The golden egg: Curricular potential of a backyard chicken coop

by

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Abstract

This project examines the multi-dimensional applications of building a chicken coop. Interest in raising chickens and urban backyard coops have increased recently for a variety of identified reasons including: the desire to be closer to our food source, to reduce ecological footprint, backyard to table access of high-quality nutritious eggs, developing empathy through animal husbandry, and benefits of nature encounters and pet ownership. Connecting this project to a classroom or school has immense potential to address many learning outcomes from almost any subject area or grade level. It also creates opportunities for building relationships between classes or extensions within environmental education. This is a hands-on project that appeals to a wide variety of learners, including girls, minority, and the typically non-academic or motivated students. This project provides a detailed look at the current academic research in Science, Technology, Society, and Environmental (STSE), nature connection, and authentic learning. Viewed through the theoretical lens of the everyday expertise and ecology theory, the importance of a learner’s environment are identified as being integral to the learning process.
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Chapter 1 - Introduction

Personal Background

I am a high school math and science teacher and busy mom of three. I have always had an interest in the sciences and that has led me originally to a degree in biology. One of my early jobs as a biologist included working in a lab – hours spent doing repetitive, never-ending tasks that lacked any interaction between responsive beings. Petri plates and trees just don’t talk back. I discovered that I needed that interaction and that lab work exclusively was not engaging enough for me. Now, I am extremely fortunate to be teaching in the small town that I grew up in and surrounded by all the amazing wonders of the west coast of British Columbia. I glance out my classroom windows and am confronted with a wall of green, frequent wildlife sightings, and a close-knit community. I feel surrounded by countless learning opportunities.

As a teacher, maintaining a keenness for science and incorporation into daily life is important to me. With an ever-changing assortment of grades and classes, I maintain a flexible outlook and am always making connections between lived experiences and the classroom. Some of the things I do at home to enrich my children’s lives also apply my classroom as well. My most recent endeavours involved expanding our family to include a lovely flock of backyard chickens. This idea blossomed into a much more complicated project and the lines between my coop project and the classroom became blurred.

Creating an effective learning community and approaching lessons with an authentic approach are important classroom goals. I believe that both relevance of the content and a ‘safe’ learning environment are integral to facilitate and support learning,
and that teachers strive to find enriching activities that appeal to all learners. The chicken coop that I took on really allowed me to see beyond the coop itself, and how it directly relates to learning in school.

**Science Technology Society Environmental (STSE) Approach**

Science-Technology-Society-Environment (STSE) is an approach to teaching science by making connections to society and experiences. There can be immense value in this method of teaching as it allows a teacher to introduce a topic from the perspective of different subject areas to achieve a better sense of whole learning. A chicken coop is a very 'real' example of a personal project, and an excellent example of an STSE topic that could be tackled in the classroom. The coop composition and fabrication requires many steps of planning, construction, and implementation, and the cross-curricular connections are clear.

Another passion of mine is human nutrition and food self-sufficiency. This project also provides the opportunity to discuss our food footprint – helping students to understand the nature of, and choices we have, in relation to food production, harvesting, and delivery. The eggs that we find in the fridge do not really come from somewhere in the back of the grocery store, rather they come from a chicken. Having an understanding of where food is coming from really positions children in relation to the rest of the world. It is amazing how some produce travels half-way around the world to arrive on grocery store shelves looking perfect (although nutritionally diminished), in all seasons of the year. A small-scaled chicken coop brings the concept of food production home (right from the backyard to the table) and highlights many issues related to food production, nutrition, and resource utilization.
There are several environmental education issues and topics well-addressed in this STSE topic. In effort to build a coop in an environmentally-sound way, as many re-purposed materials were used as possible (e.g., pallets and other good usable wood was salvaged for coop construction). Using ‘green building practices’, relays a good message about conserving resources, and this was an inexpensive and very accessible approach. Many other aspects of this project have potential to open the door to other environmental issues.

**Connection to Nature**

Establishing and maintaining a connection to nature is a current and highly discussed topic in schools. Kids today are over-committed to mainly indoor activities and are losing opportunities to experience the wonders that nature encounters can offer. I feel fortunate to have grown up spending countless hours outside playing and getting dirty. I believe that these early authentic experiences help to build an interest in nature and science, and that a continued effort to get outside perpetuates this passion in me today. I make a concerted effort to ensure my children and students have these opportunities to spark and maintain their interest in the natural world. They are the future generation of environmentalists, but if they are not connected to nature and are not educated or exposed to the environment around them from an early age, then they will not be aware of the issues and problems that need attending to.

**Authentic Learning**

Lastly, my coop project at home is a huge success. Numerous hours were spent researching and many questions raised at every step. There are many books and
websites dedicated to coop plans and chicken care, so it was easy to sift through and figure out exactly what was needed. The steps involved included: understanding the nature of running your own coop, planning the coop, building the coop, and operating the coop. Understanding aspect included learning about the experiences of others, determining the location and orientation, and understanding the needs of the chickens. Planning included generating a formal plan with site plan, drawings with measurements, and materials list (much of which would be salvaged). Construction included salvaging the wood required, disassembling and removing hardware, and then building the hen house and coop area. Operating the coop required the addition of a waterer, feeder (with appropriate foodstuff), and perching structures.

This was truly a hands-on project and I believe that I never would have learned as much if I had just bought the coop or had someone else build it for me. Many argue that an experiential approach appeals to all ages and types of learners (myself included) provides opportunities for authentic learning. Pictures, videos, and models are great as lesson aids but, nothing beats the real thing.

My MEd project

I will focus on how my increased interest in backyard chickens and the process of building my chicken coop has allowed me to ‘dig deeper’ into the greater curricular potential that exists. I will use these recent experiences to explore further and apply them with students in my school. In order to do this, I will create a partnership with the Skills For Life (SFL) class to study chicks. We will acquire some hatching eggs, incubate and hatch a batch, meanwhile teaching and discussing many of the aforementioned aspects of this project. The chicks will also visit a neighbourhood
kindergarten classroom to reinforce the animal life cycle science lessons. The final home for these chicks will be a comfy backyard coop as new members of my family.
Chapter 2 – Literature Review

Introduction

Through my literature review I will explore a number of meaningful areas. I begin by examining the theoretical perspective of everyday expertise - learning within and across formal and informal settings, and ecology theory. I will then describe the Science, Technology, Society, and Environment (STSE) approach and how this relates to my chicken coop project. I use this as an example to discuss authentic learning and the importance of an experiential approach to environmental education. Finally, I present research that supports the whole-person benefits of nature encounters and literature to encourage a re-connection to nature within school.

Theoretical Framework

I am viewing my research through the lens of the everyday expertise and ecology theory frameworks. Zimmerman and Bell (2012) describe everyday expertise as “a perspective on learning and design that takes into account how people accomplish thinking and doing in their daily lives with the things and other people around them” (p. 224). This approach allows for “learning to have multiple dimensions – individual, social, and cultural – which results in a broad consideration of how people learn within and across learning environments” (p. 224). My arguments are also related to ecological theory, which suggests that contact with nature is important for children because it promotes imagination and creativity, cognitive and intellectual development, and enhances social relationships (Kellert 2002; Kellert 2005). This framework is applicable in a traditional/formal classroom learning environment, but also spans across
to more informal learning environments such as playing in the backyard or in an outdoor classroom.

**Science, Technology, Science and Environmental (STSE) Approach**

In this section, I explore the Science, Technology, Society and Environment (STSE) approach and see how exploring these interdisciplinary subject areas within the classroom can help to achieve a richer student connection to the environment. Ultimately, how to teach ‘stuff’ that kids can connect with so that they can learn the knowledge and apply it with confidence, creating a desire to take positive action towards the environment throughout their lives.

**What is STSE?**. STSE is an outlook on science that emphasizes the teaching of technological developments in their cultural, economic, social and political contexts. STSE places science in a broader scope and has been developed in an effort to “interpret science and technology as complex socially embedded enterprises” (Pedretti, 2003, p. 219). STSE also aims to “promote the development of a critical, scientifically and technologically literate citizenry capable of understanding STSE issues, empowered to make informed and responsible decisions, and able to act upon those decisions” (Pedretti, 2003, p. 219).

**Why STSE?**. Some people believe that the science classroom of today has become more about the material and less about connecting it to the outside world. As Pedretti (2003) describes, this in part is probably due to the fact that many teachers emphasize science as a body of knowledge to be transmitted to their students and “little is done to convey to students that science is a human/social activity laden with values, beliefs and conventions, situated in a particular time, context and culture” (p. 220). The
STSE approach needs to be included in science classes regularly to achieve the best results. Solomon (1993) suggests “that it would be absurd first to teach something we identify as ‘science’ or ‘technology’ in a way that makes no contact with peoples’ lives, and then teach STS[E] incorporating personal or fallible dimensions” (cited in Pedretti, 2003 p. 235). Similarly Aikenhead (1994) posits that “traditional science content is not watered down in STSE teaching, but rather embedded in a social-technological context, and therefore students learn the content by constantly linking it with their everyday world” (cited in Pedretti, 2003 p. 235). An increased effort, with respect to both time allotted and exposure in the classroom, should be made in order for students to allow for multiple connections of what they learn in school to the ‘real-world’.

**Connection to Environment.** One of the most clearly identified goals of STSE education is to enable students to be more aware of the environment (social, political, cultural, economic, natural, etc) and their role in it. Where they fit in the world and what sort of effect they have is of utmost importance. Roth and Désautels (2004) elaborate on the link between knowing science and responsible citizenship, which in turn “leads science educators to suggest that science students of all ages ought to get involved in changing their worlds” (cited in Kim & Roth, 2008, pp. 516-517). Learning and knowing for the purpose of taking action in a pro-environmental manner and the desire to take action, is rooted in the students’ becoming aware of how their decisions might have an impact within their lives (Kim & Roth, 2008). Being an environmental steward and demonstrating pro-environmental behaviours is not as easy as ‘do as I say’ rather students need to be fully involved to make them want and feel the need to take action (Kim & Roth, 2008).
Hodson (2010) describes that “socially and environmentally responsible behavior will not necessarily follow from knowledge of key concepts and possession of the right attitudes” furthermore, “our values are worth nothing until we live them” (p. 201). Separating science lessons as being only facts without the ‘lived’ experience allows students to merely learn about the environment and not include the larger realm of the environment. This was also noted by Kim and Roth (2008) when they describe their research on the attitudes of grade six students in Korea. They found that “despite their awareness and knowledge of ecosystems and environmental issues, … children’s actions and behaviors [were] not necessarily accordant with their concerns or awareness” (p. 519). The ‘spectatorship’ attitude was evident and action/reaction did not necessarily produce the expected pro-environmental outcome based on the knowledge that the students possessed.

Students also need to feel the immediacy of action in their environmental behaviours. The likelihood of students “becoming active citizens is increased substantially by encouraging them to take action now (in school) and by providing opportunities for them to do so by giving examples of successful actions and interventions engaged in by others” (Hodson, 2010, p. 202). Students need to be involved in this learning process all along the way and even encourage others to participate as well as “it is not enough for students to be armchair critics” (p. 204).

**Authentic Learning**

**What is Authentic Learning?**. Authentic Learning is real-life learning. It can be described as a style of learning that encourages students to create a tangible, useful product to be shared with the world; and, when authentic leaning happens, a whole new
layer of emotional, academic and skill set developments take place (Revington, n.d.).
Revington further describes how authentic learning “engages the senses allowing students to create a meaningful, useful, shared outcome” (http://authenticlearning.weebly.com/, n.d.) and that this learning model also places an emphasis on the quality of process and innovation. It is not about understanding teacher-speak and regurgitating content just for a unit test, rather it is about “developing a set of culminating skills sets, within a realistic timeline, using self-motivated inquiry method to create a useful product to be shared with a specific audience” (http://authenticlearning.weebly.com/, n.d.). Lombardi (2007) also describes authentic learning as “intentionally bringing into play multiple disciplines, multiple perspectives, ways of working, habits of mind, and community” (p. 3).

**Role of the Teacher.** Creating an authentic learning opportunity and environment is often challenging to implement effectively as it requires a fundamental shift in instructional strategies. Ultimately, the role of the teacher changes. Teachers discontinue being “information providers, tightly sequencers of information, and test-creators; instead, they adopt the roles of guides, scaffolders, and problem or task presenters” (Nicaise, Gibney, & Crane, 2000, p. 80). Teachers must continue to consider the best way forward so that they are creating opportunities for optimal learning. Lombardi (2007) describes how planning for an authentic learning event involves several identifiable design elements including: a real-world relevance, an ill-defined problem, a sustained investigation, multiple sources and perspectives, collaboration, reflection (metacognition), interdisciplinary perspective, integrated assessment, polished products, and multiple interpretations and outcomes.
Role of the Learner. Authentic Learning may be a change from the traditional classroom where students may not have been active agents in the learning process. Many traditional classroom activities do not provide students with essential contextual features that enable students to understand and apply information. Nicaise et al. (2000) investigated student perceptions of an authentic classroom in their qualitative case study involving three high school science elective courses. They clearly advocate that “the voice of the student is important in educational research and reform” (p. 81) and that “the key is in realizing that listening to students, empowers students to speak out, [which] is [both] worthwhile, and necessary” (p. 81). In authentic classrooms, “students are given more ownership over what is to be learned, and students are required to integrate multiple contents and multiple skills holistically” (p. 92). Students are expected to make the leap from passive to active learners because their efforts are central to the learning process.

Lastly, Lombardi (2007) states that “students should know what it feels like for actual stakeholders beyond the classroom to hold them accountable for their work products” (p. 9). Authentic learning exercises “expose the messiness of real-life decision making, where there may not be a right or wrong answer per se” (p. 10) and “such a nuanced understanding involves considerable reflective judgement, a valuable lifelong skill that goes well beyond the memorization of content” (p. 10). Authentic learning matters because it gives learners a vision of what is possible.

(Re)Connection to Nature

It is critical to re-establish the importance of and maintain a natural connection in the modern digital world. There is great concern that young people are not getting
enough physical exercise and coupled with the lack of physical activity, there is legitimate concern that they are not gaining an appreciation for nature and being in the outdoors (Jukes, McCain, & Crockett, 2010).

For this review, I am referring to nature as the “phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations” (https://www.google.ca/#q=definition+of+nature, n.d.). I will focus on literature connecting nature in the classroom and ecology theory as an important factor both in students’ lives and in supporting nature study as a method of meeting needs of a healthy learner. Ecological theory suggests that contact with nature is important for children because it promotes imagination and creativity, cognitive and intellectual development, and enhances social relationships (Kellert, 2002; Kellert, 2005). Since “adults largely control most aspects of children’s lives, and school settings are no different” (Maller, 2009, p. 538) it serves to reinforce the pivotal role that educators and schools play in providing children with access to nature.

For most of human existence, children have spent much of their childhood outdoors where they interacted with nature regularly. The culture of childhood that played outside is gone, and children’s everyday life has shifted indoors. Unfortunately, there are direct consequences of this trend as children miss out on crucial physical activity and nature-related learning. Exposure to nature has shown not only benefits for intelligence and academic performance, but also for both physical and mental health (Jenkins, 2013; Maller, 2009; Louv, 2008). These benefits of connecting with nature
have been increasingly studied, particularly in regards to intelligence and academic success, as well as for physical and mental health.

**Cognitive Benefits.** Children’s mental health and well-being impact directly on their ability to learn. Allowing children to experience the natural world through multiple modes of interactions may help them focus (Louv, 2008; Faber Taylor & Kuo, 2008; Kuo & Faber Taylor, 2004). This general increase in attention could also help students academically as “their attitude towards school or a specific content area could change with an increased exposure to nature” (Walter, 2013, p. 4). Walter (2013) also defends his investigation as “developing an attachment to nature early in life can help children develop cognitively and emotionally, while also creating a concern for the natural environment of which they are part” (p. 2).

Hummel and Randler (2012) have reported measureable cognitive benefits of animals in the classroom and contact with living animals lead to higher scores in cognitive achievement. They found that both cognitive performance and positive attitudes were highest when involvement of a live animal was in the classroom, compared to only representations of living elements (like a model) or with information only. Maller (2009) states that “involving children in tackling issues that concern them, such as environmental problems, gives them cognitive thinking skills and puts their learning into a meaningful, real-world context” (p. 529). Nature and the outdoors form the basis for this context in which past and ongoing experiences are further developed into understandings of science. This is further supported as Walter (2013) advocates in support of turning the classroom inside out by incorporating outdoor instruction and classroom pets.
**Behavioural Benefits.** Research has also supported the link between reducing attention-deficit/hyperactivity disorder (ADHD) and nature. ADHD is the most common neurobehavioral disorder of childhood and it manifests as an unusually high and chronic level of inattention, impulsivity/hyperactivity, or both. When describing behavioural observations in Kuo and Faber Taylor’s (2004) study, they found that “green outdoor activities reduced symptoms significantly more than did activities in other settings” (p. 1580) and that their “findings were consistent across age, gender, and income groups; community types; geographic regions; and diagnoses” (p. 1580). This is further supported as Louv (2008) explains “the woods were my Ritalin. Nature calmed me, focused me, and yet excited my senses” (p. 10). Faber Taylor and Kuo (2008) also found children with attention deficits appear to concentrate better after a walk in the park compared to a downtown or neighbourhood walk. This study later suggests that maybe the confines of a typical classroom is to blame for the increase in ADHD. They further suggest that nature encounters may be better medication for children with ADHD than prescribed drugs. There is a clear benefit of nature implementation into school curricula across all grades, and potential for daily doses of ‘green time’ sounds promising.

**Physiological Benefits.** As we see an increase in child and teen mental health issues, there is real interest in the restorative effects of a natural environment. Frumkin (2001) describes the majority of nature encounter benefits as “related to mental health and well-being, and include among other outcomes, stress reduction, improving the ability to concentrate, alleviating the effects of depression and improving self-esteem” (cited in Maller, 2009 pp. 522-523). Maller (2009) also believes that “children obtained
stress relief from having contact with plants, animals, or other elements of nature and that having access to quiet natural spaces in the school ground had a calming effect” (p. 532).

Animals have also been used in therapeutic situations for children with autism, ADHD, and other behavioural disorders. Jenkins (1986) found that pet owners demonstrated lower heart rates and blood pressures while petting their companion animal than while doing an everyday activity such as reading a book. Additionally, Jenkins describes how even having an animal present, for example a patient being in the company of a dog as they enter a doctor’s office, shows less behavioural distress than if the animal was not present.

**Social Benefits.** Jukes et al. (2010) state that “one important skill that is underdeveloped in a digital culture is face-to-face interpersonal interaction” (p. 3). They identify this as a major concern as what “this decreased face-to-face interpersonal interaction is doing to brain development and the acquisition of interpersonal skills” (p. 3) of school-aged children. Recently, much literature has arisen that focuses on how nature also serves to foster and build interpersonal relationships. Human-animal relationships have emerged as an important field in the social sciences and it has become more widely accepted that pet ownership and animal assistance therapy and education may have multiple positive effects on humans.

Hergovich, Bardia, Semmler, and Ziegelmayer (2002) documented a positive effect on the development of empathy in children in the presence of dogs in the classroom. This was developed in cooperation with the Institute for Interdisciplinary Research on the Human-Pet Relationship (IEMT) and the Institute of Zoology in Vienna.
They investigated two first-grade classes and when compared to a control class, the class with the dogs showed higher scores in field independence and empathy towards animals. Field independence was interpreted as an indicator of better empathy, since it assesses one’s ability to distinguish between self and non-self, which is a necessary prerequisite toward the moods and needs of others (Hergovich et al., 2002).

Similarly to Jenkins’ findings, Arbour, Signal, and Taylor (2009) describe Animal Assisted Therapy (AAT) and Humane Education Programs (HEP) and how HEPs goal is typically to foster positive attitudes towards animals. It is a widely-held belief that teaching children kindness towards animals will transfer towards people. They state that their study is “aimed to evaluate the efficacy of a specifically designed HEP in terms of changes it might lead to in both treatment of animals and human-directed-empathy” (Arbour et al. 2009, p. 140). Their results did align with the literature as participants showed an increase in both empathy and treatment of animal scores following the intervention.

Daly and Suggs (2010) surveyed educators in an effort to collect qualitative and quantitative experiences of animals in the classroom. Contained in this work is “clear evidence of the value and benefits that animals have for children, including making a significant contribution to the development of empathy and other important socio-emotional behaviour” (Daly & Suggs, 2010, p. 101). They also inquired about humane education programs taught and found that although formal programs like Character Counts and Roots of Empathy were both present in the participants’ schools, most humane education used ‘teacher-designed curriculum’ and lesson plans. This highlights the teacher’s role in the process and reinforces its importance. They conclude
“because of the value that children have in our society, it is in everybody’s best interest to consider incorporating pets into more classrooms by way of more formal curricula” (p. 111). These skills transfer to the care of nurturing of people as well as a connectedness to other people – helping those “at-risk” to be engaged as Maller (2009) also describes.

A natural setting serves to ‘level the playing-field’ and “all children involved in the activity have an equal chance of success” (Maller, 2009, p. 531) – a situation that may be rare in the context of their normal academic learning environment. Learning outdoors, also supports this ‘levelling’ effect as O’Brien (2009) found within the forest school approach. Forest schools involve children having contact with woodland over an extended period of time, allowing them to become familiar, and have contact, with the natural environment. A constructivist approach was used, moving away from the more traditional teaching methods, and instead involved the engagement of the students actively constructing their own learning. O’Brien (2009) describes “improvements in the children’s confidence, motivation and concentration, language and communication and physical skills” (p. 45) as a result of their experiences in nature.

Maller’s (2009) qualitative interpretive study aimed to describe the importance of ‘hands-on’ contact with nature at school for children’s mental health and well-being. Maller highlights and compares structured and unstructured nature activities to direct and indirect nature experiences. Unstructured activities like free play in garden or nature with or without other children but not directly supervised by an adult have been shown to develop empathy and increase self-esteem and awareness (Kellert, 2002; Kellert, 2005; Louv, 2008). Maller (2009) states,
regardless of whether structured and unstructured activities are considered as direct and indirect experiences of nature, or as passive and active participation, it is argued here that not only are both activities highly beneficial for children’s mental, emotional and social health, but that the activities and their associated benefits are in fact concomitant and complementary to one another (p. 535).

Among the numerous benefits mentioned, “it was felt in particular that empowerment arose from children experiencing responsibility and having the opportunity to use their initiative to solve environmental problems” (Maller, 2009, p. 530). More specifically children exposed to ‘wild’ nature are very likely to have environmental attitudes and exhibit environmental behaviors as adults, and “although people are capable of lifelong learning, the most critical period for forming any genetically encoded tendency is likely to be in childhood” (Kellert, 2005, p3).

Conclusion

Richard Louv’s book, ‘Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder’ (2008), has been at the forefront in promoting discussion and efforts to bring kids back to nature. Louv coins the term ‘nature-deficit disorder’ and describes “the human costs of alienation from nature, among them; diminished use of the senses, attention difficulties, and higher rates of physical and emotional illness” (Louv, 2008, p. 36). As there is a rise in what is called the nature-deficit disorder, it is important that teachers realize the need to change their teaching to incorporate nature whenever possible.
Most schools and communities are active in the attempt to recapture that connection to nature and to re-establish its wonder. However, because modern urban environments generally limit children's access to nature (Kellert 2002, Kellert, 2005; Luov, 2008) it could be argued that the responsibility to provide children with these opportunities is largely placed on schools, through the physical environment of their grounds and through teaching activities. We need to put an emphasis on nature and learning about the natural world as there is ample evidence to promote, develop, and incorporate within curriculum.

Educators also need to take a serious look at alternative pedagogy and how they can create authentic learning environments where ‘real-life’ learning can occur. Community and connection to environment are integral components of STSE which is an interdisciplinary approach that connects different subject areas. The literature presented here is evidence strongly in favour of the importance of the connection between the student, school, and community.
Chapter 3 – Implications for Teaching

Introduction

As interest in environmental sustainability grows globally, so too does the trend toward production and consumption of foods grown locally – even as close to home as the backyard. As seen in the literature, the number of chicken coops and small gardens in backyards and schools are rising for a variety of reasons. My interests in having my own backyard chickens are multifaceted. As a parent, I am happy that my children will experience more pets in their lives and that they will learn to care for others. More food from our yard means better nutrition for my family. I am also excited as a biologist, to get ‘back in the field’ and observe my fowl specimens and experiment with care. And, as a teacher, I will discover and experience learning opportunities that exist at every step of the project process. My extension of bringing this project to school creates opportunities for students to design a functional and thoughtful coop for their chicks aka their ‘feathered teachers’.

This project applies to a variety of learners and teachers of different grades and subject areas. A varied skills set is required to see it through from the planning to the construction phases, and then implementation into a backyard or school. It truly has the potential to be a great process for any family, class, school, or community.

So far, the first chapter of this project has provided an introduction in which I have identified my motivating factors and some personal background. Then in the second chapter I presented literature that supported the themes of STSE (cross-curricular focus), a re-connection to nature, and the importance of experiential learning. In this chapter I document, through writing and images, important stages of the coop
construction and project. Further, I will summarize the pamphlet resource that I have developed, highlighting curricular connections and drawing attention to where and how a project like this could be implemented. Lastly, I will provide some of the most helpful resources that I encountered that may serve as purposeful directions for anyone who chooses to follow draw from my project and develop a coop project of their own. I feel the combination of my personalized photo documentation along with reflection, customized pamphlet endorsing coop project, and suggested supplemental materials, will serve as a helpful guide and resource for those who are interested in hands-on, experiential learning at home and in the school.

**Presenting My Process**

In this section I present my coop project through its different stages of completion. The topics that I chose to share start with personal background and motivation to keep backyard chickens, building in an environmentally-conscious manner using recycled materials, the coop construction steps, acquiring and hatching eggs, and chicken husbandry. I have taken all of the later photos compiled them in a condensed photo collage.

**Motivating Factors to Keeping Backyard Chickens.** There were several reasons why I engaged in this topic of study and it was initially personal and family interests; however, it quickly grew into a much more involved project that was equally applicable to me as a teacher as well. Figure 1 further below shows some of the motivating factors of my coop project, such as bringing my food from backyard to table, realizing the benefits of nature encounters and pet ownership, and undertaking a family project.
**Backyard to table.** A community or backyard garden can provide an assortment of fresh seasonal fruits and veggies, and a backyard chicken coop can provide a continual supply of fresh free-range eggs. Megyesi (2009) describes how “our food is being outsourced, in front of our eyes, at the expense of our health and ability to reliably ensure its safety and quality” (p. 17). I have always been interested in nutrition and that has developed into a bit of an obsession with cooking and eating – ensuring healthy, flavourful foods for my family is a priority. I also feel it is important to acknowledge our ecological footprint and to do whatever we can to bring our food closer to home. By bringing the coop right to the backyard ensures a safe, high-quality natural food source, as close as possible. It also makes sense financially as once the coop is up and running and hens are laying, the savings from store-bought eggs will pay for coop construction within months, and continue to save us money in the long-term.

**Benefits of nature encounters and pet ownership.** We are also a nature-loving family that spends as much time outdoors and in greenspaces as possible. In Louv’s (2008), *Last Child in the Woods – Saving our Children From Nature-Deficit Disorder*, there is a specific section highlighting ‘100 Actions We Can Take – Nature Activities for Kids and Families’. The purpose of this section is to provide simple suggestions to child-supervising adults (educators and parents) and identifies, “the most important goal is for our children, in their everyday lives, to experience joy and wonder, sometimes in solitude – for them to create their own nature experiences and, as they grow up, to expand the boundaries of their exploration” (p. 359). I am pleased to say that we do many of these actions already as a family, including having a backyard dirt pile and sandbox, a veggie and butterfly garden, a birdbath and backyard fish pond, a
tree-playhouse, and a rope-swing. We take full advantage of any sunny days by hiking and swimming, and don’t stay indoors on the rainy days as those are the best for puddle-jumping, leaf-boat racing, and cloud-spotting. As a teacher, simply taking kids outside and allowing the kids to play in a natural setting has huge benefits as Faber Taylor and Kuo (2008) describe in their investigation of children with attention deficits and increased abilities to concentrate after a walk in the park.

I am also happy to bring another natural element into our lives and adding chickens to the ‘family’ is great addition for so many reasons. In addition to the benefits at home, I am able to share this experience with my classes at school so they too can reap the benefits of nature encounters and pets in the classroom. Direct and material benefits of pet ownership are quite obvious, however McConnell, Brown, Shoda, Stayton, and Martin (2011) provide data to further support suggest there is also “evidence that pets can have positive psychological implications” (p. 1239). Animals and classroom pets can help meet peoples’ social needs and anyone who has ever had a pet can relate that they are often a great companion/listener and a unique relationship exists between you and only that pet.

**Family project.** I knew that building a chicken coop would not be a project I could take on solely myself – I needed a crew. I had to recruit my family and get everyone fully onboard in order to make the project actually happen. Megyesi’s (2009) memory of growing up resonates with me as I too hope to “impart a deep sense of wanting to be involved in the living world and to know how to nurture and nourish ourselves, life skills that many of us have now forgotten or don’t know how to teach our children” (p. 17). Being engaged in this real-life project was imperative and I feel that
there was great learning opportunities created and experienced by all. Everyone was really excited to have chickens as our newest pets, and were enthusiastic to help out with much of the construction.

Figure 1. Motivating factors of coop construction.

**Salvaged and Re-purposed Materials.** I also approached this project with an extra challenge because I wanted to build my coop using as much recycled and re-purposed materials as possible and building my coop in an environmentally conscious manner was an important aspect to my project. I decided that I would salvage pallets and other good usable wood to build my coop, and seek out other community resources for remaining free or cheap building materials. This aligns with ‘green building initiatives’ and serves as an important lesson on reusing resources.
Upon searching the literature I encountered numbers quantifying wood waste and as dismal as they seem, there was light at the end of the tunnel in some respects. I discovered organizations like Ontario’s Wood Waste Solutions (WWS) which is a successful program for wood pallet and wood waste recycling. Prompted by the supposed landfill crisis of the late 1980s, some Ontario landfills banned the disposal of pallets and other wood waste materials into municipal landfills (Morawski, 1999). As a result, this program was developed to focus on creating a reusable wood product that retailers and manufacturers can use over again. Approximately 90% of their products are reused and 10% are chipped and processed into a different product – nearly no waste ends up in a landfill. Reading about programs and companies that recognize the problem and are active in finding a solution to reduce wastes, is promising and provides hope to the future.

The Go Green Initiative (GGI) is another excellent example of increased efforts to educate people (e.g. teachers, students, parents) on the environmental concerns that we are facing today. GGI’s mission statement is “to provide schools with the tools and training they need to create a “culture of conservation” within their community. Our goals are to conserve and protect natural resources for future generations, and to protect human health through environmental stewardship” (https://gogreeninitiative.org/wp/, 2014). The website provides readers an opportunity to learn more about GGI, explore hot topics in the environment, read and follow the blog containing videos, podcasts, and latest information, and can access additional resources about recycling and conservation in general.
For this construction project, we were able to salvage some second-hand metal roofing that was in good enough shape to use for the coop roof. Most of the wood was salvaged from wood pallets that were discarded from local a hardware store. My neighbour donated a sheet of plywood for the roof, and the plywood floor was courtesy of my dad. We used up whatever hardware and fasteners that we had kicking around including an assortment of screws, nails, and hinges. Once again, my family’s tool shed was where I collected most of these items. The hardware cloth I did have to buy from a store and was the most expensive single purchase. Figure 3 below shows some of the materials used for the project. I am very impressed with how we were able to build primarily with repurposed materials, and am proud that it was done in such an environmentally-conscious manner.

![Figure 2](image)

*Figure 2. Using salvaged and repurposed materials.*

**Coop Construction.** From bare ground to completed coop … priceless. After many hours of planning, constructing, and finishing the run enclosure, it is finally done.
The whole thing sounded easy at the start – just build a coop and get some chickens. However, breaking ground and building the coop was more complex. The most significant steps involved; deciding on a design, site preparation, framing, putting it all together, and enclosing the run.

There were many books and websites that I reviewed before deciding on a plan for my coop. The location of the coop partly determined the size and style, and the materials on-hand determined many of the other features. Figure(s) 3 and 4 shows a Wichita style coop that was inspiration for my design. It has a basic rectangular shape with a large overhanging roof covering the entire coop and run area. It is a simple basic structure that fits nicely into my backyard landscaping and may be finished with a garden border. The design involved a modification to the sloping roofline so that when finished it would be below the adjacent workshop window. All other modifications were made on the spot depending on wood and materials available.

*Figure 3.* Wichita-style chicken coop as model for my design.
Figure 4. SketchUp plan of coop and run layout.

Site preparation involved staking out the coop and run and then leveling the area with sand. Concrete blocks were laid around the perimeter to serve as a level foundation for the hen house and run supports to rest upon as shown in Figure 5.

Figure 5. Coop site preparation.
The coop framing stage was pretty smooth and mainly completed in our covered carport area. Some of the salvaged wood was warped and not straight, so we had the added challenge of things not being entirely square. Figure 6 shows some of the stages of framing for coop, nesting boxes, and siding. We carried the partially built hen house to the backyard where the metal roof, wooden siding, windows, and door would be attached.

Figure 6. Various stages of coop construction.

Both of the windows were custom made from strips of wood surrounding clear plastic that we had left over from a previous project. The shaker-style door was also a custom build made specifically to fit our coop entrance. Figure 7 shows some of the construction and custom windows and doors used. Recycled hinges and hardware
were also used throughout, hence we had to be creative sometimes to work with the materials that we had.

![Custom doors and windows](image)

**Figure 7.** Custom doors and windows.

The run enclosure was also a pretty straightforward job to do as it is not a weight-bearing structure and required only basic framing. We decided on using a rigid ½" hardware cloth for the walls of the enclosure and also buried the wire underground to deter digging pests as shown in Figure 8. It is nearly a bomb-proof with no gaps for unwanted predators – the safety of the flock is paramount.
Figure 8. The run enclosure.

The next step of the project shifts from the coop structure itself to the birds. The following section focuses on hatching eggs into the chicks that will call this coop their lovely new home.

Hatching Eggs. Rather than simply buying chicks, I decided to hatch eggs at school in hopes that I could share the experience with my students and eventually bring them home to my backyard coop. Figure 9 shows the steps involved with incubating eggs to hatching of the chicks.

The incubator. The school district resource center has a classroom incubator kit that I reserved. When it arrived at the school, I excitedly took the big box to my
classroom and opened it up. I stared inside … excited and a bit overwhelmed with what I was in store for, and pleasantly surprised as it was bigger than I initially thought it was going to be. I checked the packing list, read the manual, and then sought out supplemental materials to familiarize myself with the incubator and brooder equipment. In the end it all seemed fairly simple and time would tell how it would all go once it was filled with eggs and plugged in.

**Acquiring hatching eggs.** I queried some local farmers about availability of hatching eggs and had very positive responses from all. There were several who were willing to help with this project by donating eggs for hatching and offering many suggestions for chick upkeep afterwards. Such community involvement and learning from experts is highly valued, especially in the proposed BC Ministry of Education’s proposed curriculum changes. I was able to secure fertile hatching eggs from a variety of interesting chicken breeds such as Welsummer, Australorp, and Olive Eggers. I personally visited the farms and transported the eggs back to school for incubating. Although this took time and resources, it allowed me an immediate hands-on experience with the eggs that I could model for my students.

**Class project.** I have taught science for many years, but lately I have been assigned high school math. The desire to make this egg project happen in my school, directed me to form a partnership with the Skills For Life (SFL) teacher as she could incorporate it into her science program. The classroom incubator kit comes supplied with a unit plan titled ‘The Egg Project’, which we adapted to better suit her class. This project created an opportunity to work collaboratively with a teacher that I usually do not get to work with and I thoroughly enjoyed this additional aspect. It enabled me to create
a new professional relationship with a colleague and share these experiences another class.

There was also opportunity for me to bring the newly hatched chicks to my daughter’s kindergarten classroom. Life cycles are a main topic of kinder science, where the students learn about the egg and development of a chick. Bringing in the living animal element agrees with Walter’s (2013) description of how “live animals in the classroom can be used as effective tools in presenting instruction on ecology as well as biology, and can increase interest in science” (p. 5). In addition to an increased interest in science, Maller (2009) demonstrates in her study that “there are multiple benefits to children’s mental, emotional and social health from activities involving hands-on contact with nature at school” (p. 538).

Eick’s (2012) case study describes the use of an outdoor classroom and nature-study to support science and literacy learning. Eick’s findings aligns with my philosophies of teaching and parenting as well as he states “the teacher’s early life experiences supported her strong interest in science and nature in the outdoors and experiencing it with her children” (p. 789). Sharing my experience with my daughter at home and in her classroom reinforce my passion in environmental education and nature encounters in the classroom. It creates real-life authentic learning experiences that I was hoping to achieve. And, more interestingly, is not necessarily always in a traditional classroom setting as Maller (2009) and Walter (2013) describe in their investigations or using an outdoor or alternative learning environment.
Figure 9. Classroom kit and hatching eggs.

**Chicks, Chicks, and More Chicks.** Chicks are irresistibly cute little downy balls that seem to make everyone smile. The chicks stage of this project propel me one step closer to my flock of backyard laying hens.

**Hatching.** After 21 days of incubation, the big day arrives. The hatching process starts with a pip – a small crack or hole in the egg shell. The soon-to-hatch chicks will use their egg-tooth, a small hard bump on the tip of their beak, to extend this crack and make a large enough opening to squirm their way out. Once the chick hatches from the shell, it has enough residual nourishment from the yolk to survive for approximately 24 hours, which allows time for the wet downy fluff to dry.
**Brooding.** Once removed from the incubator, chicks are placed in a brooder box and placed under a heat-providing lamp. I used a plastic tote as my brooder because it is easy to clean and transport the chicks between schools and home. The box was lined with wood chips, and special chick food and clean fresh water were always available to the chicks. Chicks grow incredibly fast and look significantly different in a matter of days. A week-old chick is markedly bigger and more ‘chicken-like’ than a day-old chick. They quickly become very active and lively birds as shown in Figure 10.

**Interacting with the kids.** The chicks were hatched at a secondary school as part of the SFL science program but also visited a nearby elementary kindergarten class. All of the students learned about eggs and developing chicks from in-class discussion and pictures in books; and, later students had the opportunity to interact with real live chicks. Hummel and Randler (2012) found that children exposed to living animals scored better than a control group not having live animal contact. They state “it seems conventional wisdom that most science educators would use living animals to lead to this deeper knowledge of their external characteristics and of their behaviour” (2012, p. 95) to which I am inclined to believe as well.

Experiencing the ‘hands-on’ contact with real live chicks puts the theory into practice. Maller (2009) describes how “schools are in an ideal position to provide both unstructured and structured activities involving hands-on contact with nature” (p. 538). It is this hands-on contact with nature at school that Maller so strongly advocates for connecting that exposure to children’s mental health and wellbeing. This not only enhances but also expands the learning experience as the kids get to physically observe and hold the chicks in their own hands; hereby, connecting the classroom
content to real-world. This is a perfect example of a non-traditional classroom creating an authentic learning opportunity.

All of the kids and adults were enamoured with the baby birds and it was hard to say goodbye at the end of the day.

Figure 10. Chicks.

**Chicken Husbandry.** I have had important conversations about the essential needs for animals with my students at school and children at home. Necessary items include simple things like food and water, housing, and protection as shown in Figure 11. But, there are also some of the other not-so-obvious things to consider, including the number of hens to make up the social structure of a flock. Identifying some of these items and talking about these topics allow the kids the opportunity to be empathetic and
put themselves in the chicks place to figure out what they may need. I have already mentioned that the Humane Education Programs (HEPs) exist and much of the lessons are teacher driven. The rationale for HEP is that “teaching children kindness to animals will result in animal-directed empathy, which in turn will generalize to human-directed empathy” (Arbour et al., 2009, p. 139). I see this as an opportunity to enrich my classroom and backyard and give my kids hands-on direct experiences with nature and living organisms. Although he argues that indirect and vicarious experiences of nature still play an important role, Kellert (2002) explains that children are highly attracted to the natural world, most particularly to its living forms. He describes how “a child’s experience of nature, especially of other animals, provides an emotionally powerful, if not secondary, basis for affective development” (p. 71). Further developing empathy towards animals or people is a wonderful outcome to a project like this.

![Figure 11](image.png)

*Figure 11.* Items needed for chicken husbandry.
In the following section of this chapter I discuss a pamphlet that I have developed promoting a chicken coop project. There are connections to learning outcomes of most subject areas, as well as other not-so-obvious aspects to the coop project. It serves to reinforce that this could be implemented in a single classroom or to a larger group.

**Summary of Pamphlet**

I decided to create a pamphlet resource that presents a chicken coop project. I chose a tri-fold pamphlet design primarily because it is visually appealing and could concisely convey the information I wanted to share, in an easy-to-read document. I wanted to provide teachers with a resource that presented curricular aspects of this project that may not have at first considered.

The pamphlet is designed so that it clearly summarizes many subject-specific learning outcomes highlighted in a central table (see Table 1 and Appendix). I have stated the subject area and described some of the topics and learning outcomes that could be addressed within. For example, in math, one could teach or review geometry by looking at the shapes and measurements within the coop design. This could be extended to include area and volume calculations that would need to be done in order to determine materials and costs. A teacher would be able take this on within their own class, or the project could be completed across the curriculum as a whole school by including different classes. A math class could roughly design the coop with focus on measurements and costs then pass along to a drafting or design class to develop detailed plans. The carpentry or tech-ed class could take those plans and in turn build the structure, learning about construction and using the appropriate tools in the process. It could be painted in a certain colour scheme or with a specific image, like with a school
mascot or logo, by an art class. Incubating eggs could be part of a science class and easily aligns with many levels of science curriculum. Meanwhile themes of sustainability, environmental impact, or any other related to chickens could become a topic for compositions or in-class discussion within humanities classes. The pamphlet reinforces the potential to create and develop healthy curricular relationships within a class, school or community.

Table 1

Subject-Specific Learning Outcomes of Coop Project

<table>
<thead>
<tr>
<th>Subject</th>
<th>Learning Outcome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foods</td>
<td>Nutrition of egg and chicken</td>
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<tr>
<td></td>
<td>Where food really comes from</td>
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<tr>
<td></td>
<td>Home-based food production</td>
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<tr>
<td>Math</td>
<td>Geometry of coops</td>
</tr>
<tr>
<td></td>
<td>Trigonometry of roof and ramps</td>
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<tr>
<td></td>
<td>Unit price for construction materials</td>
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<tr>
<td></td>
<td>Volumes and areas coop/run</td>
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<tr>
<td>Environmental Ed</td>
<td>Environmental impact</td>
</tr>
<tr>
<td></td>
<td>Using re-purposed materials (green initiatives)</td>
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<tr>
<td>Tech-Ed</td>
<td>Construction of coop/run</td>
</tr>
<tr>
<td></td>
<td>Use of hand and power tools</td>
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<tr>
<td></td>
<td>Building code and zone restrictions</td>
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<tr>
<td></td>
<td>Structural engineering principles</td>
</tr>
<tr>
<td>Science</td>
<td>Biology of chickens</td>
</tr>
<tr>
<td></td>
<td>Chemistry of feed and manure</td>
</tr>
<tr>
<td></td>
<td>Physics of egg structures</td>
</tr>
<tr>
<td></td>
<td>Essential needs for animals</td>
</tr>
<tr>
<td>Social Studies</td>
<td>Positive/negative aspects of raising chickens in residential environment</td>
</tr>
<tr>
<td></td>
<td>Key health and safety issues</td>
</tr>
<tr>
<td>Art</td>
<td>Architectural style (colour, form, texture, etc)</td>
</tr>
<tr>
<td></td>
<td>Physical sketches and modeling</td>
</tr>
<tr>
<td>Language Arts</td>
<td>Interpreting bylaws and restrictions</td>
</tr>
<tr>
<td></td>
<td>Writing compositions</td>
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</tbody>
</table>
In the brochure, I present this coop project as a means of reconnecting to nature through: recreating a sense of wonder, developing empathy, instilling good work habits through animal husbandry duties, and identifying and meeting animal essential needs. These are clearly identified in Table 2. The importance of a (re)connection to nature has been discussed earlier in the literature review and deserves mention again as nature encounters benefits all parts of a healthy self and learner.

Table 2

<table>
<thead>
<tr>
<th>Topic</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating Community and Building Relationships</td>
<td>Collaboration within group</td>
</tr>
<tr>
<td></td>
<td>Demonstrate expertise</td>
</tr>
<tr>
<td></td>
<td>See the plan come together</td>
</tr>
<tr>
<td>(Re)Connection to Nature</td>
<td>Recreate a sense of wonder</td>
</tr>
<tr>
<td></td>
<td>Develop empathy</td>
</tr>
<tr>
<td></td>
<td>Instill good work habits through animal husbandry duties</td>
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<tr>
<td></td>
<td>Identifying and meeting animals basic/essential needs</td>
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<tr>
<td>Environmental Impact</td>
<td>Green initiatives</td>
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<tr>
<td></td>
<td>Re-purposed materials</td>
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<tr>
<td></td>
<td>Develop and clarify ecological identity</td>
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<tr>
<td></td>
<td>Backyard to table</td>
</tr>
</tbody>
</table>

The brochure also identifies the importance of environmental education and developing ecological identity. This is not a new trend in education. Rather, Louv (2008) states that “the concept of environment-based education – known by a number of names – is at least a century old” (p. 203). He further describes “while environmental education focuses on how to live correctly in the world, experiential education teaches through the senses in the natural world” (p. 203). The pamphlet also presents this
project as a method to meet larger environmental education goals: reducing global impact, incorporating green building initiatives by using repurposed materials, develop and identify ecological identity, and reinforce the concept of backyard to table in our food sources. These are just some examples of topics that could be addressed within the classroom as a result of incorporating this coop project.

In the following sections, I list and discuss the benefits of several resources for teachers that I have found and used in developing this project. Although I used many more resources than are presented below, I have chosen to discuss what I consider to be the best across many media – from books to websites.

**Useful Resources**

Teachers are very practised in developing ‘good lessons’ for their classes. With access to so much information, they often take existing materials and modify so they can implement effectively into their own classes. The common saying “don’t reinvent the wheel” really does apply here and anyone deciding to take this sort of project on should consider the resources that already exist. There are countless websites and books that relate to chickens somehow, although many are not very useful. I’ve identified some of the better resources that I encountered during this project in hopes for saving someone else hours of fruitless searching. The items below would be a great starting place for any interested teachers if they want to learn more about chickens, coops, and incorporating this into their classroom.

**Best Book.** Storey’s Guide to Raising Chickens by Gail Damerow

This book is the ‘best-of-the-best’ chicken book, see Figure 12. It contains all someone would ever need to know about care, feeding, and health of chickens –
applicable to layers, meat-birds, and show-birds alike. I recently received this book as a gift and it will be a treasured item for many years to come. It could be become part of a personal, class, or school library and provide valuable information.

*Figure 12.* Best book on raising chickens.

**Best Website.** BackyardChickens.com - [http://www.backyardchickens.com/](http://www.backyardchickens.com/)

This website has almost anything and everything relating to chickens and was by far the best website that I came across. You can view over 1000 coop designs, and read descriptions of each. There is a discussion forum with all imaginable topics related to chickens. The extensive chicken breed database presents the different breeds of chickens (there are far more than I realized) and provides ample information for each. In the raising chickens learning center, there is information and links to find detailed information on a specific topic. The discussion forum provides an area to post a question, comment in response to someone else’s question, or browse and read about
other’s experiences. Lastly, the search feature is great as it allows you refine your search to a specific term or item. These website features are shown below in Figure 13.

Backyard Chickens was initially formed in 1999 as the result of an interest in chickens that turned into an obsession. It has grown into a vibrant community of more than 280,000 chicken owners and there are about 6000 new posts per day. Site content may change without notice, so be aware of the temporary nature of this type of resource.

![Figure 13. Screen shot of BackyardChickens.com homepage.](image)

**Best Website Supporting Curricular Content.** Autodesk Digital STEAM Workshop – Chicken Coop - [http://digitalsteam.autodesk.com/subjects/chicken-coop](http://digitalsteam.autodesk.com/subjects/chicken-coop)

This website has a very well-stocked resource page and with a bit of navigation there is a lot of useful content here, see Figure 14. There are links to a project overview, learning objectives, differentiated instructions, math & science matrices, extension ideas, concepts addressed, prerequisites, project discussion guide, day-to-day plans, STEAM (Science, Technology, Environment, Art, Math) connections, build it, and assessment processes. Often the links are directed to a pdf document that could
be downloaded, saved, and referred to in future. Because this is a website, I would suggest downloading documents when available as they may not always be accessible.

Figure 14. Website with links to teaching resources.

Conclusion

Within this chapter I presented my coop project within three main sections. The photos and description provide a step-by-step overview of the coop construction and in acquiring my flock. The educational pamphlet serves to present a chicken coop project as means of meeting many curricular learning objectives and goals within environmental education. And lastly, the supplemental resources that I have suggested will provide a starting point for any educator who would like to pursue this themselves.

In the following chapter I will discuss several concluding elements to this project. I will start with a brief summary of this project then describe how the MEd program has reinforced certain aspects of my professional thinking. I will connect my coop project to my school and showcase how it aligns with current school-wide goals and philosophies. I will conclude with a few key recommendations for other educators who may be interested in engaging in this project topic.
Chapter 4 – Final Thoughts

This chapter culminates my last two years within this Master’s program, and provides an opportunity to reflect back on the process. The combination of coursework, working closely with cohort members, and my professional teaching experiences enabled me to successfully complete this work. I was able to draw from earlier courses for fundamentals of educational pedagogy and changes that may come with 21st century learning model. Whereas, the latter courses provided opportunities to connect to specific subject-matter, in the end, I was able to apply my graduate experiences toward the rationalization, creation and completion of my chicken coop project.

Summary of My Project

The project that I presented in Chapter Three involves three main components. Firstly, I presented photos and a description of my process in building my own backyard chicken coop. The background information and motivating factors discussed provide insight as to what I value as a parent and a teacher. I place a high importance being an active learner and created my own authentic learning opportunity within this project. In school, I emphasize the importance of encounters with nature, and when possible, incorporate experiences with animals into the classroom. The literature that I explored suggests that nature has a positive effect on various aspects of a healthy, whole person including the cognitive, mental, physiological, spiritual, and behavioural self. And, for me, bringing a natural element into the classroom is an easy way to support my learners.
The second component of my MEd project was the creation of an educational brochure. This document highlights important teaching aspects of a chicken coop including examples of subject-specific learning outcomes, opportunities for building positive relationships within the class, and topics to address in environmental education. I have made it visually appealing and it can serve as a stand-alone item to present in professional learning contexts, and to support the development of a coop project in other school contexts.

Lastly, I share a list of helpful resources that I encountered during my research stage. All three resources that I have carefully selected to share - the book, informational website, and educational website - are all great starting points for anyone thinking of pursuing a coop project on their own. It can be overwhelming to dive right in on a large project like this, so I am hopeful that each of the above will provide some insight and helpful direction.

Being mindful of the project that I was developing, who could use this resource, and of creating something of value, were all important factors in this project. I wanted to create a product that would have lasting value and not become part of a stack of paper on a shelf to only be looked at on occasion. My own completed coop will be a daily positive reminder to me of the last two years’ work, and a wonderful addition for my family.

Changes to My Teaching

I am surprised that my initial ideas surrounding a backyard chicken coop would develop into a project of this magnitude. Although originally a project rooted in personal
interests, this quickly moved into my teaching world. I did not have to look hard to find the curricular potential to my backyard chicken coop as there were identifiable learning opportunities at every step.

One of the reasons that I decided to pursue a chicken coop as a topic for my MEd project was because it was a hands-on project that I could ‘do’. Some people argue that there are distinct learning styles, and there seems to be general agreement amongst teachers and psychologists about the importance of a ‘hands-on’ component of learning. Most of the fondest memories that I have of my own high school experience were things that I was actively involved in, and ones that I had some degree of choice in the process. Labs, field trips, and projects had a more lasting impact than the daily math lessons. For these reasons, I wanted this project to be a hands-on project where I could immerse myself in the process and enjoy the learning while doing. This experiential approach to my project serves to reinforce the importance of my ‘lived-experience’ as well.

This has prompted me to take a closer look at how I can incorporate more of my students’ lived-experience(s) into my classroom. It is important to make connections between school and home so that students can walk away at the end of the day feeling that they have truly learned something of lasting value. In researching the literature, I found many connections to experiential education, hands-on nature encounters, and several of the articles focused on ‘at-risk’ or minority youth. I found it fascinating that some of the identifiable outcomes of my chicken coop project could serve to support a broad spectrum of learners – the keeners, the shy kids, the girls, the at-risk, the minority
students, etc. I am excited that I have developed a project that has potential to appeal to so many learners.

As a secondary level science and math teacher, there is a feeling that I have to keep up a rapid pace to ensure that I cover all the prescribed learning outcomes that will be on the final test. This program has allowed me to view this approach a bit differently. I have tried to focus less on the tight timeline of a particular course, and more on the interconnectedness of the topics within it. It is a hard mindset to change – that I may not get through every single lesson that I had planned. But, if my students are learning and demonstrating their learning in a variety of ways on a regular basis then I have done my job well.

Changes for Career, Colleagues, School or District

I have already made and will continue to make changes to my approach to teaching as a result of my graduate experiences. This program was the motivation that I needed to take a closer look at what I am doing, what I want to be doing, and how I am going to make things happen in my classroom. There were many positive experiences that I will take away from the past couple of years.

The cohort model of the program was rewarding as I had the opportunity to work closely with several teachers that were ‘just down the hall’. This provided the opportunity to work collaboratively on projects and get to know some of these teachers, professionally and personally, over the past couple of years. Master’s content was woven into daily conversations and served to reinforce that content into our daily teaching practices.
I am curious as to how these experiences will affect my colleagues in the future. My project may be seen as an opportunity to build an engaging project within my school. School culture, including establishing and developing overarching relationships between students, is an important goal at my school. All of the steps involved in my coop project could be a part of a unifying project that students within the school could contribute to and see the collaborative output. I hope that it is perceived as a great opportunity to build and perpetuate school culture and community.

Another aspect that I hope comes to light as a result of this project is tied to environmental education. I encountered a number of articles that could be characterized as ‘all doom and gloom’ about our environment, and how poor things are now compared to recent past. The message I take away, and promote, is that it is not too late to change for the better. There are many things we can do to help decrease our global footprint and lessen our negative impact on the environment – some may be drastic and unrealistic, yet others are very achievable. If we do not make a concerted effort to conserve our natural environment, there will not be much to enjoy later on. Conserving and learning about the natural environment is also a relevant and popular topic in many schools. At my school in particular, there is an outdoor club that is active in outdoor adventures and retreats, an environmental club that discusses environmental topics and shows environment-related movies, a garden club that maintains the successful school garden, and individuals that promote cycling as a main mode of transport.
Recommendations for Others

I have several recommendations for other educators who may be interested in engaging with a project like this. Firstly, I would suggest that anyone choosing to embark on this coop project should be aware of its potential magnitude. As I mentioned in earlier chapters, it was not as simple as ‘build a chicken coop and get some chickens’. My underlying themes of using repurposed materials and coordinating with a couple other teachers to incorporate the chickens into their science classes, were added steps that sometimes appeared as hurdles to slow me down. This is also a project where one can be immersed in and get caught up with the finer details. In actuality, my backyard coop has features that are not necessary for keeping chickens, but are niceties that make the finished coop better for the chickens. I would suggest having a clear plan of what you want to accomplish and keep the focus simple. If you will be doing this as a project in the classroom, there may be a lot of prep work ahead of time before putting eggs in the incubator. Incubating eggs will afford three weeks of time to learn about chick development and other aspects, but that may not be enough time to do all the necessary steps relating to coop construction and other steps in readiness for keeping chickens.

Secondly, I would suggest that whoever takes on a project like this would connect wholly. I find that the subjects that I am most interested in will transform into great lessons with my students. The kids know if someone is merely teaching to the prescribed learning outcomes or if they are truly invested and keen on the topic being taught. Making it authentic is important to make the project successful.
Lastly, prepare to be challenged and be open to learning. I have always liked school and learning, and expected to continue this life-long process as a teacher. This project provided so many areas to research, experiment, reflect on, and share with others. I got a few raised eyebrows from friends, neighbours, and colleagues when I shared details of my coop project. However, everyone was incredibly supportive once I pointed out the obvious connections to learning. This is not a project that I would haphazardly take on, but it fascinated me and I was hooked right from the start. After completing the coop and interacting with the chicks, it proves to me that it was a challenge worth taking.

**Finally,** as I complete this project, I feel a deep sense of fulfillment. With the encouragement of a teacher colleague and friend, I applied to the Master’s program and whole-heartedly accepted the challenge that lay ahead. Although these challenges are now behind me, I am left with much of lasting value and am pleased that I committed to and completed the professional, academic and personal work and rewards involved in this graduate program.
References


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Kuo, F. E., & Faber Taylor, A. (2004). A potential natural treatment for attention-


Appendix

Tri-fold pamphlet of chicken coop project.
Teaching teachers...
With assistance of some

University of Victoria
An Med project

Shannon Kilgrew

Step.

opportunities at every

... there are learning

From egg to chicken...


Beginning Franklin

Inquire me and I learn

Tell me and I forget.

Tell me and I forget.