School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills

Research Partnerships Program Interim Report

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Section 1: Introduction

Rationale for the Research

Some Alberta schools have created impressive off-campus programs or clubs to give students opportunities to engage with agriculture, such as the award-winning *EcoVision* created at École Secondaire Lacombe Composite High School (LCHS EcoVision, n.d.). The Green Certificate Program (Government of Alberta, 2024) is another example of off-campus experiential learning in agriculture aimed at Alberta high school students. And on a smaller scale, some schools have garden plots, classroom pets or classroom incubators to hatch chicks. For New Humble Community School (NHCS) where this research is being conducted, however, agriculture is not simply a program, one-time project or extracurricular opportunity. Agriculture is the school's *raison d'être*. When families send their children to NHCS, they know that all students will learn "through innovative agricultural and experiential land management education" (New Humble Community School, n.d., p. 1). NHCS families can also expect the values, attitudes, and knowledge that constitute agriculture as their community's way of life will be modelled, and that the role of agriculture in their rural community's history will help students understand their place in the provincial and global agri-sector. NHCS is ideally positioned to help us understand how an innovative learning environment impacts upon elementary students' learning and development.

In April 2022 when our research partnership was beginning to develop, we hosted a "Growing Together" (Stelmach, 2022b) engagement dinner at a country hall near the school. During the table talk parents, teachers, and community members commented that while becoming farmers is not the end goal for NHCS students, they believed NHCS graduates will develop lifelong bonds through agriculture, which will anchor them to the community no matter where their post-secondary lives take them. Further, they expressed that an agriculture lens will teach students "obligation, responsibility and consequences", develop "continuity between what students learn at school and their lives in the home and in the community" (p. 3), and that agriculture inherently emphasizes life skills such as problem solving, cooperation, work ethic, and leadership. Our research partnership was inspired by NHCS's investment in agriculture as its vision and mission, and is motivated by a mutual commitment to rural school innovation. Since agriculture is the foundation of NHCS, all students

engage with agriculture in some way and are surrounded by things that are growing (e.g. animals and plants), and people who are involved in and/or contribute to the agri-sector. How does such an environment enhance students' learning? What life skills do students develop through their agricultural activities? These questions underlie our study.

Research confirms that because of its hands-on nature, agriculture has a positive impact on academic outcomes and school experiences (Knobloch et al., 2007), but most of the literature is based on episodic experiences, and primarily in the upper grades. We also know that learning environments positively impact student outcomes (Wang et al., 2020), but what has garnered most research attention is explorations of individual elements of the physical classroom (e.g. lighting, furniture), psychosocial elements of schools, and trends such as technology-rich classrooms (see Fraser, 2023). Our study is an opportunity to extend our understanding of how agriculture as a central focus in a school can shape a positive learning environment for Kindergarten to Grade 6 (K-6) students, and to appreciate how younger children learn and develop through agricultural literacy. Our study assumes that agriculture allows learning to have multiple dimensions, including a connection between home, community, and "classroom", which more fully considers how children learn across various environments. Moreover, we are interested in how an agriculture-focused environment itself shapes students' relationship with school.

Project Background

New Humble Community School (NHCS) is a rural public charter school that was approved by Alberta Education to begin operation in the 2021 – 2022 school year. Because it is a charter school, it is technically New Humble Community School Association (NHCSA), but everyone knows it as "NHCS" or simply, "New Humble". The school's historical roots extend back to 1900 when Thomas Humble donated land on which Humble School was eventually built. The current building is the fifth bearing the name of Humble (NHCS Charter, n.d.), but if you walked into the school's gymnasium today, your eyes would be pulled toward a large mural of Mr. Humble and the first school building. History has a presence here.

New Humble Community School was a member of the Black Gold School Division until the Board of Trustees voted in favour of permanently closing it on June 30, 2020. The current Board of NHCSA chose to retain the name of the school instead of severing those deep roots to Mr. Humble. NHCS is as rural as rural schools can be as it is situated along Secondary Highway 795 about 10 kilometres south of the Town of Calmar. NHCS has modest acreage for its barns, pens, garden, playground, and ice rink, but the development over the two and a half years of its existence has been impressive. When I first came to the school, there were a couple of small barns for chickens, two goats, and a pig, and an outdoor classroom with a whiteboard and a seating area. Thanks to community and corporate donations (e.g., Cargill), there is now a large heated barn that includes classroom learning space with tables and benches, feeding systems, more animals, barns and pens, a garden and composting station, outdoor washroom facilities, and secure fencing.

In its first year of operation the student population was 80, and except for Kindergarten, classrooms were combined grades. There were four teachers, two education assistants, two support staff, and a custodian. Today, the student population is 127, and there are teachers and education assistants for each separate grade. About half of the students at NHCS hail from acreages and farms, and the other half from town. The school relies on Black Gold School Division bussing. There are, however, 37 students who live outside the transportation boundary whose parents have chosen to drive them daily to NHCS.

Charter schools are overseen by a part-time superintendent. Doug Nicholls is the current superintendent. The principal at NHCS, Halea Kohel, is a teaching principal who has the support of a secretary-treasurer, front office staff person, and custodian. There are now seven full-time teachers at the school, one of whom is an outdoor/physical education specialist who facilitates the Physical Education and Wellness curriculum for K-6. There are six education assistants. One of these education assistants plays a leadership role by overseeing the livestock operation with the students, and handles the recruitment, hiring, and training of the student barn crew as well as all tasks related to animal health and infrastructure. Education assistants participate in professional development days with the teachers. Non-teaching staff members are leaders in the school working directly with students. For example, they were instrumental in initiating an afterschool archery program, and they

work with students on maintenance tasks such as laundry, egg sales, and shovelling sidewalks. Regardless of designation, all staff at NHCS interact with students and can be said to contribute to students' development.

Most of the teachers, staff, and board members are from the Calmar area or other rural contexts, have a passion for agriculture, and/or a philosophy that supports experiential learning and engagement with nature. Some have family who once attended the school, and there is overwhelming parent and community support for the school judging from the financial donations and volunteer hours they have contributed. One teacher told me that on a daily basis there are parents in the school helping out, and that aligns with my observations when I have visited the school. A strong sense of ownership characterizes the NHCS community.

Literature Review

"What is fascinating about *learning* is that it cannot occur without *experience.*" (Morris, 2020, p. 1064, emphasis in original)

"Agriculture is, by nature, a hands-on discipline." (Mabie & Baker, 1996, p. 2)

In the above, Dewey's (1938) philosophy endures. Dewey believed students cannot develop intimate knowledge of any subject matter without having direct and meaningful experiences. The New Humble Community School (NHCS) charter embraces a Deweyan philosophy by envisioning learning through agricultural literacy, experiential learning, and land stewardship. Pairing agricultural literacy with experiential learning makes sense as Zilbert and Leske (1989) argued that "agricultural education has always had a strong orientation toward learning by doing, or experiential learning" (p. 1).

Experiential learning and agricultural literacy have long histories; their scholarly importance is signalled by two prominent peer-reviewed journals. The *Journal of Experiential Education* and the *Journal of Agricultural Education* were established in 1978 and 1983, respectively. Experiential learning philosophy has global reach because of organizations such as the American-based Association for Experiential Education, which is celebrating its 50th anniversary. On local soil, the

Classroom Agriculture Program (2022), an initiative of an Alberta-based charitable organization called Agriculture for Life (2022) established in 2011, have been stable complements to national initiatives such as Canada's Youth in Agriculture program (Government of Canada, 2022) and Canadian Agricultural Literacy Month (Government of Canada, 2021). While agriculture and learning through real-life situations is celebrated in Canada, most research has been conducted in American schools (Cosby et al., 2022). Our project will contribute new empirical data to inform local educators about the potential benefits of integrating agriculture into Alberta's curriculum. This literature review includes a synthesis of research on experiential learning, agricultural literacy, place-based education, and learning environments.

Experiential Learning

Many terms are associated with experiential learning: inquiry-based learning, student directed learning, active learning, problem- and project-based learning, and service learning (D. Blair, 2016; Breunig, 2017), but the common thread among these is an emphasis on student autonomy and inquiry, purposeful and pragmatic application of theory, and experimentation and reflection. Kolb (1984) is the most influential theorist regarding experiential learning. Kolb conceptualized learning as a cyclical and recursive process beginning with concrete experiences, then moving onto and between observing and reflecting, abstract thinking, and active experimentation. The etymology of "experience" provides a clue to its value as a teaching approach; in Latin, "experience" means "to test…or risk" (Roberts, 2018, p. 1072). When students engage directly with curriculum vis-à-vis ill structured and concrete problems, they experience cognitive dissonance, and have opportunities to develop cognitive flexibility, tolerance for novelty, adaptability, and creative problem solving (Collins et al., 2016; Roberts, 2018). Eyler (2009) argued that experiential learning affords students benefits beyond school as it prepares them to deal with ambiguous situations and promotes lifelong learning.

Experiential learning tends to be studied within science, math, and outdoor education. In these domains, the evidence is positive. Allf et al. (2020) and Santhalia & Yuliati (2021), for example, found that experiential learning in physics and chemistry improved competencies. Among primary students, project-based learning has been shown to be more meaningful for students,

increasing their motivation, autonomy, and independence (Kaldi et al., 2011). Early research in international contexts showed that experiential learning enhances critical thinking, work habits, and productivity (Tretten & Zachariou, 1997). When assignments are linked to real-life situations and students are required to work cooperatively, they are more actively engaged (Curtis, 2002) and develop positive attitudes about group work (Veenman et al., 2000). Research also shows that experiential learning is especially effective in improving academic outcomes and social behaviours among lower-ability students (Horan et al., 1996; Liu & Hsiao, 2002) because it honors diverse ways of learning and allows students to learn at their own pace. Online learning also provides opportunities for experiential learning. Drljević and colleagues' (2021) study of 7- and 8-year-olds' learning through augmented reality demonstrated increased student engagement on all dimensions proposed by Fredericks et al. (2004, 2011)— behavioural, emotional, and cognitive. They concluded that augmented reality allowed for connectivity with reality, multi-sensory experiences, and interaction with others.

Asfeldt et al. (2021) cited Passmore's 1972 study as one of the earliest documenting the impact of outdoor education in K-12 schools throughout Canada. They summarized the following benefits: "enhancing ecological knowledge; developing social and cultural values; stimulating student interests; providing challenging and adventurous outdoor learning; and personal growth" (p. 298). Outdoor learning not only results in cognitive outcomes across disciplines, but social and emotional outcomes for young learners, including self-efficacy, self-esteem, self-acceptance, and environmental, place and people consciousness (Asfeldt et al., 2022; Fuller & Irvine, 2010; Howard et al., 2016; Nisbet et al., 2011; Phenice & Griffore, 2003).

What unites the above studies is they show that when learning is student-centred, it gives students meaning, control, and connectedness (Morsillo & Fisher, 2007). When I go out with the student chores crew, I witness what Fromm (1964, as cited in Uhlmann et al., 2018) coined biophilia, "love of life or living systems" (p. 1). Something as simple as chores can connect children to nature, strengthen their relationship with and knowledge of food, trigger emotion and responsibility toward each other and non-humans, and enhance interconnectedness between their schooling, their personal lives, and their community. Importantly, knowledge alone does not, for example, change children's

food choices (Sloan et al., 2008) or help with goal setting, sense of ownership, or appreciation for diversity. As Kelly (2007) noted, “learning is a by-product of our engagement”, and we cannot take for granted the role that “awe and wonder” (p. 13) play in enhancing children’s learning. What scholars have not focused on, is how a comprehensive approach to curriculum at the elementary school level can enhance not only children’s attainment of curriculum outcomes, but their life skills development and learning enjoyment.

Agricultural Literacy

The definition of agricultural literacy has evolved from basic understanding of agricultural facts to “a deeper understanding of the economic, social, science and technology aspects of [agriculture] coupled with the ability to synthesize and communicate such knowledge” (Cosby et al., 2022, p. 12). The most current definition of agricultural literacy involves deep “understanding of the economic, social, science and technology aspects of [agriculture] coupled with the ability to synthesize and communicate such knowledge” (Cosby et al., 2022, p. 12). Charlebois et al. (2021) found in their survey of over 10,000 Canadians, that since the COVID-19 pandemic, Canadians have increased interest in knowledge about how their food is created, but food literacy has not significantly increased. Reports of Canadians’ lack of knowledge about how their food is created (The Canadian Centre for Food Integrity, 2019) is concerning, but in fact, the agri-food system far exceeds primary agriculture. In the *AgriCommunication Initiative Baseline Survey* (Government of Canada, 2020), 63% of Canadians reported they feel somewhat knowledgeable about agriculture or the agri-food sector, which includes “agriculture’s important relationship with natural resources and the environment, the marketing of agricultural products, the processing of agricultural products, public agricultural policies, the global significance of agriculture, and the distribution of agricultural products” (Frick et al., 1991, p. 52). Regarding students, Hillman & Buckley (2011) claimed they are largely disconnected and have shallow knowledge of agriculture. Since fewer people are directly involved in agriculture, agricultural literacy is imperative to ensure that policy and practical decisions are made by those who understand the complexity of the issues.

Experiential learning and agriculture literacy are mutually reinforcing; therefore, it is unsurprising that they are companions in research. Quasi-experimental studies have focused on science and mathematics showing better student outcomes from experiential learning in agriculture,

compared to direct instruction (Baker & Robinson, 2016; Boyd & Miller, 2005). Studies also showed students scored higher on creativity and practical intelligence (Bradford, 2016), had better retention and higher order thinking, and were better at future application (Arnold et al., 2008). Brown and Knobloch (2022) recently concluded that students who participated in The Farming Game simulation involving a 4-H animal science project, fared better in post-tests about entrepreneurial knowledge than those in the control group. Further, students in the intervention group were described as "more likely to select challenging goals or goals that others have not considered, more likely to be a self-starter, as well as more likely to have diligence, innovation and efficiency in goal attainment" (p. 97). Jose et al. (2017) found that students' post-field trip drawings of local land and water features showed better recall, and featured more of the hands-on experiences in their drawings, attributing this to the *in situ* activities. There is, therefore, a strong quantitative evidence base showing the effectiveness of experiential agriculture learning.

Equally noteworthy are the qualitative reports of the academic, social, and emotional benefits of agriculture-based learning. In focus groups, students have reported having more appreciation for agriculture and rural life, and experiencing enduring effects of enrichment activities (Bradford, 2016; Knobloch et al., 2007). Students in Bradford's (2016) study craved hands-on activities saying it was difficult to connect to concepts through direct instruction. Erickson and colleagues' (2020) study of a poultry program suggested that students became more reflective, autonomous learners. Burke et al. (2020) reported on an inspiring example in which students successfully petitioned for new laws regarding single use plastics, demonstrating how students applied their knowledge of environmental facts and democratic processes to address a real-world challenge. Civic engagement develops political competencies, and increases social awareness, responsibility, self-efficacy and a sense of belonging (Wong et al., 2022). These studies confirm benefits for junior and senior high students, and our study will expand the empirical base for potential benefits of agriculture-based learning for elementary students.

Gardening predominates the landscape when it comes to agriculture in elementary schools (Hershey & Parks, 2022). Here, too, a narrow curricular focus is evident, with most research aimed at scientific concepts, nutrition knowledge, and changing children's food behaviour (D. Blair, 2009;

Canaris, 1995; Hanbazaza et al., 2015; Triador, 2015). Quantitative studies showed gardening led to increased scores on standardized tests—up to 92% in Lieberman and Hoody's (1998) often cited study—as well as higher thinking skills and enthusiasm for schooling (Emekauwa, 2004). D. Blair (2009) found statistically significant improvements in outcomes in four of 12 schools reviewed. Those that did not meet the significance criteria "reported that gardening groups had higher agricultural achievement scores than did students doing in-class projects" (p. 21). In their study of six school farms in British Columbia S. A. Blair (2022) found that farm schools not only increased food literacy, but positively impacted students' mental health and wellbeing, and were more supportive for "neurodivergent and culturally diverse students" (p. iii). The list of qualitative benefits of gardening for elementary students is long: science and environmental knowledge, enthusiasm, motivation, pride, teamwork, bonding, classroom climate, attendance, self-esteem, positive attitudes toward school, work skills, aesthetic appreciation, independence, level of activity, and delayed gratification (D. Blair, 2009; Casey et al., 2019; Hershey & Parks, 2022; Robinson & Zajicek, 2005). Especially affirming are the long-term effects of gardening, such as "environmental sensitivity, concern, and activism" (Casey et al., 2019, para. 9) and post-secondary pursuits related to agriculture and the agri-food industry (Doyle, 2014). While the literature helps us to understand the value of agricultural and experiential learning via projects, we do not have insight into how a comprehensive program focused on agricultural literacy across the curriculum may create additional value for academic and life skills learning for elementary students.

Research on the Learning Environment

Based on interviews with students so far, emerging ideas related to the importance of the learning environment warranted some exploration in the literature. This section is a 'glance' at the key dimensions only, for this is a vast and diverse body of knowledge. Where there is agreement is that the learning environment plays a pivotal role in shaping students' educational experiences, as well as influencing their social, emotional, and cognitive development. The literature has focused on physical and psychosocial elements.

Architecture scholar, Taylor (2009) called the physical elements of the classroom environment a "silent curriculum" emphasizing that how a classroom is structured could itself

facilitate and enhance, or impede the learning process. This concept has been prominent in educational research to understand how classrooms affect students' learning. Research on the physical environment underscores the importance of structural elements, such as lighting, classroom design, and seating arrangements. Barrett and Zhang (2009) and Tanner and Lackney (2006) emphasized that the aesthetics and flexibility of the classroom space can impact students' motivation and cognition. Other structural elements such as acoustics, temperature, density, color, and wall displays also have been determined to affect the learning space. High-density, or crowded, classrooms, for example, have been shown to create negative behaviour such as aggression and distraction. Whereas, low-density classrooms tend to encourage participation, friendship, and academic achievement (Spencer & Blades, 2006). Winterbottom and Wilkins (2009) collected data about lighting in 90 classrooms at the secondary school level. They found too much lighting from fluorescent lights or glare from interactive whiteboards, or too little lighting at the students' workspace were found to impair academic performance and create discomfort. Noise levels have also been shown to impact students' learning and school experiences. Prolonged exposure to noise from fans, machines, or even traffic, as well as classroom chatter had negative impacts not only on students' academic performance but also on their attitude toward their teachers and peers (Dockrell & Shield, 2004; Klatte et al., 2010).

Drawing on Vygotsky's (Vygotsky & Cole, 1978) sociocultural theory research on the social learning environment has explored social interactions, relationships, and community in classrooms. Parker and Asher's study (1993), though dated, is a rare longitudinal study in education that highlighted that positive peer interactions had a long-term effect on students' social development and well-being. Schools that emphasize an inclusive peer culture create an environment that not only enhances academic success, but promotes emotional resilience and sense of belonging. Group work that is well-structured, for example, increases students' engagement and creates positive interdependence (Cohen & Lotan, 2014). The quality of student-teacher relationships is another important aspect of the social learning environment. Research underscores that teachers who establish warm, supportive, and respectful relationships with their students create solid foundations and skills (Hamre & Pianta, 2001; Roorda et al., 2011). Further, when there is a sense of belonging for everyone

in the overall climate of the school, students develop a positive self-concept, diverse learners feel supported, bullying is reduced, and students perform better academically and socially (Cohen et al., 2009; Osher et al., 2008; Thapa et al., 2013; Wang et al., 2020).

Caine and Caine (1991) argued long ago that the "assembly line" model of learning where the students are in desks (often in rows) and the teacher delivers lessons does not align with evidence about how the brain processes information, and while that formation is shown to work to increase time on task and reduce discipline issues, experiential and problem-based learning more accurately promotes the way students gain knowledge. For this reason, these pedagogical approaches have become more popular, and this means it is not uncommon to see furniture arranged in ways that reflect flexibility and exploration in today's classrooms. On writing about the "silent curriculum", Taylor (2021) recently wrote that schools are "manifestations from which students can transform things into thoughts or ideas usually only found in textbooks" (p. 705). Taylor suggested the learning environment is "actually a three-dimensional textbook [and] meaning lies in rich multisensory stimuli" (p. 706). Spaces—indoors and out—are "cues" for meaning. Importantly, the design of a learning space can encourage students' capacity to "read" their surroundings, an awareness that Taylor calls "the knowing eye" (p. 705). A motto at NHCS is "not all classrooms have four walls". What happens when the classroom is 'everywhere' and agriculture is the theme? Our study has the potential to advance understanding of how students' relationship to school and learning is shaped by a non-traditional whole-school environment.

Place-based Education

Concerns about children's disconnection from community, environment, and culture, led to place-based education (Gruenewald, 2003; Orr, 2013; Sobel, 2004;), a pedagogy that has grown in popularity since the 1990s when it was introduced. Canadian scholars Judson and Datura (2023) observed that "conventional K-12 schooling remains an overwhelmingly indoor, individualist, and human-centered experience that is essentially place-*less*, rarely enacting the unique affordances of the local ecology or place-specific culture(s)" (p. 2). Place-based education prioritizes students' surroundings with the aim of creating a sense of attachment to and identity based on local communities. What makes place-based education distinct from other pedagogical approaches is that:

- place serves as a launch point for students to solve problems and develop knowledge that is transferrable beyond their local context;
- students are creators, not simply consumers, of knowledge; and
- students exercise more autonomy in their learning in terms of modalities, materials, and content (Smith, 2002).

In exploring New Humble Community School students' experiences learning through agriculture and in outdoor spaces so far, an emerging idea is that place itself contributes to their enjoyment, learning, skill development, and the meaning they attach to school; therefore, this strand of literature has relevance.

While geography and physical space is central in place-based education, 'place' is defined in more than geographical terms. For instance, in reviewing the literature on place-based education Yemini et al. (2023) argued that "local communities store intergenerational knowledge, skills, and systems of mutual support" (p. 3). Teaching and learning through place-based education, therefore, honors the political, social, economic, cultural, and ethical elements that shape a community. This extended conceptualization of place means that the narratives that impact a local place can be used to make global connections (Gruenewald, 2003).

Despite the popularity of place-based education and the work that has been done to broadly conceptualize it, research using this frame has been narrowly focused on environmental and scientific aspects of school while other school subjects seem to be absent (Yemini et al., 2023). In this regard, place-based education seems to have travelled the same narrow channels as agriculture education. Because of this limited focus, studies have focused on how place-based education influences students' environmental awareness and subject-specific outcomes, or teachers' ability to implement it vis-à-vis curriculum. For example, Can et al. (2017) measured biology teachers' pedagogical changes after facilitating a workshop on birdwatching. How agriculture emphasizes and/or contributes to a broad conceptualization of place, and how this shapes students' learning, skill development, and relationship to school may lead to a more comprehensive understanding of place-based education.

Conceptually, research in place-based education has explored the biophysical, political-economic, and socio-cultural dimensions. The biophysical dimension explores how humans connect with the physical and more-than-human beings in their surroundings (Ardoin et al., 2012). In their review of the literature focusing on the biophysical dimensions, Yemeni et al. (2023) found that place-based scholarship leans on a "simplified understanding of place" (p. 13). Environmental awareness has also been a focus, which makes sense given our current climate change concerns. These studies have generally been place-specific. Dan and Schroeder (2015) for example, reported on a water-resource camp focused on the Great Lakes which aimed to increase students' attachment to the Great Lakes region.

The psychological dimension of place has also been a focus of place-based research. This area of research has examined how the environment shapes identity and how closely individuals feel their environment aligns with their beliefs, values, and goals. For example, in examining children's perceptions of empty spaces such as grasslands, Eilam & Garrard, (2017) reported that children perceived empty spaces as lacking and wanted to correct this by putting buildings or people into the space. Yemeni et al. (2023) also summarized conclusions made by Rooney (2015) who studied how perimeter security fences on school grounds impacted children's experiences. Rooney found fences created in children a sense of separation from community, but also impeded their sense of independence because of the way the fences were perceived to restrict their mobility. These studies provide insight into how the physical elements of schools capture affective dimensions of place, but were based on conventional and urban schools. How does an agriculture environment influence how children feel about school? And to what extent does agriculture afford learning beyond the physical?

Challenges to place-based education are frequently discussed in the literature. The will to innovate beyond the classroom is often thwarted by accountability structures and pressure on teachers to ensure students perform on standardized measurements. Lack of time, funding and expertise are also frequently cited as obstacles to implementing place-based education (Brown, 2012; Can et al., 2017; Riveiro-Rodríguez et al., 2021; Velempini et al., 2018). Judson and Datura (2023) noted, creating meaningful encounters for children with the living world is not accomplished simply by taking them outside. They cited Cant et al. (2013) who suggested that "more than simply "getting

outside"…to develop a sense of connection, students need to get outside in ways that are "wonder-full" (p. 2). Wonder-full schools engage in students' genuine doubt (Wolbert et al., 2018) and intellectual humility (Ebels-Duggan (2015), which, respectively, encourage curiosity without the expectation of a "right answer" and develop students' ability to "refine [their] sense of not-knowing" (Wolbert & Schinkel, 2021, p. 444). Intellectual humility according to Wolbert and Schinkel challenges the current conceptualization of critical thinking. Wolbert and Schinkel argued that students have been primarily taught that critical thinking means to look for what is wrong in ideas, rather than to appreciate current knowledge and to assume there is something true and worthwhile to be further explored. This latter idea is what they called intellectual humility. Documented examples of wonder-full educational experiences of intellectual humility are usually taking place outside of the classroom. Current scholarship suggests that whether schools can create wonder-full curriculum is a function of teachers' capacity to facilitate it (Gilbert & Byers, 2017), and that itself is a challenge when conditions are not ideal. We are curious about how the environment itself can be a stimulus for children's wonder-full learning, how they can develop their "knowing eyes" (Taylor, 2021), and whether and/or how the more-than-human elements of an agriculture-focused school (e.g., livestock, garden) can also be 'teachers' both inside and outside the classroom. Underscoring our research questions is that learning is individual, social, and cultural, and that the multiple and place-sensitive dimensions of agricultural literacy as a whole-school focus might expand our understanding of how place is understood. In particular, we hope to dislodge thinking of agriculture education in terms of isolated lessons to promote STEM achievement to understand the value of agricultural immersion.

Research Questions

Our study is guided by an overarching question: How does experiential learning through agriculture foster curricular connections and life skills in K-6 students? This qualitative study aims to gain insight into children's learning experiences, and educators' and other stakeholders' perspectives on children's academic attainment and life skills development. We proposed to have two curricular foci: K-6 social studies and Physical Education and Wellness.

At this point, we believe the original research question is open yet directed enough to continue

to guide our study. We have noted, however, that it is challenging for younger students to articulate how learning through agriculture helps in specific subjects such as social studies and physical education, but they can easily share what they like about being in a school with agriculture. It is very clear that students enjoy agricultural activities, and that the animals and outdoor activities are a particularly enriching part of their day. When students talk about agricultural activities, they do not necessarily link them to a specific subject or curricular outcome, even though they unequivocally have detailed knowledge about agriculture that one would not expect of a student attending a 'conventional' school. We are continuing to explore the curricular delimitations we initially proposed, but also realize the value in looking more comprehensively at the qualitative impact of agriculture on students' school experiences, and focusing on the environmental factors and conditions that contribute to a positive learning experience. Thus, an additional question has emerged as important to consider: How does an agricultural learning environment shape students' relationship with school?

Further, while physical education and wellness outcomes are relatively easy to connect to agriculture because of its hands-on nature, in 2023 – 2024 the school hired a teacher with expertise in physical and outdoor education who teachers the K-6 Physical Education and Wellness curriculum. Focussing on that curricular area therefore, means an individual teacher would be central, and we aim for a whole school approach. On January 26th, the principal, Halea Kohel, and teacher/co-investigator, Rae Ann Van Beers, and I met to discuss our initial plan to focus on two curricular areas. We decided that in February I will conduct targeted observations of social studies classes and hold a focus group with teachers as these will be an opportunity to learn the potential and/or challenges of these curricular foci. We are cognizant that a new social studies curriculum is slated for implementation in 2024 – 2025, so we are considering the potential impact. A decision to shift the focus will be determined collaboratively with the principal and teaching staff, and in consultation with the Board of Directors. This consultative approach is one we have adopted from the beginning, and it has been successful. It is not unusual for qualitative research questions to evolve throughout data collection (Agee, 2009) and we are comfortable with the emergent nature of our project. However, our initial interest in how an agriculture-focused school environment impacts students' learning and development continues to be

the motivation for the study, and our initial research question continues to serve our purpose, with the addition of another question. Thus, our study is guided by these research questions:

1. How does experiential learning through agriculture foster curricular connections and life skills in K-6 students?
2. How does an agricultural learning environment shape students' relationship with school?

Section 2: Practitioner-Researcher Collaboration

Research Team		
Name	Organization	Role(s) and Responsibilities Identify the Key Contact and the Primary Investigator *can be the same person
Dr. Bonnie Stelmach	University of Alberta	Key Contact & Principal Investigator: oversight over data collection and analysis; hire and train research assistants; manage administrative responsibilities for grant, including report writing; obtain and update ethics for UofA Research Ethics Board (REB); budget management; maintain contact with NHCSA Board
Dr. Rae Ann Van Beers	New Humble Community School	Co-investigator: leads student research team training and mentorship; assist with data collection (e.g. collecting consent forms)
Halea Kohel	New Humble Community School	School Principal: key school contact for all research needs; meets with PI and Co-I to discuss steps in research, problem solve challenges with data collection; communicates with parents regarding student participation in research as per ethics procedures; helps with scheduling data collection episodes (e.g. communicate with teachers, grants permission to observe learning activities)
Dreann Wurban	New Humble Community School	Grade 1 Teacher: co-facilitation of the training and mentorship of Student Research Team
Aidan Ritcey (May – December, 2023)	Elementary Education, University of Alberta	Undergraduate Research Assistant, Aidan Ritcey, joined the research study in May 2023. Tasks: curriculum mapping of K-6 Physical Education & Wellness with National Agricultural Literacy Outcomes (NALOs) and NHCS-adapted NALOs; generated questions for student interviews; prepared interview cards for student interviews; conducted and transcribed

		student interviews; conducted classroom observations; reviewed literature. Because of student teaching in Winter 2024 Aidan could not continue as RA.
Brittany Green (September – December 2023; January – February 2024)	Faculty of Science, University of Alberta	Undergraduate Research Assistant, Brittany Green, has a leadership role in website development, but also assisted with transcribing interviews.
Student Research Team (4 Grade 5 students; 1 Grade 6 student)	New Humble Community School	Students are being trained and mentored to (a) serve as interviewers of the students in the younger grade and (b) to create knowledge mobilization products (e.g., videos); (c) to develop training manuals (print or video) with the chores crew as a way to support families taking on weekend/summer feeding responsibilities.
Explanation for Changes to Team (if any)		
In the original grant proposal, we believed all teachers would serve as co-researchers in some manner; however, this was not realistic. First, most of the teachers are either early career or new to the school this year and their focus is on their classrooms and settling into their profession and the community. Second, this is a small school with a lot of activities going on and it is important that they use their time on teaching and school-based responsibilities. There are ongoing invitations to participate, and I am respectful of their choices. Reporting and/or knowledge mobilization activities in the future may include interested teachers, but it will be their decision to participate, rather than a formal expectation. An exciting addition to the research team is the creation of a Student Research Team. This is a group of seven Grade 5 and 6 students who expressed interest in assisting with the research project. These students applied and interviewed for their positions. Some are going to be interviewers to collect data from younger students, and some are interested in being technology leads to work with the GoPro during "walking interviews" perhaps, but also to create knowledge mobilization products and training manuals for the barn crew. The latter will be evidence of students' agricultural knowledge. The Student Research Team attended an orientation meeting in December 2023, led by Rae Ann Van Beers and Dreann Wurban. The first training session took place on January 26, 2024. I attended both events and plan to fully support Rae Ann and Dreann in this aspect of the study. We have commitment from the Tech in Education group at the University of Alberta to assist with GoPro use, storyboarding, and creating videos. Shane Klein from Tech in Ed will be visiting the school to lead one of our Student Research Team training sessions. We are tentatively arranging a training session at the University of Alberta so that the Student Research Team can access video production equipment to understand the full process.		

Worth noting is that two teachers resigned from their positions in June 2023, and three new teachers were hired for the 2023-2024 academic year. Also, a new superintendent, Doug Nicholls, was hired in December 2023. Although the school has experienced staffing changes, this has not jeopardized the progress of the research. The superintendents have championed this study and maintained open communication. I communicate with the superintendent on relevant items, but primarily take advice from Principal Halea Kohel when the superintendent and/or Board of Directors should be involved in decisions. I wanted to respect the time that the new teachers presumably needed to become familiar with the school and get organized for their teaching, so I have spent minimal time observing their classes so far. I will increase classroom observations and conversations with these teachers going forward.

The Student Research Team lost one Grade 6 member whose family relocated. We will monitor whether an additional member will be recruited.

Research Partnership Overview

Charter schools in Alberta are unique in that a condition of their approval by Alberta Education is that they conduct research about their innovation. The partnership between NHCS teachers and staff and me began when the former acting superintendent of NHCS, Dr. Guy Tétrault, contacted Dr. Trudy Cardinal at the University of Alberta in the 2021 – 2022 academic year to inquire about faculty who might be interested in research at the school. That email was forwarded to me, and because I coincidentally had just received a modest internal grant from the faculty to address the deficit discourse that plagues rural schools, I was immediately interested in this school's unique approach. The stars aligned.

The partnership began in January 2022 with meetings with the teachers, leaders, and Board of Directors to discuss research. I conducted school and classroom visits with my then undergraduate research assistant, Sam Pelkey, to become familiar with the students and staff. I chose to employ a community-based philosophy (Wallerstein & Duran, 2003) because such an approach aligns with what I know about rural community values, having been educated and raised, taught, researched, and now living in rural Alberta. Also, based on my initial engagement with the school staff and teachers, I could sense we all embraced the importance of community. For example, Sam and I were gifted a carton of eggs from one of the family farms at our first meeting with the teachers and Board of Directors members. That carton of eggs sealed the deal for me; I felt immediately welcomed.

Thanks to a Kule Dialogue Grant (Stelmach, 2022d) from the UofA, we began by hosting a community dinner in April 2022 to learn the perspectives of families and community members regarding the school. This event honored our community-based approach. Following the event, I reported to the staff and Board of Directors a synthesis of the feedback (Stelmach, 2022b), followed by a proposal of potential research directions (Stelmach 2022a). I then invited the teachers and the Board of Directors to provide feedback. Via email, then Chair of the Board of Directors, Kristen Kuhn wrote:

> *Bonnie, the report you shared actually got me a little bit choked up once or twice, in a good way! I am hugely interested in each of your ideas, and to put it bluntly, you get us. This report reinforces to me that you have an excellent grasp on both what we are trying to achieve, and why we feel it's important. We have a deep appreciation of your interest and understanding, and your own passion for our little school.*

Our discussions ultimately led to our current project.

I was invited to facilitate a professional development day with the teachers, which was an important step for me in terms of supporting their development in working with the National Agricultural Literacy Outcomes (Spielmaker & Leising, 2013), the framework that was foundational in their Charter application. I also wanted to demonstrate my commitment to mutual benefit, so I developed a curriculum mapping template to support facilitation of that workshop. This gave teachers opportunities to map select curricular outcomes to agricultural literacy, and identify concrete ways in which they could bring the learning to life through agriculture and/or the outdoors and experiential activities. Since then the teachers have tailored the National Agricultural Literacy Outcomes (NALOs) to align with their local context and Alberta curriculum. Additionally, I wrote a literature review on agriculture education in secondary school settings to support the Board of Directors' future planning (Stelmach, 2022c).

We proceeded optimistically after submitting our proposal to the Research Partnerships Program in November 2022 by conducting a pilot study in February and March 2023. The pilot gained insight into how students' engagement with animals impacts their school experiences. Through

another Faculty of Education grant, I hired another undergraduate research assistant, Jihoon Jang, who was an Elementary Education specialist. This was ideal for me as my focus in research has been on secondary schools and parents. Jihoon was outstanding in terms of modelling how to engage with elementary school students in interviews, to come up with questions that were appropriate for their age, and to suggest creative ways to conduct interviews with the students. Data collection was unequivocally refined because of the pilot, and my own understanding of elementary students was deepened. Further, being an urbanite, Jihoon provided me with fresh insights as he noticed things that I took for granted, and this helped me to see the contributions that an elementary education undergraduate research assistant could make to the project, including and perhaps especially ones who do not have rural schools in their background. When we were awarded a Research Partnerships Program conditional grant agreement, there was a smooth transition to the current study.

The above has set a firm foundation for the effectiveness of our partnership. The principal, Halea Kohel, has been particularly helpful in ensuring the data collection can proceed by getting the word out to potential participants, communicating with teachers and staff about my presence at the school, and troubleshooting any hurdles. Halea continues to be my liaison with parents, teachers, and others so that our ethics obligations are honoured. Halea also informs me of special events in the school that might be valuable for me to attend, which is always appreciated. The school does not have the luxury of conference rooms or extra spaces, and Halea has generously given up her work space to me when I am at the school.

As co-investigator, Rae Ann Van Beers, has been an excellent contributor, especially because she has experience collecting data from students from her dissertation research. She has dedicated time during the week for this research study. She and Dreann Wurban (Grade 1 teacher) are leading the Student Research Team, which was an element of the study that the teachers felt would be a valuable aspect of the study when we met to discuss the research in May 2023.

Once ethics approval was obtained at the UofA (REB #Pro00133615) on September 8, 2023, I did not have to submit further applications to NHCSA. I obtained ethics approval from then

superintendent Joey Bouchard, and then the principal before proceeding with the study. I have asked the current superintendent, Doug Nicholls, to update consent by signing the form.

Up to this point, I have initiated meetings with Halea and Rae Ann, who are the key contacts at the school. Meetings are sometimes held virtually as their schedule permits, or in-person when I am at the school for data collection. Meetings have been held via Zoom or in-person:

- May 19, 2023: Meeting with teachers and staff: Undergraduate Research Assistant, Aidan Ritcey, was introduced to staff and teachers; project plan was discussed with teachers, including inclusion of Student Research Team
- June 23, 2023: Meeting with Halea and Rae Ann to map out next steps for 2023—2024 school year data collection
- October 6, 2023: Meeting with Halea and Rae Ann to plan data collection
- October 18, 2023: Meeting with Rae Ann, Dreann, and Halea to discuss Student Research Team Recruitment, Mentorship and Training
- October 27, 2023: Meeting with Halea and Rae Ann to discuss data collection progress
- January 26, 2024: Meeting with Halea and Rae Ann to discuss data collection progress and Student Research Team activities

There is regular communication between meetings via email.

I am conscious of how busy teachers are, and I want the research to be a positive experience so I seek Halea's advice regarding the timing of data collection, and teachers' openness to my presence. Their knowledge of the school context is invaluable, and I have appreciated how willing they have been to respond to my questions or requests for meetings. Halea and the staff have been incredibly welcoming, allowing me to participate in whole-school assemblies, or allowing me to make impromptu classroom visits when there is something particularly interesting happening (e.g. Agriculture Days, art class, guest speakers, hunter education lessons). As a researcher, I always

wonder about how my presence might feel like an imposition, but Halea and the staff always make me feel welcome.

I consult with the superintendent when necessary. Because I am periodically invited to speak at the Board of Directors meetings to give updates, there is clear communication at all levels. I provided a written update of the research for the former superintendent, Mr. Joey Bouchard in October 2023. I attended Board of Directors meetings to provide updates and discuss next steps on April 26, 2023 and October 17, 2023. The Board of Directors also invites Halea and Rae Ann to provide updates about the study progress. There have been impromptu discussions about the research on occasions when a board member has been at the school when I am there for the research. These spontaneous conversations usually leave me with insights that deepen my understanding of the school and/or give me ideas for data collection (e.g., who to contact regarding community member participants). The Board of Directors has offered suggestions for data collection that I have taken up. At the October 17, 2023 Board meeting they wondered about the value of including student alumni in the data collection, and I consequently received Research Ethics Board (REB) approval for this amendment on October 26, 2023.

In general, I believe the school and Board of Directors relies on my expertise in conducting research and navigating the research process (e.g., ethics, grant administration). Because Rae Ann Van Beers has also completed research with younger students, I am especially grateful for learning from her in this regard. In turn, I rely on the principal, teachers, superintendent, and Board of Directors for contextual understanding of the school and the community. For example, statutes and policy that might affect the study, like the Freedom of Information and the Protection of Privacy (FOIPP) Act, are brought to my attention to ensure ethical conduct of the study and to ensure confidence in the school community that the research is being appropriately conducted. I further rely on them for the timing of data collection episodes. We have established clear roles in this regard, even though no formal agreements were signed.

Section 3: Research Design

Research Design

Our study is driven by these research questions:

1. How does experiential learning through agriculture foster curricular connections and life skills in K-6 students?
2. How does an agricultural learning environment shape students' relationship with school?

The second question was added after the initial proposal.

We initially envisioned that interpretive description (Thorne, 2016) would be an appropriate methodology because of its focus on theorizing professional practice, and how it draws on disciplinary epistemology. But, having collected some data, it is clear that the agricultural environment is as important as a conceptual anchor of this project as is teachers' practices around agriculture immersion; therefore, intrinsic case study is an appropriate research methodology. Intrinsic case study (Stake, 2005) is appropriate to use when the researcher aims to gain a deeper understanding of a phenomenon because the case itself has unique characteristics or circumstances. The focus is on exploring the case as a way to gain insights that may be applicable to a broader context. NHCS is the only K-6 school that facilitates curriculum *through* agriculture instead of including it as an add-on, which makes its intricacies and complexities a source for learning. In our study, understanding how the agriculture environment contributes to students' learning and life skills development will be of interest not only to rural schools planning for innovation, but to all schools who want to understand the theoretical or conceptual importance of a learning environment. This methodological shift will not have an impact on how the study will be conducted compared to how it was originally conceived because the methods of data collection and analysis that we originally proposed are also used as methods in case study.

We acknowledge that, like all methodological approaches, intrinsic case studies have limitations. In particular, intrinsic case studies are inherently restricted in scope which means the findings of our study will be reliant on the particularities of NHCS. But since qualitative research studies do not aim for generalizability to larger populations, the advantages outweigh this limitation.

For example, because intrinsic case studies allow for flexibility and adaptation, researchers can be responsive to the unique characteristics of the case (Stake, 1995). We have already experienced this in terms of engaging in new ways to interview students (e.g., turning it into a game), including student alumni as participants, developing the Student Research Team, and repositioning to pay more attention to the environment. Because intrinsic case study allows us to closely examine a specific case, the patterns, relationships or novelties that we may encounter may stimulate the development of new conceptual or theoretical ways to understand learning environments, leading to an impactful study.

All qualitative research engages in theorizing through the interpretation of data that has resulted from methodical conceptualizing through coding and synthesis (Tracy, 2020), yet there is lack of agreement regarding at what stage theoretical frameworks enter the research process (Anfara & Mertz, 2015; Garvey & Jones, 2021). Some methodological approaches such as critical ethnography may begin with a particular theoretical orientation. Descriptive qualitative studies do not employ a theoretical framework at all. And other approaches, like grounded theory, are intended to result in the development of new theory and so use of a theoretical framework from the beginning would be overly restrictive (Lederman & Lederman, 2015). In keeping with our initial proposal, we have been using two conceptual frameworks to guide data collection: the National Agricultural Literacy Outcomes (NALOs) (Spielmaker & Leising, 2013) which were adapted by the New Humble Community School (NHCS) teachers, and the Iowa State Targeting Life Skills Model (Hendricks, 1998). The Iowa State Targeting Life Skills Model (Hendricks, 1998) inventories 35 life skills that have synergy with the hands-on nature of agriculture. It is conceptualized around the 4-H framework of head, heart, hand, and health (White et al., 2020), which affords a comprehensive exploration of the nature of the life skills that students at NHCS may be developing. This conceptual framework will continue to be useful as a reference in further data collection, and ultimately in data analysis.

The NALOs (Spielmaker & Leising, 2013) and NHCS's adaptation of the NALOs, along with the Alberta K-6 Physical Education and Wellness and Social Studies curriculum have also been referenced to generate some interview questions with students; however, we do not anticipate that the NALOs framework will be central to theorizing in the final analysis. We will be able to gain insights

into how the agriculture-focused environment leads to agricultural literacy and other curricular outcomes; however, our keen interest is in how the learning environment itself makes that possible. Given this, we have tentatively explored a framework developed by Granit-Dgani (2021 as cited in Yemeni et al., 2021). Situated in the place-based learning genre, Granit-Dgani (2021) conceptualizes four dimensions for learning: in place, of place, from the place, and for the sake of place. Learning *in* place captures how teaching and learning that happens in classrooms in conventional schools is shaped when it happens elsewhere. The study *of* place shines the light on the processes and conditions within the environment itself that shape teaching and learning when students are in that environment. Learning *from* place, the third dimension, assumes that the environment itself is an educator of sorts, and plays a role in teaching and learning. The the fourth dimension, learning *for the sake of* place, implies that students' learning about their surroundings is directed toward a larger cause. This framework is appropriate given NHCS's charter of agricultural literacy, experiential learning, and land stewardship. By interviewing students, teachers, staff, parents, and community members, we will be able to gain insights into how the learning environment at NHCS qualitatively affects students' learning and experiences of school.

Summary of Research Activities to Date

Ethics and School Authority Approvals to Proceed with Research Activities

We received ethics approval (REB# Pro00133615) on September 8, 2023. We submitted an amendment to the participants to include students who completed Grade 6 at NHCS and are currently attending a different school for Grade 7. The amendment was approved on October 26, 2023. The ethics application process was smooth because we had worked through issues for the pilot, "Triscuit and Pepper Go to School: Elementary School Students' Learning with and From Animals" which received approval on January 24, 2023. The pilot was conducted in February and March, 2023.

Participants

The research site is New Humble Community School (NHCS), a rural public charter school located in central Alberta. It first began operation in the 2021-2022 school year. Characteristics of the school were described in the section, "Project Background."

We proposed to interview K-6 students, and made an amendment to also interview students who completed Grade 6 at NHCS and are now attending Grade 7 at a different school in the community because we deemed the comparison that former students of NHCS would give us insights into how an agriculture-focused environment shapes students' learning and their relationship to school. We are also conducting individual interview teachers, staff, parents, and community members, as well as focus groups with teachers. There is little agreement on sample size in qualitative research, except for the fact that because there is no intention to generalize to a whole population, the sample will be small (Sim et al., 2018) compared to what one might expect in a study situated in the rationalist paradigm (Guba & Lincoln, 1982). The concept of saturation, derived from grounded theory methodology (Glaser & Strauss, 1967) is typically reported in published qualitative research as the method for deciding when "informational redundancy" (Sandelowski, 2008, p. 875) is reached; however, Rae Ann and I are experienced qualitative researchers and challenge the notion that nothing new will emerge in constructivist research. Thus, we are developing the sample according to Malterud and colleagues' (2016) concept, information power. A sample size with sufficient information power will be contingent upon: (a) the study aim, (b) the specificity of the sample; (c) how established is the theory being used, (d) quality of the dialogue, and € the nature of data analysis strategies. At this stage, we anticipate the sample size for student participants will be larger because younger students in particular may not provide comprehensive, clear or in-depth answers. We will need more student voice to assemble the story of their experiences. We initially proposed five students per grade, three to five teachers, three to five staff members, 10 parents per grade over the two years of the study, and 5-10 community members. We have experienced low volunteer rates for parents and community members; therefore, we may introduce focus groups with parents as a means to capture more parent voice and use it as a venue for inviting parents to participate in individual interviews. At this stage we have not focused on community volunteers, but members of the Board of Directors have been identified as useful contacts for developing a sample of community members in winter and spring 2024.

The research was advertised in the school communications (e.g. website), and the principal, Halea Kohel, sent an email to teachers, staff, and parents to invite them to participate. In October

2023, research assistant, Aidan Ritcey, and I visited each classroom to introduce ourselves and explain the study to the students. We created volunteer cards for students to fill out if they wanted to be part of the study by participating in an interview, and students were asked to put the card into a box that was placed in each classroom if they wanted to participate. Rae Ann collected the slips, and Halea emailed parents of the students who filled out the volunteer card, asking the parents to contact me directly so that I could obtain consent and arrange the interviews. Parents either emailed me the signed consent form, or sent a hard copy with their child. Most parents were responsive, although there were a few who did not follow up with me. I contacted those parents a couple of times, but then respected that they perhaps changed their minds. I tried a third time by sending a hard copy of the consent form home with the students who volunteered, and this increased the student sample.

Data Collection Sources, Instruments, and Procedures

School/classroom observations and observations of school-based events began officially for the current research project on April 15, 2023 with my attendance at the school's 'Farmraiser' at a community hall in Calmar (400+ attendees). My former undergraduate research assistant, Jihoon Jang, and the incoming undergraduate research assistant, Aidan Ritcey, and I attended the school's 'Rodeo Days' on May 26, 2023. I also attended the school's Christmas concert on December 21, 2023. School/classroom observations and/or in-person interviews were conducted on November 3, 6, 28, December 1 and 5, 2023, and January 26, 2024.

The individual interviews with teachers, parents, staff and student alumni began October 19, 2023 with the assistance of the undergraduate research assistant. Both Aidan and I led and transcribed interviews. Students were interviewed at the school in the principal's office or the adjacent staff work room as these were available spaces that offered privacy. Before the interview started, I explained to the students the purpose of the study and process in age-appropriate language. Students were provided an opportunity to ask questions before the interview started. They were invited to assent to participating by checking 'yes' (happy face) or 'no' (sad face) (see Appendix C for assent and consent forms).

We wanted to sustain students' interest during the interview, so we created a game with the questions. We put questions on laminated cards, an idea I came up with after seeing "conversation

starter" cards for kids on Amazon when I was searching for a birthday gift. The pair in each stack had the identical question, so that when they 'chose' it we would be assured we got an answer to that question. Six stacks of pairs were laid out on the table, and we invited interviewees to roll a big dice. The students seemed to really enjoy this. We asked students if they wanted to read the card themselves, or if they preferred it be read to them. Most students read the card on their own, even students from younger grades who were challenged gave it a try. After the student answered each question, they were asked, 'Do you want to answer another question?' This ensured we had ongoing assent from the students. Parents were invited to be present when their child was interviewed; only one parent requested this so far. Two walking interviews (Evans & Jones, 2011) were conducted with students filmed by a Student Research Team member using the GoPro. When asked, the two students who participated in both a sit-down and a walking interview indicated they liked or even preferred the walking interview. Walking interviews tend to make interviewees more comfortable because it feels more natural (Kinney, 2017), and that is our observation. We will continue to use the "go-along" (Kusenbach, 2003) walking interview in the future, an approach that will work particularly well with the chores crew because it will allow us to not only interview, but to observe them doing routine activities. This will provide insights into how students engage with their environment—physically and socially—and how they incorporate their knowledge while they do their chores.

Most interviews with teachers, staff, and parents were conducted via Zoom. Adult participants were sent the consent form and information about the study via email, and some returned the signed form in that manner, but they were also given the option to provide oral consent at the time of the interview. The majority of adult participants provided oral consent. I conducted those interviews, and Aidan attended and asked additional questions. Aidan and I transcribed them.

Another undergraduate research assistant, Brittany Green, who was hired to lead the website development, was able to assist Aidan and me with transcriptions in December 2023 to share the workload during final exam and marking time. To date, data have been collected through individual interviews with K-6 students (n=20), Grade 7 student alumni (n=2), teachers (n= 3), staff members (n=3), and parents (n=7). The record of student participants interviewed is as follows:

- Kindergarten students = 2

- Grade 1 students = 1
- Grade 2 students = 4
- Grade 3 students = 2
- Grade 4 students = 3
- Grade 5 students = 5
- Grade 6 students = 3
- Grade 7 alumni = 2

All interview transcripts have been returned to participants for member check (Lincoln & Guba, 1985). No community members have been interviewed so far.

The Student Research Team was formed in December 2023. Students submitted an application and Rae Ann interviewed them for the positions of interviewer and/or technology support (i.e. GoPro operation). Recruitment and hiring were completed by the end of November, 2023. We held an orientation on December 5, 2023 and a training session on January 26, 2024. The Student Research Team members will be involved in interviewing student volunteers in the younger grades.

More individual interviews will be conducted with students, teachers, staff, and parents. A virtual teacher focus group will be scheduled to take place in February 2024. At this point, continued data collection at the school is scheduled for February 14, 16, 21, and 28. At the time of writing, we received 11 consent forms permitting us to interview students. Engaging the Student Research Team in these student interviews is our next step. They will be accompanied by Bonnie, Rae Ann, or Dreann to ensure ethics protocol is followed, and to provide support.

In keeping with the UofA Research Ethics Board (REB) requirements, the audio and video files (e.g. from walking interviews using GoPro), and transcripts are saved as encrypted files on my laptop, which is password protected. Hard copies are kept in my home office. Transcripts are stored on the Google Drive at the UofA so that research assistants and can access them. It is a shared drive with access granted only to those who require it. The UofA policy requires that data be kept for a minimum of five years following completion of the study, and this is my intent. After this time all data will be destroyed.

Section 4: Preliminary Findings & Next Steps

Preliminary Findings Regarding Research-Practitioner Collaboration

As described in the section, "Research Partnership Overview", the partnership developed long before the grant proposal and award, and this has directly contributed to the success of the partnership and the research project. Taking time to develop a partnership before launching into a formal research project is a key lesson that I believe future grant holders may wish to consider. Having spent time in the school since the first year of operation, students have had time to get to know me so that they might feel comfortable volunteering to participate in individual interviews with me. The same can be said for my engagement with teachers. I facilitated a professional learning day in April 2022, was invited to their 2022 – 2023 August retreat before the year started and their fundraiser in spring 2023, and recently attended another of their professional development days. This past December 2023 I was invited to be the guest reader at their school assembly, and attended their Christmas concert. The students, teachers, staff, and parents have seen me around the school and schoolyard, tagging along with the chores crew out in the barns, at special events such as their agriculture days, and observing in their classrooms. Thus, everyone has had a chance to see me in multiple roles and situations, which is helpful for developing a relationship with them.

Mutual respect and trust have been established as a result of following the principles of community-based research. Through ongoing communication and consultation on decisions about the study, I believe the school has a sense of ownership for the research. For instance, since qualitative research is emergent in nature, any decisions to amend or refine the study have been first discussed with the principal and co-investigator. Halea and Rae Ann advise me as to whether the superintendent and/or Board of Directors should be involved in any decisions. I am open to teachers, staff, and the Board of Directors providing ideas. Our decision to include NHCS student alumni in the sample, as explained earlier, originated from the Board of Directors and has been an excellent addition to the data. The Student Research Team was an idea that teachers strongly endorsed. Based on comments from the Chair of the Board of Directors, Megan Olynyk, I believe my perspective on the partnership is shared. Megan shared comments via email on January 29th:

We appreciated the update provided to the board in the fall, this let us know what to expect as well as provided an opportunity to ask any questions. I would say this was a positive experience also because we discussed including NHCS graduates that could add in a valuable perspective.

From my understanding there has not been a need or gap that would indicate a need for additional support for the research. This may change pending the next stages of the project but in my opinion the research plan is reasonable and fair expectations for those involved. The negotiations to set up the shared resources, for example Rae Ann's time, occurred without any challenges or delays. One team dynamic that could be noted is the transition in administrative staff. The transition between Superintendents requires onboarding for the new Superintendent. Part of this will be supported through the board, the Superintendent and those involved in the research. Considering the timing this is not a concern as it has not impacted the research and will continue to support the growth of the school.

I will note that I have just today suggested to Doug [new superintendent] *that Halea or Rae Ann complete a brief research update to the board at the next board meeting. It would be great to hear a status update, how the students are enjoying it and if there is anything in addition that we can do to support the process.*

In terms of negotiating the work that needs to be done, as I mentioned in the "Research Partnership Overview" section, I want research to be a positive experience for the school, and I am conscious of how my presence could be an intrusion and the research itself a burden. I frequently confirm with Halea and Rae Ann to ensure teachers agree with students' involvement in the data collection, and there is an invitation to teachers to be more directly involved if they wish. Halea and Rae Ann have been an excellent sounding board for me when I have identified issues with recruitment of participants. We have had recent conversations, for example, about hosting another community dinner to conduct multiple focus groups to encourage parent participation. We believe this would be a

great opportunity for the Student Research Team to take on a leadership role in facilitating those focus groups.

As indicated in a previous section, we are also working together to plan for Shane Klein from Technologies in Education at the UofA to join a Student Researcher Team meeting to provide an in-depth tutorial about storying their school and creating effective videos. Further, a day at the UofA Campus so that the Student Research Team can have a professional learning session in the studio is tentatively being planned. Ideally, this day will also involve field trip activities for all the grades so that transportation is cost-effective for the school and there is wide benefit for the students. Halea and Rae Ann know the dynamics of field trips, parent consent, and transportation, and so their perspective is key in our planning. This is an example of how planning typically happens, with members of the partnership having input.

Importantly, I have emphasized that this study is an opportunity for us to take risks and to try new things as I believe this will lead to deeper, richer understanding of our topic, and methodological insights. I invited Rae Ann to provide me with feedback on how she felt the study was going:

> *I've appreciated the organic nature of the study and how we've been able to modify as we go. I'm so excited about the student buy-in and ownership of the research process so far. It's been fun seeing their excitement and eagerness to dig in. Being able to adapt and experiment with the process has been helpful as it allows us to meet the students where they're at and include them in the parts of the research that they're most interested in and comfortable with.* (January 26, 2024 via email)

Admittedly, there is a balance between creating ownership for the research among the teachers and having their direct involvement, and not wanting to overwhelm them. Acknowledging this, the invitation is always open to them to have more engagement in the conduct of the study, but it is not an expectation as I originally thought it could be. Rae Ann has dedicated research time, and I frequently ask how her unique role in the school is working. I am excited that the Grade 1 teacher, Dreann Wurban, has volunteered to work with Rae Ann on the development and mentorship of the Student Research Team. As the Grade 1 teacher, Dreann has the expertise for the Student Researchers

to succeed in their data collection. Rae Ann and Dreann complement each other with their research and teaching expertise. As we move forward with this research, I will continue to invite teachers to participate according to their interests.

At this point, I am anticipating that the Student Researchers will also teach us a lot about research partnerships. This is a serendipitous aspect of the study, and I can see what we learn from this will be important to share with others in the professional and academic contexts. Rae Ann asked the members of the Student Research Team to comment on their experience with the research so far. Here are some of their comments:

> *It's really interesting and everyone has their own role in it. It's the funnest experience in the world. I feel like it's fun making up questions for people and finding the answers to things. I like working and learning in a big group.* (Grade 5 Student Researcher)
>
> *I like have a job in the school…I think it's a good opportunity.* (Grade 5 Student Researcher)
>
> *It's pretty cool how we get to research and we'll get to interview other kids. Looking forward to that part.* (Grade 5 Student Researcher)
>
> *Research has helped me because I have more in common with my friends. It's helped with my relationships…I kinda like the part where I'm interviewing chore kids. I think we should interview teachers so we can compare with a student's view.* (Grade 5 Student Researcher)
>
> *I think we work together well.* (Grade 5 Student Researcher)
>
> *I'm already really excited for using the GoPro and learning from [fellow Student Researcher].* (Grade 5 Student Researcher)
>
> *I liked learning the GoPro. It's nice to feel like I have a purpose at school. It feels good to be part of something.* (Grade 6 Student Researcher)

The Student Research Team will be an opportunity to privilege student voice, not only as research participants, but in research design and implementation. We anticipate that the students' experiences

as co-researchers will provide us with unique insights regarding students' role in qualitative research, and we intend to continue soliciting their feedback about this.

Preliminary Findings Regarding the Research Questions

At this stage a preliminary analysis of the interview transcripts and my field notes has been conducted. We proposed to use an analysis process created by Maietta et al. (2021) called "sort, sift, think, and shift". An initial step in this process involves reading data documents to become familiar with content, dimensions, and properties. I made a summary of "pulse quotes", quotes that capture something important about the topic, and wrote memos around these pulse quotes using Granit-Dgani's (2021 as cited in Yemeni et al., 2021) four dimensions for place-based learning: in place, of place, from the place, and for the sake of place. A fifth dimension I am so far calling "bridging place" may be a contribution we make to this framework. Admittedly, any framework results in arbitrary assignment of ideas; in reality these dimensions likely overlap. At this stage, however, the point was to describe what is emerging from the data, and to identify potential directions for future data collection.

Learning IN Place

Learning *in* place refers to how students' learning is affected when lessons take place in locations other than a traditional classroom. When I asked students during interviews to describe what makes NHCS special, students talked about their friends and teachers, but overwhelmingly they identified having animals and going outside as unique and fun. When students go outside and/or in the barns and pens, teachers noted that there is deeper conceptual understanding and recall presumably because students can make stronger connections to the 'real world.' I have noted students' conceptual specificity when they talk about the animals and other agricultural concepts. Even Division I students could distinguish between dairy cows and beef cattle, and they understood why Wagyu beef is tender. These students could identify domestic versus wild animals as food sources, and distinguish between farm and zoo animals. In a game called "What's for Lunch" during the interview, students were shown pictures of animals and asked to identify which animals have provided a source of food in their breakfast or lunch. They could easily pick out food sources from animals that lived at the school. Students were also invited to draw or create their answers, and I

noted those who did draw or create something out of playdough demonstrated this same attention to detail. Students told me that seeing the animal helped them to learn about it more easily than when it was projected on a screen in a classroom. What we also noted that students were open to the idea that animals they had not eaten, were potential sources of food, such as snake or wolf. No student said, 'yuck' to such ideas, but identified that scales might be "crunchy" and fur would not be palatable. Perhaps because some students have hunters in the family, they are learning about hunting and do not limit their food sources to what they see in the grocery store.

Lessons that take place outside may help students to develop their observation skills, and their recall of information is perhaps enhanced because of these *in situ* engagements. These students know a lot about animal behaviour. From them I learned in which direction to pet a rabbit to ensure it is comfortable, where a goat prefers to be touched, how to tell when an animal is agitated (e.g. horse will flare its mouth), and the dangers of being in a pen when animals are breeding. I learned from one student that the placement of the whorl on a steer's head can be indicative of their temperament. During a walking interview with a Grade 5 student, I reached into the pen to pet one of the cattle, and the student informed me where I should put my hand to ensure the steer did not abruptly move its head and squash my hand against the metal rail. The safety knowledge was notable, but so was the fact that this student wanted to ensure I did not get hurt. Those students who participated in a project called, "I Soiled My Underpants" in which they buried cotton underpants to test the health of the soil still talk excitedly about digging up those underpants and discovering healthy soil as evidenced by the holes in the underpants.

Being around animals perhaps also explains the level of sophistication in students' answers to a game I called "Let's Make Tracks", one of the options on the interview cards. Students were shown a picture of two sets of animal tracks in a forest – one fairly straight and the other set zigzagging. I told them one set was dog tracks and another were coyote tracks, and I asked them to identify which tracks belonged to each. Their hypotheses about which tracks belonged to the dog and which to the coyote showed their ability to relate elements such as size and strength of the animal's legs, the animal's goal orientation (e.g. chasing prey), how domesticity affects animals (e.g. dogs are likely to be more trained and will walk straight).

Students described affective benefits from learning outside and/or with animals regarding other subjects. They liked the physical elements and some felt being outdoors was more stimulating than in the classroom. For example, a Grade 5 student said learning outside is better because "you're not staring at a wall or whiteboard inside…you get to look at the tress or the barn, or the animals." A Grade 2 student told me they like learning outside because "You get more fresh air and you get to see animals that you don't really see often and you get to hear the wonders of nature." One of those "wonders of nature" for a Grade 5 student was the sound of leaves rustling. Another student claimed that touching animals helps them focus: "If I'm outside I just keep myself calm…not fidgety". Sometimes learning was enjoyable simply because sitting on a pile of hay to read was more comfortable than sitting in a desk. A Grade 2 student explained that they read to one of the blind ducks, and while they were reading to it, the duck came close. When asked why they liked reading to that duck or other animals, their reply was, "because they're caring and loving". While it is clear that students have affection for the animals, it may be that the perception that animals reciprocate affection shapes the way students feel about school.

These students clearly prefer hands-on learning, which is the foundation of an agriculture-focused school. The student alumni that I talked to described missing NHCS primarily because of the chance to learn about agriculture. One student said that as a Grade 6 student they did not really enjoy school, but having special agriculture days was motivating: "it made me wanna power through the week so I could get to that one day". A current Grade 6 student admitted, "I'm not the kind of [kid] that likes school." In fact, they explained that they wished "something happened with [their] brain that [would] make time absolutely fly so [they] could just get on with the day without even noticing." This student, however, loved projects. In explaining what they loved about projects, they said, "I'm thinking, building and writing and having fun building and experiencing how this thing works and asking questions on how to figure out how it works more." Similarly, a Grade 5 student said, "if I don't enjoy something, I just completely zone out".

The preference for hands-on learning highlights the value of being outdoors and with animals, emphasizing the contrast with traditional classroom settings. It seems to shape how they feel about school in general. Whether they are measuring buildings, planting the garden, harvesting or canning

vegetables, making paper or vegetable dye, going for a hike, reading to, observing, or interacting with the animals, or playing the recorder in the outdoor classroom space, students expressed enjoyment. Parents told me their children "come home happy." Teachers described a student saying after a hike that it was the "best day ever!" In fact, some parents not on the bus route have made the choice to drive their children to NHCS claiming they do not want their children in a "sterile" environment, "sitting at a desk for six hours." Teachers and staff also see the "joy in their faces" and the "their eyes light[ing] up". A defining feature of NHCS is that, ironically for some, "it doesn't feel like school." Most NHCS students do not want to miss school, I am told. Sickness and snow days do not hold them back, and I saw this for myself on a cold winter day when busses were cancelled. The classroom was nearly full. What could be more telling?

Study OF Place

The study of place refers to processes and/or conditions within the learning environment that shape learning. Living in rural communities and making a living in agriculture require volunteering, teamwork, commitment, and accountability. This is a central feature of NHCS. There are various jobs throughout the school: bagging vegetables after the harvest to prepare them for sale, folding laundry, shovelling snow from the sidewalks and ice rink, collecting recycling, garbage and compost, stacking books in the library, doing dishes on hot lunch day, making announcements over the intercom, and teacher's classroom helper are some examples. When asked, all students told me about the jobs they do, and I have seen them in action. They told me it makes them feel "good" and "happy" when they participate in these jobs because "helping is important."

Perhaps the most coveted job is related to chores with the animals. Students who want to be part of the chores crew must apply and interview for various jobs. These students are encouraged to take on novel areas so they can learn about different animals. The staff member who oversees the farm emphasized that it's the students' farm, and they teach them their jobs but do not "micromanage". They are expected to learn their role and execute it independently, and I have tagged along on many chore sessions and can attest that these students know exactly what they are doing. When I question them about the feeding operation and the animals themselves, they confidently give me detailed information.

The chore students exhibit leadership, problem solving, cooperation, and respect for authority and animals (e.g., the general manager). All aspects of the farm operation are the responsibility of these students, including calling feed suppliers or community members to order feed or solicit donations for supplies or materials. They are learning communication skills through these telephone calls. What I have seen in these students – the work ethic, teamwork, and commitment—is not only that they have been given jobs, but rather, that they have been given *high-stakes* jobs, a feature of experiential learning that is not discussed in the literature. These students understand the animals rely on them, and the students are invested. The students have adult-level tasks, and are developing high-level expertise. They are models and conveyors of this knowledge to the younger students who are not part of the chores crew. For instance, Division I students sometimes shadow the chores crew. Perhaps this is why they, too, have learned the importance of caring for animals. When I asked them what would happen if the animals did not get fed, each one told me they would seek out a parent or teacher to fill the troughs.

One parent remarked that the chores instil in students a sense of accomplishment and importance because they are doing "purposeful chores" and are learning how rewarding hard work can be, and that tasks such as planting a garden help them "visualize their accomplishment". When I think of a student who told me they do not understand the point of "constantly doing questions," it makes me wonder if and/or how the goal-oriented nature of experiential learning contributes to how students create meaning in their school experiences. A parent shared with me that their child who had a responsibility with the animals in the previous year talked about it at home every day, but since that responsibility ended, their child "never talks about school". This highlights how experiential learning not only enhances the learning experience at school, but raises questions about how this shapes their relationship with school outside of school hours. The proverbial question from parents to their child(ren), "what did you learn in school today" is front of mind for students to voluntarily talk about it when there is something memorable and meaningful. How sense of purpose shapes students' relationship with school is an area that warrants further exploration in our study.

Learning FROM Place

The farm literally brings agriculture and other subjects to life for these students; it is not just a simulation. Therefore, how students learn from the farm and their surroundings is of interest to our project. This affords students opportunities to learn from the realities of the farm. For example, they know that the consequence of failing to behave appropriately in the barnyard or perform their duties as a member of the chores crew will result in a temporary ban from the barnyard or losing their job. They have witnessed new animal life coming into the world, and they have had to deal with animals leaving by accidental death or being transported away for meat processing. The students seem to take this in stride. Some are sad at first, but ultimately, they understand the life cycle, as one parent described it.

Learning survival skills has led to students' ability to pay attention to their surroundings. They have created shelters with few materials, and have made objects from what they found in nature, for example. They also know that, if lost in a wooded area, they should make a large-flame fire at night to be detected, but a smoky fire during the day. They know nature provides food sources on its own, but some are edible and some are poisonous. A teacher shared that students sometimes complain about the cold weather, but once they improve how they are dressed, their complaints disappear. In fact, weather is not an excuse for anyone because the school has set an expectation that learning will occur outside. At a recent assembly I attended, the students were reminded to bring "splash pants" to guard against the puddles thanks to the warm winter weather. In an era when parents and schools are being encouraged to create opportunities for children to engage in "risky play" (Galloway, 2024), the students at NHCS are inherently situated to not only manage risk, but to have a healthy perspective on what is risky and what is not. It will be worth pursuing questions with students about this particular element of their outdoor experiences.

By learning animal behaviour at school one student transferred their knowledge by paying attention to their animals at home. Another student emphasized how aggressively approaching animals, like they sometimes see younger, unknowing students doing, will frighten them. Instead, they explained, "it takes a lot of trust with an animal". While they learned about the animals, I noted that the students also learned something about themselves. One student shared that people believe

they have a "gift" with animals. Another Grade 5 student explained how by practicing feeding a baby animal they knew they were "good at it". And this inspired them to apply for a job with the chores crew. The farm gives students an opportunity to develop through novel activities, but to also self-assess their skills and aptitudes. A most telling example was shared by a teacher of a student who struggled with behaviour, including aggression. The student took the initiative to ask for a job, and this job ultimately contributed to improved behaviour.

In reflecting on how I have been witnessing these students' learning from what surrounds them, I am drawn to Blenkinsop and Beeman's (2010) suggestion that First Nations' "insight into how the world as co-teacher may be more than an apt metaphor" (p. 27). What I see emerging relates to their claim that the world around us teaches. Beeman stated that recharging for themself means retreating to their farm to be still and to do "meaningful work" (p. 32). What caught my eye in their articulation of how their work on the farm created this meaning was this:

> …this work has meaning for my corporeal enclosure—my body. I will later eat, in the form of food, the labour I contributed today, thus participating in an *unalienated loop* consisting of my labour's integration with the world and the world's integration with the caloric/chemical/electrical processes that contribute to physical existence. When this unintermediated relationship with living is experienced and understood, meaning making extends beyond intellectual, academic, or scholastic. At the farm, I work in the presence of a *peerless teacher*. (p. 33, emphasis added)

The students at NHCS are not alienated from the source or processes involved in the food they eat. This sets them apart from most Canadians today.

Further, Blenkinsop and Beeman's concepts of "attentive receptivity" and "meander knowing" (p. 32) harkens back to Taylor's (2021) "knowing eye" that I wrote about in the literature review section. The idea that being in and around nature can tune students into, what the Grade 2 student so beautifully described as, the "wonders of nature" seems to accommodate all concepts. Meander knowing, the kind of knowing that comes from understanding how "self and place co-create meaning" (p. 32), seems especially ripe for the picking for our study. Is it not the goats, the pumpkins, the trees, the ants, and the dirt that soiled the underpants that are the peerless teachers?

For the Sake of Place

The fourth dimension of Granit-Dgani's (2021) place-based framework, for the sake of place, has sustainability underpinnings, which relates directly to the land stewardship pillar of NHCS's school Charter. One of the first things that I noticed when I came to NHCS was how students take care of their school without being prompted. For example, I witnessed a student who spilled water by the fountain. This student did not realize I was watching them. Their immediate response after "oops" was that they needed to get a mop. And off they went. In interviews, I noticed that if something was dropped, students hopped off their chairs to pick it up. These observations may seem trivial, but to me, it speaks to students' pride of place, a stepping stone to their care for the planet.

It is clear that the students are already gaining knowledge about land stewardship. The recycling, composting, and garbage collection jobs likely reinforce the importance of minimizing waste, and reusing organic materials. Their learning appears to have extended beyond the schoolhouse. As an example, a parent told me that their children noticed litter when they went to a nearby city. Some students connected Indigenous ways of respecting animals within the context of taking care of the land. Students knew from Hunter Education class presumably, or their families' hunting experiences, that a license is required to hunt, and that there are rules about what kind of animal you are allowed to hunt, which enabled a connection to their learning about Indigenous communities' concern about overhunting. Further, I have noticed at two whole-school assemblies I attended, Indigenous concepts and knowledge such as the beaver as a representation of wisdom, have been tied to their learning in age-appropriate and local ways. For example, the teacher engaged the students in a game to help them apply their understanding of what is wise by using scenarios they related to.

When I asked the students about taking care of the land during interviews, they were able to distinguish between good and questionable land practices, such as "not chopping down trees because that makes air" (Grade 2 student). Other students suggested that it is preferable to buy organic vegetables and fruit at the farmer's market than from the grocery store because of chemical use, adding, however, that "people believe a lot of different stuff." Even Kindergarten students have a conceptual grasp of land stewardship. One suggested that one should not litter, "kick" the grass, or cut

down trees because trees allow people to live. Interestingly, in describing their former experience living in a city, a Grade 5 student said, “The fields are all dead because there’s houses right there.” This directly contrasts to the students in Eilam and Garrard’s (2017) study, who described empty lots in the city as dead, suggesting buildings should be put in the empty spaces to bring them to life.

Words like “fresh”, “free”, and “silent” were used by a number of students in describing being outside at their school. One conversation with a Grade 2 student was particularly insightful for me when I asked about land stewardship and the environment. I asked them about the difference between rural and urban spaces. Light pollution (my words) was where they initially focused. When asked how to solve this problem, they said, “The better solution to make light is to let the sun and stars out to make light.” This student further claimed, “if you respect nature, it’ll respect you”. This statement demonstrates that at an early age, students can see land stewardship as more than a set of practices, but also appreciate the ethics of what they are doing. This statement would provide an interesting prompt to use in future interviews with students to learn how others respond to it, and what it means for them to both respect nature and be respected by it.

Learning that Bridges Place

Place-based learning scholarship emphasizes an ecological nature of learning, and the research is primarily interested in how the approach capitalizes on relevant connections between school and home. But something that may be emerging in our data is a mutually reinforcing element of place-based education.

The staff member who facilitates hunter education said that the value of agriculture immersion is that it is relatable: “Once you start talking about something, they have a story”. I have noticed in classroom observations that students’ interest is piqued when their home life is recognized in their lessons. But the “continuity of learning” as one parent put it, may provide useful insights into the value of NHCS’s innovation. I heard examples of how students can engage in discussions about agriculture with adults in the community in ways that the parents could not. Farm students also make suggestions about how to do things at home, based on what they learned at school. The agriculture theme is a connector beyond the school.

While the importance of connection between home and school may not be novel, understanding the potential impact when the school is a microcosm of the community around it may reveal some interesting insights. What can be learned about how a seamless connection shapes students' relationship with school, for example, from the student who plots and plants a garden at home after doing so at school? How does it shape students' relationship with school when their learning at home is validated at school? These are potential avenues to pursue as we move forward.

What Have We Learned from the Students' Participation in the Interviews

In the aforementioned section, it is evident that skill development is a result of the hands-on experiences that students are gaining from agriculture. Examining the chores and gardening experiences, for example, suggests students are developing in self-discipline, managing feelings (e.g. death of animal), self-responsibility, self-esteem, disease prevention, personal safety, self-motivation (especially when it's cold outside!), teamwork, marketing skills (selling eggs and vegetables), leadership, community service volunteering (no one gets paid), responsible citizenship, contributions to group effort, goal setting, planning/organizing, wise use of resources, keeping records, resiliency, learning to learn, decision making ,problem solving, critical thinking, service learning, conflict resolution, cooperation, communication, and social skills. If I thought it about it more, I might be able to conjure instances for all 35 of the life skills on the Iowa State Targeting Life Skills framework (Hendricks, 1998). The interviews themselves have provided important insights worth mentioning, too.

I noted that students were comfortable making eye contact with me. Their manners were polished; they said hello, good-bye, and thank you at the start and end of the interviews. I once said to a Grade 3 student at the end of the interview, "You have a good rest of the day" and they replied, "You, too". Other staff in the school who have experiences working in other schools agreed that the students at NHCS are respectful and enjoyable to be around.

These students also know how to advocate for themselves, which they did by providing ongoing assent during the interviews. In particular, when they told me they did not want to answer more questions, I interpreted that as advocacy. Students rarely ended the interview early, and so maintaining focus for about twenty minutes also is evidence of a life skill.

While self-advocacy was demonstrated, there were also signs they knew students should be given a chance to make choices for themselves. For example, I asked a Grade 2 student, if their friends asked what the interview was like and should they do it, what would they tell them? This Grade 2 student said, “I’d let them choose”.

All students were invited to read the question on the interview cards, and only one student opted out and preferred an adult read the card. One student struggled with some of the language but made a concerted effort. Another Grade 2 student admitted being a little shy. They shared the story of being nervous about introducing themselves when they first came to the school. They said, “I was a little scared to say my name. But I just took a breath and said it”. Articulating something vulnerable is a sign of trust and confidence, but also this student’s focus on how they managed to get through it shows strong problem-solving skills when it comes to emotional anxiety.

Other students took the initiative to mix up the cards themselves. Some students chose to draw or make a model out of playdough to demonstrate their answer. I always asked at the end of the interview if the student had any questions for me. Most did not, but some did, which I thought showed confidence and strong communication skills.

All of these examples may seem ordinary, but being interviewed by an adult stranger is a novel and potentially intimidating situation for elementary students. A motto of the school, not verbatim, “it’s okay to fail, but it’s not okay to not try”. Perhaps this motto shaped students’ interactions with me and the research assistants during the interviews. The development of life skills at NHCS is unequivocally a feature of their success.

Next Steps

As the previous section has suggested, capturing students’ perspectives on their learning has shown us the value of place. We will continue to collect data from students, and increase the sample size of teachers, parents, and community member participants. The preliminary analysis conducted for this report supports refinement of research questions for interviewing all participants; continuing to develop interview protocol is a next step.

We will decide within the next month whether an amendment to the ethics will be submitted to include conducting focus groups with parents as a way to connect with this group and invite them to participate in individual interviews. Identifying community members to interview is also our next step. Data discussion meetings will also be held with teachers (individually or in groups) to give them an opportunity to share teacher-generated artifacts of students' learning. Additionally, I have been invited to facilitate a professional development day on March 11th that will support teachers' further development in mapping curricular outcomes to the agricultural literacy outcomes.

An exciting part of our study is developing the Student Research Team. This is an immediate focus as we want to capitalize on their enthusiasm and explore how their perspective can further inform our data collection. This group will also be trained with using the GoPro, so we anticipate conducting more walking interviews. This is an evolving element of our research study, but we can envision that students may also contribute to knowledge mobilization products (e.g. creating videos).

We have appreciated the opportunity to learn with and from each other. The partnership between NHCS and Bonnie is solid, and we will continue with our research as planned. We foresee no impediments to meeting Schedule A deliverables.

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Appendix A: Budget

Budget Area/Items	Itemized Costs	Allocation of Funds			Actual Expenditure to Date
		RPP Funds	In-Kind	Matching	
Data Collection					
• Mobile Interview Kit (laminating sheets for interview cards, farm books for prompts, animal stickers	$150	$150			$69.75
• GoPro HERO 11 kit (Amazon)	$820	$820			$786.45
• SD Card (Amazon)	$47	$47			$32.16
• SabineTek SmartMike (Amazon)	$390	$390			$409.50
• External Hard Drive (LaCie 1 TB Rugged SSD Pro External Drive with Thunderbolt 3	$539.95	$539.95			$0
• Office Supplies (notebooks for Student Research Team)	$250.99	$250.99			$47.47
• Gift of Thanks for Student Research Participants	$250	$250			$0
• Printing/copying			$400		
• NVivo Qualitative Data Analysis Software			$586		
• Express Scribe Transcription Software & Equipment			$300		
• Laptop			$2000		
• Smartphone (for recording interviews)			$1024		
• Mileage for Principal Investigator (17 trips) & Research Assistant (14 trips) = 3596 Km @ .50/km (PI took 9 trips; RA took 3 trips)	$1978	$1978			$590.83
Personnel					
• Research assistant 2023-2024 (6 hrs/week @ 11 months X $1211.16 (UofA Grad Assistant Salary)	$13,332.76	$13,332.76			$7872.61
• Undergraduate research assistants (2) were hired instead: Aidan Ritcey May 15-Dec 15, 2023 for 8 hrs/week @$25/hr; Brittany Green Sept 8-Feb 5, 2023 for 6 hrs/week @ $25/hr					
• Research assistant 2023-2024 (6 hrs/week @ 11 months X $1211.16 (UofA Grad Assistant Salary) (not yet hired)	$13,332.76	$13,32.76			$0
• Substitute Teachers ($212/day X 7 days)	$1484	$1484			$0
	$600	$600			$1000

• Professional Learning Day Facilitator (Carmen Cornelius)	$2100	$2100			$0
• Video Production for KMb (21 hrs @ $100/hr)	$800	$800			$0
• 8 hrs consulting, administration, studio rental, equipment and training by Tech in Ed, UofA	$195	$195			$0
• Project coordination by Tech in Ed, UofA (3 hrs @ $65/hr)	$425	$425			$0
• Website creation by Tech in Ed (5 hrs @ $85/hr)	$850	$850			$0
• Website updates by Tech in Ed (10 hrs @ $85/hr)			$162,084		
• Principal Investigator Salary (Stelmach)			$24,336		
• Co-investigator Salary (R. A. Van Beers)			$12,168		
• Principal Salary (H. Cohel)			$5070		
• Superintendent Salary (D. Nicholls)			$4200		
• Teacher Salaries					
Meetings					
• Professional Learning Day lunch	$280	$280			$51.00
• Research Team development (includes Student Research Team)					
Knowledge Mobilization					
• Conferences fees (ULead, CSSE)	$1875	$1875			$0
• Accommodations (ULead, CSSE)	$1340	$1340			$0
• Transportation (ULead 466 km @ .50/km X 2 pax)			$932		$0
• Transportation (air fare + ground) for CSSE	$825	$825			$0
• Per Diem ($70/day X 4, UofA rate) + Incidentals ($10/day X 4) for CSSE	$320	$320			$0
• Principal Investigator cost to attend CSSE (conference fee, accommodations, transportation, per diem + incidentals)			$2060		$0
• Website space/time to post research project information/findings			$680		$250
• AgforLife Professional Video			$10,000		$0
• End-of-Project Community Celebration	$900		$900		$0
Indirect Costs of Research (up to 10%)	$5000				$4999.55
TOTAL	**$55,269,74**	**$50,269.74**	**$231,780.00**		**$16,109.32**

Appendix B: Research Project Timeline

2023	
Month	**Completed Activities**
May –August	• Submitted research plan to Alberta Education (May 25, 2023) • Submitted U of A Research Ethics Board (REB) application (July 2023; received approval for amendment October 2023; renewal will be required August 30, 2024) • Visited school to develop rapport with students, parents, hold research team meeting (May, June 2023) • Hired research assistant (May 2023) • Presented to RPP Cohort 6 Research Presentations (June 23, 2023)
September – December	• Research team meetings to discuss research steps (three meetings in October 2023) • Recruited Student Research Team (e.g. Grade 5/6) through interview process; held orientation (December 2023) • Professional Development was held to link agricultural outcomes, life skills, curriculum, and assessments (Carmen Cornelius facilitator, October 10, 2023) • Classroom observations and individual interviews conducted (November, December 2023); GoPro piloted with "walking interviews" with students • Ongoing data analysis to refine interview questions • Presented to fall 2023 Alberta Research Network meeting • Ongoing communication with school and Board of Directors has occurred as planned (e.g. Provided update at Board of Directors meeting in October) • Hired research assistant to develop website
2024	
January – December	• submit amendment to ethics to include community members from agri-sector, not just school community, and to conduct focus groups with parents and community members (new activity) • launch website (new activity, moved from 2023) • research meeting to discuss Student Research Team activities and other data collection questions • Continue data collection with students • Conduct interviews with students, staff, parents, and community members (virtual, in person) • Prepare knowledge mobilization tools (e.g. video, reports, conference presentation); research team meeting • Prepare and submit interim report for Alberta Education (February 8, 2024)

2025	
January – August	• Continue data collection until March • Complete data analysis • Refine literature review • Prepare conference presentations and manuscripts (e.g. Alberta Rural Education Symposium, Canadian Society for the Study of Education) • Create additional knowledge mobilization tools (e.g. video) • School community event to share learning and to celebrate • Close study with REB • Hold virtual research team meeting • Prepare final report for Board of Directors and Alberta Education • Prepare and submit final report to Alberta Education • Submit final financial statement to Alberta Education

Appendix C: Consent Forms

SUPERINTENDENT CONSENT FORM

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills

Contact Information

Principal Investigator:	Dr. Bonnie Stelmach, Faculty of Education, University of Alberta
Mailing Address:	7-145 Education Center North, University of Alberta, Edmonton, Alberta T5G 2G5
Phone:	(780)492-9890
Email:	bonnies@ualberta.ca

New Humble Community School (NHCS) is being invited to take part in a research study. Before you consent to their taking part, a member of the study team is available to explain the project and you are free to ask any questions about anything you do not understand. You will be given a copy of this form for your records.

Why is your school being asked to take part in this research study?

This study aims to gain insight into how learning through agricultural literacy, land stewardship, and experiential learning can support students' academic and life skills learning and development, particularly through the Physical Education and Wellness and Social Studies Alberta curricula. NHCS is being asked to take part in this study because it is the only school in Alberta that uses an agricultural literacy outcomes framework, combined with experiential learning and land stewardship to facilitate Alberta's Program of Studies to K-6 students.

The goal of this study is to explore how experiential learning through agriculture fosters curricular connections and life skills in K-6 students. This research question guides the study: *How does experiential learning through agriculture foster curricular connections and life skills in K-6 students?*

What is the reason for doing the study?

New Humble Community School is unique because students do not just learn *about* agriculture; they learn *through* agriculture. It is the only school in Alberta that uses a

comprehensive agricultural literacy framework – the National Agricultural Literacy Outcomes – for elementary school-aged students. And since its inception, NHCS has tailored these outcomes for your local context.

Working with and caring for animals, taking care of the land, and learning in hands-on ways are foundational to the school, and it gives me an ideal opportunity to learn how this helps students' academic achievement and life skills development.

What will teachers, students, parents, and community members be asked to do?

Teachers

1. Focus Groups and Individual Interviews: Teachers will be asked to participate in two focus groups (one at the beginning of the study – Fall 2023, and one at the end of the study – Spring 2024) and possibly two or more individual interviews throughout the study. The focus groups and interviews may be conducted in person or virtually, depending on their schedules. The time for focus groups, interviews, and reviewing summaries of individual interviews will take up to 5 hours of their time. I or a research assistant will transcribe recorded interviews and provide teachers with a summary. The research assistant will be asked to sign a Confidentiality Agreement.

   Virtual interviews and focus groups will be conducted via Zoom. I will seek permission to record the conversations for the purpose of creating a transcript. Teachers may turn off their cameras if they prefer.

2. Classroom Observations: With your permission, I would like to observe classrooms and/or learning activities (e.g. outdoors) throughout the study, on times/activities that you and the teachers agree on. The observations can begin in Fall 2023 and will continue until Spring 2025. The observations will not require teachers or students to do anything different, just allow me into their "classroom" (broadly defined since learning could occur in the barns or the outdoor classroom). If you agree, I may take photographs or video students engaged in activities, or invite students to wear a GoPro camera. I will ask the principal, teachers and students before doing this. We will not photograph or video students who do not agree with this. Any video or photograph taken will be shared with the student and their parent to get permission to use it in any reporting.

3. Since this study aligns with a community-based methodology and a participative philosophy, teachers who have expressed interest in being co-researchers (collecting or analyzing data, mentoring students in the upper grades to conduct interviews with other students) will be invited to do so. This

will be based on teachers' interests, and their activities will not interfere with their teaching.

With your consent, study information will be stored in a secure data repository (password protected laptop on my secure Google Drive) to facilitate future research.

Students

1. Individual Interviews: We will ask students to participate in one individual interview and a possible follow-up interviews throughout the study. We will obtain parent consent and the students' assent given the students' age. We anticipate interviewing the student for 15-25 minutes, and any follow-up interview will be about 10 minutes to seek clarification or more information from the first interview. During the interview, students may choose to answer through drawing or demonstrating. We will ask the student if we can use their drawing or take a picture of it, or take a photograph of or video them if they are demonstrating. They may be invited to wear a GoPro camera if they would like to demonstrate their learning. We will get permission from the student and parent if we intend to use a photograph or video segment in reporting.
2. As we have discussed when we received the grant, students in the upper grades may serve as co-researchers. Based on student interest and teacher and parent support, we will mentor students to take on the role of co-researcher to conduct interviews with other students. We strongly support the idea of building students' capacity, and honoring their abilities and insights. We think they will have original ideas and insights that may enhance the study. We will work with the principal and the teachers to select students and prepare them for this role. Their role of co-researcher will align with their skill development and learning, and will not interfere with other learning.

Parents

1. Individual interview and potential follow-up interview. Parents will be interviewed in person or virtually via Zoom. The first interview will last up to an hour, and a follow-up interview may take the same amount of time.
2. Parents of students who volunteer for an individual interview will be asked to provide consent, and they will be invited to accompany their child during the individual interview. These interviews will be in-person at a time and place convenient for them.

Staff

1. Individual interviews and potential follow-up interview. Staff in the school will be interviewed in person or virtually via Zoom. The first interview will last up to an hour, and a follow-up interview may take the same amount of time. Examples of staff members include educational assistants and bus drivers.

School Community Members

1. Individual interview and potential follow-up interview. Community members will be interviewed in person or virtually via Zoom. Examples of community members include volunteers to the school, guest speakers, and members of the agri-sector business that have interacted with the school.

What are the risks and discomforts?

There are no known risks or discomforts associated with this research.

It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

What are the benefits to teachers, students, community members and parents?

Participating in this study will give stakeholders in your school community a chance to share observations about how learning through agricultural literacy, experiential learning and land stewardship can support students' academic and life skills development. There is no guarantee that teachers, students, community members or parents will benefit from this study.

Do teachers, parents, community members, and students have to take part in the study?

Being in this study is the choice of teachers, students, parents, and community members. They will all be informed that if they decide to be in the study, they can change their minds and stop being in the study up until the time the data are analyzed. I anticipate data analysis will begin by [date]. After that point we cannot remove participants from the study because their data will be part of the data set. Teachers will also be informed that they cannot withdraw data from focus groups because of the public nature of the discussion and the difficulty of removing data that is part of a public discussion. To withdraw from the study participants will be told to contact Bonnie Stelmach: bonnies@ualberta.ca.

Even if participants remain in the research study, they may choose to withdraw some or all of their responses by contacting Bonnie Stelmach by [date]. We are unable to remove answers after that time because it will have become part of the data set.

During focus groups or individual interviews, participants will not have to answer any questions that they are not comfortable with.

If anyone withdraws from the study by [date], the data from individual interviews will be destroyed immediately. Data from students, including what they said during interviews, video or photographs taken of them or something they created or demonstrated will be destroyed.

Participation in this study is completely voluntary. All potential participants will be made aware of this.

Will anyone be paid to be in the research?

No one will be paid to be in the research.

Will information be kept private?

During this study we will do everything we can to make sure that all information provided is kept private. No information relating to this study that includes names, photographs, or videos will be released outside of the researcher's office or published by the researchers unless participants give us their express permission. Sometimes, by
law, we may have to release your information with participants' names so we cannot guarantee absolute privacy. However, we will make every legal effort to make sure that information is kept private.

I will ask participants if they want to choose a pseudonym for reporting, or I can select one for them.

Virtual focus groups and/or interviews will be recorded on Zoom and saved to the cloud. This is a secure site at the University of Alberta.

During research studies it is important that the data we get reflects participants' thoughts. For this reason, data, including participants' names, may be looked at by people from the Research Ethics Board.

After the study is done, we will still need to securely store your data that was collected as part of the study. Transcripts and recorded files will be stored on my password protected laptop on my secure Google Drive. Any hard copies of transcripts will be kept at my home office, where no one else can access them. At the University of Alberta, we keep data stored for a minimum of 5 years after the end of the study.

Focus Group Research: I will strive to protect the confidentiality of the data collected from focus groups, but I cannot guarantee that others from the group will do the same.

What if I have questions?

If you have any questions about the research now or later, please contact Bonnie Stelmach: bonnies@ualberta.ca.

If you have any questions regarding your rights as a research participant, you may contact the University of Alberta Research Ethics Office at reoffice@ualberta.ca or 780-492-2615 and quote Ethics ID ProXXX. This office is independent of the study investigators.

How do I indicate my agreement to be in this study?

By signing below, you understand:

- That you have read the above information and have had anything that you do not understand explained to you to your satisfaction.
- That you agree with NHCS taking part in a research study.
- That you may freely leave the research study at any time until [date].
- That you do not waive your legal rights by being in the study
- That the legal and professional obligations of the investigators and involved institutions are not changed by your taking part in this study.

SUPERINTENDENT CONSENT

_____

Name of Superintendent (print)

_____ _____

Signature of Superintendent Date

SIGNATURE OF PERSON OBTAINING CONSENT

_____ _____

Signature of RESEARCHER Date

bonnies@ualberta.ca 780-492-9890

Email Contact Number

Field Code Changed

A copy of this consent form has been given to you to keep for your records and reference.

PRINCIPAL CONSENT FORM

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills

Contact Information

Principal Investigator:	Dr. Bonnie Stelmach, Faculty of Education, University of Alberta
Mailing Address:	7-145 Education Center North, University of Alberta, Edmonton, Alberta T5G 2G5
Phone:	(780)492-9890
Email:	bonnies@ualberta.ca

New Humble Community School (NHCS) is being invited to take part in a research study. Before you consent to their taking part, a member of the study team is available to explain the project and you are free to ask any questions about anything you do not understand. You will be given a copy of this form for your records.

Why is your school being asked to take part in this research study?

This study aims to gain insight into how learning through agricultural literacy, land stewardship, and experiential learning can support students' academic and life skills learning and development, particularly through the Physical Education and Wellness and Social Studies Alberta curricula. NHCS is being asked to take part in this study because it is the only school in Alberta that uses an agricultural literacy outcomes framework, combined with experiential learning and land stewardship to facilitate Alberta's Program of Studies to K-6 students. Your superintendent has given us permission to conduct the study at your school.

The goal of this study is to explore how experiential learning through agriculture fosters curricular connections and life skills in K-6 students. This research question guides the study: *How does experiential learning through agriculture foster curricular connections and life skills in K-6 students?*

What is the reason for doing the study?

New Humble Community School is unique because students do not just learn *about* agriculture; they learn *through* agriculture. It is the only school in Alberta that uses a comprehensive agricultural literacy framework – the National Agricultural Literacy Outcomes – for elementary school-aged students. And since its inception, NHCS has tailored these outcomes for your local context.

Working with and caring for animals, taking care of the land, and learning in hands-on ways are foundational to the school, and it gives me an ideal opportunity to learn how this helps students' academic achievement and life skills development.

What will teachers, students, parents, and community members be asked to do?

Teachers

4. Focus Groups and Individual Interviews: Teachers will be asked to participate in two focus groups (one at the beginning of the study – Fall 2023, and one at the end of the study – Spring 2024) and possibly two or more individual interviews throughout the study. The focus groups and interviews may be conducted in person or virtually, depending on their schedules. The time for focus groups, interviews, and reviewing summaries of individual interviews will take up to 5 hours of their time. I or a research assistant will transcribe recorded interviews and provide teachers with a summary. The research assistant will be asked to sign a Confidentiality Agreement.

   Virtual interviews and focus groups will be conducted via Zoom. I will seek permission to record the conversations for the purpose of creating a transcript. Teachers may turn off their cameras if they prefer.

5. Classroom Observations: With your permission, I would like to observe classrooms and/or learning activities (e.g. outdoors) throughout the study, on times/activities that you and the teachers agree on. The observations can begin in Fall 2023 and will continue until Spring 2025. The observations will not require teachers or students to do anything different, just allow me into their "classroom" (broadly defined since learning could occur in the barns or the outdoor classroom). If you agree, I may take photographs or video students engaged in activities, or invite students to wear a GoPro camera. I will ask teachers and students before doing this. We will not photograph or video students who do not agree with this. Any video or photograph taken will be shared with the student and their parent to get permission to use it in any reporting.

6. Since this study aligns with a community-based methodology and a participative philosophy, teachers who have expressed interest in being co-researchers (collecting or analyzing data, mentoring students in the upper

grades to conduct interviews with other students) will be invited to do so. This will be based on teachers' interests, and their activities will not interfere with their teaching.

With your consent, study information will be stored in a secure data repository (password protected laptop on my secure Google Drive) to facilitate future research.

Students

3. Individual Interviews: We will ask students to participate in one individual interview and a possible follow-up interviews throughout the study. We will obtain parent consent and the students' assent given the students' age. We anticipate interviewing the student for 15-25 minutes, and any follow-up interview will be about 10 minutes to seek clarification or more information from the first interview. During the interview, students may choose to answer through drawing or demonstrating. We will ask the student if we can use their drawing or take a picture of it, or take a photograph of or video them if they are demonstrating. They may be invited to wear a GoPro camera if they would like to demonstrate their learning. We will get permission from the student and parent if we intend to use a photograph or video segment in reporting.
4. As we have discussed when we received the grant, students in the upper grades may serve as co-researchers. Based on student interest and teacher and parent support, we will mentor students to take on the role of co-researcher to conduct interviews with other students. We strongly support the idea of building students' capacity, and honoring their abilities and insights. We think they will have original ideas and insights that may enhance the study. We will work with you and the teachers to select students and prepare them for this role. Their role of co-researcher will align with their skill development and learning, and will not interfere with other learning.

Parents

3. Individual interview and potential follow-up interview. Parents will be interviewed in person or virtually via Zoom. The first interview will last up to an hour, and a follow-up interview may take the same amount of time.
4. Parents of students who volunteer for an individual interview will be asked to provide consent, and they will be invited to accompany their child during the individual interview. These interviews will be in-person at a time and place convenient for them.

Staff

1. Individual interviews and potential follow-up interview. Staff in the school will be interviewed in person or virtually via Zoom. The first interview will last up to an hour, and a follow-up interview may take the same amount of time. Examples of staff members include educational assistants and bus drivers.

School Community Members

1. Individual interview and potential follow-up interview. Community members will be interviewed in person or virtually via Zoom.

What are the risks and discomforts?

There are no known risks or discomforts associated with this research.

It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

What are the benefits to teachers, students, community members and parents?

Participating in this study will give stakeholders in your school community a chance to share observations about how learning through agricultural literacy, experiential learning and land stewardship can support students' academic and life skills development. There is no guarantee that teachers, students, community members or parents will benefit from this study.

Do teachers, parents, community members, and students have to take part in the study?

Being in this study is the choice of teachers, students, parents, and community members. They will all be informed that if they decide to be in the study, they can change their minds and stop being in the study up until the time the data are analyzed. I anticipate data analysis will begin by [date]. After that point we cannot remove participants from the study because their data will be part of the data set. Teachers will also be informed that they cannot withdraw data from focus groups because of the public nature of the discussion and the difficulty of removing data that is part of a public discussion. To withdraw from the study participants will be told to contact Bonnie Stelmach: bonnies@ualberta.ca.

Even if participants remain in the research study, they may choose to withdraw some or all of their responses by contacting Bonnie Stelmach by [date]. We are unable to remove answers after that time because it will have become part of the data set.

During focus groups or individual interviews, participants will not have to answer any questions that they are not comfortable with.

If anyone withdraws from the study by [date], the data from individual interviews will be destroyed immediately. Data from students, including what they said during

interviews, video or photographs taken of them or something they created or demonstrated will be destroyed.

Participation in this study is completely voluntary. All potential participants will be made aware of this.

Will anyone be paid to be in the research?

No one will be paid to be in the research.

Will information be kept private?

During this study we will do everything we can to make sure that all information provided is kept private. No information relating to this study that includes names,

photographs, or videos will be released outside of the researcher's office or published by the researchers unless participants give us their express permission. Sometimes, by
law, we may have to release your information with participants' names so we cannot guarantee absolute privacy. However, we will make every legal effort to make sure that information is kept private.

I will ask participants if they want to choose a pseudonym for reporting, or I can select one for them.

Virtual focus groups and/or interviews will be recorded on Zoom and saved to the cloud. This is a secure site at the University of Alberta.

During research studies it is important that the data we get reflects participants' thoughts. For this reason, data, including participants' names, may be looked at by people from the Research Ethics Board.

After the study is done, we will still need to securely store your data that was collected as part of the study. Transcripts and recorded files will be stored on my password protected laptop on my secure Google Drive. Any hard copies of transcripts will be kept at my home office, where no one else can access them. At the University of Alberta, we keep data stored for a minimum of 5 years after the end of the study.

Focus Group Research: I will strive to protect the confidentiality of the data collected from focus groups, but I cannot guarantee that others from the group will do the same.

What if I have questions?

If you have any questions about the research now or later, please contact Bonnie Stelmach: bonnies@ualberta.ca.

If you have any questions regarding your rights as a research participant, you may contact the University of Alberta Research Ethics Office at reoffice@ualberta.ca or 780-492-2615 and quote Ethics ID ProXXX. This office is independent of the study investigators.

How do I indicate my agreement to be in this study?

By signing below, you understand:

- That you have read the above information and have had anything that you do not understand explained to you to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study at any time until [date].
- That you do not waive your legal rights by being in the study
- That the legal and professional obligations of the investigators and involved institutions are not changed by your taking part in this study.

PRINCIPAL CONSENT

_____

Name of Principal (print)

_____ _____

Signature of Principal Date

SIGNATURE OF PERSON OBTAINING CONSENT

_____ _____

Signature of RESEARCHER Date

_____ _____

Email Contact Number

A copy of this consent form has been given to you to keep for your records and reference.

PARENT CONSENT FOR CHILD PARTICIPANT FORM

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills

Contact Information

Principal Investigator:	Dr. Bonnie Stelmach, Faculty of Education, University of Alberta
Mailing Address:	7-145 Education Center North, University of Alberta, Edmonton, Alberta T5G 2G5
Phone:	(780)492-9890
Email:	bonnies@ualberta.ca

Your child/ren is/are being invited to take part in a research study. Before they take part, a member of the study team is available to explain the project and you are free to ask any questions about anything you do not understand. You will be given a copy of this form for your records.

Why is/are my child/ren being asked to take part in this research study?

Your child(ren) is/are being asked to take part in this study because they attend New Humble Community School (NHCS). The goal of this study is to explore how experiential learning through agriculture fosters curricular connections and life skills in K-6 students. This research question guides the study: *How does experiential learning through agriculture foster curricular connections and life skills in K-6 students?*

What is the reason for doing the study?

New Humble Community School is unique because students do not just learn *about* agriculture; they learn *through* agriculture. It is the only school in Alberta that uses a comprehensive agricultural literacy framework – the National Agricultural Literacy Outcomes – for elementary school-aged students. Working with and caring for animals and the land are foundational to the school, and it gives me an ideal opportunity to learn how this helps students' academic achievement and life skills development.

What will my child(ren) be asked to do?

Classroom Observations

Your child(ren) will be observed while they are learning. We may take photos or video of their interactions with animals, or invite students to wear a GoPro while engaged in learning activities. We may use the photos or videos as points of conversation with your children if they agree to participate in an individual interview (see below).

We will share the photograph and/or video if we intend to use it for public sharing (reporting to school community, academic and professional presentations and publications).

Individual Interview

Your child(ren) will be asked to participate in one individual interview, and a potential follow-up interview to tell me about their learning with/from animals. The first interview will take about 15 minutes, and a follow-up interview will take about 10 minutes. We would like to interview them so that we can make a transcript afterward.

You may be with your child(ren) during the interview if that would make them and/or you more comfortable.

The interview will be conducted in person, as this will likely be easier for students. I will seek permission to record the interview for the purpose of creating a transcript. This makes it easier for us as notetaking will take some attention away. We will ask your child if they agree before we record, and only if you agree to this. We will send you a summary of the interviews, which you can review with your child(ren).

Some children might prefer to explain their answer through a picture or model, or by doing something. We will ask if we can video or photograph them while they show us something, or take a picture of what they create. Their face may be in the picture. We will be asking your child(ren) if they are okay with this before we do it. And we will ask them if it is okay to use what they created in our study.

I will be asking your child(ren) about the nature of the activities that they participate in with agriculture, experiential learning, and land stewardship (the school's charter) at school, and whether and/or how you see these activities enhancing their curricular achievement and life skills development.

This is a community-based research study that assumes that members of the school are not only participants, but can serve as co-researchers. The teachers have agreed that students in the older grades (e.g. Gr. 4-6) may enjoy and benefit from being mentored to lead the interview discussions. With your permission, we may include a student co-researcher who has been mentored to lead and/or participate in the interviews with your child.

I or a Research Assistant will transcribe the interview. I will send you a summary of the main points, which you will have an opportunity to review with your child(ren) and respond to. You can expect to receive the summaries within two weeks after the interviews. You will have an opportunity to review any video or photographs we take.

The study information will be stored in a secure data repository (password protected laptop on my secure Google Drive) to facilitate future research. We will label photographs, videos, and transcripts with your child's name so that we know who to contact if we want permission to use a video or photograph in reporting. All of this will be destroyed five years after the study is completed, in keeping with university protocol.

What are the risks and discomforts?

There are no known risks or discomforts associated with this research.

It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

What are the benefits to me?

There is no guarantee that your child(ren) or you will benefit from taking part in this study.

Do I have to take part in the study?

Being in this study is your choice made with your child(ren). If you and your child(ren) decide to be in the study, you can change your mind and stop being in the study up until the time the data are analyzed. I anticipate data analysis will begin by December 15, 2023. All transcripts, photographs, or video involving your child(ren) will be destroyed.

After that point we cannot remove your child(ren) from the study because the data will be part of the data set. To withdraw from the study please contact Bonnie Stelmach: bonnies@ualberta.ca.

Even if your child(ren) remain(s) in the research study, they may choose to withdraw some or all of their responses by contacting Bonnie Stelmach by December 15, 2023. We are unable to remove their answers after that time because it will have become part of the data set.

Your child(ren) does/do not have to answer any questions that they are not comfortable with.

Your child's/children's participation in this study is completely voluntary.

Will I or my child(ren) be paid to be in the research?

No, you and your child(ren) will not be paid to be in the research.

Will my child's/children's information be kept private?

During this study we will do everything we can to make sure that all information your child(ren) provide is kept private. No information relating to this study that includes your or their name will be released outside of the researcher's office or published by the

researchers unless you give us your express permission. Sometimes, by law, we may have to release your information with your or your child's/children's name so we cannot guarantee absolute privacy. However, we will make every legal effort to make sure that your information is kept private.

For reporting, I will use a fake name for your child. I will ask them to provide one or I can select one for them.

During research studies it is important that the data we get is accurate. For this reason, your data, including your child's/children's name, may be looked at by people from the Research Ethics Board.

We will be labelling anything your child creates (e.g. drawing), and any photographs or videos including your child(ren) so that we can contact you before using these in reporting. These data will be securely stored, so no one except the researcher and

research assistant will have access to these. The research assistant has signed a Confidentiality Agreement.

After the study is done, we will still need to securely store your data that was collected as part of the study. Transcripts and recorded files will be stored on my password protected laptop on my secure Google Drive. Any hard copies of transcripts will be kept at my home office, where no one else can access them. At the University of Alberta, we keep data stored for a minimum of 5 years after the end of the study.

What if I have questions?

If you have any questions about the research now or later, please contact Bonnie Stelmach: bonnies@ualberta.ca.

If you have any questions regarding your child's/children's rights as a research participant, you may contact the University of Alberta Research Ethics Office at reoffice@ualberta.ca or 780-492-2615 and quote Ethics ID Pro00133615. This office is independent of the study investigators.

How do I indicate that I agree for my child(ren) to be in this study?

By signing below, you understand:

- That you have read the above information and have had anything that you do not understand explained to you to your satisfaction.
- That your child(ren) will be taking part in a research study that will include being interviewed.
- That your child(ren) may freely leave the research study at any time until [date]
- That your child(ren) do not waive your legal rights by being in the stud
- That the legal and professional obligations of the investigators and involved institutions are not changed by your child(ren) taking part in this study.

SIGNATURE OF PARENT OF STUDENT PARTICIPANT

_____ _____

Pseudonym (if necessary)

Name of Student Participant

_____ _____

Name of Parent/Caregiver Signature of Parent/Caregiver

SIGNATURE OF PERSON OBTAINING CONSENT

_____ _____

Name of Person Obtaining Consent Contact Number

A copy of this consent form has been given to you to keep for your records and reference.

Younger Child Assent (Grade K – 4): Individual Interviews

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills (REB Pro00133615)

Principal Investigator(s): Dr. Bonnie L. Stelmach
Phone Number(s): 780-492-9890

We want to tell you about a research study we are doing. A research study is a way to learn more about something. We would like to find out more about what it is like for you to learn through agriculture and hands-on activities. You are being asked to join the study because you are a student in the school who takes part in these kinds of learning activities. We want to know from students what it is like to learn with animals or in the garden or outdoor classroom, for example.

If you agree to join this study, you will be asked to tell us what it's like to learn at this school where there are animals, a garden, and an outdoor classroom. We would like to talk to you once for approximately 15 minutes at the school. We will ask you if we can record you while you are talking so that we can create what is called a transcript of the conversation. We may ask to talk to you again for about 10 minutes if we have questions about what you said during the first interview. You and your parents will have a chance to read the transcript. They can also be present during the interview if you'd like.

If you would like to share your answers to our questions by drawing pictures, or making something out of play doh, we would like that. We will ask you after you draw the picture if you are okay with us using the picture in our study, or taking a photograph of it.

If you would like to share your answers by showing us something, we would like that. We will ask you if we can video you or take a photograph of you while you show us, or perhaps you would like to wear a GoPro camera. We will ask you if you are okay with your face being in the photograph or video. We will show you the photograph and the video if you would like, and ask if we can use it in our study.

We will also show your parents your drawing, and any photographs or videos we take and ask if they are okay with us using it in our study. They may talk to you about it before they give us an answer.

We want to know how this school's approach to teaching through agriculture and hands-on activities helps or doesn't help your learning. There is nothing we will ask about that will make you feel bad.

This study will help us learn more about how using agriculture and hands-on activities can help students learn.

You do not have to join this study. It is up to you. You can say okay now and change your mind later. All you have to do is tell us you want to stop. No one will be mad at you if you don't want to be in the study or if you join the study and change your mind later and stop. Anything you have said that we have recorded, or any photograph or video of you will be removed. It will be

like you didn't take part in the study at all. We will tell your parents that you can withdraw until [date]. That is when we will have begun to analyze all the study data.

Before you say **yes or no** to being in this study, we will answer any questions you have. If you join the study, you can ask questions at any time. Just tell the researcher that you have a question. If you have any questions about this study, please feel free to tell your parents that you want to contact Bonnie Stelmach @ (780) 492-9890.

☐ Yes, I will be in this research study. ☺ ☐ No, I don't want to do this. ☹

Child's name	Signature	Date

Person obtaining Assent	Signature	Date

Older Child Assent (Grade 5 – 6): Individual Interviews

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills (REB Pro00133615)

Principal Investigator: Dr. Bonnie L. Stelmach
Phone Number(s): 780-492-9890

What is a research study?

A research study is a way to find out new information about something. Children do not need to be in a research study if they don't want to.

Why are you being asked to be part of this research study?

You are being asked to join the study because you are a student in the school who takes part in agricultural literacy and hands-on learning through animals, the garden or outdoor classroom, for example.

We are planning to interview up to 35 students in this study.

If you join the study what will happen to you?

We want to tell you about some things that will happen to you if you are in this study.

- You will be in the study for about 15-25 minutes.
- We will ask you to sit with us and talk about what it's like for you to learn through agriculture. We might ask you to respond to some video of activities that involve agriculture and hands-on learning. We may ask you to demonstrate something you've learned, or wear a GoPro while participating in hands-on learning. If we ask to talk to you a second time, that would take about 10 minutes.
- We will ask you to answer some questions about what you like or don't like about having animals, the garden, and other agricultural lessons as the way you learn in this school, and how you think it helps you or doesn't help you to learn school subjects.
- We may take photos or video you while you are learning with the animals. You will be able to review the photos or video before we use them in the study.
- If you would like to draw a picture or create something out of playdoh to tell us about your learning, you will be able to do so. We will ask you if we can keep the picture, figure or take a photo of it to be able to use it in our research.

Will any part of the study hurt?

You do not have to worry about being hurt or uncomfortable when you are part of the study.

Will the study help others?

This study might find out things that will help other children with their learning. Other schools in Alberta may learn about how agricultural literacy and hands-on learning can help students learn in school.

What do you get for being in the study?

At the end of the study, you will get a letter on official university letterhead to thank you for participating.

Do you have to be in the study?

You do not have to be in the study. It's up to you. No one will be upset if you don't want to do this study. If you join the study, you can change your mind and stop being part of it at any time. All you have to do is tell us. It's okay, the researchers and your parents won't be upset.

What choices do you have if you say no to this study?

If you don't want to be in this study, we will understand, and we will not ask you to do an interview. We will be observing classrooms, and so you have an opportunity to be part of the study as a student in your class.

Do your parents know about this study?

This study was explained to your parents and they said that we could ask you if you want to be in it. You can talk this over with them before you decide.

Who will see the information collected about you?

The information collected about you during this study will be kept safely locked up. This includes the transcript of what you say, the recording of the interview, any photos or videos of you and/or work you create (e.g. picture). Nobody will know about the transcript, pictures, photographs, or video except the people doing the research.

The study information about you will not be given to your parents or teachers, but your parents may be with you in the interview if they and you would like. The researchers will not tell your friends or anyone else.

What if you have any questions?

You can ask any questions that you may have about the study. If you have a question later that you didn't think of now, either you can call or have your parents call Dr. Bonnie Stelmach @ 780-492-9890.

Other information about the study.

- If you decide to be in the study, please write your name below.
- You will be given a copy of this paper to keep.

☐ Yes, I will be in this research study. ☺ ☐ No, I don't want to do this. ☹

Child's name	Signature	Date

Person obtaining Assent	Signature	Date

Assent for Alumni of New Humble Community School (Grade 7-8): Individual Interviews

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills (REB Pro00133615)

Principal Investigator: Dr. Bonnie L. Stelmach
Phone Number(s): 780-492-9890

What is a research study?

A research study is a way to find out new information about something. Children do not need to be in a research study if they don't want to.

Why are you being asked to be part of this research study?

You are being asked to join the study because you completed Grade 6 at New Humble Community School, and you took part in agricultural literacy and hands-on learning through animals, the garden or outdoor classroom, for example.

We are planning to interview up to 35 students in this study.

If you join the study what will happen to you?

We want to tell you about some things that will happen to you if you are in this study.

- You will be in the study for about 15-25 minutes.
- We will ask you to sit with us and talk about what it was like for you to learn through agriculture, and how you might describe your learning in a school that does not have an agriculture focus.
- We will ask you to answer some questions about what you liked or didn't like about having animals, the garden, and other agricultural lessons as the way you learned in New Humble, and how you think it helped you or didn't help you to learn school subjects.
- We may ask you to describe what you like or don't like about your current school.
- We may ask you to compare your experiences at New Humble with your current school.

Will any part of the study hurt?

You do not have to worry about being hurt or uncomfortable when you are part of the study.

Will the study help others?

This study might find out things that will help other children with their learning. Other schools in Alberta may learn about how agricultural literacy and hands-on learning can help students learn in school.

What do you get for being in the study?

At the end of the study, you will get a letter on official university letterhead to thank you for participating.

Do you have to be in the study?

You do not have to be in the study. It's up to you. No one will be upset if you don't want to do this study. If you join the study, you can change your mind and stop being part of it at any time. All you have to do is tell us. It's okay, the researchers and your parents won't be upset.

What choices do you have if you say no to this study?

If you don't want to be in this study, we will understand, and we will not ask you to do an interview.

Do your parents know about this study?

This study was explained to your parents and they said that we could ask you if you want to be in it. You can talk this over with them before you decide.

Who will see the information collected about you?

The information collected about you during this study will be kept safely locked up. This includes the transcript of what you say and the recording of the interview. Nobody will know about the transcript except the people doing the research.

The study information about you will not be given to your parents or teachers, but your parents may be with you in the interview if they and you would like. The researchers will not tell your friends or anyone else.

What if you have any questions?

You can ask any questions that you may have about the study. If you have a question later that you didn't think of now, either you can call or have your parents call Dr. Bonnie Stelmach @ 780-492-9890.

Other information about the study.

- If you decide to be in the study, please write your name below.
- You will be given a copy of this paper to keep.

☐ Yes, I will be in this research study. ☺ ☐ No, I don't want to do this. ☹

Child's name	Signature	Date

Person obtaining Assent	Signature	Date

PARTICIPANT CONSENT FORM (Parents)

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills

Contact Information

Principal Investigator:	Dr. Bonnie Stelmach, Faculty of Education, University of Alberta
Mailing Address:	7-145 Education Center North, University of Alberta, Edmonton, Alberta T5G 2G5
Phone:	(780)492-9890
Email:	bonnies@ualberta.ca

You are being invited to take part in a research study. Before you take part, a member of the study team is available to explain the project and you are free to ask any questions about anything you do not understand. You will be given a copy of this form for your records.

This study is funded by the Alberta Education Research Partnership Program. The Institution and Principal Investigator are getting money from the study funder to cover the costs of doing the study. You are entitled to request details concerning this compensation from the Principal Investigator.

Why am I being asked to take part in this research study?

You are being asked to take part in this study because you have a child or children attending New Humble Community School (NHCS). The goal of this study is to explore how experiential learning through agriculture fosters curricular connections and life skills in K-6 students. This research question guides the study: *How does experiential learning through agriculture foster curricular connections and life skills in K-6 students?*

What is the reason for doing the study?

New Humble Community School is unique because students do not just learn *about* agriculture; they learn *through* agriculture. It is the only school in Alberta that uses a comprehensive agricultural literacy framework – the National Agricultural Literacy Outcomes – for elementary school-aged students. Working with and caring for animals, plants, and the land are foundational to the school (i.e. charter), and it gives

me an ideal opportunity to learn how this helps students' academic achievement and life skills development.

What will I be asked to do?

You will be asked to participate in one individual interview, and a potential follow-up interview to tell me about your children's learning through an agricultural literacy, experiential learning, and land stewardship framework. The first interview will take up to an hour, and a follow-up interview may take up to an hour. I will send you a summary of

the interviews, which you can review. Your participation will require about 3 hours of your time.

The interview may be conducted in person or via Zoom. I will seek permission to record the interview for the purpose of creating a transcript. You may turn off your camera if you prefer.

I will be asking you about the nature of the activities that your child/ren participate in with animals, plants, or other experiential activities at school, and whether and/or how you see these activities enhancing their curricular achievement and life skills development.

I or a Research Assistant will transcribe the individual interview. I will send you a summary of the main points, which you will have an opportunity to respond to. You can expect to receive the summaries within two weeks after the interviews.

The study information will be encrypted and stored in a secure data repository (encrypted and password protected laptop on my secure Google Drive) to facilitate future research.

What are the risks and discomforts?

There are no known risks or discomforts associated with this research.

It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

What are the benefits to me?

Participating in this study will give you an opportunity to share your observations of your child's/children's learning achievements and skills development when agricultural literacy, land stewardship, and experiential learning are the focus.

Do I have to take part in the study?

Being in this study is your choice. If you decide to be in the study, you can change your mind and stop being in the study up until the time the data are analyzed. I anticipate data analysis will begin by December 15, 2023. After that point we cannot remove you from the study because your data will be part of the data set. To withdraw from the study please contact Bonnie Stelmach: bonnies@ualberta.ca.

Even if you remain in the research study, you may choose to withdraw some or all of your responses by contacting Bonnie Stelmach by December 15, 2023. We are unable to remove your answers after that time because it will have become part of the data set.

You do not have to answer any questions that you are not comfortable with.

If you withdraw from the study by December 15, 2023 the data from individual interviews will be destroyed immediately.

Your participation in this study is completely voluntary.

Will I be paid to be in the research?

No, you will not be paid to be in the research.

Will my information be kept private?

During this study we will do everything we can to make sure that all information you provide is kept private. No information relating to this study that includes your name will be released outside of the researcher's office or published by the researchers unless you give us your express permission. Sometimes, by law, we may have to release your information with your name so we cannot guarantee absolute privacy. However, we will make every legal effort to make sure that your information is kept private.

I will ask you to use a pseudonym for reporting, or I can select one for you. If you'd like to select your own pseudonym, you can indicate this verbally or on the consent form.

Virtual interviews will be recorded on Zoom and immediately downloaded to my computer.

During research studies it is important that the data we get is accurate. For this reason, your data, including your name, may be looked at by people from the Research Ethics Board.

After the study is done, we will still need to securely store your data that was collected as part of the study. Transcripts and recorded files will be encrypted and stored on my password protected laptop on my secure Google Drive. Any hard copies of transcripts will be kept at my home office, where no one else can access them. At the University of Alberta, we keep data stored for a minimum of 5 years after the end of the study.

What if I have questions?

If you have any questions about the research now or later, please contact Bonnie Stelmach: bonnies@ualberta.ca.

If you have any questions regarding your rights as a research participant, you may contact the University of Alberta Research Ethics Office at reoffice@ualberta.ca or 780-492-2615 and quote Ethics ID Pro00133615. This office is independent of the study investigators.

How do I indicate my agreement to be in this study?

By signing below, you understand:

- That you have read the above information and have had anything that you do not understand explained to you to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study at any time until December 15, 2023.
- That you do not waive your legal rights by being in the study
- That the legal and professional obligations of the investigators and involved institutions are not changed by your taking part in this study.
- That you agree to the data being stored as part of a data repository.

SIGNATURE OF PARENT STUDY PARTICIPANT

_____ _____

Pseudonym (if necessary)

Name of PARENT Participant

_____ _____

Signature of Participant Date

SIGNATURE OF PERSON OBTAINING CONSENT

_____ _____

Name of Person Obtaining Consent Contact Number

A copy of this consent form has been given to you to keep for your records and reference.

TEACHER CONSENT FORM

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills

Contact Information

Principal Investigator:	Dr. Bonnie Stelmach, Faculty of Education, University of Alberta
Mailing Address:	7-145 Education Center North, University of Alberta, Edmonton, Alberta T5G 2G5
Phone:	(780)492-9890
Email:	bonnies@ualberta.ca

You are being invited to take part in a research study. Before you take part, a member of the study team is available to explain the project and you are free to ask any questions about anything you do not understand. You will be given a copy of this form for your records.

This study is funded by the Alberta Education Research Partnership Program. The Institution and Principal Investigator are getting money from the study funder to cover the costs of doing the study. You are entitled to request details concerning this compensation from the Principal Investigator.

Why am I being asked to take part in this research study?

You are being asked to take part in this study because you are a teacher at New Humble Community School. The goal of this study is to explore how experiential learning through agriculture fosters curricular connections and life skills in K-6 students. This research question guides the study: *How does experiential learning through agriculture foster curricular connections and life skills in K-6 students?*

What is the reason for doing the study?

New Humble Community School is unique because students do not just learn *about* agriculture; they learn *through* agriculture. It is the only school in Alberta that uses a comprehensive agricultural literacy framework – the National Agricultural Literacy Outcomes – for elementary school-aged students. And since its inception, NHCS has tailored these outcomes for your local context.

What will I be asked to do?

You will be asked to participate in two focus groups and up to two individual interviews. The time for the focus groups, interviews, and reviewing summaries of individual interviews will take up to 5 hours of your time. With your permission, I would like to observe your classroom and/or learning activities (e.g. outdoors) at times and for a duration that works with your schedule, beginning in Fall 2023 and ending in Spring 2025. The observations will not require you to do anything different, just allow me into your "classroom", understanding that your lessons occur outside, in barns, etc.

Virtual interviews and focus groups will be conducted via Zoom. I will seek permission to record the conversations for the purpose of creating a transcript. You may turn off your camera if you prefer.

- Focus Group Interviews:
  - You will be taking part in two in-person or online focus groups with other teachers in the school about the nature of the activities that students participate in with animals, plants, and the outdoors and whether and/or how you see these activities enhancing their curricular achievement and life skills development. A focus group at the end will be used to share my interpretations of the data to seek confirmation/disconfirmation.
  - The first focus group will take place at the beginning of the study (e.g. Fall 2023 or Winter 2024), and will last up to one hour.
  - The second focus group will take place at the end of the study (e.g. Spring 2025), and will last up to an hour.
  - I or a Research Assistant will transcribe the focus group. I will send you a summary of the main points from the focus group, which you will have an opportunity to respond to. You can expect to receive the summaries within two weeks after the focus groups.

- Individual Interviews:
  - You will be taking part in two in-person or online individual interviews about what you observe as benefits/challenges to including animals in children's learning, and whether and/or how animals lead to life skills development in children.
  - The first interview will be up to 1 hour, and the follow-up interview will also be up to an hour.
  - I or a Research Assistant will transcribe the interviews. I will send you a summary of the main points from the interview, which you will have an opportunity to respond to. You can expect to receive the summaries within two weeks after the individual interviews.

With your consent, study information will be encrypted and stored in a secure data repository (password protected laptop on my secure Google Drive) to facilitate future research.

What are the risks and discomforts?

There are no known risks or discomforts associated with this research.

It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

Privacy cannot be guaranteed in focus groups, and but I you and all participants to keep all information confidential.

What are the benefits to me?

Participating in this study will give you an opportunity to share your observations of children's learning achievements and skills development when agricultural literacy, land stewardship, and experiential learning are involved. It may also give you an opportunity to reflect on your own professional development needs regarding using an agricultural literacy framework in your school vis-à-vis the Alberta curriculum in Physical Education and Wellness and Social Studies. While there may not be any direct benefit to you, results from this study may help us learn about agricultural innovation in rural schools and its impact on elementary students, and this may benefit others in the future.

Do I have to take part in the study?

Being in this study is your choice. If you decide to be in the study, you can change your mind and stop being in the study up until the time the data are analyzed. I anticipate data analysis will begin by December 15, 2023. After that point we cannot remove you from the study because your data will be part of the data set. Please also note that you cannot withdraw your data from focus groups because of the public nature of the discussion and the difficulty of removing data that is part of a public discussion. To withdraw from the study please contact Bonnie Stelmach: bonnies@ualberta.ca.

Even if you remain in the research study, you may choose to withdraw some or all of your responses by contacting Bonnie Stelmach by December 15, 2023. We are unable to remove your answers after that time because it will have become part of the data set.

During focus groups or individual interviews, you do not have to answer any questions that you are not comfortable with.

If you withdraw from the study by December 21, 2023, the data from individual interviews will be destroyed immediately.

Your participation in this study is completely voluntary.

Will I be paid to be in the research?

No, you will not be paid to be in the research.

Will my information be kept private?

During this study we will do everything we can to make sure that all information you provide is kept private. No information relating to this study that includes your name will be released outside of the researcher's office or published by the researchers unless you give us your express permission. Sometimes, by law, we may have to release your information with your name so we cannot guarantee absolute privacy. However, we will make every legal effort to make sure that your information is kept private.

I will ask you to use a pseudonym for reporting, or I can select one for you. If you'd like to select your own pseudonym, you can indicate this verbally or on the consent form.

Virtual focus groups and/or interviews will be recorded on Zoom and saved to the cloud. This is a secure site at the University of Alberta.

During research studies it is important that the data we get is accurate. For this reason, your data, including your name, may be looked at by people from the Research Ethics Board.

After the study is done, we will still need to securely store your data that was collected as part of the study. Transcripts and recorded files will be stored on my password protected laptop on my secure Google Drive. Any hard copies of transcripts will be kept at my home office, where no one else can access them. At the University of Alberta, we keep data stored for a minimum of 5 years after the end of the study.

Focus Group Research: I will strive to protect the confidentiality of the data collected from focus groups, but I cannot guarantee that others from the group will do the same.

What if I have questions?

If you have any questions about the research now or later, please contact Bonnie Stelmach: bonnies@ualberta.ca.

If you have any questions regarding your rights as a research participant, you may contact the University of Alberta Research Ethics Office at reoffice@ualberta.ca or 780-492-2615 and quote Ethics ID Pro00133615. This office is independent of the study investigators.

How do I indicate my agreement to be in this study?

By signing below, you understand:

- That you have read the above information and have had anything that you do not understand explained to you to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study at any time until [date].
- That you do not waive your legal rights by being in the study.
- That the legal and professional obligations of the investigators and involved institutions are not changed by your taking part in this study.
- That you agree to the data being stored as part of a data repository.

SIGNATURE OF TEACHER PARTICIPANT

_____ _____

Pseudonym (if necessary)

Name of Participant

_____ _____

Signature of Participant Date

SIGNATURE OF PERSON OBTAINING CONSENT

_____ 780-492-9890

Dr. Bonnie Stelmach Contact Number

A copy of this consent form has been given to you to keep for your records and reference.

STAFF/COMMUNITY MEMBER CONSENT FORM

Title of Study: School is Such a Chore! Agriculture as a Lens for Enhancing Learning and Life Skills

Contact Information

Principal Investigator:	Dr. Bonnie Stelmach, Faculty of Education, University of Alberta
Mailing Address:	7-145 Education Center North, University of Alberta, Edmonton, Alberta T5G 2G5
Phone:	(780)492-9890
Email:	bonnies@ualberta.ca

You are being invited to take part in a research study which was approved by the University of Alberta Research Ethics Board on September 8, 2023. Before you take part, a member of the study team is available to explain the project and you are free to ask any questions about anything you do not understand. You will be given a copy of this form for your records.

This study is funded by the Alberta Education Research Partnership Program. The Institution and Principal Investigator are getting money from the study funder to cover the costs of doing the study. You are entitled to request details concerning this compensation from the Principal Investigator.

Why am I being asked to take part in this research study?

You are being asked to take part in this study because you work at New Humble Community School or are a community member who has direct/indirect involvement (e.g. volunteer, donar, business member, etc.). The goal of this study is to explore how experiential learning through agriculture fosters curricular connections and life skills in K-6 students. This research question guides the study: *How does experiential learning through agriculture foster curricular connections and life skills in K-6 students?*

What is the reason for doing the study?

New Humble Community School is unique because students do not just learn *about* agriculture; they learn *through* agriculture. It is the only school in Alberta that uses a comprehensive agricultural literacy framework – the National Agricultural Literacy Outcomes – for elementary school-aged students. And since its inception, NHCS has tailored these outcomes for your local context.

What will I be asked to do?

You will be asked to participate in up to two individual interviews (in person or virtual). The time for the interviews, and reviewing summaries of individual interviews will take up to 3 hours of your time. The interviews will take place between Fall 2023 and Spring 2025, which is the duration of the study.

Following the interviews, I or a Research Assistant will transcribe the interviews. I will send you a summary of the main points from the interview, which you will have an opportunity to respond to. You can expect to receive the summaries within two weeks after the individual interviews.

With your consent, study information will be encrypted and stored in a secure data repository (password protected laptop on my secure Google Drive) to facilitate future research.

What are the risks and discomforts?

There are no known risks or discomforts associated with this research.

It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

What are the benefits to me?

Participating in this study will give you an opportunity to share your observations of children's learning achievements and skills development when agricultural literacy, land stewardship, and experiential learning are involved. While there may not be any direct benefit to you, results from this study may help us learn about agricultural innovation in rural schools and its impact on elementary students, and this may benefit others in the future.

Do I have to take part in the study?

Being in this study is your choice. If you decide to be in the study, you can change your mind and stop being in the study up until the time the data are analyzed. I anticipate data analysis will begin by December 15, 2023. After that point we cannot remove you from the study because your data will be part of the data set. Please also note that you cannot withdraw your data from focus groups because of the public nature of the discussion and the difficulty of removing data that is part of a public discussion. To withdraw from the study please contact Bonnie Stelmach: bonnies@ualberta.ca.

Even if you remain in the research study, you may choose to withdraw some or all of your responses by contacting Bonnie Stelmach by December 15, 2023. We are unable to remove your answers after that time because it will have become part of the data set.

If you withdraw from the study by December 15, 2023 the data from individual interviews will be destroyed immediately.

Your participation in this study is completely voluntary.

Will I be paid to be in the research?

No, you will not be paid to be in the research.

Will my information be kept private?

During this study we will do everything we can to make sure that all information you provide is kept private. No information relating to this study that includes your name will be released outside of the researcher's office or published by the researchers unless you give us your express permission. Sometimes, by law, we may have to release your information with your name so we cannot guarantee absolute privacy. However, we will make every legal effort to make sure that your information is kept private.

I will ask you to use a pseudonym for reporting, or I can select one for you. If you'd like to select your own pseudonym, you can indicate this verbally or on the consent form.

Virtual interviews will be recorded on Zoom and immediately downloaded to my computer.

During research studies it is important that the data we get is accurate. For this reason, your data, including your name, may be looked at by people from the Research Ethics Board.

After the study is done, we will still need to securely store your data that was collected as part of the study. Transcripts and recorded files will be encrypted and stored on my password protected laptop on my secure Google Drive. Any hard copies of transcripts will be kept at my home office, where no one else can access them. At the University of Alberta, we keep data stored for a minimum of 5 years after the end of the study.

What if I have questions?

If you have any questions about the research now or later, please contact Bonnie Stelmach: bonnies@ualberta.ca.

If you have any questions regarding your rights as a research participant, you may contact the University of Alberta Research Ethics Office at reoffice@ualberta.ca or

780-492-2615 and quote Ethics ID Pro00133615. This office is independent of the study investigators.

How do I indicate my agreement to be in this study?

By signing below, you understand:

- That you have read the above information and have had anything that you do not understand explained to you to your satisfaction.
- That you will be taking part in a research study.
- That you may freely leave the research study at any time until [date].
- That you do not waive your legal rights by being in the study.
- That the legal and professional obligations of the investigators and involved. institutions are not changed by your taking part in this study.
- That you agree to the data being stored as part of a data repository.

SIGNATURE OF SCHOOL STAFF/COMMUNITY MEMBER PARTICIPANT

_____	_____
Name of Participant	Pseudonym (if necessary)
_____	_____
Signature of Participant	Date

SIGNATURE OF PERSON OBTAINING CONSENT (Researcher)

_____	780-492-9890
Dr. Bonnie Stelmach	Contact Number

A copy of this consent form has been given to you to keep for your records and reference.

Appendix D, E, F: Title(s) *Optional*

APPENDIX D: Teacher, Staff, Community Member, & Parent Individual Interview Script

*Teacher, Staff, Parent, and Community Member Individual Interview Questions

1. What do you perceive as potential benefits and/or disadvantages of the school's agricultural literacy in terms of students' learning outcomes?
2. Based on your observations and experiences, how has the agricultural literacy and hands-on learning philosophy impacted your students' engagement with school and learning?
3. What do you expect students to obtain in this school that might not be obtained if they were in a different school without agricultural literacy and hands-on learning as a philosophy?
4. If you could capture in a word or expression how this school's philosophy shapes students learning, what would you say?
5. In what ways, or at all, do you think this school's philosophy can make a contribution *beyond* the classroom?

*These questions are potential conversation starters, but in qualitative research, there is no "pro-forma" approach, and in fact, the interview should follow the path of the participant, and not be in the researchers' control.

APPENDIX E: Individual Interview Questions & Script for Students

Individual Interview Questions and Script for Students

Set up: Have cards ready and in order. Organize markers and paper and playdough. Have Zoom meeting open, and ready to press 'record.'

When student enters room:

Step 1: Welcome the student, and ask them to sit.

Step 2: We are happy to meet you. My name is _____ and I am _____ (explain your role and something they could relate to e.g. a student at university).

Step 3: Read the ethics script (below) or paraphrase:

We want to tell you about a research study we are doing.

Do you know what a research study is? (If they don't, then explain.)

A research study is a way to learn more about something. We would like to find out more about what it is like for you to learn through agriculture and hands-on activities. You are being asked to join the study because you are a student in the school who takes part in these kinds of learning activities. We want to know from students what it is like to learn with animals or in the garden or outdoor classroom, for example.

Ask if they understand. Then explain the procedure:

We are going to ask you to answer some questions on cards. You will get to choose, and if you are able to and would like to read, you can read it out loud. Or we can read it to you.

If you would like to share your answers to our questions by drawing pictures, or making something out of play doh, we would like that. We will ask you after you draw the picture if you are okay with us using the picture in our study, or taking a photograph of it.

If you would like to share your answers by showing us something, we would like that. We will ask you if we can video you or take a photograph of you while you show us, or perhaps you would like to wear a GoPro camera. We will ask you if you are okay with your face being in the photograph or video. We will show you the photograph and the video if you would like, and ask if we can use it in our study.

Step 4: Ask if they have any questions. Ask if they still want to be interviewed.

If yes, ask them to print their name and check "yes" on the assent form. (The parents have already consented, but we have to get assent for minority age children).

Step 5: Ice breaker

For all students as warm up:

1. Tell us about something you like to do e.g. hobby
2. Tell us about where you live e.g. farm? Acreage? Town?

Step 6: Lay out cards two by two (they have the same question on them, but they don't know that!) for each round. They are numbered so that you lay them out in that order. Ask the student if they would like to read the question themselves, or read it for them.

Important: After each question, ask the student if they want to continue. This is ongoing consent.

Division I: (K-3)

1. (For Kindergarten only perhaps): Do you like coming to school?
    a. Probe: Tell us what you like about (whatever they suggested).
    b. Probe: What feeling does it give you when you get to (whatever they suggested e.g. play with other students, feed the animals, collect the eggs, etc.)
2. When you get up in the morning and have to go to school, what do you look forward to?
3. Did you eat breakfast, or did you bring a lunch? What did/will you eat?
    a. Probe: select a food item and ask them to explain where it comes from e.g. cheese strings
4. What's something you are really good at in school?
5. If you were to show a new student around the school, what are three interesting things you would want to show them?
6. What do you think makes your school special?
7. Tell us about a time you went outside to learn.
    a. Probe: What do you remember about what you learned?
8. What is something you did at school that you were excited to tell your parents or your family about?
9. Tell us about your class animal.
10. Do you have a special job in the school (e.g. chores, helping in the library, helping to collect vegetables, eggs, folding laundry).

Division II: (4-6)

This is the nature of the questions that may be asked, but it's not likely all these questions will be asked in 15 minutes. If the student is being interviewed with the parent, there is a potential for the interview being longer so that more questions could be asked.

1. Do you consider this school unique compared to other schools? In what way?
2. What can you tell us about agriculture?
3. What kind of things do you learn through agriculture in your subjects?
4. Tell us about skills you learn through agriculture and hands-on learning e.g. weighing food for animals, seeding a garden, etc.
5. Do you ever use what you learn at home, or outside of school? Examples?
6. What words would you use to describe what it's like to learn with/from animals, the garden, or in the outdoor classroom? (younger students may want to draw pictures, create clay figures).
7. What is something about agriculture that you could teach us?
8. If there is video, students may be asked to explain what they are learning from a video clip of them.