has made so those students will become literate in their environment.” This lack of understanding of the goals of environmental literacy aligns with the understanding of why the station facilitators did not keep these factors in mind when planning and facilitating their respective stations.

Meaningful Watershed Educational Experience

All six participants were asked to share their perception of the MWEE. Five out of the six participants were familiar with MWEE and the sixth participant was extremely knowledgeable. The station facilitators all had and shared comprehensive descriptions of the program. Station Facilitator O was able to accurately define MWEE and went on to share that the SCMDP served as the second phase of an MWEE. Compared to Station Facilitator O, the other two stations facilitators were familiar with MWEE but did not have a clear understanding of the various components of the program. The three fourth-grade teachers had heard of MWEE, but only because they partnered with the Friends of the Rappahannock to put on an MWEE for their students.

Experiential Learning

All six participants were asked to describe what they thought experiential learning was as an educational tool for student learning. Two of the station facilitators and one of the teachers were

able to give a working definition. These three participants described it as “hands-on learning, outside of just the textbook, outside of reading, but doing something, whether it’s a project, or getting involved in something.” The other two fourth-grade teachers and station facilitator were unfamiliar with the term.

Theme 4: Teachers Preparation and Review of the SCMDP with Students

The project researcher asked the fourth-grade teacher participants questions about how they prepared the students for the SCMDP to ensure that the students understood what the program was in advance of the field trip. All three teachers stated that the bulk of the preparation that they do prior to attending the SCMDP was to talk with the students about the expectations of behavior, gathering volunteers, and sending home permission slips. Two out of the three teachers discussed that “some sort of background knowledge” was shared with students before they attended SCMDP. Vocabulary like agricultural products, wetlands, and other core information was included to promote familiarity before they left the school. A major concern the teachers shared revolved around outdated programming in relation to the SOL’s. Teachers mentioned:

“it is continually getting harder to give background knowledge to the students due to the fact that the school curriculum has changed since the beginning of the SCMDP, but it seems that the stations lessons plans and activities have not adapted to keep up with the school’s changing curriculum.”

When discussing their return to the school and debriefing the students, all three teachers admitted that there was minimal reflection of the knowledge the students gained. All three teachers stated that they usually had some sort of discussion with the students about what they learned and experienced on the field trip, but, the only time the teachers and students would apply the

knowledge gained was later throughout the school year when the teachers would recall information presented at the SCMDP their field trip.

Discussion

The purpose of this project was to collect baseline information on what knowledge station facilitators and teachers had about the SCMDP, and MWEE programs, and how it related to educational topics under the environmental literacy umbrella using the experiential learning theory. Since the program began in 2001, changes to the Virginia SOL's have continued but the stations that students visited have not, further emphasizing the need to understand what each participant group understood about the program. However, after interviewing three station facilitators and three fourth-grade teachers, it was made evident to the project researcher that the participants did not have a shared set of knowledge about the program, their purpose, and the goal of the outreach for students.

How do the station facilitators design the experiences for meaningful student engagement?

Each of the three station facilitators had different methods of how they designed their station's lesson plans. However, two out of the three station facilitators were not successfully using all the of foundational basics of the SCMDP, such as using the experiential learning theory, and creating a lesson to fit within the second phase of a MWEE project. However, all three facilitators were actively teaching towards the environmental literacy component of the CBWA. Station facilitators may be using outdated SOLs (Virginia Department of Education, 2019b) when presenting their station's lesson plan, as their plans were created years ago and has only slightly been adjusted over the years.

What support and/or resources do the station facilitators need to enhance the experiential learning experience?

The project researcher refrained from asking the station facilitators directly what resources and support they thought they needed. The rationale was because it would assume that they needed or wanted support which may not be accurate. Instead, when asking the station facilitators what knowledge they had in experiential learning, MWEEs and environmental literacy, the project researcher was able to infer that, two out of three station facilitators were not fully aware of the structure and foundation of the SCMDP, therefore, they could not convey what they needed if they did not understand the definition of experiential learning. Two out of three station facilitators were able to describe how they were teaching environmental literacy but not aware that this was important and imposed on the schools from CBWA. The remaining station facilitator knew that the CBWA put an environmental literacy requirement on the schools and that along with the environmental literacy act, it also suggested that every student participate in at least one meaningful watershed educational experience through “elementary, middle, and high school.” They therefore understood that SCMDP was aiming to fulfill the second phase of the MWEE for the elementary schools, whereas the other two station facilitators were unaware of that aspect of the SCMDP.

Two out of three station facilitators had heard the term experiential learning, but only one of them was working to apply it to their station’s lesson plan. Therefore, with all the knowledge gained by the project researcher about what the three station facilitators knew and understood, the project researcher inferred that taking a step back and working with the station facilitators directly to understand why the SCMDP was developed, the primary purpose and goal of the SCMDP, and how to effectively use experiential learning when creating their station’s lesson

plan, the project researcher believes that those resources and tools will be better served in the immediate future to ensure that everyone is working together for the same common goal.

How do teachers prepare students prior to attending the program?

Only one fourth-grade teacher could accurately list all four organizations that work to facilitate the SCMDP stations. The remaining two participants were able to both identify the Lake Anna State Park as facilitating one of the stations. When preparing the students to attend SCMDP, the teachers briefly go over some of the vocabulary that the students will hear from the various station facilitators so that the students have a basic understanding of what is being presented. Otherwise, the teachers spend more time going over the appropriate field trip behavior, securing volunteers, and sending home permission trips for the students.

How do teachers apply the experience after they've returned to the classroom within their classroom curriculum?

The project researcher was informed by all three teacher participants that they don't start teaching the students the "Virginia Studies SOL's" that are touched on at SCMDP until later in the fall semester and early in the spring semester. The teachers shared that after returning to the school, they do a short debrief activity with the students, even as short as "simply having the students tell us one thing they learned from SCMDP," and they do not review the information gained learned from the SCMDP until they start teaching those particular subjects, at which point, they simply remind the students of the field trip as a precondition to their lesson plan.

What support and/or resources do the teachers need to enhance the experiential learning experience?

To remain consistent between the two participant groups, the project researcher refrained from asking the teachers directly what resources and support they thought they needed. Through the same questions asked of the station facilitators to the teachers, the project researcher was able to infer that, at no fault of their own, all three teachers were not fully aware of the structure and foundation of the SCMDP and could not convey what they needed if they did not understand what the program was or how to integrate experiential learning into their teaching. The three teacher participants all recognized that the students were gaining educational content in environmental literacy, but none of the teachers were aware that the reason the SCMDP was teaching environmental literacy was to achieve the requirement set forth by the CBWA.

Likewise, the three teachers had all heard and were aware of MWEE projects but were not aware that the SCMDP was aiming to achieve the second phase of an MWEE project for them, and all they had to do was finish it out for the students to successfully complete their MWEE project in elementary school. Instead, the teachers all utilized the Friends of the Rappahannock to come into their classrooms and present the whole MWEE project to their students from start to finish. Finally, only one of the teacher participants knew about experiential learning theory, but not aware that experiential learning theory was the learning theory that was being used to facilitate the SCMDP, nor that they had an obligation to finish the experiential learning model (Kolb, 1983b) when they returned to the school with the students.

Recommendations

Research Recommendations

Future research could include an investigation on future iterations of the MWEE in classrooms with teachers who were provided professional development, tools, and resources. An additional recommendation includes evaluating if the station facilitators modify their stations after receiving professional development before the next program runs in 2021. Both groups should be followed up with about their perceptions of the updated resources and understanding of experiential learning theory.

Practitioner Recommendations

Practitioners in the field conducting educational outreach should consider providing annual professional development to partners and stakeholders to remind them of their program's foundation, offer basic support, and provide updated information on SOL's or other education related changes. Practitioners can also facilitate trainings on new or improved teaching methods tailored to external partners and stakeholders. Providing enhanced trainings to schools that participate in the educational outreach, making sure new teachers are informed after they are hired, and serving as a liaison between the external partners and the schoolteachers are all ways to ensure that all the goals of the teachers are being met, and those goals align with the program's goals.

Upon further examination when reviewing the Agricultural Station, the project researcher believes that it would be in the best interest of the SCMDP to include a section in the station's lesson plan that discusses how maintaining healthy soil and water recourse through careful stewardship (Virginia Department of Education, 1998). It was also made evident through this project research, that the VDOE has not published a new Agricultural Resource Guide since

1998. This led the project researcher to believe that providing the fourth-grade teachers with an annual resource guide on Agriculture would be beneficial, as well as ensuring that the station facilitator for the Agricultural Station has the most current information and is staying abreast of the current SOLs for Agriculture, Natural Resources and Environmental Literacy which is combined into one unit under the VDOE (Virginia Department of Education, 2020). The Chesapeake Bay Foundation acknowledges that Virginia continues to lose farms because of sprawling suburban development, diminishing profits, increase in the cost of fuel and other operational expenses, and a steep decrease in the share of consumer food dollars received by farmers (Chesapeake Bay Foundation, 2020b). Conserving farms and open space is critical because these lands serve as precious natural filters for the Chesapeake Bay Watershed.

Agricultural lands also contribute nitrogen, phosphorus, and sediment pollution to the rivers and streams that feed into the Chesapeake Bay Watershed (Chesapeake Bay Foundation, 2020b).

The project researcher also noted similar conclusions for the Forestry Station that the station facilitators should enhance their lesson plans to include how the forest and trees play a central role in keeping the Chesapeake Bay clean in their lesson plan. It was also noted that the VDOE has a more recent publication about Virginia's forests, but it pertains primarily to the forest being a renewable natural resource for Virginia including a partial list of products that are produced from trees. In the current resource provided by the VDOE, it has a very short section about how the forest protects the watershed (Virginia Department of Education, 2016a). It is important to the SCMDP that station facilitators for the Forestry department highlight the benefits of the forest to the Chesapeake Bay Watershed, from capturing and filtering out pollution before it enters our waterway to alleviating flooding by stabilizing the soil, trees provide countless health, economic, and environmental benefits (Chesapeake Bay Foundation, 2020c). Trees can thrive in

urban, suburban, and rural locations, providing unique benefits to each setting; but to save the Chesapeake Bay, forests need to flourish throughout the watershed (Chesapeake Bay Foundation, 2020c). When reviewing the Wetland Ecology Station, the project researcher noted that the Wildlife Resource provided by the VDOE was published in 2018 but has no references to the Chesapeake Bay Watershed. Like the other stations, the project researcher believes it would benefit the SCMDP students if the station facilitator tied their lesson plan back the Chesapeake Bay Watershed to highlight how it provides food, water, protection, and nesting/nursery areas to more than 3,600 species of plants and animals. Fostering a healthy habitat from the hardwood forests of the Appalachian Mountains to the saltwater marshes of the Bay is vital to sustaining the health of the Chesapeake Bay Watershed and the life that depends on it (Chesapeake Bay Foundation, 2019). Therefore, the project researcher believes it would be more useful for the station facilitator to discuss with the students the threats such as increased pollution, development and climate change; as well as some of the restoration efforts and how the students can get involved.

Finally, when reviewing the Wetland Station, the project researcher noted that the most current water resources provided by the VDOE was also from 1998 and has limited references to the Chesapeake Bay Watershed, and only references how things flow together. However, it is important for the station facilitators to make the students aware that wetlands are a critical component to the protection and restoration of the Bay by teaching how the Chesapeake Bay receives half of its water from the Atlantic Ocean and the other half from an intricate network of hundreds of thousands of miles of creeks, streams, and rivers and 1.5 million acres of wetlands. Furthermore, wetlands soak up excess water from storm surges, helping to mitigate flooding in surrounding areas, trap polluted runoff, slowing the flow of excess nutrients, sediments, and

chemical contaminants in the Bay, and provide unique and often delicate habitat for fish, birds, mammals, and invertebrates (Chesapeake Bay Foundation, 2020d).

Limitations

There were several limitations to this study. While this was informative to this specific educational outreach program, results may not be generalizable across a larger sample or a different program (Creswell & Poth, 2018). There were factors that were out of the project researchers' control. These included but were not limited to hiring of personnel at the organizations and schools, the language in the CBWA, and the current form that the MWEE is. With this information, incremental work can be done to update personnel who work on this program.

Conclusions

Since the program began 19 years ago with the acceptance of the CBWA (Zint et al., 2002), turnover of personnel at the participating organizations and the teachers in the schools has continued but continuing education had not kept pace. The SCMDP coordinator operated under the assumption that the station facilitators and the fourth-grade teachers knew the foundation of the SCMDP and everyone was following the guidelines set forth by the Agreement. Station facilitators were not aware that they were supposed to be using the experiential learning theory (Kolb, 1983b) when creating their station lesson plan. They were not aware that their station lesson plan was supposed to fit into the second phase of an MWEE project. They were aware that they were teaching environmental literacy (Virginia Department of Education, 2019b), but they

were not aware that they were teaching environmental literacy because it had been imposed on the schools through the CBWA.

The fourth-grade teachers were unable to articulate what experiential learning was and unaware of their own responsibilities related to the program. They did not know that they were supposed to continue teaching content in the classroom once they returned from the field trip using more experiential learning techniques. They did not know that they were responsible for finishing out a MWEE with their students, using the SCMDP as the second phase of their MWEE project with their students.

It was made evident through this research project that continuing professional development is necessary as personnel change and the SOL's evolve to maintain the rigor of educational outreach programming. Creating professional development and working with the organizations and teachers about station design, experiential learning, lesson planning, and follow up would all create a more well-rounded curriculum for the fourth-grade students. Meeting with the teachers to discuss how they might prepare their students prior to attending the SCMDP and suggesting how they use the last two phases of the experiential learning model to finish out a strong MWEE project for their students would be one way to make the messaging consistent. Working with the teachers and providing the resources and tools necessary for the teachers to complete a MWEE project with their students would ensure that the messaging was consistent and remove the burden from the teachers. Conducting this work and using the data to identify what kind of professional development would be needed for each group will be necessary assess the student experience, the station facilitators preparation, and the teachers in class programming before and after the field trip.

All of this goes to show that there is substantial room for improvement in the station's lesson plans to align with the goals of the SCMDP, by discussing importance of cleaning, restoring and maintaining the health of the Chesapeake Bay Watershed. It is the SCMDP coordinator's job to work directly with each of the station facilitators to ensure that they fully understand scope of the SCMDP in 2021, and assist them in enhancing their lesson plans. It is also important that this "new" information be shared with the fourth-grade teachers, while supporting them through the ELM and completion of a full MWEE project with their students. The SCMDP has a lot of potential to be a strong and valuable learning experience for the fourth-grade students of Spotsylvania County, with the changes recommended by the project researcher.

References

- Behrendt, M., & Franklin, T. (2014). A review of research on school field trips and their value in education. *International Journal of Environmental & Science Education*, 9(3), 235–245. ERIC. <https://doi.org/10.12973/ijese.2014.213a>
- Branscome, J. (2017, November 28). *Virginia buys part of Oakley Farm in Spotsylvania to create a 2,900-acre wildlife management area* (The Free Lance-Star, Ed.). The Free Lance-Star; The Free Lance-Star. https://fredericksburg.com/news/local/virginia-buys-part-of-oakley-farm-in-spotsylvania-to-create-a-2-900-acre-wildlife/article_a2fffd7-4387-50fe-9bac-69adbcf30f2e.html
- Burriss, K., & Burriss, L. (2011). Outdoor play and learning: policy and practice. *International Journal of Education Policy and Leadership*, 6(8), 1–12. ERIC. <https://doi.org/10.22230/ijepl.2011v6n8a306>
- Chesapeake Bay Foundation. (2019). *Healthy habitat is crucial for a healthy watershed*. Chesapeake Bay Foundation | Habitat Degradation; Chesapeake Bay Foundation. <https://www.cbf.org/issues/habitat/>
- Chesapeake Bay Foundation. (2020a). *2014 Chesapeake Bay watershed agreement*. Www.Cbf.org; Chesapeake Bay Foundation. <https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/2014-chesapeake-watershed-agreement/index.html#:~:text=Specifically%2C%20the%20the%202014%20Chesapeake>
- Chesapeake Bay Foundation. (2020b). *Farmers play a critical role in keeping our waters clean*. Chesapeake Bay Foundation | Agriculture; Chesapeake Bay Foundation. <https://www.cbf.org/issues/agriculture/>
- Chesapeake Bay Foundation. (2020c). *Trees play a crucial role in keeping our waters clean*.

Chesapeake Bay Foundation | Forest Loss; Chesapeake Bay Foundation.

<https://www.cbf.org/issues/forest-loss/index.html>

Chesapeake Bay Foundation. (2020d). *Wetlands protection*. Chesapeake Bay Foundation |

Wetlands Protection; Chesapeake Bay Foundation. <https://www.cbf.org/issues/wetlands/>

Chesapeake Bay Management Program. (2018). Environmental literacy planning outcome management strategy. In *Chesapeake Bay Program*. Chesapeake Bay Program.

<https://www.chesapeakebay.net/documents/22071/2018->

[2019_environmental_literacy_planning_management_strategy.pdf](https://www.chesapeakebay.net/documents/22071/2018-2019_environmental_literacy_planning_management_strategy.pdf)

Chesapeake Bay Program. (2020a). *Chesapeake progress - student*.

www.chesapeakeprogress.com; Chesapeake Bay Program.

<https://www.chesapeakeprogress.com/engaged-communities/student>

Chesapeake Bay Program. (2020b). *Chesapeake Progress - Home*.

www.chesapeakeprogress.com; Chesapeake Bay Program.

<https://www.chesapeakeprogress.com/>

Chesapeake Bay Program. (2020c). *Environmental literacy planning | Chesapeake Bay program*.

Chesapeake Bay Program.

https://www.chesapeakebay.net/managementstrategies/strategy/environmental_literacy_p

[lanning](https://www.chesapeakebay.net/managementstrategies/strategy/environmental_literacy_planning)

Chesapeake Bay Program Education Workgroup. (2016). *Meaningful watershed educational experiences*. Chesapeake Bay Program.

https://www.chesapeakebay.net/documents/Revised_MWEE_definition_-_FINAL.pdf

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry & research design: choosing among five approaches* (4th ed.). Sage.

- Crippen, K. J., & Archambault, L. (2012). Scaffolded inquiry-based instruction with technology: A signature pedagogy for STEM education. *Computers in the Schools*, 29(1–2), 157–173. Taylor & Francis Online. <https://doi.org/10.1080/07380569.2012.658733>
- DeWitt, J., & Storksdieck, M. (2008). A short review of school field trips: Key findings from the past and implications for the future. *Visitor Studies*, 11(2), 181–197. <https://doi.org/10.1080/10645570802355562>
- Diem, K. G. (2001). Leader training series. In *4-H / Positive Youth Development* (pp. 1–8). Rutgers Cooperative Extension. <https://4-h.org/wp-content/uploads/2016/02/Learn-by-Doing-Approach.pdf>
- GreatSchools. (2020, July). *GreatSchools Academic Progress Rating*. GreatSchools.org; GreatSchools.org. https://www.greatschools.org/virginia/fredericksburg/1649-Chancellor-Elementary-School/#Academic_progress
- Greene, J. P., Kisida, B., & Bowen, D. H. (2014). The educational value of field trips: taking students to an art museum improves critical thinking skills, and more. *Education Next*, 14(1), 78–86. Gale.
- Kenney, J. L., Militana, H. P., & Donohue, M. H. (2003). Helping teachers to use their school's backyard as an outdoor classroom: A report on the watershed learning center program. *The Journal of Environmental Education*, 35(1), 18–26. Taylor & Francis Online. <https://doi.org/10.1080/00958960309600591>
- Kolb, D. A. (1983a). *Experiential learning: Experience as the sources of learning and development*. (1st ed., p. 38). Prentice Hall.
- Kolb, D. A. (1983b). *Experiential learning: Experience as the sources of learning and development*. (1st ed.). Prentice Hall.

Lidholm, E. (2019, September 19). *Virginia announces its top 20 agricultural products*.

Www.Vdacs.Virginia.Gov; Virginia Department of Agriculture and Consumer Services.

<https://www.vdacs.virginia.gov/press-releases-190919-top-ag-products.shtml>

Lieberman, G. A., & Hoody, Li. L. (1998). Using the environment as an integrating context for learning. In *State Education and Environment Roundtable* (pp. 1–16). Science Wizards.

<http://www.seer.org/extras/execsum.pdf>

Merriam, S. B., & Bierema, L. L. (2014a). *Adult learning : Linking theory and practice*. Jossey-Bass, A Wiley Brand.

Merriam, S. B., & Bierema, L. L. (2014b). *Adult learning : Linking theory and practice* (p. 108).

Jossey-Bass, A Wiley Brand.

National 4-H Council. (2019). *4-H programs - STEM, health, agriculture & civic engagement*. 4-

H | Positive Youth Development; National 4-H Council. <https://4-h.org/parents/programs-at-a-glance/>

National 4-H Learning Working Group. (2016). Experiential learning model. In *United States Department of Agriculture National Institute of Food and Agriculture* (pp. 1–2). United States Department of Agriculture National Institute of Food and Agriculture.

<https://nifa.usda.gov/sites/default/files/resource/Experiential-Learning-Model.pdf>

National Research Council. (2000). Inquiry and the National Science Education Standards: A Guide for Teaching and Learning. In *www.nap.edu* (p. 222). National Academies Press.

<https://www.nap.edu/catalog/9596/inquiry-and-the-national-science-education-standards-a-guide-for>

Otter.ai. (2020). *Otter voice meeting notes*. Otter Voice Meeting Notes. <https://otter.ai>

Panasan, M., & Nuangchalerm, P. (2010). Learning outcomes of project-based and inquiry-based

- learning activities. In *ERIC* (Vol. 6, pp. 252–255). Science Publications.
<https://eric.ed.gov/?id=ED509723>
- Ramachandiran, M., & Dhanapal, S. (2016). Evaluation of the effectiveness of field trips in the teaching and learning of bioscience. In *Assessment for Learning within and beyond the Classroom* (pp. 159–173). Springer Science+Business Media.
- Roberts, G. (2006). A philosophical examination of experiential learning theory for agricultural educators. *Journal of Agricultural Education*, 47(1), 17–29.
<https://doi.org/10.5032/jae.2006.01017>
- Sprague, S., Green, A., Drennan, T., Schabow, K., O’Neal, E., & Pizzala, A. (2019). An educator’s guide to the meaningful watershed educational experience (MWEE). In *Virginia Department of Education / Environmental Literacy* (pp. 1–40). Virginia Department of Education.
baybackpack.com/assets/documents/Educators_Guide_to_MWEE_Download.pdf
- Sukavejworakit, K., Promsiri, T., & Virasa, T. (2018). Increasing entrepreneurial intention with the application of experiential learning theory: An innovative learning method and empirical test. *Asia-Pacific Social Science Review*, 18(2), 1–15. EBSCO.
<http://web.a.ebscohost.com.ezproxy.lib.vt.edu/ehost/pdfviewer/pdfviewer?vid=2&sid=ad2f5f51-36f2-404f-ae5b-759ac1c6bfb0%40sessionmgr4007>
- The University of Tennessee Institute of Agriculture. (2019). *Experiential Learning Model* [Digital]. <https://4h.tennessee.edu/experiential-learning/>
- Thomas, T., & Gentzler, K. (2013). The imperative of education. *Journal of Leadership Studies*, 6(4), 66–71. Wiley Online Library.
- United States Department of Agriculture - National Institute of Food and Agriculture. (2014).

Cooperative Extension History / National Institute of Food and Agriculture. United States Department of Agriculture - National Institute of Food and Agriculture; United States Department of Agriculture - National Institute of Food and Agriculture.

<https://nifa.usda.gov/cooperative-extension-history>

United States Department of Agriculture Forest Service. (2012). *Conservation education - about conservation education*. United States Department of Agriculture Forest Service; United States Department of Agriculture.

<https://www.fs.usda.gov/main/conservationeducation/about>

United States Department of Agriculture National Institute of Food and Agriculture. (2019). *4-H Learning* / National Institute of Food and Agriculture. United States Department of Agriculture National Institute of Food and Agriculture; United States Department of Agriculture. <https://test.nifa.usda.gov/program/4-h-learning>

U.S. Department of Education. (2018, October 24). *Title I, Part A Program*. Prepare My Child for School; U.S. Department of Education.

<https://doi.org/http://www.ed.gov/programs/titleiparta/index.html>

VA Assn of Soil & Water Conservation Districts. (2020a). *Meaningful watershed educational experience*. Virginia's Soil & Water Conservation Districts; VA Assn of Soil & Water Conservation Districts. <https://vaswcd.org/mwee>

VA Assn of Soil & Water Conservation Districts. (2020b). *VASWCD educational foundation*. Virginia's Soil & Water Conservation Districts; VA Assn of Soil & Water Conservation Districts. <https://vaswcd.org/fndtnmission>

Virginia Department of Agriculture and Consumer Services. (2020). *Agriculture Facts and Figures*. Virginia Department of Agriculture and Consumer Services; Virginia

Department of Agriculture and Consumer Services.

<https://www.vdacs.virginia.gov/markets-and-finance-agriculture-facts-and-figures.shtml>

Virginia Department of Conservation and Recreation. (2018). Your Conservation Connection

Land Conservation. In *Virginia Department of Conservation and Recreation* (p. 2).

Virginia Department of Conservation and Recreation.

<https://www.dcr.virginia.gov/document/dcr-bro.pdf>

Virginia Department of Education. (1998). Virginia's natural resources education guide |

agriculture resources. In *Virginia Department of Education | Virginia's Natural*

Resources Education Guide. Virginia Department of Education.

https://www.doe.virginia.gov/instruction/environmental_literacy/va-natural/docs/vnreg-ag-resource.pdf

Virginia Department of Education. (2016a). Virginia natural resources education guide |

Virginia's forest resources. In *Virginia Department of Education | Virginia Naturally*.

Virginia Department of Education.

https://www.doe.virginia.gov/instruction/environmental_literacy/va-natural/docs/vnreg-forests-forest-resources-2016.pdf

Virginia Department of Education. (2016b). Virginia's Water Resources. In *Virginia Department*

of Education | Virginia Naturally (pp. 1–8). Virginia Resource-Use Education Council.

www.doe.virginia.gov/instruction/environmental_literacy/va-natural/docs/vnreg-water-resource.pdf

Virginia Department of Education. (2019a). 2020-2021 Title I Schools. In *Virginia Title I School*

Listings (p.

http://www.doe.virginia.gov/statistics_reports/accreditation_federal_reports/federal_acc

untability/reports/2020-21/title-i-schools-2020-2021.xlsx).

http://www.doe.virginia.gov/federal_programs/esea/title1/part_a/index.shtml#abo

Virginia Department of Education. (2019b). *Environmental Literacy*. Virginia Department of Education; Virginia Department of Education.

http://www.doe.virginia.gov/instruction/environmental_literacy/index.shtml#:~:text=Environmental%20Literacy%20%E2%80%93%20Having%20the%20knowledge

Virginia Department of Education. (2019c). *Virginia Naturally*. Virginia Department of Education; Virginia Department of Education.

http://www.doe.virginia.gov/instruction/environmental_literacy/va-natural/index.shtml

Virginia Department of Education. (2019d). Virginia's natural resources education guide. In *Virginia Department of Education*. Virginia Resource-Use Education Council.

www.doe.virginia.gov/instruction/environmental_literacy/va-natural/index.shtml

Virginia Department of Education. (2020). *VDOE | environmental literacy*. Virginia Department of Education | Environmental Literacy.

https://www.doe.virginia.gov/instruction/environmental_literacy/index.shtml

Virginia Department of Environmental Quality. (2017). *Meaningful Watershed Educational Experience (MWEE) Resources*. Virginia Department of Environmental Quality; Virginia Department of Environmental Quality.

<https://www.deq.virginia.gov/ConnectWithDEQ/EnvironmentalInformation/MeaningfulWatershedEducationalExperiences.aspx>

Virginia Department of Forestry. (2014). Economic benefits of the forest industry in Virginia. In *Economic Information on Forestry*. Virginia Department of Forestry.

<https://www.dof.virginia.gov/forestry/benefits/index.htm>

- Virginia Department of Wildlife Resources. (2020). *Oakley Forest WMA*. Virginia Department of Wildlife Resources. <https://dwr.virginia.gov/wma/oakley-forest/>
- Virginia Farm Bureau Mutual Insurance Company. (2019). *Agriculture Facts | Virginia Farm Bureau*. Virginia Farm Bureau | Agricultural Facts. <https://www.vafb.com/membership-at-work/agriculture/agriculture-facts>
- Virginia Polytechnic Institute and State University. (2020). *About Virginia Cooperative Extension*. Virginia Cooperative Extension; Virginia Polytechnic Institute and State University. <https://ext.vt.edu/about.html>
- Whitesell, E. R. (2016). A day at the museum: The impact of field trips on middle school science achievement. *Journal of Research in Science Teaching*, 53(7), 1036–1054. Virginia Tech Libraries. <https://doi.org/10.1002/tea.21322>
- Young, M., Murphy, J. W., & Caudill, E. (2008). Evaluating experiential learning activities. *Journal for Advancement of Marketing Education*, 13(Winter), 28–40.
- Zint, M., Kraemer, A., Northway, H., & Lim, M. (2002). Evaluation of the Chesapeake Bay Foundation's Conservation Education Programs. *Conservation Biology*, 16(3), 641–649. Virginia Tech Libraries. <https://doi.org/10.1046/j.1523-1739.2002.00546.x>

Appendix 1

Planning the One Day Field Trip

There are four agencies that come together to plan and facilitate SCMDP. These agencies are Virginia Cooperative Extension, Department of Forestry, Lake Anna State Park, and Tri-County Soil and Water Conservation District. Virginia Cooperative Extension facilitates the Agricultural Station, where students learn about the different agricultural commodities produced in Virginia, which region of Virginia primarily produces which agricultural commodity, and the length of time it takes to raise each commodity to its final product. The Department of Forestry facilitates the Forestry Station, where students learn how to identify the popular types of trees that grow in Virginia, how to take a tree cookie and identify the age of the tree, properly managing the forest and wooded acreage, and how to prevent forest fires. Lake Anna State Park facilitates the Watershed Ecology Station, where students learn about different animals that live in a watershed ecosystem, the definition of watershed, habitat, ecosystem, and the components that make up a habitat for an animal. Students then go through hands on stations where they identify animals from their pelts, skulls, living space, or food sources. The final station is Watershed Management facilitated by the Tri-County Soil & Water Conservation District. At this station, students learn about watershed, their impact on watershed, and the Chesapeake Bay Program. During the planning process of SCMDP, these four agencies meet to discuss the goals of SCMDP, the MWEE program, lesson learned from the previous year of SCMDP, and set a schedule that aligns with all four agencies' availability. Once the partnering meeting has happened, the Virginia Cooperative Extension (VCE) agent works with the Spotsylvania County Elementary Science Department Liaison to schedule the various field trips, to accommodate 120 – 160 students. Once the school groups have been set, the science department liaison works with the

principals of all 17 schools to work out the details of their scheduled trip. Once there is a confirmation from all the schools, the VCE Agent groups the designated school teachers into four groups, with 30 – 40 students per group. This helps alleviate logistical problems, allows the teachers and students to gather quickly once unloaded from the bus, travel to their stations efficiently, and increases the likelihood to start their first station on time.

In addition to working with the science department liaison, the VCE Agent is also working directly with the participating teachers to prepare the students for their day at the SCMDP. The information provided from the VCE Agent is intended to ensure that the students are prepared to receive the most benefit from the program. Some of the information provided by the VCE Agent addresses supplies and personal items that the students should bring that they are responsible for carrying in a backpack and basic information about each station, as well as the partnership with Oakley Farms. For example, Oakley Farms dates to 1777 in Spotsylvania land records. In 2017 the Commonwealth of Virginia bought 2,980-acres to establish a wildlife preserve called the Oakley Forest Wildlife Management Area (WMA) (Branscome, 2017). Which later became available to the public to use for a variety of outdoor recreational opportunities (Virginia Department of Wildlife Resources, 2020). The Oakley Forest WMA habitats consists of a mosaic of upland mixed hardwood and pine forests containing a few small areas of open fields, pastures, and old field habitats (Virginia Department of Wildlife Resources, 2020). Lastly, within the two-weeks prior to the schools attending their SCMDP, the VCE Agent offers to come in and present this basic information to the students before their trip to SCMDP.

After the schools and groups have been set, the programming can begin. Each partnering agency sets up, facilitates, and cleans up their station every day. If there is a cancelled date due to

weather, the VCE Agent will work with the science department liaison, school principal, bus department, and the partnering agencies to identify an alternative rain date.

An example of a SCMDP schedule would be that school buses from each elementary school arrives at Oakley Farms at 9:45AM. VCE staff meets the school buses, unloads the students, teachers and chaperones, assemble each class in their pre-assigned group, and send them on a mile walk from the farm to their designated station. The students attend each station for 35-minutes, with five-minute rotation breaks. Students attend two sessions in the morning, break for a 45-minute lunch, and then attend the remaining two sessions in the afternoon. After their final station, students walk the mile back to the buses at 1:00PM and return to school for the remainder of their school day.

Appendix 2

A Priori Table

Proposition	Supporting Literature	Research Question	Interview Questions
	<p>Participant Profile</p>		<p>What is your job title?</p> <p>What is your educational and/or professional background?</p> <p>Can you please describe your role with SCMDP?</p> <p>How long have you participated at SCMDP?</p> <p>How did you come to work for your current organization?</p> <p>Why do you participate with the SCMDP?</p>
<p>Station facilitators and fourth-grade teachers are aware of the Chesapeake Bay Agreement Act and its intent to improve Environmental Literacy.</p>	<p>The 2014 Chesapeake Bay Watershed Agreement contains an Environmental Literacy Goal that obligates states in the area to prepare every student with the knowledge and skills essential to responsibly preserve and reestablish their local watershed (Sprague, et al., 2019).</p>	<p>How do the station facilitators design the experiences for meaningful student engagement?</p> <p>How do teachers prepare students prior to attending the program?</p>	<p>If you were to explain your knowledge of the Chesapeake Bay Agreement Act, how do you describe it?</p> <p>How did you learn about the Chesapeake Bay Agreement Act and the environmental literacy goals of the schools?</p>

<p>Station facilitators and fourth-grade teachers understand the definition of environmental literacy.</p>	<p>The Virginia Department of Education (VDOE) defines environmental literacy as “having the knowledge, skills, and dispositions to solve problems and resolve issues individually and collectively that sustain ecological, economic, and social stability” (Virginia Department of Education, 2019b).</p>	<p>How do the station facilitators design the experiences for meaningful student engagement?</p> <p>How do teachers prepare students prior to attending the program?</p>	<p>What does environmental literacy mean to you?</p> <p>What education do you have to effectively teach environmental literacy?</p> <p>How do you plan for environmental literacy goals when planning your station's lesson plan?</p>
<p>Station facilitators and fourth-grade teachers know what a Meaningful Watershed Educational Experience is.</p>	<p>A Meaningful Watershed Educational Experience (MWEE) is an exploratory or investigational project that involves students in thinking critically about the Bay watershed (VA Assn of Soil & Water Conservation Districts, 2020a)</p>	<p>How do the station facilitators design the experiences for meaningful student engagement?</p> <p>How do teachers prepare students prior to attending the program?</p>	<p>What is your definition of the term "Meaningful Watershed Education Experience?</p> <p>Do you keep MWEE in mind when planning and facilitating your station's lesson plan?</p> <p>What does a MWEE mean to you?</p>

<p>Station facilitators and fourth-grade teachers know what the Experiential Learning Theory is.</p> <p>That station facilitators are mindful of the Experiential Learning theory when designing their station activity.</p> <p>The fourth-grade teachers are aware of their responsibility of completing the Experiential Learning model upon returning to the school.</p>	<p>Kolb (1983) defines experiential learning as authentic, first-hand, sensory-based learning where learning consists of grasping an experience and then transforming it into an application or result through experiential activities which enable students to explore, touch, listen to, watch, move things, dissemble, and reassemble. (Ramachandiran & Dhanapal, 2016)</p>	<p>How do the station facilitators design the experiences for meaningful student engagement?</p> <p>How do teachers prepare students prior to attending the program?</p>	<p>What is your definition of Experiential Learning?</p> <p>What does experiential learning mean to you?</p> <p>What education do you have on experiential learning?</p> <p>How do you use the experiential learning theory when creating your station's lesson plan?</p> <p>How do you use experiential learning when teaching your students subjects related to environmental literacy?</p>
<p>The Station Facilitators and fourth-grade teachers have all the resources they need to successfully teach a lesson plan using the experiential learning model.</p>	<p>Kolb (1983) defines experiential learning as authentic, first-hand, sensory-based learning where learning consists of grasping an experience and then transforming it into an application or result through experiential activities which enable students to explore, touch, listen to, watch, move things, dissemble, and reassemble. (Ramachandiran & Dhanapal, 2016).</p>	<p>What support and/or resources do the station facilitators need to enhance the experiential learning experience?</p> <p>What support and/or resources do the teachers need to enhance the experiential learning experience?</p>	<p>What would make your station's lesson plan align more with the experiential learning theory?</p> <p>Are there trainings that you feel would be useful to understand the experiential learning theory better?</p> <p>How can VCE better equip you and your partners to provide the highest quality of lesson plan to the students participating in the SCMDP?</p>

Appendix 3**Spotsylvania County Meaningful Day Program Interview
Station Facilitator Interview Guide****Time of Interview:****Date:****Place:****Interviewee:****Position of Interviewee:**

Thank you for taking the time to interview with me for my Master's Project on the Spotsylvania County Meaningful Day Program, commonly known as Meaningful Day at Oakley Farms. My Project is to gain a better understanding of the experiential learning opportunity for the fourth graders who participate at Meaningful Day. I am going to ask a series of technical questions, please answer to the best of your knowledge. There are no right or wrong answers, I am simply trying to gauge everyone's understanding and see what direction everyone is headed in. The questions in this interview pertain to the Chesapeake Bay Watershed Agreement, Meaningful Watershed Educational Experiences, experiential learning, and environmental literacy. Please note that this interview will be recorded for transcribing purposes, and no one other than myself will use or hear the interview. All recordings will be deleted after the research project is complete. In the research project, you will be given an alias.

Questions:

1. What is your full job title?
2. What is your educational and/or professional background that led to your current position?
3. What is your role with Meaningful Day?
4. How long have you had this role with Meaningful Day?
5. Why do you participate with Meaningful Day?
6. Do you know what the Chesapeake Bay Watershed Agreement is?
7. If you had to explain to someone what the Chesapeake Bay Agreement Act is, what do you tell them?
8. When did you first learn about the Chesapeake Bay Agreement Act?
9. When did you learn about the Environmental Literacy portion in the schools that align with the Chesapeake Bay Agreement Act?

10. What does environmental literacy mean to you?
11. Do you have any specific professional development in environmental literacy outside your educational degree?
12. So, changing gears a bit, have you heard about Meaningful Watershed Educational Experiences?
13. If you had to explain to someone what a Meaningful Watershed Educational Experience is, what do you tell them?
14. What does a Meaningful Watershed Educational Experience mean to you?
15. Have you heard of Experiential Learning?
16. Can you define Experiential Learning?
17. What does Experiential Learning mean to you? Can you guess what Experiential Learning means?
18. Do you have any professional development on experiential learning outside of what you might have learned through your degree?

19. Can you please walk me through how you plan your station's lesson plan for Meaningful Day?
20. Do you plan for, or keep environmental literacy in mind when planning your lesson plan?
21. Do you plan for or keep Meaningful Watershed Educational Experience in mind when planning your lesson plan?
22. When planning your station's lesson plan for Meaningful Day, do you plan for, or keep experiential learning in mind?
23. What could help make your station's lesson plan align more with an Experiential learning method?
24. Are there trainings that you feel would be useful to help improve your station's lesson plan to include the experiential learning theory, to better understand MWEE, or the Chesapeake Bay Agreement Act?
25. Would you be willing and/or would your organization be willing to send you to a day training to improve the station's activities?
26. What is the end goal for your organization participating in Meaningful Day?

Appendix 4**Spotsylvania County Meaningful Day Program Interview
Teacher Interview Guide****Time of Interview:****Date:****Place:****Interviewee:****Position of Interviewee:**

Thank you for taking the time to interview with me for my Master's Project on the Spotsylvania County Meaningful Day Program, commonly known as Meaningful Day at Oakley Farms. My Project is to gain a better understanding of the experiential learning opportunity for the fourth graders who participate at Meaningful Day. I am going to ask a series of technical questions, please answer to the best of your knowledge. If for some reason, you're unsure of the answer, I will give the definition. I know sometimes when we hear the definition, we then know the topic without the technical terminology. The questions in this interview pertain to the Chesapeake Bay Agreement Act, Meaningful Watershed Educational Experience, experiential learning, and environmental literacy. Please note that this interview will be recorded for transcribing purposes, and no one other than myself will use or hear the interview. All recordings will be deleted after the research project is complete. In the research project, you will be given an alias.

Questions:

1. What is your full job title?
2. What is your educational and/or professional background that led to your current position?
3. How long have you attended the Meaningful Day?
4. If you were to describe Meaningful Day to a new teacher, how would you describe it?
5. What is your goal for your class in relation to Meaningful Day?
6. Could you list the four organizations that work together to facilitate Meaningful Day, and what content they teach?
7. Do you know what the Chesapeake Bay Agreement Act is?
8. If you had to explain to someone what the Chesapeake Bay Agreement Act is, what do you tell them?
9. When did you first learn about the Chesapeake Bay Agreement Act?

10. When did you learn about the Environmental Literacy portion in the schools in alignment with the Chesapeake Bay Agreement Act?
11. What does environmental literacy mean to you?
12. Do you have any specific professional development in environmental literacy outside your educational degree?
13. When planning your class lesson plans, what activities do you plan for in accordance to the environmental literacy goals?
14. So, changing gears a bit, have you heard about Meaningful Watershed Educational Experiences?
15. If you had to explain to someone what a Meaningful Watershed Educational Experience is, what do you tell them?
16. What does a Meaningful Watershed Educational Experience mean to you?
17. Have you heard of Experiential Learning?
18. Can you define Experiential Learning?

19. What does Experiential Learning mean to you?

20. Do you have any professional development on experiential learning outside of what you might have learned through your degree?

21. What activities or content do you use to prepare the students prior to attending Meaningful Day?

22. How does your preparation for the SCMDP align with an Experiential Learning Model?

23. What other learning activities are taken when you return to your classroom after attending the SCMDP to understand what the students learned and gained from the SCMDP?

24. What steps do you take that align with the Experiential Learning Model after completing your SCMDP trip?