

Service Learning in the Middle Grades: Learning by Doing and Caring

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Abstract

Although service learning has been documented as a promising pedagogy for middle grades learners, it remains the exception rather than the rule in many middle schools. This qualitative study examined fifth grade students' experience of a service-learning class. Using the tenets of service learning and experiential learning theory as the theoretical framework, we describe the findings of the study, identifying the importance of a culture of "doing" and problem solving; an integrated curriculum that was based in caring for others; a joyful environment in which to learn; and opportunities for competence and independence. We present the findings in relation to the theoretical framework and discuss the implications of this research for middle grades practice, teacher education, and future research.

Keywords: caring, middle grades, experiential learning; project-based learning, service learning

Introduction

A successful middle grades experience is critical to young adolescents' later life outcomes (Balfanz, 2009; McCallumore & Sparapani, 2010; Payne & Edwards, 2010), yet laying the groundwork for that experience can pose challenges to contemporary educators. For example, bullying, substance abuse, and other risky behaviors often begin in middle school (U.S. News and World Report, 2011; United States Department of Health and Human Services, 2017), at the same time that parent involvement tends to wane (Lam & Ducreux, 2013). Similarly, academic and behavioral engagement often declines in the middle grades as students experience a mismatch between their developmental needs and the structures of schools (Eccles & Midgley, 1989; Eccles & Roeser, 2011; Wang & Fredricks, 2014).

As educators search for effective approaches to teaching in this age group, some have proposed service learning as a promising pedagogy (Billig, 2000; Chung & McBride, 2015; Warren, 2012). Service learning is a

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curricular approach in which students explore problems in their school or community and develop plans to solve them (Kids Involved Doing Service Learning [KIDS] Consortium, 2013). Indeed, research suggests that service learning has the potential to be a good fit for the nature and needs of young adolescents. Middle grades students who participated in extended service learning projects with accompanying reflective work demonstrated both increased personal growth and increased levels of parental communication (Scales, Blyth, Berkas, & Kielsmeier, 2000). Students also reported that participating in service learning encouraged them to become interested in other classes (Curtis, 2001), suggesting a possible influence on engagement. Additionally, students in service learning experiences engage in tasks that offer opportunities for the development of responsibility and competence, two key components for young adolescent self-efficacy (Stevenson & Bishop, 2012).

Despite this potential, however, research on high-quality service learning programs at the middle level is limited, at best (Wang & Fredricks, 2014). One reason is because service learning opportunities remain an exception rather than the rule in the middle grades (Richards et al., 2013), making it challenging to study. Further, inconsistencies in the quality of service learning programs have led to a wide variance in student outcomes in the research that does exist (Billig, 2000; Eylar & Giles, 1999; Furco, 2003).

The purpose of this research was to describe and analyze fifth grade students' experience of a service learning class. We discuss the tenets of service learning and experiential learning theory that comprise theoretical framework for the research and then describe the methodology employed in this qualitative study. Next, we present the findings and highlight the roles that doing, problem solving, curriculum integration, caring, joy, competence, and independence played in students' experience. We discuss these findings in relation to the theoretical framework, and we conclude with implications of this research for middle grades practice, teacher education, and future research.

Theoretical Perspectives: Service Learning as Experiential Learning

Service learning is a pedagogical approach situated within and informed by experiential learning theory (Kolb, 2015; Dewey, 1938). For the purpose of this research, we defined service learning as an approach in which students

discover problems and needs in their school;
investigate the causes and effects of the problems they identify; research various solutions to the

problems; evaluate the pros and cons of each solution and decide on the actions to take; create an action plan and time-line to implement ideas; implement the plan; and evaluate the results of actions. (KIDS Consortium, 2013)

While attributes and qualities of service-learning experiences inevitably vary, Billig (2000) identified six central components that distinguish service learning from more common community service practices: investigation, planning, action, reflection, demonstration, and celebration. Research on service learning has demonstrated that these components are important for service-learning projects to yield positive results (Anderson & Hill, 2001; Billig, 2011).

Building on these components, Billig (2011) proposed several standards for high-quality service learning. First, service-learning projects need to be sustained long enough for students to participate in all six components. Second, they must be personally relevant to the learners, allow them to pursue attainable goals, and lead them to increased understanding of societal issues. Third, the service-learning projects should be directly connected to and aligned with the curriculum. Fourth, the experience must integrate regular opportunities for reflection and thinking about self, society, and service. Finally, service learning should assist students in acquiring multiple perspectives and understanding diverse backgrounds.

Given this definition and these standards for quality, service learning can be situated within the larger framework of experiential learning theory. Kolb's (2015) cycle of experiential learning consists of four stages (see Figure 1): 1) experiencing, 2) reflecting, 3) drawing conclusions from those experiences and reflections, and 4) applying those conclusions in new situations. Kolb asserted that students must progress through all four stages for successful learning to occur.

Kolb's stages intersect with Billig's (2000) components of a high-quality service-learning program, as both emphasize the importance of action and reflection upon that action. High-quality service-learning programs move students through stages similar to Kolb's model of experiential learning theory. Students discover their interests and a problem within their school or community and design an experience or experiences (concrete experience). They regularly reflect on these experiences in journals, discussion groups, or in other reflective practices (reflective observation). These reflections usually indicate new knowledge that is constructed (abstract conceptualization). Then students move ahead to the

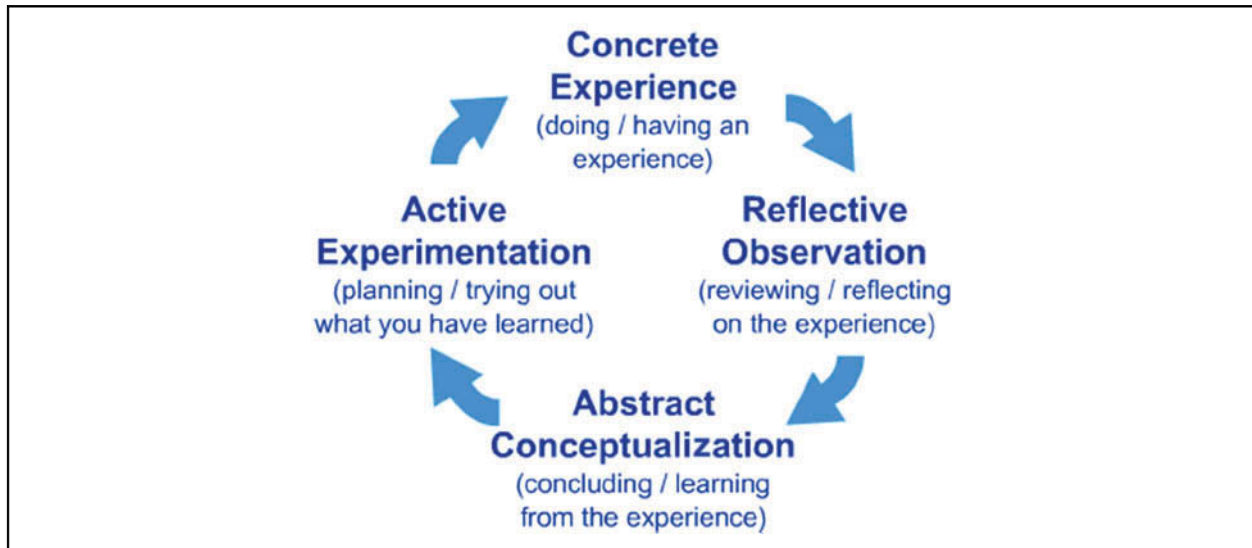


Figure 1. Kolb's cycle of experiential learning. Adapted from Kolb, David A., *Experiential learning: Experience as the source of learning and development*, 2nd., © 2015. Reprinted by permission of Pearson Education, Inc., New York, New York.

next experience or other learning opportunities (active experimentation). These stages and components were central to framing and analyzing the service learning conducted by middle grades students in this study.

Related Research: Service Learning in the Middle Grades

While anecdotal accounts of service learning in the middle grades increasingly are available (e.g., Berger-Kaye, 2009; Kielsmeier, 2017; Lead2Feed, 2017), research on the implementation and outcomes of service learning for young adolescents remains limited. This is unsurprising given that fewer than 9% of all service-learning projects are designed and implemented for middle grades students (Richards et al., 2013). The relatively small body of empirical research does suggest, however, that service learning has the potential to promote positive student outcomes for this age group.

One of the most noteworthy studies on the topic analyzed several features of adolescents' development in relation to service learning. Scales and associates (2000) examined the impact of service learning on 1,153 middle school students across three racially and socioeconomically diverse middle schools. Students who participated in service learning maintained concern for others' welfare in contrast to students in the control group who declined on the same measures. Those who participated in longer durations of service learning, with accompanying reflective opportunities, also demonstrated higher efficacy, continued to pursue

better grades, and decreased less in their commitment to classwork than their counterparts in the control group. Overall, the study indicated that service learning could lead to improved social responsibility and greater academic success (Scales et al., 2000).

More recently, research has demonstrated effects of service learning on students' growth in leadership as well. In their study with 86 middle grades students in a large, urban, city, Richards and associates (2013) found that, relative to students in the control group, students participating in service learning demonstrated significantly higher scores on the measure of leadership, particularly with fifth grade students. However, no differences were found with regard to acceptance of diversity.

McBride, Robertson, and Chung (2014) evaluated the effects of a service-learning program in a seventh-grade social studies curriculum using pre- and post-test surveys of students and a quasi-experimental research design. They found statistically significant gains in academic performance for students in the service-learning experience compared to counterparts at a comparison school who did not receive the intervention. Students deemed most at risk for academic and behavioral issues also demonstrated statistically significant gains in academic performance and in civic and social connectedness.

Within the science curriculum, Newman, Dantzler and Collman (2015) found similar potential for service

learning in their study of more than 6,000 middle school students in more than 20 schools. Engaging in STEM-related service-learning projects with more than 120 community partners, students living in high poverty areas with potential at-risk behavior also demonstrated increased academic engagement and achievement. Overall, the research on service learning in the middle grades suggests that the practice holds considerable potential for meeting many affective and academic needs of young adolescents.

Methods

Mode of Inquiry

Because we aimed to understand a phenomenon from the perspectives of the people most closely involved (Glesne, 2011), a qualitative study using ethnographic methods of observation and interviews was appropriate.

Research Site and Participants

School and community. Willow Park Middle School (WPMS, all names are pseudonyms) was located in a rural New England town of approximately 5,000 (demographics rounded for confidentiality) people who were predominately White and middle class. Forty-five percent of the population held bachelor's degrees and 24% of residents' highest level of education was a high school degree. Six percent of the population lived below the poverty line. RMS served approximately 300 young adolescents in grades five through eight and implemented a middle school model that included interdisciplinary teams, common planning time, an advisory program, and flexible scheduling and grouping. At the time of the research, 70% of the students were considered proficient in mathematics and reading. Ninety-seven percent of students were White and 25% were eligible for free or reduced lunch prices. The teaching staff of 35 teachers was predominantly White and female.

Classroom context. The sustainability class at Willow Park Middle School was a required applied academic class through which students in all grades cycled, in addition to their classes in art, physical education, technology, world language learning, and music. The sustainability class was led by Ms. Jamison, an experienced teacher who had taught middle-level science for 15 years. She held a B.A. in plant and soil science, with minor in biology; a master's in secondary education (grades 7–12); and a middle-level science endorsement (grades 5–8). She was the first and only teacher of the sustainability class, which was in its third year at the time of this study. She taught four sections of the class, each of

which was heterogeneously grouped with ten students. The five-week class lasted 45–50 minutes per day with a longer block once a week.

A central purpose of the class was to provide students with authentic opportunities for service learning and, more specifically, for students to create projects that improved their school and communities. Ms. Jamison's stated goals were for the class to be "as hands on as possible" and "based on student interest" and for students to feel "ownership in every piece." Each year, students explored issues in sustainability based both on their interests and on a set of activities designed by the teacher. The classroom originally housed a home economics class and included a kitchen and outdoor space that they could access directly from that room. The outside classroom included a chicken coop and a small pond with fish, a solar powered filter, and seating areas. Eighth grade students from prior years had built these outdoor features.

This study focused on the fifth grade curriculum, which centered on the theme of introducing and defining sustainability as a primary concept. Students' work in the class was largely project-based, including learning to take care of the program's chickens, eggs, compost, and related responsibilities. Their experience culminated in a reflective slide show.

Research participants. The participants for this research were fifth grade students at WPMS who were enrolled in the required sustainability class during their fifth-grade year. Of the 40 students in the cohort, 21 assented to participate with their parents or guardians also providing consent in accordance with Institutional Review Board policies. Most of the 21 students were White, approximately half were female, and their ages ranged from nine to eleven.

Data Collection

Our data collection techniques included interview, observation, review of student work, and student questionnaires. All 21 participating students engaged in individual, semi-structured, interviews (see [Appendix A](#) for interview protocol) in which they reflected on their experiences in the service-learning program at WPMS. These interviews were conducted at the end of the service-learning project in a private space within in the school. We also conducted individual interviews with the sustainability teacher, the building principal, and a core science teacher so we could triangulate data sources and gain their perspectives on the project and on the students' experiences (see [Appendix B](#) for interview protocol).

All interviews were digitally recorded, fully transcribed, and lasted between 20 and 45 minutes for an approximate total of 13 interview hours.

We also conducted 10 observations of these groups of students. Observations were 90 minutes in length, comprising a total of approximately 15 hours, and data took the form of typed notes, photographs, shared documents, and field memos. While observing, we regularly collected student work samples from the sustainability class. These included the end-of-course reflective presentation on the experience, which featured photographs, reflections on learned concepts, and on the experience overall. Further, we asked students to complete a questionnaire (see [Appendix C](#)) to capture their feelings about education, their school identity, and their level of confidence and belonging.

Data Analysis

To make sense of the data, we followed a process of coding to develop and explore themes presented in the research. Codes are researcher-generated constructs that attribute meaning to data for later purposes such as patterns, categorization, theory, and essence (Miles, Huberman, & Saldaña, 2014). We first cycle coded all evidence we collected, including interviews, observations, field memos, questionnaires, and students' final reflection presentations. The process yielded descriptive, in vivo, emotion, and process codes. Themes that emerged from this first cycle coding next were developed into second cycle codes. The process involved pattern coding and grouping summaries into a small number of themes intended to illustrate possible relationships between people, theoretical constructs, and idea clusters (Seidman, 2006).

There were two processes happening simultaneously during data analysis. On the one hand, we applied a priori codes derived from our theoretical framework and, in particular, Kolb's (2015) phases of experiential learning. These codes included concrete experience (doing/experience), reflective observation (reviewing/reflecting), abstract conceptualization (concluding/learning), and active experimentation (planning/trying out what you have learned). Student perceptions were organized into these themes and analyzed for commonalities and differences. We concurrently conducted emergent coding using emotion, process, descriptive, and in vivo processes.

Trustworthiness

In this study, we applied several strategies to verify and promote the trustworthiness of the findings (Creswell, 2013). First, by using several data collection techniques

and sources, we gained multiple perspectives on the participants and their experiences. Similarly, having verbal, written, and visual modalities for reflection, students had several opportunities to reflect on their experiences in the program. This triangulation of modalities and data sources helped increase the trustworthiness of the findings. Second, we conducted member checking during and at the conclusion of the study. For example, throughout the interview process, we restated claims and ideas that students and school staff presented to check for their agreement. In addition, we followed the lead of the participants during the interviews. As the interviews progressed, we asked students to share a question they wished had been asked, or if they had anything they wanted to share. We subsequently included these in future interviews. Third, we were careful to include thick, rich description based on interviews and student interactions throughout the work. These included verbatim quotes from participants and descriptive data from class observations.

Findings

Analysis of interview and observation data suggested that students experienced seven key features of the service-learning class: (1) culture of "doing," (2) a culture of problem solving, (3) a curriculum of caring, (4) an integrated curriculum, (5) a joyful environment in which to learn, (6) opportunities for competence, and (7) opportunities for independence.

A Culture of Doing

A clear theme of "doing" emerged as a key feature of the sustainability class. Ms. Jamison sent a strong message about the active nature of the program on the very first day. After explaining various jobs, she asked the group, "Do you want to start *doing* stuff?" "Yes!" was the cry from the class. She then announced to the group: "Here's how sustainability works—in this class you will *do* things to add to, build, make things to build the program. Do more, add more. The next group continues that work that you started." Ms. Jamison elaborated that their work was what would continue the program and lead to a more sustainable world beyond. She explained, "The eighth graders built the coop for the chickens and for you. For the next generation."

Our observations confirmed this emphasis on "doing stuff." Indeed, students were active and engaged in doing science, mathematics, communication, measuring, and problem solving. The students never sat for more than 15–20 minutes at a time. Most of the time the students worked in groups, completing their

jobs, problem solving, researching, building, and brainstorming. Worksheets and seated work were rare.

Through interviews and written reflections, students expressed their appreciation for “doing stuff.” Each student commented on some aspect of doing either during class, in the interview, or in their written reflections. One student described the doing, or as he called it, kinetic learning:

I like the way the way Ms. Jamison teaches. It’s not just like reading from a textbook; you get to learn kinetically. You get to do what you need to with your hands; it’s not just reading or looking at it. You can actually see it, and feel it, and do those jobs and feel what it is like.

This was also evident as students compared their experience in the sustainability class with their time in other classes. Caitlyn commented:

In math, I’m working on a worksheet and in sustainability, we really don’t do—only in the beginning do we do a worksheet. We are doing jobs, and we are watching movies about it. We are learning about it. We are doing something. We are not just doing a worksheet or having a class discussion, which we do in LA (language arts), and IA (integrated arts) and worksheets in math. So, it’s definitely a different perspective of learning. To be doing something active. I really, really like math, and it’s fun to me, but this is like, you’re going outside, and you are helping feed the chickens. You are doing the recycling, and the compost.

The theme of doing appeared connected to a constant focus on problem solving, another key feature of the program.

A Culture of Problem Solving

Students in the program were active problem solvers. Observations revealed that the teacher rarely answered questions about what students should do or how they should do it. Instead, she posed questions back to the students. She employed an inquiry and problem-based model, posing questions aloud such as, “I wonder how we can get that door to the coop to work better. Do you think someone with an idea can work on improving that?” She sometimes used the questions to guide students, but she also elicited student choice, voice, and inquiry.

Students reflected on the importance of problem solving in written reflections and in interviews. One

boy in the study noted, “It’s definitely more fun. I guess because you learn in a better way. You learn by being active and problem solving. In other classes, they tell you what to do. This is how you write a paragraph or something.”

In contrast, their own curiosities, sense of responsibility, and problem solving guided their decisions in the sustainability class. During one observation, the students created a detailed experiment to improve the chickens’ nesting boxes. A team of girls researched heating pads, discovering one that used body heat and required no electricity. Another team used a staple gun to attach shiny insulation onto the coop to reflect and gather heat. Another team monitored the location of the heating lamp. These teams decided to keep data on their nesting boxes. What temperature were they? In which nesting box did the chickens prefer to lay eggs? These were questions they generated themselves, and they built a data table to record the information.

Students were constantly developing ways to improve the conditions for the chickens. They regularly worked to improve the initial design of the coop. One girl described her recent problem solving:

We were excited. Me and Ms. Jamison. I don’t know if you actually knew that, because it was kind of recent, but we were thinking, you know how the heat lamp has a red lamp? And the red creates light? And there is another kind of heat lamp that is just purple and it doesn’t create any light? We were thinking, let’s see which one they like better. Because they might like one better. More heat, I don’t know.

The teacher then encouraged the students to record data and solve the problem.

Students also recognized that problem solving had the potential to transfer to other parts of their lives. One girl reflected on the impact of problem-solving opportunities on her education,

Yeah, like you don’t just do one problem. There’s going to be a lot of problems, in the road ahead, so just fixing one thing that’s quick, and then doing a larger problem and then going up. It’s easier in sustainability because then you get to do it outside of school.

And that is just sustainability. You do not just stop when you are doing something and take a break and go on vacation. You go from problem to problem to problem.

She went on to assert that problem-solving skills would help her throughout her education and, as an adult, with the problems she might face in life. She saw the connection between the class and potential challenges she might face in her own experiences.

Another student worked to solve a problem with the chicken coop:

In sustainability, we are learning how to take care of the earth. We wanted to help take care of the chickens to start. How will they sleep if they have no roosting bar? So our class started to think about ways to fit the roosting bar in the chicken coop. We measured the dimensions of the coop, found the right plank of wood, and screwed it into the chicken coop. But we had a problem with the roosting bar there—they would poop right into the water. We wanted to move it into a place where they would be comfortable. We eventually put it into the other corner. The chains holding it up off the ground were cold, so I wore gloves.

One girl described the need to solve the problem of water freezing in the coop:

I did a water bowl project. I needed to figure out a way to keep the water bowl from freezing. I came up with the idea of if insulation keeps the coop warm then it could keep the water warm, too. I also am doing a plastic water bottle insulation roof.

Our observations revealed that the teacher encouraged the students to test their ideas and make adjustments based on their own data and observations. She did not answer their questions, but instead she guided them toward active problem solving. The students spent most of each class session sharing and testing ideas, recording data, and evaluating what worked.

A Curriculum of Caring

In defining the sustainability program, one boy offered, “(it’s) how to take care of stuff, take care of chickens, worms, how to drain a pond with your mouth, and mostly taking care of things.” When asked how it felt to take care of things, he responded, “It feels better than just doing nothing.” This power of caring for other creatures was expressed by many of the students. At end of term, students created slide shows to showcase their accomplishments. One slide show offered this message about caring for the chickens:

Our sustainability class loves the chickens! We love taking care of them, and we also love feeding them. But we especially love holding them! We

love doing all the jobs, and we are really interested in everything we do in sustainability so we love coming to sustainability every day.

This culture of caring was reinforced regularly by the teacher. When introducing students to the goals and purposes of the program, she said, “You will build something. You are handing down the service and the responsibility, handing it down and leaving things for the next generation.”

On almost every questionnaire, the students identified taking care of the chickens as one of the things they most looked forward to. Similarly, in the interviews, taking care of the chickens was a repeated theme. The school principal noticed the importance of caring for others as he described a boy that had trouble working with others.

I see this both directly and indirectly, like I have a young man in my (homeroom) . . . I was wondering for a long time does he have a caring gene in his body? But when I see him out there with the chickens and he picks them up, now I see it.

Caring for the chickens was a direct experience that these students had the responsibility for each day.

An Integrated Curriculum

Curriculum integration was another core feature of the sustainability program that students experienced regularly. Grounded in real world tasks and deeply applied in focus, the program routinely combined academic and social and emotional learning concepts and contexts. During one observation, for example, the students were evaluating a new piece of roofing for the chicken coop. The last test piece had started to disintegrate. The teacher asked them to consider how the new piece of roofing was different from the old one. Students remarked on the different properties, length, width, and depth of grooves. The teacher then asked students to estimate how far the roofing reached and the degree that was missing. Students responded and gave estimates that varied widely. The teacher asked one student to get a measuring tape and climb up to check the distance. She determined that it was 10 inches long and reported this back to the class. These examples of visual and applied mathematics included concepts such as estimation, measuring, and observation.

Next, the students practiced teamwork skills as four of them carried the heavy roofing material inside. This was no small task. All the students had to work

together and communicate. Once the roofing was inside, the class brainstormed that the number of water bottles needed for new roofing, recognizing that it would be different because of the different dimensions. One student measured with a bottle and determined that the new roof would take half as many bottles. The teacher then said:

We have to know how many bottles we will need. Can we have one team— take this and take these bottles and estimate? I'm going to have you work together on this challenge. Do you think you could problem solve this?

“Yeah!” came the call from the class. Kids started shouting out ideas, most of them were based on mathematics and problem solving. One girl began to count bottle lengths by placing them on the vertical edge of the roofing and then looking horizontally. She then counted 16–20 bottles on the horizontal edge.

“Okay,” she said, “I am estimating about 160 to 200?” She looked to her group for confirmation.

“How about 170? It seems like a better estimate,” commented a peer.

“Okay, 170,” she confirmed.

This student knew to multiply the vertical and horizontal axes to identify the surface area. By understanding when to use this math concept it, apply it to a context, and use it to solve a problem, she demonstrated her keen understanding of complex math.

The students then began to visualize the new roofing on the coop. They wondered aloud, “Where is the gap? How might this affect the chickens when it rains?” The students quickly realized that the rain would fall directly on the roost area and on to the chickens. They brainstormed re-positioning the roof section to cover the central and vital parts of the chickens’ living space. The class decided to change the position of the new roofing and to use other reflective insulation for the gap, which would now be at the bottom of the roofing space.

Upon leaving the class session, one student commented on the way out the door, “Now I have to go deal with reading and math!” The students did not necessarily recognize the degree to which they had been doing those things already, that they were participating in integrated curriculum or applied academics.

A Joyful Environment

The fifth key feature of the sustainability class experienced by students was a joyful learning environment. Observations revealed students having fun with one another and regularly laughing and joking with the teacher. The teacher played music when kids entered the room and during work time. Students and the teacher would often exclaim, “I love this song!” or “I know this one!” Emmanuel illustrated this feeling of joy particularly on one observation day. While most students wanted to let the chickens out, collect eggs, or feed the chickens, Emmanuel signed up for one of the less popular jobs: to “zoom broom” the classroom and kitchen. While the rest of the students went outside to do their jobs, the teacher returned to the classroom and found Emmanuel dancing around the room with the broom, the music turned up, singing loudly. The teacher did not ask him to turn it down. In that classroom, a spontaneous moment was happening with a student. He was feeling useful, competent, and joyful. He was participating, helping, and getting to dance and sing at the same time.

In their interviews, students frequently commented that the sustainability class was “fun.” Students looked forward to coming to class, and this was apparent when students greeted the teacher, interacted with other students, worked at their jobs, and shared ideas. One student contrasted the sustainability class with other classes: “If I walk into math I feel like this is just not going to be fun. Because I don’t like math. But when I walk in here, it’s like this is going to be more fun than going into math class.” We commonly encountered comments like this in interviews and written work and during observations.

The opportunity for choice seemed to contribute to students’ perception of the program being fun. For example, Jack explained, “The teacher definitely made it fun. She gave us like choices on what we can do, like do your jobs and then you can do this, this or this. You work on either of those three.” When asked how he felt about having those choices, Jack replied, “It was definitely sort of fun. Like I said before, those other classes don’t really have those choices.”

Opportunities for Competence

Students experienced personal growth through the programmatic emphasis on solving real-world problems within a caring culture. One student described, “Actually it makes me feel really good. All this bad stuff is happening to the environment, and I am helping stop it. It’s kind of like a powerful feeling.” In her final reflective slideshow, another

student offered, “Sustainability made me feel really good about myself, and really proud of myself because I accomplished things that will help the chickens, and I understand how to take care of the earth way better than I did before.”

Students reflected this sense of competence in several data sources. Anna said in an interview:

I am really proud of finding a way the chickens could be warm in the winter and working as a team with my class to figure out the solution to the pond. The pond was a big job. Since winter was coming, we had to drain the pond. We knew that, but how were we going to keep the expensive tarp underneath from freezing? Our class came up with an idea of putting a tarp over it. It was a big job because we had to remove all the rocks, and plants and, the hardest part of all, the fish. At the end, it was a success and everybody felt good about what they had accomplished.

This culture of competence carried over into students’ feelings about contributing to something larger than themselves; they felt their work was contributing to the improvement of their school and the environment at large. One girl offered:

Well, it feels really good. We get to produce some eggs, we get to go and see other people eating our eggs (in the cafeteria) from the chicken coop that we collected, or other classes collected, and it makes me feel really good because it’s helping the earth, getting these eggs for our school.

Anna’s classmate, Chris, illustrated his own sense of competence as his group was tackling a challenge with the water dispenser. The students had tried three times on the prior day to fill and flip the water dispenser for the chickens. Each time, water came shooting out of it and on to them. They figured out a way to plug a hole that had been causing the water lose pressure and stay in the container. Flipping the dispenser quickly remained a challenge, as it was big and awkward for students to handle. Chris decided that he could solve the problem. He filled a smaller container up with water at the sink, then poured it into the larger dispenser. He lugged it out with great effort, then flipped it over quickly. None of the water splashed out. He triumphantly called, “I did it like a pro!” illustrating both his pride and the building of competence that many students experienced regularly in this class.

Observations revealed students regularly experiencing a sense of competence similar to Anna and Chris. Cole, who had never picked up a chicken before the sustainability program, quickly learned how to—with great care and skill to protect the wings. He held the chicken carefully on his hip and, talking softly to the chicken, he then proudly proclaimed himself, “the chicken master.” Other students demonstrated pride in their own competence with comments such as, “I did it!” and “I did it yesterday by myself!” and delight in their accomplishments, “The egg is still warm!” and “You can feel the difference in the nesting boxes!” These quotes illustrate the pervasive feeling amongst the students. They expressed pride in their contributions to sustainability, to the program, to the concept, to the future students. They felt good about their competence and their problem solving. Students reported feeling good about their work in the class, in their interviews, and in reflective work at the end of the class.

Opportunities for Independence

While much of the work within the sustainability program was collaborative, students also felt a sense of independence fostered by the structure. As students walked into class, they checked the white board by the door that listed all the sustainability jobs. These included taking the temperature, letting chickens out, refreshing water, filling the food dish, shoveling snow, collecting eggs, cleaning nesting boxes, freshening sawdust, managing food scraps, cleaning the kitchen and floors, emptying compost and recycling bins, and caring for the worm bin, pond, and garden tower. They then signed up on the board to complete a set of jobs. Once students learned the jobs and understood that the responsibility was theirs, they completed their jobs independently while solving any problems that arose.

Their teacher reflected on the unanticipated role the job board played in fostering this sense of independence and ownership.

I think they really, really love that that idea of walking in, and knowing that they have 10 to 15 minutes to just sort of show what they can do. And, take that on and write their name on the board— it’s so funny, that board— writing their name on that board is such a thing. And that was just my own mental, so I would remember what we had to do every day. And that became something that I had no idea would be such a thing. And it’s really an ownership thing, and um, having them like assign their name to something, and then walk away knowing that they can carry that through. I never saw the power in that.

During one observation, students were trying to “put the pond to bed” for the winter. They wanted to protect it from damage from the snow and get it ready for spring. Some of the boys tried to spread out a tarp and cover it, but one girl thought it was not done as well as it could have been. She felt the boys had rushed the job. She took over the design of the tarp on her own, stretching out the tarp and placing rocks around the edge. She told the researcher she did this at home with her woodpile. She said about the class, “I feel independent. A lot more independent than usual, even though that’s weird because I am working with a group. I feel a lot more independent—like I know how to do stuff now.”

Discussion

The students in this study offered considerable insights into their experience with service learning. They aptly described the culture of the classroom (expectations for regular doing and problem solving); pointed out essential components of the curriculum (integrated and based in caring); observed the nature of the learning environment (joyful); and explained the outcomes of the experience (competence and independence). We now consider these perceptions in light of extent to which the class met the standards of high quality service learning and how the stages of experiential learning unfolded in this context.

Standards of High-Quality Service Learning

Considered through the lens of Billig’s (2011) standards of high-quality service learning, the fifth-grade sustainability class in this study met the mark on a number of items. Billig’s first indicator of quality is the duration and length of the experience. Although students, the teacher, and the administrator all expressed a desire for the class to be longer, the five week intensive sessions indeed enabled participants to meet the project goals and engage in all service-learning components including investigation, planning, action, reflection, demonstration, and celebration. Second, in terms of meaningful service, the goals were attainable and the projects were age-appropriate. The progression of responsibilities and concepts reflected the students’ developmental level and invited students to consider personally relevant societal issues. Third, the content of the service learning was deeply rooted in curriculum and content goals, connecting in meaningful ways to other subjects. Fourth, student reflection was embedded throughout the class. It occurred at the beginning and end of each class, sometimes verbally and sometimes in writing. Students also created a culminating

reflective project at the end of the five-week session. Finally, in terms of diverse perspectives, students worked together routinely. They honed their teamwork skills and examined biases they might have held about each other, school, and sustainability issues. In so doing, the students worked on developing multiple perspectives and conflict resolution skills.

Stages of Experiential Learning

Experiential learning theory provided a framework through which to view the activities in the sustainability class. Kolb (2015) outlined the phases of experiential learning, including concrete experience (doing/experience), reflective observation (reviewing/reflecting), abstract conceptualization (concluding/learning), and active experimentation (planning/trying out what has been learned). While students cycled through these phases of doing, learning, and experimenting, their learning paths were not linear. The students moved between the phases constantly during the course, learning, applying their knowledge, testing it out, and learning more. They skipped steps, circled back to others, and sometimes stayed in one phase for a while. In contrast to Kolb’s (2015) more linear cycle of experiential learning, this service-learning experience appeared more as a cyclical web, as envisioned by Oxendine, Robinson, & Willson (2004) and pictured in Figure 2.

Concrete experience. The sustainability course was indeed experiential, offering few times when the students were not actively “doing.” Students participated in concrete experiences during each class, ranging from everyday chicken coop jobs, to putting the pond to bed for the winter, to building an insulated roof for the coop. Each class had *doing* at its core. This involved hands-on activities such as making products or models, role-playing, or problem solving. This included the preparation for service (e.g., research, problem solving, phone calls to community members, designing, planning, meetings, or interviews), and the actual service itself, such as the students’ self-selected jobs caring for the chickens and the sustainability space. In addition, students were expected to solve any issues that came up and constantly improve the living conditions for the chickens and other spaces for the school community. These responsibilities constituted the concrete experience phase.

Reflective observation. As part of his model for experiential learning, Kolb (2015) believed that students’ critical reflection was important for growth. Billig (2000) similarly noted that opportunities for

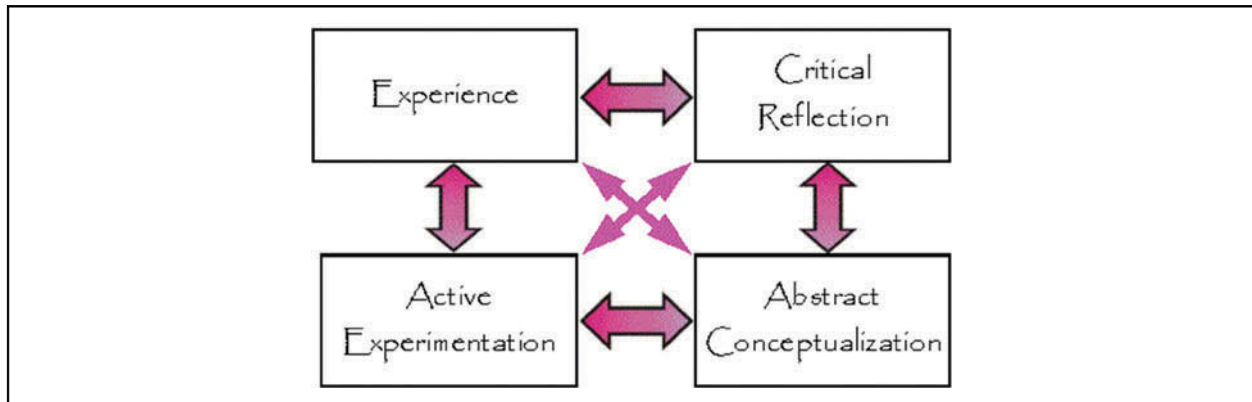


Figure 2. The experiential learning cycle. Adapted from Zhou, M., & Brown, D. (2015). *Educational learning theories. Education Open Textbooks, Book 1*. Retrieved from <http://oer.galileo.usg.edu/education-textbooks/1> under the Creative Commons Attribution License.

reflection are required for service learning to impact student learning and personal growth. In this study, students discussed their experiences daily. Students reflected on themes, problems, and issues within their service experience and their lives. Students routinely gathered in their seats around a small white board after completing their daily jobs. The teacher then guided the students with questions such as, “What did we do well?” “What can we improve on?” and “How can this inform our next decisions?” At times students reflected on these questions in writing. Other times, students shared aloud.

As they reflected upon their concrete experiences, students learned from them. Students provided feedback to other students in constructive ways about how to improve the *doing* phase of the course. Additionally, the sustainability class culminated in a slide show created by the students. The slide show had few requirements: to offer a definition of sustainability, to show what the students had done and how they had problem solved, and to share what they were most proud of and why. The students appeared proud of their contributions to the school community and of playing a role in moving society to becoming more sustainable. Reflection in this culminating product played a key role in providing students with an opportunity to learn from their experience and make improvements in the future.

Abstract conceptualization and active experimentation. Abstract conceptualization and active experimentation took place in many forms, in an iterative nature, throughout the class. At times, it occurred in response to reflection, when students applied new knowledge to future plans. The teacher invited

students to connect their experiences to real life by asking, “So what?” This was when students connected their experiences to practical applications in their lives. For example, students wanted to learn which nesting box was most productive and comfortable for the chickens. A group of students devised a way to measure this, designing nesting boxes that featured different lighting, heating pads, and insulation. The students then collected data and subsequently analyzed it together. They discovered that the nesting box closest to the light was the most productive and determined that the chickens needed more heat in the coop. They made conclusions based on their own data and observations. Another example occurred when the classes were testing different insulation designs for the roof. The fifth graders collected data and analyzed it as a group. They used the data to inform their decisions about the most effective design. The students routinely solved problems, reflected, and applied new knowledge to their decisions.

Conclusion

Young adolescents often crave an education that is rooted in hands-on experiences, social interactions, and relevant, authentic tasks (Stevenson & Bishop, 2012). In their seminal work, Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan, & Iver (1993) argued that the traditional configuration, specialization, and segmentation of the learning environment for young adolescents failed to meet the age group’s unique developmental needs for autonomy, agency, community, connection, and a sense of authentic purpose. Service learning, with its focus on new experiences, reflection, and real-world applications, responds to students’ needs by providing a model well suited for their development. The findings of this research suggest that service-

learning classes, such as the sustainability course in this study, may provide a good developmental fit for the middle-level learner. The students in the study exhibited deep engagement, practiced relevant problem-solving skills, and developed competence and independence in this course.

At the same time, the study is not without limitations. First, while the relatively small sample size is common in qualitative studies, it prohibits the generalizability of the findings. In future studies, a wider participant pool could provide the basis for a mixed method study of early adolescents, service learning, and personal growth. Further, the sample lacked racial or ethnic diversity because of the demographics of the local community. Replicating this study in a school with greater racial or ethnic diversity would be an important next step in understanding intersections between early adolescents, diversity, and service learning. Similarly, we lacked information regarding students' socioeconomic levels or household income. Twenty-six percent of the students at the school received free or reduced lunch, indicating that they were at or near the income level to be considered food insecure or living close to the poverty line. This contrasted with statewide average of roughly 33%. The school, then, had an average household income higher than others in the state. A future study of middle grades students in service-learning experiences, including a higher percentage of students on free and reduced lunch, would increase our understanding of the roles that poverty, family economics, and schools might play in service-learning experiences.

Middle-level students traverse a complex social world while their bodies and minds undergo rapid development. They crave active learning, choice, independence, and authentic learning experiences in real world contexts (Gardner, 2012). This research underscored the potential that service learning holds to meet the needs of young adolescents and to help prepare students to become competent problem solvers who are engaged in civic life and tackle the world's most vexing problems.

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Appendices

Appendix A

Student Interview

Thank you very much for taking the time to participate in this interview. I will be in touch with you within the next few days if I need any follow up information. You,

or your parent/guardian can contact me anytime about this interview and this study in general.

Introductory Script: Thank you for being willing to participate in this study. As a reminder, I am completing this study as part of my work at Anonymous University. You won't be graded in any way for your participation, nor will your results impact our relationship or grades.

Our interview will be audio (sound) recorded. The only people who will hear the recording will be the transcriptionist and me. (The transcriptionist takes the recording and creates a written version of everything that we say). I will erase the recording when the transcription is complete. I will also use a pseudonym (a made up name) when I use your information in my study. If at any time you decide that you don't want to participate in the study anymore, that is absolutely fine. There will be no penalty for stopping your participation. Do you have any questions?

During the interview, I will ask you some questions. I am going to ask you a few questions about your experiences in the service learning project. I am hoping that you will share stories and thoughts that are relevant to the questions. You can choose to skip any questions that you don't want to answer. Do you have any questions?

1. How do you feel about your service learning experience?
2. How do you feel about school? Is it different from the beginning of the year?
3. Did participating in the program change how you feel about your school, yourself, or your thinking about the future?
4. How have you changed this year? Why?
5. Do you have any other thoughts about sixth grade, or this program?

Thank you very much for taking the time to participate in this interview. I will be in touch with you within the next few days if I need any follow up information. You, or your parent/guardian can contact me anytime about this interview and this study in general.

Appendix B **Staff Interview**

Introductory Script: Thank you for being willing to participate in this study. As a reminder I am completing this study as part of my work at Anonymous University.

Our interview will be audio (sound) recorded. The only people who will hear the recording will be the transcriptionist and me. (The transcriptionist takes the recording and creates a written version of everything that we say). I will erase the recording when the transcription is complete. I will also use a pseudonym (a made up name) when I use your information in my study. If at any time you decide that you don't want to participate in the study anymore, that is absolutely fine. There will be no penalty for stopping your participation. Do you have any questions?

During the interview, I will ask you some questions. I am going to ask you a few questions about your experiences in the service learning project. I am hoping that you will share stories and thoughts that are relevant to the questions. You can choose to skip any questions that you don't want to answer. Do you have any questions?

1. Please describe the service learning experience at the school.
2. How do you feel about this program?
3. Do you see any changes in the students who participate in this program? If so, what are they?
4. Do you notice any changes in the school culture or community based on this project? If so, what are they?
5. Please describe any benefits or challenges this project has presented in the school.
6. Do you think this kind of program matches a student and/or community need?

Thank you very much for taking the time to participate in this interview. I will be in touch with you within the next few days if I need any follow up information. You, or your parent/guardian can contact me anytime about this interview and this study in general.

Appendix C **Student Questionnaire** Student Questionnaire

Fall 2015

Name _____

Directions: In an effort to learn more about your feelings about school and how you see yourself, please answer these questions the best you can.

1. What is school like for you?

2. How do you feel about entering fifth grade?

3. How do you feel about school?

4. How does your family feel about school?

5. What are you looking forward to in the service learning project (the sustainability course) and in fifth grade in general?

THANK YOU!

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