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An Exploration of Experiences of Ontario Teachers with Animals and Their Perception of Animals in the Classroom

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Education

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Abstract

Educators in Ontario have been challenged to support student achievement in academia, sustainability, social justice, and experiential learning. There is a need for tools which accomplish this learning simultaneously. This qualitative research explores the opinions and experiences of teachers with respect to student interactions with animals as a means of accomplishing learning in these areas. Semi-structured interviews with seven teachers were qualitatively analyzed through the framework of humane education and animal-assisted education. The teachers answered questions that explored their knowledge of animals, humane education, and animal-assisted education; their perception of animals in the enactment of pedagogy; their experiences with animals that inform their perceptions; and barriers and enablers to the involvement of animals in their classrooms. The conclusions drawn from this study follow previous research by finding that animal interactions may be beneficial for student learning. A new term, animal-enriched pedagogy, is proposed to guide future research and educative practice.

Keywords

Humane education, animal-assisted education, animal-enriched pedagogy, teacher experiences, teacher perceptions, teacher beliefs

Summary for Lay Audience

The role of a teacher is to provide safe and enriching experiences for students. These experiences should provide knowledge and support students as they grow intellectually, socially, and emotionally. The Ontario Ministry of Education also emphasizes the importance of social justice and sustainability. This research explores teachers' opinions on animals and their involvement in educational experiences. Seven teachers were interviewed to determine what they know about animals and concepts and theories related to animals in education; how they perceive animals in teaching; what experiences they have had with animals to inform their opinions; and the barriers and enablers for bringing animals into classrooms. This research reaches similar conclusions as previous studies by finding that teachers feel that interactions with animals are beneficial for students. A new term, animal-enriched pedagogy, is proposed to encourage directed research and practice around animals in education.

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Table of Contents

Abstract.....	ii
Keywords	ii
Summary for Lay Audience.....	iii
Acknowledgments	iv
List of Tables	x
List of Figures	xi
List of Appendices.....	xii
Chapter 1 : Introduction.....	1
Gaps in Understanding.....	5
Problem Statement.....	7
Theoretical and Conceptual Frameworks	8
Research Goals and Objectives	11
Rationale and Significance.....	11
Summary	13
Chapter 2 : Literature Review	15
Human-Animal Bond.....	15
Animal-Assisted Education.....	19
Humane Education.....	26
Teacher Experiences and Perceptions.....	31
Case Study in the Context of Human-Animal Interactions and Education.....	33
Chapter 3 : Methodology	35
Context and Participant Recruitment.....	35
Researcher Positionality.....	36
Data Collection and Analysis.....	38
Trustworthiness	40

Limitations	42
Ethics Approval	43
Chapter 4 : Results	44
Participant 1: Jennifer	44
<i>Biography</i>	44
<i>What does she know about animals, animal involvement in classrooms, and associated theories and concepts?</i>	45
<i>How does she perceive animals in the enactment of pedagogy?</i>	46
<i>What experiences has she had that inform her opinions about animals and animals in the classroom?</i>	48
<i>What barriers and enablers to the involvement of animals did she identify?</i>	51
<i>Summary</i>	53
Participant 2: Diane	53
<i>Biography</i>	53
<i>What does she know about animals, animal involvement in classrooms, and associated theories and concepts?</i>	53
<i>How does she perceive animals in the enactment of pedagogy?</i>	55
<i>What experiences has she had that inform her opinions about animals and animals in the classroom?</i>	56
<i>What barriers and enablers to the involvement of animals did she identify?</i>	57
<i>Summary</i>	59
Participant 3: Matthew	59
<i>Biography</i>	59
<i>What does he know about animals, animal involvement in classrooms, and associated theories and concepts?</i>	59
<i>How does he perceive animals in the enactment of pedagogy?</i>	60
<i>What experiences has he had that inform his opinions about animals and animals in the classroom?</i>	61
<i>What barriers and enablers to the involvement of animals did he identify?</i>	63

<i>Summary</i>	65
Participant 4: James	65
<i>Biography</i>	65
<i>What does he know about animals, animal involvement in classrooms, and associated theories and concepts?</i>	65
<i>How does he perceive animals in the enactment of pedagogy?</i>	66
<i>What experiences has he had that inform his opinions about animals and animals in the classroom?</i>	68
<i>What barriers and enablers to the involvement of animals did he identify?</i>	70
<i>Summary</i>	71
Participant 5: Emma.....	71
<i>Biography</i>	71
<i>What does she know about animals, animal involvement in classrooms, and associated theories and concepts?</i>	72
<i>How does she perceive animals in the enactment of pedagogy?</i>	73
<i>What experiences has she had that inform her opinions about animals and animals in the classroom?</i>	74
<i>What barriers and enablers to the involvement of animals did she identify?</i>	76
<i>Summary</i>	78
Participant 6: Peter.....	78
<i>Biography</i>	78
<i>What does he know about animals, animal involvement in classrooms, and associated theories and concepts?</i>	78
<i>How does he perceive animals in the enactment of pedagogy?</i>	80
<i>What experiences has he had that inform her opinions about animals and animals in the classroom?</i>	82
<i>What barriers and enablers to the involvement of animals did he identify?</i>	85
<i>Summary</i>	85
Participant 7: Dana	86

<i>Biography</i>	86
<i>What does she know about animals, animal involvement in classrooms, and associated theories and concepts?</i>	86
<i>How does she perceive animals in the enactment of pedagogy?</i>	87
<i>What experiences has she had that inform her opinions about animals and animals in the classroom?</i>	88
<i>What barriers and enablers to the involvement of animals did she identify?</i>	89
<i>Summary</i>	90
Chapter 5 : Findings and Discussion	92
Research Question 1 - Determine the knowledge base of teachers with respect to animals, humane education, and animal-assisted education and its associated theories and concepts	92
Research Question 2 - Determine how teachers perceive animals in the enactment of pedagogy	96
Research Question 3 - Determine what experiences teachers have had to inform their opinions about animals in the classroom	101
Research Question 4 - Determine potential barriers and enablers to teacher implementation of pedagogy involving animals	104
Proposal for Animal-Enriched Pedagogy	111
Chapter 6 : Conclusion	114
Limitations	114
Theory/Research	115
Practice.....	116
Policy	116
Future Directions	117
References.....	119
Appendices.....	128
Appendix A – Interview Questions	128
<i>A.1 Interview Questions</i>	128

<i>A.2 Relevant Background Materials</i>	130
Appendix B – Recruitment Material.....	131
Appendix C – Letter of Information and Consent.....	132
Curriculum Vitae.....	136

List of Tables

Table 1	3
Table 2	22
Table 3	105

List of Figures

Figure 1	20
Figure 2	29
Figure 3	111

List of Appendices

Appendix A: Interview Questions.....	128
Appendix B: Recruitment Material.....	131
Appendix C: Letter of Information and Consent	132

Chapter 1 : Introduction

The definition of curriculum has varied through time and geography. Franklin Bobbitt (1918) said “Curriculum is that series of things which children and youth must do and experience by way of developing abilities to do the things well that make up the affairs of adult life; and to be in all respects what adults should be.” Ralph Tyler (1957) defined curriculum as "all the learning experiences planned and directed by the school to attain its educational goals." John Dewey (1902) said “Curriculum is a continuous reconstruction, moving from the child’s present experience out into that represented by the organized bodies of truth that we call studies...the various studies...are themselves experience – they are that of the race.” Within this research, I follow Armstrong’s (1989) definition of curriculum which concludes that curriculum is a plan for the selection of content and facilitation of experiences that lead to the development of behaviours and insights (Armstrong, 1989). This study focuses on the Ontario public school curriculum that sets out provincial expectations with respect to the knowledge, skills, and dispositions teachers must impart and with which students must become proficient.

In Ontario, the curriculum in elementary schools generally follows a humanist philosophy (Anthony-Newman, 2019). Humanistic philosophy recognizes that students are individuals who are curious and capable of directing their own learning (Dewey, 2004). This means that students are expected to learn about themselves, their abilities, and focus on personal growth and development (Dewey, 2004). A humanist perspective is evident in the Ontario Ministry of Education (MOE) document, *Creating Pathways to Success* (2013), which says, “Creating Pathways to Success puts students at the centre of their own learning, viewing them as the architects of their own lives. Students are encouraged to discover who they are, explore opportunities, pursue their passions, and design personal pathways to success.” High school attempts the same approach, but humanism is often less evident in secondary teaching practice.

The secondary curriculum in Ontario tends to follow a more behaviourist approach (Christou, 2015). A behaviourist approach values the acquisition of knowledge and the production of quantifiable results (Fitt, 1976). It develops patterns in behaviour through

reinforcement (Skinner, 1965). Though the behaviourist approach is not made explicit by the MOE, it is made apparent in its focus on measurable objectives. An example from the Ontario public school curriculum is the inclusion of standardized tests such as the Ontario Secondary School Literacy Test (OSSLT) and Education Quality and Accountability Office (EQAO) testing.

The educational philosophies of Ontario schools have changed over time. Elementary schools used to also be framed by a behaviourist theory where students were expected to acquire specific skills and behaviours through reinforcement. Over time, schools have been working on de-centering teachers and shifting focus to students (Fitt, 1976). It follows that curriculum will continue to evolve. Post-humanism may represent the next wave in curriculum.

Post-humanism has many different definitions depending on the context in which it is discussed. This research utilizes a definition in line with Halberstam and Livingstone's (1995) work which says post-humanism considers disrupting power dynamics that place humanity above other entities and challenges what it means to be humans. They say, "The posthuman does not necessitate the obsolescence of the human; it does not represent an evolution or devolution of the human. Rather it participates in re-distributions of difference and identity" (p 10). Post-humanism is not the focus of this research but rather provides context to the theoretical frameworks discussed below. The Ontario curriculum does not yet have any orientation toward post-humanism.

A portion of the curriculum in Ontario is a set of codified documents that describe skills and insights students are expected to acquire through teachers. They are informed by curricular theories like humanism and behaviorism but leave room for educators to integrate other appropriate epistemologies and philosophies of learning. This is where teachers may be innovative and bring in newer philosophies like post-humanism. See Table 1 for an example of how educators using three different philosophies might teach the same curriculum objective. Though they all teach the same codified curriculum, each educator might use a different instructional tool or approach.

Table 1

Examples of how different curricular theories may approach a specific learning expectation from the Ontario Ministry of Education grade 11 and 12 Science curriculum

Curriculum Objective		
C2.4 “investigate, through a case study or computer simulation, the processes of natural selection and artificial selection (e.g., selective breeding, antibiotic resistance in microorganisms), and analyse the different mechanisms by which they occur” from SBI3U curriculum (MOE, 2008)		
<i>Behaviourism</i>	<i>Humanism</i>	<i>Posthumanism</i>
<ul style="list-style-type: none"> - Lesson on natural selection involving verbal praise for participation - Encourage note taking on terms like natural and artificial selection - Test knowledge through multiple choice questions on selection and assign a grade 	<ul style="list-style-type: none"> - Encourage students to form questions about how species are formed - Provide opportunity for research to answer individual questions - Assess knowledge through multimodal communication of understanding such as via videos, posters, or songs 	<ul style="list-style-type: none"> - Critique human impact on speciation - Discuss humanity’s role in evolution - Offer students choice to demonstrate knowledge and understanding of speciation (e.g. test, presentation, skit, etc.)

The Ontario MOE has emphasized the importance of some instructional approaches including differentiated instruction and culturally responsive and relevant pedagogy (MOE, 2020a; MOE, 2020b). Differentiated instruction is when an educator caters their lessons to the specific learners in their class (MOE, 2016). They select instructional strategies, modalities, and assessments that accommodate the learner’s abilities and interests (MOE, 2016). Culturally responsive and relevant pedagogy (CRRP) is a framework that involves the promotion of students’ individual identities and equity

(2020b). This is accomplished in a variety of ways including through fostering connections within the school and outside community. The MOE (2020) challenges educators to practice CRRP by confronting their biases and prejudice so that they may be more equitable. Equity and inclusion are strongly promoted by the MOE.

The MOE has also highlighted some skills and experiences for which they expect teachers to facilitate learning. Some examples include critical thinking and experiential learning, critical literacy, environmental education, and social-emotional learning (MOE, 2020c). These four are particularly important to this research and so each is discussed briefly below.

Experiential learning is defined by the MOE (2020a) as hands-on learning that provides students the opportunity to participate in real-world experiences, derive meaning from their experience, and apply their learning. Experiential learning occurs at all grade levels. It may involve a lesson or entire courses such as co-op programs in high schools. Experiential learning may be utilized to support learning other skills such as critical thinking.

Critical thinking requires students to solve problems objectively through the acquisition of evidence and by challenging assumptions (Lai, 2011). The MOE feels that critical thinking is a highly transferrable skill that students may use to critically assess information, make informed decisions, and act meaningfully (2020d). Critical thinking may be applied to environmental education.

The MOE also encourages teachers to focus on environmental education. They say participation in environmental education should provide learners with “knowledge, skills, and perspective that foster understanding of their fundamental connections to each other, to the world around them, and to all living things” (MOE, 2009, p. 11). It encourages students to consider their role in the environment and discusses potential solutions to challenges to sustainability (MOE, 2009). This focus is especially important given the climate crisis. It is important for students to care for the environment and see their connection to nature. Understanding humans’ effect on nature and how we impact the environment is called an ecological mindset (Bowser, 2021). This thesis discusses one

potential teaching approach that may allow students to develop an ecological mindset. A combination of environmental education and social-emotional learning may lead students to develop an ecological mindset.

Social-emotional learning is an important aspect of socialization and has been historically valued by the MOE. It involves students learning how to interact with peers and the greater community in a positive way (MOE, 2020e). It also involves discussions of healthy self-actualization (MOE, 2020e). The objective of all the aforementioned foci (experiential learning, critical thinking, environmental education, and social-emotional learning) is to encourage students to be critical thinkers with a mind for sustainability and social justice.

Meeting the demands set forth by the MOE is a challenge for teachers. Research needs to be conducted to support an understanding of how the demands of the MOE may be met. Research should also include how teachers may be best equipped to provide experiences for students that prepare them to become critical thinkers with a mind for sustainability and social justice. Some of the gaps in curricular literature and teaching practice follow.

Gaps in Understanding

The Ontario Ministry of Education's (MOE) curriculum documents have discussed sustainability and environmental education for almost 50 years (Bardecki, 2020). Due to humanity's inability to combat global warming thus far, it can be surmised that efforts should be increased to promote ecological mindsets which support climate action. Part of that effort involves the school system (Ignell et al., 2018). There is a need for more of an environmental/ecological education focus in schools. We do not fully understand how schools can promote this paradigm shift. Research is needed to explore how curriculum may motivate students to become more ecologically focused.

Researchers also need to consider the entire landscape in which curriculum will be actualized. Sustainability is not the only concern of today's society. Research should also examine approaches to meet other societal demands such as awareness and advocacy for

social justice issues. Critical pedagogy, pioneered by Paulo Freire, tackles power dynamics between individuals and groups in society (Freire, 2000). This curricular philosophy clearly outlines how curriculum designers and educators may dismantle inequity and encourage social justice within and beyond the confines of the school system. Researchers need to increase their focus on critical pedagogy to simultaneously support social justice and ecology. This challenge may be solved by dismantling the power imbalance between humans, animals, and the environment. A specific mechanism for this remediation could be humane education (Weil, 2004). Humane education is a relatively new curricular philosophy that requires further examination to determine its efficacy. It is discussed in the conceptual framework below.

Another component of the conceptual framework relates to Dewey's (1938) notion of experiential learning. Dewey believed that teachers should focus lessons on learning experiences (1938). He felt that students were not empty vessels to fill with knowledge but rather they could derive their own meaning and understanding from interactions with their world. Hands-on experiences with animals in schools could provide this type of opportunity for students. Animals appear frequently in Ontario curriculum documents (see Table 2) and hands-on interaction with an animal could provide a Deweyan experience to teach codified curriculum expectations. Research should pursue an examination of the impacts of such experiences with students to determine if teaching involving animals should be a more widespread practice.

There are researchers pursuing knowledge in the area of animals in education. Many of the recent consensus and future directions are discussed in the following chapter. To briefly summarize some of their findings, there has been a call for research that is empirical, methodologically sound, and for which the findings are more generalizable (Brelsford et al., 2017; Fine, 2019). Researchers have also expressed a lack of understanding of how culture impacts our perceptions of animals (Fine, 2019). There are some programs that involve animals in education despite this lack of understanding. Some academics feel that these programs should be evaluated to determine their efficacy, strengths, and limitations (Lendrum & Humphrey, 2012; Ngai et al., 2021). Steel, Williams, and McGeown (2021) have highlighted a need to develop a greater

understanding of teachers' opinions on such programming. Strengthening the body of knowledge in these areas could promote the spread of education involving animals.

Problem Statement

There is a need for more curricular approaches that guide learning to promote sustainability, social justice, and experiential learning. An approach that can accomplish all of these at once would be efficient and benefit students. Research needs to outline the benefits and detriments of various approaches and philosophies so that educators, administrators, and curriculum designers may provide the best opportunities for students.

Traditional approaches to teaching such as teacher-centered lectures are still present in Ontario classrooms (Eizadirad, 2019). They involve explicit and linear instruction. Meeting the demands of the Ministry of Education would require shoe-horning novel experiences into a rigid learning environment. There is a need for alternative approaches that encourage critical thinking, sustainability, and social justice (MOE, 2020). Students must also be exposed to a variety of experiences and perspectives to ensure instruction is differentiated and culturally responsive (MOE, 2020). Involving animals in classrooms may be one approach that reaches all the aforementioned goals.

Animals provide an exciting opportunity for students. There are many benefits to involving animals in a classroom. These benefits are discussed in the literature review. Despite a wealth of research establishing the benefits of animals in education, animal involvement remains a niche practice. There is a need for research to explore why more teachers are not reaping the benefits of human-animal bonds.

It would be beneficial to interview teachers to understand their perspective as they are the gatekeepers of educational experiences. It is important to examine their knowledge of animals and animals in education; how they perceive animals in pedagogy; what experiences have led to their beliefs; and what barriers or enablers they are aware of that would inhibit or encourage them to involve animals in their work. A better understanding

of these areas could lead to the spread of efficient instructional approaches that meet the numerous demands set forth by the public school curriculum in Ontario.

Theoretical and Conceptual Frameworks

This research is informed by theoretical ideas associated with post-human curriculum and humane education. Additionally, concepts associated with animal-assisted education inform this study. These terms, which are defined below, encompass the framework through which this study is conducted.

Post-humanism is a philosophical movement seen in many fields, including education. It challenges the idea of what it means to be human (Halberstam & Livingstone, 1995). One aspect of post-humanism relates to humanity's relationship with and within nature and the environment (Halberstam & Livingstone, 1995). It could be argued that post-humanism encourages a paradigmatic shift away from a hierarchy that centers the human experience. Post-human philosophy is challenging and cannot be easily applied in Ontario public schools. Humane education could be viewed as a way to package pieces of post-humanism to be actualized within an anthropocentric schooling system.

Humane education provides a concrete value set which may be utilized by educators who seek a shared respect for animals and the environment. It relies on the ontological and epistemological understandings that humans are one with nature and that we are responsible for caring for animals and the environment. It also relies upon an understanding of the education system as an agent of change (Pedersen, 2004).

Humane education is a pedagogical philosophy that emphasizes the reciprocal relationship that humans have with animals and nature. It was first developed for the Society for the Prevention of Cruelty to Animals (SPCA) to support education about showing compassion and kindness toward animals. Humane education has since evolved to be practiced within humane societies, zoological institutions, traditional classrooms, and other educational programs.

Humane education programs, regardless of setting, share the following tenets (Selby, 1995):

- The development of a life-affirming ethic
- Consciousness of how humans, animals, and nature are interconnected and mutually interdependent
- Consciousness about different value systems and critical discernment with regard to these
- Engagement in democratic principles and processes in which active citizenship is central

Animal-assisted education (sometimes referred to as animal-assisted pedagogy) on the other hand is an instructional tool rather than a theory. It is similar to humane education in that it involves animals and values a reciprocal relationship but is otherwise different. Animal-assisted education can be viewed as the involvement of an animal or animals in interactions with students that are intentional and directed by a knowledgeable individual or individuals for the purpose of providing educative experiences for the students (IAHAIO, 2018). In this way, it is rooted in Deweyan theory since it leverages experiences to motivate directed learning facilitated by a teacher. Animal-assisted education programs exist in many forms and serve many purposes, however, like humane education programs, they all generally value the reciprocal relationship and mutual respect between humans and animals.

Where animal-assisted education differs from humane education is in its philosophical foundations. Animal-assisted education can be a single occurrence or involve a long time period. It may focus on the codified curriculum or character building or have another focus altogether. What animal-assisted education does and does not address is up to the facilitator and may vary in its motivations. The defining feature of animal-assisted education is its hands-on interactions between students and animals. Humane education, on the other hand, may or may not physically involve animals, but humane education professionals share a philosophy that values morals that address the welfare of animals and our environment.

The human-animal bond is the basis for both humane education and animal-assisted education. Relationships between humans and animals have been shown to have physical and psychological benefits (Walsh, 2009; Kertes et al., 2017). Interactions between humans and animals can offer these benefits. Some teachers have noted that bringing animals into their classrooms to interact with students is exciting and provides the aforementioned benefits (Steel et al., 2021). Humane education and animal-assisted education involves the emotional impact of animals to accomplish learning goals and provide students with physical and psychological benefits while simultaneously benefiting the animal involved.

A major theme in research around humane education and animal-assisted education is the social-emotional benefits from interactions with animals and the environment. It has been argued that bonds with companion animals increase caring attitudes, prosocial behaviours, and provide a sense of comfort and security for the children involved in relationships with animals (Serpell, 1999). Children who have experienced relationships with animals have been found to have an increased sense of empathy, not only for animals but for other humans (Ascione & Weber, 1996; Thompson & Gullone, 2003). Further, some authors have suggested that human-animal interactions are not only helpful but essential to the development of children (Robin & ten Bensele, 1985).

Research has also established psychological and physical benefits for children who interact with animals. For example, Kertes et al. (2017) found that children exposed to stressors experienced decreased stress when petting their dogs. Allen, Blascovich, and Mendes (2002) similarly found that companion animals decreased the negative impacts of stress on the cardiovascular system. More specific examples of physical and psychological benefits are discussed in the literature review.

Research Goals and Objectives

The goal of this qualitative case study is to explore a select group of Ontario teachers' experiences with animals and animals in the classroom. The research goal is supported by the following objectives:

- Determine the knowledge base of teachers with respect to animals, humane education, and animal-assisted education and its associated theories and concepts,
- Determine how teachers perceive animals in the enactment of pedagogy,
- Determine what experiences teachers have had to inform their opinions about animals and animals in the classroom, and
- Determine potential barriers and enablers to teacher implementation of pedagogy involving animals.

Rationale and Significance

Teachers often collaborate and innovate to use different approaches to engage students. For example, play-based (Briggs & Hansen, 2012) and inquiry-based learning (Ontario Ministry of Education, 2013) have been used by teachers as they work towards the many expectations they face. More tools available to teachers can only mean that they have more ways in which they can meet the demands of the teaching profession and differentiate learning for their students.

Teachers are constantly challenged to explore new ways of practicing that facilitate enriching learning experiences for students. This research may justify the involvement of animals in a teacher's instruction toolkit. Humane education alone has precedence as one such tool for educators. However, it has not been explored as a means of guiding animal-assisted education. Animal-assisted education may require the theoretical underpinnings of humane education to justify the involvement of animals in the classroom. Fine (2019) has suggested that many teachers who partake in animal-assisted education are also humane educators, however, how these two ideas interact has not been sufficiently

explored. Additionally, teachers' knowledge, perspectives, and experiences relating to animals, animal-assisted education, and humane education is a burgeoning avenue of study requiring further examination.

A greater understanding of why teachers might or might not incorporate animals into their classrooms may guide further research and support those who seek to increase the prevalence of this and associated practices by addressing barriers to teacher buy-in. Understanding how teachers' experiences and perceptions impact their practice is important to teaching involving animals because teachers determine what types of learning experiences occur for their students. Dismantling barriers to implementation cannot occur without identifying said barriers. It is important to remove barriers so that teachers may utilize as many approaches as possible.

An exploration of the potential connection between humane education philosophy and animal-assisted education practice may also be beneficial for strengthening existing outreach programs that incorporate animals. Some examples of such programs include the Earth Rangers program in Ontario, summer camps in humane societies, and the Pets in the Classroom educational grant program. Earth Rangers brings animals to schools for students to become inspired to protect animals and the environment (<https://www.earthrangers.com/>). Many humane societies promote care for animals through summer camp programs where students interact with animals (<https://omhs.ca/services/kids-programs/kids-and-critters-summer-day-camp/>). The Pets in the Classroom grant program encourages teachers to make animals a permanent fixture in the classroom to aid instruction (<https://petsinthe classroom.org>). Humane education and animal-assisted education programs are growing in popularity. This surge in interest may be due to what has been dubbed the "animal turn" (Lloro-Bidart & Banschbach, 2019) which describes an elevated interest in human moral obligations to animals. The animal turn and other mechanisms explaining an increased interest are discussed further in the literature review. Though both humane education and animal-assisted education are increasing in popularity, they do not usually intersect in Ontario programs. Understanding how each type of program can complement the other may allow existing programs to offer greater benefits for their participants.

This research will outline a potential tool for teachers. It will examine some teachers' knowledge, perspectives, and experiences relating to animals, animal-assisted education, and humane education. The findings may encourage teachers to bring animals into their classrooms. The findings may also be used to break down barriers to the involvement of animals in education. Informal learning programs may also be interested in this work to strengthen their existing programming.

Summary

This research is guided by the theory of humane education and the practice of animal-assisted education. The tenets of each are utilized to examine teacher responses in semi-structured interviews. The knowledge base of teachers with respect to animals, humane education, and animal-assisted education are noted. How teachers perceive animals in the enactment of pedagogy and what experience they have had to lead to their perceptions are also noted and discussed. All potential barriers and enablers to teacher implementation of pedagogy involving animals are collected and reported.

The findings from this analysis may be beneficial to education researchers and teachers. Researchers may be able to build off this work and add to the growing body of research around human-animal interactions in schools. This could support anecdotal evidence discussed in the literature review and eventually be supported by empirical evidence. Teachers may also utilize findings to support the incorporation of animals into their practice.

The next chapter is the literature review. It introduces the foundational ideas which make up the theoretical framework. A brief description of our current understanding of the human-animal bond, animal-assisted education, humane education, and teachers' experiences and perceptions are included. The chapter concludes with a summary of studies similar to the research conducted for this thesis.

The methodology follows the literature review. It outlines the qualitative case study approach used to conduct this research. Semi-structured interviews with seven teachers in Ontario were analyzed and results are reported in the subsequent chapter.

The results chapter breaks down key responses from each participant. It involves some rich retellings of the interviews. The findings chapter also discusses participants' responses but only highlights major findings and themes identified when responses were amalgamated. The findings chapter concludes with the proposal of a new concept, animal-enriched pedagogy, that may package this research for use by teachers.

This thesis closes with a conclusion that discusses limitations and implications for theory, research, practice, and policy.

Chapter 2 : Literature Review

Humane education and animal-assisted education have been practiced and studied for decades (Unti & DeRosa, 2003; Fine, 2019). They have a rich history rooted in an understanding of the human-animal bond. The evolution of humane education and animal-assisted education are outlined below in addition to a discussion of current practices and research as it relates to education. A brief outline of the research on how teachers' opinions impact their teaching settings is also included. This chapter concludes with a brief description of some similar studies. An understanding of these topics informs the subject of investigation, research questions, and methodology of this study.

Human-Animal Bond

Humans and animals are inextricably linked. In fact, Darwin argued that the terms human and animal are virtually synonymous (Darwin, 1871). Humans have a long history of connection with animals ranging from utilitarian exchange to emotional connection. For example, wolves were central to *Homo sapien* success via their role in hunting alongside humans (Ruusila & Pesonen, 2004) and have since become colloquially known as man's best friend. Due to our long-standing relationship, the study of human-animal relationships, termed anthrozoology, has been one of great scrutiny and ongoing research. *Anthrozoös* is a quarterly journal publication dedicated to disseminating interdisciplinary knowledge on the topic of human-animal interactions and relationships.

Research has found numerous physical health benefits of human relationships with animals. Three major physical benefits that have been identified are the alleviation of the impact of stress, encouraging physical activity, and improved healing. For example, Allen, Blascovich, and Mendes (2002) found that companion animals decreased the negative impacts of stress on the cardiovascular system. Pet ownership has also been found to stabilize patients with lifestyle-related disease (Aiba et al., 2012). In a quasi-experiment conducted in China, Heady, Na, and Zheng (2008) found that dog owners exercised more often, slept better, reported better health, took fewer sick days, and were

seen by doctors less often. Many other researchers have found similar findings which have led to a shared understanding that interacting with animals can be beneficial to human health.

Benefits with respect to mental health from human-animal bonds have also been substantiated by several studies. For example, Kertes et al. (2017) found that children exposed to stressors experienced decreased stress when petting their dogs. Another example is a study that found that people with mental illnesses are much better able to cope with their illness when they have a pet (Brooks et al., 2016). Interactions with animals, even on a temporary basis, demonstrated similar findings. Tsai, Friedmann, and Thomas (2015) found that animals that visited patients in a hospital showed decreased signs of stress in said patients. This was corroborated by Polheber and Matchock (2013) who found that when in the presence of a dog, people experienced a decrease in the secretion of cortisol (a stress hormone) when exposed to stressful stimuli. The myriad of potential benefits to mental health continues to be the subject of investigation.

Some authors have gone further to propose that human-animal interactions are not only beneficial but essential to the social and cognitive development of children (Robin & ten Bensel, 1985). It has been argued that these interactions with companion animals increase caring attitudes, positive behaviours, and provide a sense of comfort and security for the children involved (Serpell, 1999). The American Academy of Child and Adolescent Psychiatry (2019) reports that “Developing positive feelings about pets can contribute to a child's self-esteem and self-confidence. Positive relationships with pets can aid in the development of trusting relationships with others. A good relationship with a pet can also help in developing non-verbal communication, compassion, and empathy”. They also say that animals can: act as a confidant; act as a vector for life lessons; help the development of responsibility; provide connection to nature; and teach respect. These and similar findings have led some educators to facilitate interactions which may encourage human-animal bonds in what is called animal-assisted education. Animal-assisted education is discussed further below.

There are a number of professionals that utilize human-animal bonds in their practice. Zoos, humane societies, psychologists and therapists, and teachers sometimes involve animals to accomplish their professional goals. Zoos and other zoological institutions often promote conservation by utilizing the emotional impact of animals on guests. Humane societies famously use Sarah McLachlan and pictures of mistreated animals to raise funds and educate the public on the humane treatment of animals. Psychologists and therapists are increasingly bringing dogs into their practice because they have found that, amongst other benefits, a dog increases rapport building (Levinson, 1997) and may also cause a client to be more willing to speak about personal experiences (Schneider & Harley, 2006). Teachers sometimes bring animals into their classrooms for community building and to help teach toward curriculum objectives (Fine, 2019, pp. 195-208). This is referred to as an animal-assisted activity or animal-assisted education (discussed in the next section). Animals have undeniably versatile applications in a variety of professional settings.

Human-animal interactions have been studied worldwide and within a variety of cultures. Though animals are included in all cultures' religions, mythology, art, and literature, not all animals are portrayed the same way across cultures. One culture may revere cats while another sees them as bad omens. Alves and Barboza (2018) said, "Worldwide, complex cultural practices associated with fauna influence how animals are viewed, used, and treated across human cultures. Therefore, understanding the cultural role played by animals is essential to understand the relationships humans have with them, and thus it represents an important field of ethnozoological research." (p. 298). The impact of cultural perceptions must be considered when studying the human-animal bond. Fine (2019) calls for further research into how culture impacts the involvement of animals in human life (p. 48).

One major criticism of research on human-animal interactions is that there is a lack of empirical evidence supporting the aforementioned claims (Fine, 2019, p. 479). Most of the connections between humans and animals have been described through anecdotes (Herzog, 2011). Herzog (2011) reviewed research on human-animal interactions and concluded that the benefits of interactions with animals are not fact but rather an

unproven hypothesis. He found that replication was a challenge. Some studies he read found that animals actually hindered human health. The inconclusive nature of findings can be attributed to a few factors including small sample sizes, an inconsistent approach to research design, and homogenous populations (Ioannidis, 2005). Another problem arises due to the fact that people who own or work with animals are usually passionate about their love for animals. As a result, recruitment may be biased due to participants wanting to discuss the importance of animals in their lives (Wilson & Barker, 2003). This is the case for this thesis as is evident in the researcher positionality in the methodology. There is a lack of methodological rigor in the field of human-animal interactions which makes drawing conclusions more challenging.

There has been a call for research that may be generalized (Fine, 2019, p. 34). This is challenging in the field of human-animal interactions due to the variability of humans and animals. For example, the term “pet” or “companion animal” can refer to a dog, goldfish, python, and many other animals. The capability of interaction and bonding of each of these species varied dramatically. Therefore, a study that concludes that dogs are beneficial for health cannot be generalized to all pets. Human emotions and relationships are also variable which makes research regarding human bonds with animals even more challenging.

Beck and Katcher (2003) published *Future Directions in Human-Animal Bond Research* which outlines gaps in knowledge around human-animal interactions. They noted that there are multiple mechanisms proposed for the effect animals have on people. One such mechanism is biophilia which proposes that humans have an inherent predisposition for interest in animals. The proposed hypotheses have not been proven. Beck and Katcher (2003) call for more research to build our understanding of the mechanisms that work within human-animal interactions.

Another gap in our understanding that has been identified is the efficacy and limitations of current programs involving animals. As discussed, there are many professionals that involve animals in their practice. There are many studies that share anecdotes about the success of these programs (Fine, 2019). There is a lack of understanding regarding the

efficacy and limitations of the programs (Beck & Katcher, 2003; Wilson & Barker, 2003). The field of anthrozoology would benefit from a standardized approach, empirical measures, and evaluations of existing programs.

Animal-Assisted Education

Animal-assisted education is a branch of animal-assisted interventions. Animal-assisted interventions are goal-oriented interventions that involve the presence, if not physical interaction with, an animal (Fine, 2019, p. 500). Animal-assisted education is a specific area of animal-assisted interventions which is “a goal oriented, planned, and structured intervention directed and/or delivered by educational and related service professionals” (Fine, 2019, p. 500). Programs involving animal-assisted education exist in both formal and informal settings. An animal involved in animal-assisted intervention may act as the subject of study, a facilitator for a lesson, or promote a sense of community conducive to learning (Bona, n.d.). The vast majority of animal-assisted education programs involve dogs but other species may be involved. Figure 1 demonstrates how animal-assisted interventions may be classified.

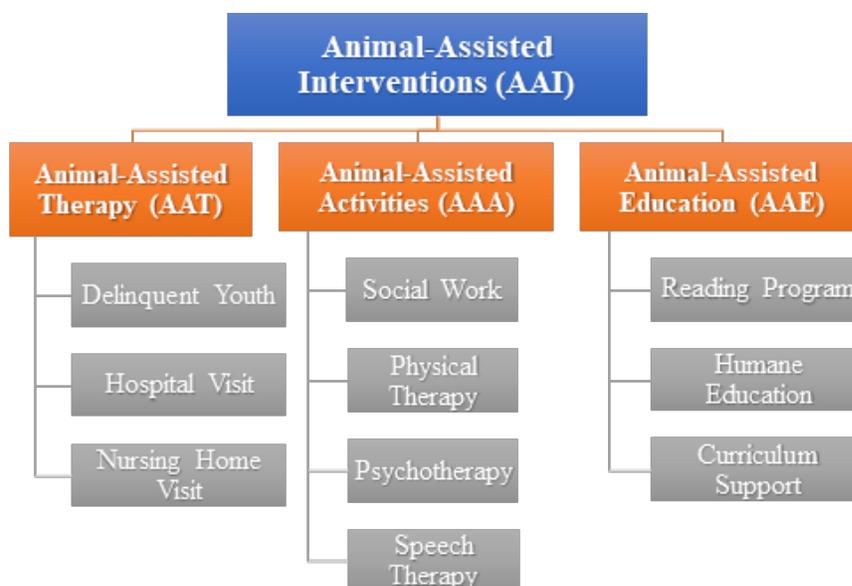


Figure 1

Reproduction of Animal-Assisted Intervention Branches with Examples from Handbook on Animals-Assisted Therapy: Foundations and Guidelines for Animal-Assisted Interventions

As previously discussed, there may be many benefits to interacting with animals. The benefits may be curricular and ecological in nature. Teachers may be able to enhance their curriculum instruction by including animals in their lessons. For examples of curriculum expectations that could involve animals, see Table 2 below. This table outlines just some examples of mentions of animals within the documents. In total, the grades 1-8 curriculum documents mention animals 99 times. The grades 9-12 documents mention animals 118 times. Each of these mentions is an opportunity for teachers to incorporate animals into their teaching.

As can be seen in Table 2, the connections between animals and the curriculum are interdisciplinary. A teacher in any class could find opportunities and take advantage of human-animal interactions. For example, a grade 1 French teacher could bring in a dog into the classroom and ask students to interact with the dog and then write about the dog's appearance and behaviour. Students would have a concrete experience to draw

upon in order to meet expectation D1.1 while also experiencing the mental, physical, and emotional benefits of human-animal interactions.

Table 2*Examples of animals in Ontario Public School Curriculum and Policy Documents*

Document	Grade	Class/Course	Example
Ready Set Green!	K-12	All with specific mention of high school environmental science	This document provides educators with a list of programs and resources that they may use in their environmental education. Some programs mentioned in this document emphasize stewardship of animals.
The Kindergarten Program, 2016	K	Kindergarten	14.3 recognize, explore, describe, and compare patterns in the natural and built environment (e.g., patterns in the design of buildings, in flowers, on animals' coats)
French as a Second Language, 2013	1 F.I.	Writing	D1.1 Identifying Purpose and Audience: determine, with support from the teacher, their purpose for writing and the audience for French texts they plan to create (e.g., ... to describe an animal's appearance and behaviour for a science project; ...)
Science and Technology, 2007	2	Science	1.1 identify positive and negative impacts that animals have on humans (society) and the environment, form an opinion about one of them, and suggest ways in which the impact can be minimized or enhanced
Arts, 2009	3	Visual Art	D2.3 demonstrate an awareness of the meaning of signs and symbols encountered in their daily lives and in works of art (e.g. ... the meaning of animals such as the orca in Aboriginal clan symbols or the Inukshuk in Aboriginal art)
Canadian and World Studies Grades 11 and 12	12	CHI4U	E2.1 explain the context for the development of various reform movements in Canada during this period (e.g., ... environmental ... animal rights movements), and evaluate the success of some of these movements

Social Studies, 2013	4	Social Studies	B2.6 communicate the results of their inquiries using appropriate vocabulary (e.g., mountains, foothills, prairies, tundra, wetlands, forestry, mining, agriculture, fish farming, tourism, commerce, hydro-electricity, wind farms) and formats (e.g., a poster explaining the chosen location for a hydro-electric project; a cooperatively produced big book of photos from a field study or from the Internet about how companies are responding to their role as environmental stewards; a brochure outlining the steps an industry is taking to help protect the local area; a song, rap, or poem from the perspective of an animal that is losing its habitat because of a new housing development)
French as a Second Language, 2013	6	Writing	D1.1 Identifying Purpose and Audience: determine, with support from the teacher, their purpose for writing and the audience for French texts they plan to create (e.g., ... to describe the importance of forest conservation for the protection of animal and plant species)
The Arts, 2009	7	Drama	B2.1 construct personal interpretations of drama works, connecting drama issues and themes to their own and others' ideas, feelings, and experiences (e.g., ... write in role about an environmental issue, first from the point of view of an audience member and then from the point of view of an animal whose habitat is threatened)
The Arts Grades 9 and 10, 2010	10	Dance	B2.3 identify and describe ways in which different types of dance reflect the cultures that produced them (e.g., ... the hoop dance reflects Aboriginal beliefs about how all living things on the earth grow, change, and are connected) Teacher prompts: ... "What beliefs about the natural world are expressed in the Aboriginal hoop dance or animal dance?"
Business Studies Grades 11 and 12	11	BMI3C	identify and describe various environmental, ethical, social, and legal issues that affect marketing activities – identify examples of businesses that include corporate social responsibility as a component of their marketing philosophy (e.g., not using animals in product testing, sponsoring charitable events, hosting children's camps, engaging in responsible environmental practices)

Animal-assisted education can also be used to reach non-curricular goals. For example, many universities bring in animals to relieve students' stress (Bell, 2013). Student mental health is especially important coming out of the CoVID-19 pandemic. Animal interactions may be useful in decreasing the impact of stress as was established in the discussion on the human-animal bond. Another example of a goal unrelated to the curriculum is community building. Research conducted by Hergovich, Monshi, Semmler, and Zieglmayer (2002) found that students were more social, less aggressive, and more independent in the presence of a dog.

There is an increasing amount of interest in animal-assisted education in research and professional practice (Fine, 2019, p. 272). However, there is not a shared approach to how it is practiced. Dr. Aubrey Fine wrote *Handbook on Animal-Assisted Therapy: Foundations and guidelines for animal-assisted interventions* to create a foundation on which other researchers and practitioners may build. He calls for more education opportunities and certifications to create more homogeneity. A more consistent approach can allow more effective assessment of practices and therefore more recommendations for practice. This may decrease the number of risks to students, animals, and educators involved in animal-assisted education. There are some organizations in Canada such as Dreamcatcher (<https://www.dreamcatcherassociation.com/>) which offer training and certificates for animal-assisted interventions in general but there is not a program available exclusively for teachers.

Animal-assisted education is practiced in a variety of settings. These settings are both formal and informal in nature. Schools can see animals in the form of classroom pets or mascots (Uttley, 2013). There are numerous libraries that offer dog reading programs such as the Read to a Dog at the Elmira Public Library. Reading to Rover is a similar program but runs out of Ontario humane societies and focuses more on socializing the dogs than improving student literacy. An explanation of these types of programs follows. These are just some of the types of programs available in Ontario. There are many more that vary in duration and objective.

An example of animal-assisted education is a dog-assisted reading program where a dog encourages a child to read aloud and practice their reading fluency (Shaw, 2013). Dogs in these programs encourage children to read by sitting next to them calmly, perhaps wagging a tail or resting their head on the child's lap. Dog reading programs are a common type of animal-assisted education program that provides students with a safe space to take academic risks as they build their literacy skills.

As previously mentioned, the efficacy of programs like the reading program has been the subject of several studies (Henderson et al., 2020; Uccheddu et al., 2019; Kirnan et al., 2015). There has been a call for similar research, particularly those with an empirical approach, to be conducted on all types of animal-assisted education programs to improve efficacy and outcomes for students (Fine, 2019).

Animal-assisted education carries inherent risks which makes implementation and research challenging. Children and animals have been known to be reactive and unpredictable. Educators need to be aware of and prepared for risks associated with students interacting with animals. The consideration of risks should extend beyond the classroom by considering the care of the animal before, during, and after coming to a class (Fine, 2019, p. 272). Zoonotic illness and allergies are additional health concerns that need to be addressed (Wilson & Barker, 2003). These barriers may deter researchers or educators from participating. It would be beneficial to have shared guidelines for practice to prevent harm to animals, students, and educators.

There is some contention around the impact of animals on academic success of students who take part in animal-assisted education. Some researchers found no impact on academic performance (O'Haire et al., 2013) while others found significant improvement in academic tasks (Gee et al., 2012). The lack of cohesion has been attributed to inconsistent approaches to research, lack of standardized measures, and scarcity of longitudinal data (Brelsford et al., 2017). There needs to be more communication between interested researchers to create a shared approach.

Animal-assisted education can look very different and occur for different reasons. For example, a teacher may bring in monarch caterpillars to allow students to learn about the

metamorphosis of a butterfly. Another educator might bring in a zookeeper and a parrot because they feel it would be entertaining for their students. Where animal-assisted education is found wanting is in its lack of a cohesive philosophy. Humane education, on the other hand, is rooted in a central philosophy.

Humane Education

Humane education is a piece of the theoretical lens that guides this research. It is a teaching philosophy that focuses on humanity's role in caring for animals and the environment. As previously stated, humane education follows the following tenets (Selby, 1995):

- The development of a life-affirming ethic;
- Consciousness of how humans, animals, and nature are interconnected and mutually interdependent;
- Consciousness about different value systems and critical discernment with regard to these;
- Engagement in democratic principles and processes in which active citizenship is central.

It has been argued that humane education has connections to critical pedagogy due to its focus on equity (Itle-Clark & Comaskey, 2020). The difference between humane education and critical pedagogy is that critical pedagogy focuses on human interactions and therefore segregates humans from their environment. The divide between human and nature may be hindering climate action efforts which makes humane education a potentially more effective tool for ecological preservation.

Humane education looks very different now than when it was founded. Originally, the focus was on animal welfare and less on conservation (Unti & DeRosa, 2003). Now, there is more discussion of the environment, our relationship with nature, and how we can combat problems such as climate change (Weil, 2004). The leading authority on humane education is the Institute for Humane Education. They take the tenets described

above a step further in what they call a “solutionary” approach. This perspective encourages students to put their learning into practice by finding solutions to problems that plague animals, the environment, and society in general (Institute for Humane Education, 2021). This approach allows for the philosophy of humane education to be applied within a wider context and to sociopolitical causes such as racism. Humane education has become a teaching philosophy which guides daily practice for educators who wish to combat inequity through an inclusive lens (Weil, 2004). Its practice can be found in both formal and informal settings and may be implemented by formally trained teachers or other educators such as camp counsellors or humane society employees.

Educators in the United States saw the value of humane education and lobbied for it to be part of compulsory education. In the 1880s, George Angell secured a mandate for humane education in New York (Unti & DeRosa, 2003). Later William Stillman and Stella Preston formed a committee to promote the expansion of the mandate to other states (Unti & DeRosa, 2003). Humane education has continued to spread to other states and is now part of many compulsory curricula. The learning goals associated with humane education most often relate to development. An example of a learning goal is promoting empathy for animals. Some organizations such as the Institute for Humane Education make links to multiple disciplines such as science, language, and art for a more holistic approach. Humane education has not had the same traction in Canada.

There are some humane education programs in Ontario despite the lack of legislative support. AnimalSmart is a humane education program that is run by the Ontario Society for the Prevention of Cruelty to Animals. It involves virtual or in-person presentations that show students the importance of the kind treatment of animals. It does not focus on provincial curriculum expectations. Second Hope Circle offers similar presentations, but their presentations meet Ontario curriculum expectations. There is a need for more humane education programming in Canada.

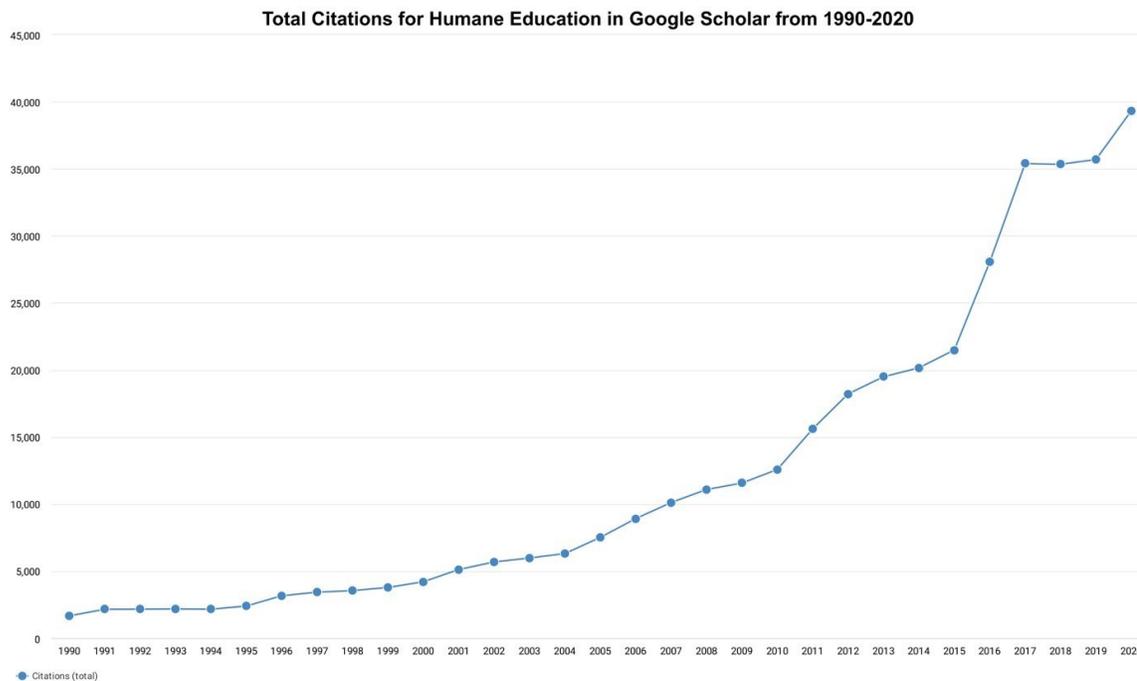
As humane education grows in popularity more courses and programs are being offered to interested educators. The preeminent organization offering such education is the Institute for Humane Education. They offer a variety of learning opportunities from

courses to graduate degrees. A similar program does not exist in Canada. The Institute of Humane Education offers lesson plans through its website which uses a humane education lens. A description of one of these lessons (Messenger, n.d.) follows. The purpose of the lesson is stated as an activity to help students think about how they are connected to other people and the environment. It encourages students to think about solutions to challenges. This lesson captures learning goals from language, science, and social studies. The topic of the lesson is anthropogenic climate change. Students look at a variety of objects and discuss how they are connected. The objects are all related to environmental change. The lesson concludes with a discussion of how climate change impacts us and the planet and how we can help rectify and prevent further damage. The lesson takes every opportunity to empower student voice and acknowledge solutions to environmental challenges.

Humane education has seen a surge in interest within academic research in the past five years. This is demonstrated in Figure 2 where it can be seen that the total number of citations for humane education in Google Scholar has increased dramatically over time, especially in the past ten years. The total number of publications has more than quadrupled in the last 20 years. The increase in interest could be because it has been cited as the only educational movement which “encompasses animal protection education, environmental and sustainability education, media literacy, character education, and social justice education” (Encyclopedia of Animal Rights and Animal Welfare, 2010 p. 324). Another potential cause for the increase in interest could be the “animal turn” which is described as an increase in social science scholarship related to human moral obligations to animals (Lloro-Bidart & Banschbach, 2019).

Figure 2

Total Number of Citations for Humane Education as Found on Google Scholar from 1990-2020



Research into humane education has been primarily qualitative in nature due to the complexity of the human-animal bond and the emotions associated with animal welfare. The studies that exist are generally narrative or case studies (Friesen, 2010; O'Connor, 2018; Shen-Miller, 2011). The stories told of humane education through these studies often speak fondly of humane education programming and the bonds formed by educators and students within such programs (Weil, 2004).

Humane education has not been exempt from criticism. A few critiques are its similarity to character education, that it is a political tool for animal rights activists, and that there is a lack of generalizable research. Humane education shares many similarities with character-based education (Antoncic, 2003). Both focus on kindness and empathy but humane education focuses on animals and the environment as well as human relationships. Some have claimed that humane education uses the benefits of character education to disguise an animal rights agenda (Antoncic, 2003). Future research should

focus on the evaluation of existing programs (Lendrum & Humphrey, 2012). There has been a call for assessment of programs that involve in-depth descriptions of program planning and implementation so that educators and researchers may learn how to optimize the practice of humane education (Lendrum & Humphrey, 2012; Ngai et al., 2021).

Despite growing in popularity, humane education remains uncommon. Rumford (2018) identified lack of exposure, controversial discussion, and resistance to change as barriers to the implementation of humane education. The Institute for Humane Education is the only organization that offers accredited education and training for humane educators. Many teachers have never heard of the term humane education. A lack of exposure means that fewer teachers will take up a humane education philosophy. Humane education necessitates conversation around injustice. This can result in some challenging conversations. Administration may be less inclined to approve of a humane education approach if it means they may get phone calls from disgruntled parents. Humane education asks educators to be critical of themselves and their perspectives. This can be a challenging task. Some educators may feel uncomfortable confronting their biases this way. These barriers to implementation could all be overcome through more access to education, particularly in teacher training.

Humane education and animal-assisted education are explored within this study by means of interview questions that specifically address goals, content, and strategies used by educators. Teacher answers to questions have illuminated their philosophical beliefs with respect to interactions with animals which may help understand how and why animals may or may not be physically involved in their teaching. Teachers who are interviewed may or may not identify themselves as humane educators, however, whether they hold humane education values high within their practice was explored.

Teacher Experiences and Perceptions

Teachers are the gatekeepers of their classrooms. They determine what educational experiences their students will and will not participate in. Consequently, a teacher's individual beliefs and perceptions play a role in the classroom. Beliefs are understood within this research as it has been defined by Richardson (1996). She defined beliefs as "psychologically held understandings, premises, or propositions about the world that are felt to be true." (Richardson, 1996, p. 104) A teacher's classroom practice has been found to be influenced by, amongst other factors, their curriculum objectives, feelings of personal competency, beliefs, and previous experiences (Buehl & Fives, 2009; Chien, 2020; Molina et al., 2021). This study focuses on the impact of teachers' perceptions and previous experiences on their practice.

Culture has been found to play a large role in teacher beliefs and consequently practices. For example, Taylor and Coll (2008) discussed science education from all over the world and how the context in which lessons occurred was impacted. Similarly, Indigenous teachers may bring their general value sets and ways of knowing to their classrooms. Indigenous processes, perspectives, philosophies, and knowledge focus heavily on a human's reciprocal relationship to the land (Simpson, 2002). This connection may mean that Indigenous educators would be interested in involving animals in their classrooms since it could facilitate a discussion on our bonds with nature. As stated in the human-animal bond section, animals interact with humans all over the world but each species may take on a different role depending on a person's cultural perspective (Alves & Barboza, 2018). The participants in this study answered questions about their culture and experiences to see how culture played a role in their perceptions of animals.

The link between teacher beliefs and practice has not only been connected to student experience but also student achievement. For example, it has been established that teachers who believe that knowledge originates from authority demonstrate a lower level of understanding and comprehension (Buehl, 2003; Ravindran et al., 2005). Despite this evidence and similar findings, teachers are often hesitant to change their practice.

Educational reform, particularly with respect to the practice of teaching, is a slow process (Moir, 2018). It has been established that teachers tend towards practicing as they observed their own teachers practice (Boyd et al., 2013; Cook, 2009; Lortie, 1975). This creates stagnation within teaching and is a barrier to educational reform. Efforts within formal teacher education have been found to be somewhat futile as an effort to combat the perpetuation of traditional teaching methods (Wideen et al., 1998). Glazier and Bean (2019) followed Dewey (1938) by investigating the impact of experiential learning on teachers. They found that experiential learning was influential in changing a teacher's beliefs and practices (Glazier & Bean, 2019). This is in line with Dr. Fine's (2019) recommendations for further training and education opportunities for teachers.

Some research has been conducted on the barriers that prevent animals from becoming involved in classrooms. Grove et al. (2021) identified the level of work, lack of guidance, lack of support, and lack of knowledge as barriers to teachers bringing in therapy dogs. Steel, Williams, and McGeown (2021) explored teacher perspectives on reading to dogs programming. They highlighted the need for a focus on teacher perspectives due to the need for teacher buy-in to facilitate implementation. They found that teachers were concerned about a fear of dogs, level of administrative work, being culturally sensitive, a lack of access to programming, allergies, animal welfare, and short-term benefits. Some participants noted that these barriers were worth overcoming while others deemed them insurmountable. Understanding how teachers feel about animals in their classrooms is important for research and implementation.

O'Connor (2018) explored humane education through interviews with teachers. She chose to ask teachers about their perceptions of humane education because they have unique insights into the effects of pedagogy. O'Connor stated, "Teachers often act as filters of information providing researchers with a better understanding of the intricacies of how children learn". An understanding of how a teacher's experiences and perceptions impact their incorporation of animals in their practice may help identify facilitators and barriers to the enactment of this type of education.

Case Study in the Context of Human-Animal Interactions and Education

Many studies have been conducted on human-animal interactions in education. Some explored humane education, others explored animal-assisted education, and a minority looked at both in tandem. Many studies exploring human-animal interactions use a case study approach due to the complexity of human bonds with animals (Yin, 2003). This section goes over a few studies similar to this research.

Daly and Suggs (2010) explored the experiences of Ontario teachers with humane education and animals. Teachers were surveyed and asked questions about animals in their classrooms. The findings indicated that animals were seen as a positive contribution to the classroom, particularly for empathy development. Their findings were in line with many other studies previously discussed. There were, however, a few limitations to their study. Daly and Suggs (2010) identified a self-selected sample as potentially having bias. The sample was more likely to pull individuals who were passionate about animals or already had significant knowledge of animals in classrooms. Another limitation relates to their humane education angle. Many respondents to the Daly and Suggs (2010) survey indicated that they used humane education. As previously discussed, humane education can have many meanings. It is not clear how educators in their study perceived humane education. This research extends the study done by Daly and Suggs (2010) by gathering more in-depth descriptions of teacher experiences and by exploring teachers' knowledge of humane education.

Steel, Williams, and McGeown (2021) explored teacher perceptions of a specific animal-assisted education program that involves children reading to dogs in the United Kingdom. They identified some perceived benefits and challenges of the program. Overall, teachers indicated a positive impact on student confidence and motivation for reading. They also reported a positive effect on social, emotional, and behavioural learning. A minority of teachers were not approving of the program. They expressed concerns about the cleanliness, efficacy, and safety of learning with dogs. Steel, Williams, and McGeown (2021) noted that their findings may not apply to other cultural contexts. This research

expands on theirs by assessing similar perspectives of teachers within the Canadian context.

Zasloff, Hart, and DeArmond (1999) conducted a project to gather descriptions of how animals are used in California elementary classrooms. Their research questions explored: how animals and information about animals were involved in programming; what learning objectives were met with the use of animals; and what resources would support the expansion of animal-related programming. They found that teachers felt that animals were useful in special education, humane education, science learning, and cross-curricular instruction. Several barriers to the implementation of programming involving animals were identified. These include allergies, the fear of animals, zoonotic disease, and the cost and time required to care for animals. Experience with animals and a background in science were found to be enablers. Participants wanted to expand available resources and specifically asked for more wild habitats to visit, more experts for advice, more instructional material, and more access to animals and materials required to care for them. The research conducted for this study is similar in that it identifies barriers and enablers. It also discusses how teachers may be better supported. This study will build on Zasloff, Hart, and DeArmond's (1999) work by exploring similar ideas in today's Ontario teacher population. It will be valuable to see if teacher perceptions are shared after over 20 years.

Chapter 3 : Methodology

Animal involvement in education is rationalized based on an understanding of the complexities of the human-animal bond. Research around the human-animal bond is primarily qualitative in nature. This is due to the emphasis on meaning that individuals derive from a bond with animals (Shen-Miller, 2011). A qualitative case study methodology was used to explore a select group of Ontario teachers' experiences with animals and their perceptions of animals and animals in schools (the case). The case was bounded by time, space, and activity (Yin, 2003). Data collection in the form of semi-structured interviews with teachers in Ontario occurred during the months of June and July of 2022. A case study methodology was chosen as it has been historically used to understand complex social phenomena and to provide in-depth analysis of an issue (Yin, 2003). The questions asked in case study research are generally *what* questions and *how/why* questions (Shavelson & Towne, 2002).

Context and Participant Recruitment

Seven certified and practicing Ontario teachers in the general geographic area of Southwestern Ontario were recruited using a purposive and convenience sampling approach. A convenience sample was used due to time constraints and an inability to access the general population. A purposive sample was used to capture the perspectives of a variety of individuals with differing backgrounds and experiences. Preference was given to teachers with experience teaching grades three to six. The focus on teachers teaching those grades is due to the stage of empathy development of the student cohort. It has been shown that students in this age group are most impacted by instruction around empathy (Ascione, 1992) and would therefore benefit the most from interactions with animals. Additionally, I felt that the grades three to six curriculum offered more and varied opportunities for incorporating animals into the classes. Recruitment initially occurred through my own professional contacts with potential teacher participants (convenience). I specifically contacted individuals who I knew had different experiences

and backgrounds (purposive). Additional participants were recruited using a de facto snowball sampling method.

A \$50 Amazon gift card was given to each participant as a gesture of gratitude. The incentive was not to be revoked if the participant withdrew consent at any time.

Researcher Positionality

A researcher is unavoidably influenced by their experiences and identities (Bourke, 2014) and I, Avery Harte, am no exception. This section outlines my experiences and identities that have impacted the development of this study and analysis of its findings.

I identify as a White, heterosexual, cisgender woman. I reside in Ontario, Canada where I have spent much of my life. Since my youth, I have always been passionate about animals and have had many pets, both domestic and exotic. My privileged socioeconomic background allowed me the ability to acquire and care for my numerous pets. I recognize that my background has allowed me experiences that most others might not have had.

My love of animals has been a cornerstone in my academic and employment journey. I currently work as a high school Science/Biology teacher and I often describe myself as “an educator with a passion for animals, equity, and the environment”. I have been teaching for three years. Before teaching, I worked as a zookeeper while completing my undergraduate degree in Zoology from the University of Guelph. I continued to explore a career with a focus on animals. I became involved in animal-assisted therapy and animal-assisted education programs during my time at the University of Western Ontario pursuing my teaching degree. To this day, I volunteer within my community by bringing animals such as honeybees to the public to teach them about animals and their role in our world.

The combination of my experiences with animals, zookeeping, and animal-assisted programming led me to an interest in this area of research. My background positions me as an Insider within the study group. The nature of the study, which focuses on

interviews, utilizes me as a research instrument. This allows me to use my Insider status to investigate preconceived notions and challenge my own perceptions while drawing upon insight from my own experiences.

In some ways I would be considered an Outsider within the recruitment population. For example, I am a relatively new teacher and have most of my training and experience within Intermediate and Senior age groups. I have limited experience teaching grades three to six.

It should be noted that I believe that interactions with animals enhance the classroom environment and that most classrooms would benefit from animal-assisted programming. It should also be noted that my beliefs around animals have shifted over time. I would identify as someone who is progressing towards a post-humanist ontology and epistemology. As evidenced by my past, I previously felt that animals were beneath us and that it was appropriate for us to use them for our own gain. I now feel strongly that interactions with animals should only occur when they are mutually beneficial for humans and animals.

Through this study, I hope to glean an understanding of the factors that play a role in shaping a teacher's perceptions of animals in education, regardless of whether they are supportive of the involvement of animals in education settings.

In this study, I, the researcher, play a central role in data collection and analysis. I am the sole conductor of interviews and know many of the participants since I am an active member of the recruitment population (educators in Ontario). The nature of this approach makes research highly vulnerable to bias. To mitigate the impact of researcher bias, the following protocol was used:

Theoretical approaches will be based on previous research: Theoretical underpinnings for the methodology follow the textbook guidelines in *Psychology of the Human-Animal Bond* (Blazina et al., 2011). The methodology loosely mimics previous research conducted by Daly and Suggs (2010) and Steel, Williams, and McGeown (2021).

Communicating regularly with participants: The process of data collection and findings were available to all participants throughout the study. This was done via email at their request and after publication.

Maintain an audit trail: All analysis was conducted via an online document to track changes. Comments were used to mark thoughts being considered or that have been dismissed. Further, the thesis supervisor was kept up to date on all collection and analysis.

Journal of emotional responses: The researcher maintained a journal of emotional responses as advised by Peshkin (1988). This perspective could be used to illuminate the bias I brought to analysis of interview responses.

Data Collection and Analysis

Data for this study was collected through virtual, individual, semi-structured interviews lasting approximately 60 minutes each. Interviews used the Zoom video conferencing platform. Interviews were video-recorded and transcribed for later analysis.

The semi-structured interviews included the following broad themes: experiences with pets; experiences with human-animal interactions; knowledge of the human-animal bond; knowledge of animal-assisted education; knowledge of humane education; experiences with animal-assisted education; and vicarious experiences and knowledge of animals in classrooms. Initial interview questions are presented in Appendix A. Some specific questions for the semi-structured interview were derived from the questions used by Daly and Suggs (2010) and expanded to include a deeper investigation into past experiences with animals outside of a classroom setting. Other questions were adapted from the textbook, *The Psychology of the Human-Bond*. These questions were created by Blazina, Boyra, and Shen-Miller (2011) to guide researchers investigating the human-animal bond (Appendix A.2). I also took notes during the interviews to record any thoughts, hunches, and reactions to responses as per Morrow and Smith (2000).

Analysis of data from the interviews was conducted similarly to the methods outlined by Miles and Huberman (1994). This was due to my experience and familiarity with the subject matter. The broad steps of analysis occurred via reduction, display, and conclusion (Miles & Huberman, 1994).

To reduce the data, analytic induction was used to analyze data as it was gathered. Interviews were compared and contrasted to identify patterns within responses. Coding was used to reduce data. Each phrase was categorized by the research question or questions to which it could contribute. Longer responses were coded by one or two key words. Particularly emotional responses were highlighted for deeper analysis as a direct quote. Where possible, theories were produced to describe phenomena. This process was recursive and occurred until no further patterns were noticed and/or data could not be categorized further.

The products of the inductively analyzed data are presented in the next chapter as results. The results chapter presents the analysis and reduction of the data organized by each participant. Here, each participant is introduced and profiled through the four research objectives to accomplish the qualitative researcher's need to be transparent and holistic in the presentation of results. More specifically, it is hoped that transparency in the interpretation and completeness of data becomes more visible through this presentation. The subsequent chapter, findings and discussion, extends the results chapter by aggregating the results by each research objective and discusses general trends observed among and between the participants. This furthers data reduction of interview data to allow for the observation of patterns and trends related to the pedagogical implications of incorporating animals in teaching and learning. The findings allowed me to propose a new pedagogical concept, animal-enriched pedagogy.

The conclusions from this study are not generalizable due to the intricate nature of human-animal bonds and the small size of the sample. The findings are presented as implications for practice for educators and researchers interested in the area of human-animal bonds, animal-assisted education, or humane education.

Stages of the data analytic process occurred in the following steps (in chronological order):

Familiarization: listen to and read interviews repeatedly

Transcription: interviews were transcribed

Organization: interview transcripts were organized into a single document for easy searching. Anonymizing sensitive data occurred during this stage

Coding: open coding was used (emotions, experiences, and knowledge identified), followed by categorization of codes by research question. This process occurred repeatedly until no new codes were identified

Refinement: themes were refined and organized into findings

Testing of Findings: read through data again through the lens of the findings

The following considerations were reviewed throughout the data collection and analysis process. The words used within the interview questions were carefully chosen to avoid leading questions and triggering traumatic responses. For example, “how come” was used instead of “why” in order to avoid an accusatory tone. Context of participant statements was considered with specific notes made of the interviewee tone and inflection. Internal consistency was reviewed through the recursive review of transcripts and written material.

Trustworthiness

The value of the research has been determined based on the responses of participants. The results have been examined to assess credibility, transferability, dependability, confirmability, and authenticity.

The credibility of the study was built following Guba and Lincoln’s (1989) recommendations. Participants were kept aware of the study and its progress through

emails. Dr. Anton Puvirajah was aware of the data collection and analysis process. He had access to a working document that tracked the process and progress of data collection and analysis. Member checking at the end of the study has also added to its credibility.

It is not expected that the results of this study are transferable due to a lack of saturation. Instead, it provides a rich description of the experiences around animals in classrooms that some Ontario educators have had. Where possible, commonalities between participants' experiences have been described. This adds to the existing body of research and may provide a foundation for further research which may eventually lead to transferability.

As previously discussed, the entire research process was documented thereby aiding dependability. A researcher journal was used to document thoughts, emotional responses, and other personal factors which may have impacted the interpretation of results. Dr. Anton Puvirajah provided an Outsider perspective to check for bias within the research.

Confirmability depends on the credibility, transferability, and dependability of the data. To strengthen confirmability, all theories, methodological approaches, and analyses are based on prior work conducted in the fields of anthrozoology, humane education, or animal-assisted education. Data was kept as raw as possible by not attributing meaning through synonyms without consulting participants or having established precedent.

Authenticity as described by Guba and Lincoln (1989) consists of five parts: fairness, ontological authenticity, educational authenticity, catalytic authenticity, and tactical authenticity. Fairness was achieved through dialogue with participants to ensure that they feel appropriately represented within the research. Ontological authenticity has been accomplished through the sharing of educational resources when requested by participants and access to the final thesis document. Educative authenticity is apparent in the acceptance of participants with varying views. Those with opinions in contrast to my own were included in the study and they were not persuaded or encouraged to change their views. This research aims to support educators interested in implementing pedagogy involving animals by strengthening the associated body of knowledge. The new

understandings gleaned from the research may be utilized to motivate teachers to take action by modifying their practice. In this way, catalytic and tactical authenticity are achieved.

Limitations

The limitations of this study that should be acknowledged are researcher subjectivity, methodological rigor, external validity, and participant knowledge and self-awareness.

As previously stated, I am a member of the sample population and was the sole conductor of interviews. I had a professional relationship with some of the participants thereby posing a risk of bias. Participants may have been hesitant to share their authentic thoughts, feelings, and experiences for fear of professional retribution or damage to their relationship with me. These limitations were circumnavigated through explicit communication and carefully crafted questions so participants were not swayed to answer questions in one way or another. All responses were kept confidential and no employer will be permitted access to these records.

It should also be acknowledged that, due to my background, I am emotionally invested in the success of education involving animals. I used a journal to document thoughts, feelings, and reactions to participants' responses. This journal may be used to illuminate instances of bias towards favourable findings. The journal was available for the thesis supervisor to review. Participants who have contrasting views from my own were not excluded from the study to promote a more balanced view of teacher perspectives.

A common criticism of case study analysis is their methodological rigor or lack thereof. The methodology outlined by Miles and Huberman (1994) was used to provide a systematic and replicable approach to this study. The general steps that were followed were reduction, display, and conclusion.

This study is limited in its ability to be generalized outside of the case presented.

Saturation was not reached in this study therefore there were aspects of the case that are

unexplored. Suggested areas for future exploration are outlined in the results and discussion section as well as in the conclusion. Previous studies which involved the same recruitment population did not see significant response rates (Daly and Suggs, 2010). Barriers such as school board and administrator approval precluded researchers from accessing educators (Daly and Suggs, 2010). However, it has been said that “[q]ualitative research is not done for purposes of generalization, but rather to produce evidence based on the exploration of specific contexts and particular individuals” (Brantlinger et al., 2005, p. 203). The value of this study comes from the rich responses that provide context to the experiences of some educators.

Another limitation of this study comes from our method of data collection and recruitment of participants. Convenience sampling followed by snowball sampling was used out of necessity due to time and access restrictions. This potentially lead to a sampling bias. Responses relied on a keen sense of self-awareness on the part of the teachers. Past research has found a discrepancy between what teachers report and what their practice looks like (Basturkmen et al., 2004). Future studies may benefit from triangulating interview data with classroom observations and documents in order to confirm this study’s findings.

Ethics Approval

Ethics approval was granted from the Western University Non-Medical Research Ethics board prior to data collection.

Chapter 4 : Results

Interviews were conducted with seven teachers in Ontario. The following chapter outlines each individual's thoughts, perspectives, and beliefs related to the research questions. The questions explored were: determine the knowledge base of teachers with respect to animals, animals in classrooms, and associated theories and concepts; determine how teachers perceive animals in the enactment of pedagogy; determine what experiences teachers have had to inform their opinions about animals and animals in the classroom; and determine potential barriers and enablers to teacher involvement of animals in their classrooms.

Each participant is discussed individually and consecutively. They are introduced with a biography and then their thoughts related to each research question follows. This chapter provides an in-depth report of the participants' responses. It would be useful for researchers looking to expand on this work, however, the next chapter covers the most important learning. Discussion and analysis of particularly notable quotes, trends, anomalies, and implications follow in the subsequent chapters.

Participant 1: Jennifer

Biography

Jennifer is a 46-year-old Caucasian teacher. She teaches science to middle school students as she has for most of her career. The start of her profession was in informal science education through various community science programs. She prides herself on her ability to bring life into the classroom. Each year, on her birthday, she has a live chicken come and visit the class for the day. She relishes the stories that disseminate from students who had a chicken walk across their desks. Jennifer firmly believes that experiences, like those involving the chicken, provide enriching, memorable, and authentic learning experiences. Her love of animals has been a feature of her life since birth. As an infant, she would snuggle the family cat in her crib. She strives to better the

world through a love and appreciation of animals in both her professional and personal lives.

What does she know about animals, animal involvement in classrooms, and associated theories and concepts?

Jennifer has a wealth of knowledge related to animals. She is a science teacher with a background in biology and is an avid animal lover. She has surrounded herself with pets and finds joy in seeing animals in their natural environment. She has gathered an in-depth understanding of animals' qualities and needs through formal education, reading, and personal experience. She is aware of what may stress an animal in a classroom and knows how to mitigate risks associated with interacting with them. Jennifer is also knowledgeable about the school district rules and regulations regarding animals in the classroom. She has accumulated her knowledge of animals through her everyday life experiences, professional development, and through working as an educator.

Prior to teaching, she gathered professional knowledge related to animals through work at two different informal science learning programs. There, she learned how to guide animal interactions and connect learning to the Ontario curriculum. Her current professional practice involves animals as both classroom pets and visitors. She has many modelled ecosystems which house plants and animals in her classroom. The models are based on those she has seen at the Outdoor Education Center in her region. She appreciates having "live creatures in the classroom that the kids could relate [learning] to". She reported that animal interactions lead to "a deeper understanding of the ecosystem related parts of the curriculum".

When asked about benefits of the human-animal bond, Jennifer referred to studies that found that there are numerous physical and mental health benefits. I smiled when she started listing off findings as it reminded me of my literature review. She has an understanding of these benefits through her own lived experience as well as scientific literature.

Jennifer was not aware of the term animal-assisted education but was familiar with examples of animal-assisted education programming. In reference to having animal visitors she said, “finding a certified teacher who already has an animal that would be appropriate for the situation is fantastic.”, which is a characteristic of animal-assisted education (IAHAIO, 2018). She frequently discussed the “emotional weight” associated with bringing animals into the classroom which is often cited as a benefit of animal-assisted education. Though she was unfamiliar with formal terminology it is likely that she practices animal-assisted education.

Jennifer was not aware of humane education and did not seem to consistently implement many of its practices. However, she did express strong opinions towards having an ethical philosophy guiding interactions with animals. She was eager to learn more about any area in which she was lacking knowledge.

How does she perceive animals in the enactment of pedagogy?

Jennifer has a profound love and respect for animals. She identifies as a vegetarian. Jennifer shows love and respect for animals by not eating them. She mentioned that she considers humans to be animals, which speaks to her idea of humanity’s dominion over nature, or lack thereof. She appreciates animals in physical interactions as well as at a distance. She believes that all students, regardless of background, can benefit from interacting with animals as well. However, she stated that it is incredibly important to never force animals on people. She also emphasized that interactions with animals can be stressful for the animal and that interactions should be conducted responsibly.

Jennifer stated that she would worry more about the safety of animals than students in her classroom. Whether the students posed a risk to the animal was more concerning to her than the risk the animals posed to the students. That being said, she also acknowledged that her dog is very different from her child and that her child is more important. She also said, “my personal ethics would say I would rather have the animal in a stable

environment and take the children to that environment.” which further illustrates her prioritization of animal welfare in her practice.

According to Jennifer, animals, both wild and domesticated, might have a place in the classroom given the proper conditions. Each animal offers a different benefit. Some are more appropriate as resident animals while others are better as short-term visitors and others are best seen in the wild. In Jennifer’s opinion, animals in the classroom can: help support curriculum goals; provide mental health support; encourage respect, responsibility, and empathy; build community; promote conservation; and be novel entertainment. She also noted that animals can be nice to look at because they are “cute and fuzzy”. Her classroom experiences all these benefits thanks to its classroom pets and visiting animals.

Jennifer fondly recounted her experience bringing baby chicks into her classroom. She said, “you can just see them going *it's picking me*”, in reference to chicks sitting in the hands of students. She also said, “When you see a grade eight hold a chick, you know that it's just cementing in their memory that they're just going to have that forever”. Jennifer discussed the value that this and other similar experiences have had and said “I mean, the stories that are going to stem from a rabbit visit for the next three weeks are incredible. But you have to get the rabbit there first.” She cited student products such as projects and written stories as well as excitement as benefits of the interactions. She also said that bringing animals in allows for rich conversation with students. These conversations tend to go beyond the curriculum and discuss things like ethics, grief and loss, and love. Jennifer specifically talked about conversations she has had about dissections and their ethical implications. She always uses offcuts from slaughterhouses for dissections, so animals do not die for the sole purpose of education. Again, Jennifer demonstrates a focus on animal welfare while working towards academic goals.

Geckos feature prominently in Jennifer’s classroom. They have had a lasting impact on her students and school community. She told stories of students screaming with delight as they saw gecko eggs hatch. When asked if the animals in the classroom changed her students in any way, she said that many of her students went out and got pets while others

actively avoided pet ownership. She credits the latter population as having learned just as valuable a lesson as the former. Jennifer recognized that this learning was not linked to the curriculum but feels that it is still important.

Jennifer also talked about the benefits of students seeing their teacher interact with animals. She said, "I think students, when they're looking at a teacher that they respect, and that teacher is showing animals respect, that's going to carry over into that relationship." She discussed the gentleness with which one approaches an animal and talked about how students recognize that gentleness. She feels that this may soften future interactions. Again, Jennifer shows a concern for learning outside of curriculum objectives.

For the aforementioned reasons, Jennifer often feels that there are times when she needs an animal to accomplish both formal curriculum goals as well as social emotional goals. Jennifer integrates animals into as many lessons as possible. She does not often have lessons specifically crafted around animal interactions but rather uses the habitat models in her classroom as a point of reference. For example, she might be teaching a lesson to meet expectations B2.1 from Science and Technology, "explain that an ecosystem is a network of interactions among living organisms and their environment" and she would refer to the terrariums and aquariums in her classroom to show a physical representation of the concepts being discussed.

What experiences has she had that inform her opinions about animals and animals in the classroom?

As previously discussed, Jennifer has a long history of experience with animals. It began as an infant with the family cat sleeping in her crib and has carried through to her professional life. Her family always kept pets and enjoyed being out in nature. She told a story of her family having a funeral for a gerbil. There was a shared grief at the loss. She said that her and her family considered their pets to be members of the family.

Interestingly, the shorter-lived animals and those that did not physically interact, such as fish, were considered less of a family member than pets that were longer lived and physically affectionate. Regarding her pets she said, "it just doesn't feel like the house is

quite complete if there's not an animal in it". Perhaps her current commitment to involving animals in her practice is due to her lifelong love and respect for animals.

She had a large role in caring for her pets growing up. Jennifer explained that her scope of responsibilities and expectations around her pets while growing up were "to care for it and keep it healthy, keep it entertained". She was also expected to bear the financial costs of pets. Despite the responsibility associated with her pets, Jennifer loves caring for them. She loves seeing her animals thrive and interacting with them. She said, "There's just a lot of love in the house. A lot of care for other creatures and, and getting that feedback from living things I think is really important." She also said "they have to give something of themselves and think of someone or something else" regarding children caring for pets. The same can be said for her classroom pets. She pays for them and takes on the costs of keeping them but does so gladly. It could be argued that she may be willing to do this due to the expectations around pet ownership set in childhood.

Prior to teaching in a traditional classroom, she taught at two different science programs. In these programs, she facilitated interactions between animals and the public. She was specifically trained in how to care for the animals and how to safely guide interactions. This training included identifying risks and mitigating practices when facilitating interactions between people and animals. She also learned some curriculum connections that paired well with interactions with animals. Jennifer pointed out that some curriculum goals specifically state that an animal should be involved. She explicitly credited her informal science program experience with preparing to guide interactions with animals in her classroom.

Equity and inclusion are important to Jennifer. Though she sees animals as valuable, she recognizes that different cultures have different perspectives on animals and therefore will not force animals on other people. She mentioned that her husband is Indigenous and that very traditional people in his community would eat a dog that crossed the fire grounds at a powwow and so she does not bring her dogs to powwow events. The idea of consuming a dog contrasts with many North American perspectives but is not considered less valid by Jennifer. Another anecdote that Jennifer shared regarding the impact of

culture on the perspective of animals, is related to her neighbour. She said “Many cultures do not invite pets into the home for a multitude of reasons - infectious diseases, and being unclean and, and just traditions. So, our neighbours across the road are Muslim, and we had two very large black dogs, and the culture they belong to does not allow any dogs in the house, whatsoever, especially not large black ones so they always thought we were slightly strange. They never judged us for it, but they also would not step into our home.” She has come across other cultures and perspectives in her teaching and is careful to consider her students’ backgrounds when planning activities, particularly those involving animals. About children missing out if they don’t have pets Jennifer said, “the joy of the emotional feedback of the entertainment value of that connection, of course, they are missing that unique experience but that doesn’t make them less of a person.” She believes that bonds with animals are not a necessary part of the human experience, but they enrich life.

Jennifer has also observed an impact on interpersonal relationships between herself and her students after interacting with animals. She said that interactions with animals allow students to skirt social niceties. Animals do not care what brand of sneakers you wear or if you know the latest slang. Jennifer said that she thinks that these low-pressure interactions help interactions with other people. Animal interactions act like low-stakes practice. She also said that her students had a stronger relationship with her after seeing her interact with her animals. This was even true during distance learning where she would bring her cat on screen for students to see. She suspected that seeing their teacher be so kind and gentle made the students feel less vulnerable. It also offered a point of conversation and connection.

Seeing her students experience joy is empowering for Jennifer. She takes on extra responsibility and puts in longer hours to facilitate opportunities for students to enjoy learning through interactions with animals. She listed several experiences that highlighted the results of her efforts. One that came up frequently was the chicken visits that she has in her classroom each year on her birthday. Some students stood out in her memory. She said, "the more reluctant they are to participate but the more joyful they are when it happens." She added that, “They posed for pictures, which we then put in the yearbook

because they were so proud of touching the chicken.” Jennifer’s experiences have given her many reasons and motivations for involving animals in her practice.

What barriers and enablers to the involvement of animals did she identify?

Jennifer has overcome many barriers to incorporate animals into her practice. Though she has bountiful knowledge and experience, she acknowledged that it would be challenging for teachers who did not grow up as she did to replicate her practice. She was not exposed to any formal training around bringing animals into schools either during teacher’s college or through professional development opportunities. Teachers wishing to acquire her knowledge would need to seek external resources in their own time. Jennifer noted that there is often a bite risk or risk of injury to students when students are interacting with animals. Conversely, there is also almost always a risk to the animals involved. Jennifer repeatedly emphasized the risk of harm, physical and psychological, to the animals involved in classrooms. She said, “I am very protective of the animals, and I think my worry there would be perhaps I would be protective of the animals to the fault of not being as protective of the students.” Another barrier could be that she does not see an impact on testing when she incorporates animals into her practice. Administrators and parents may be less inclined to approve the animal activities when they do not impact an indicator of performance. Jennifer has managed to overcome the aforementioned barriers through advocacy, preparation, and personal drive.

Jennifer said that she has not experienced pushback from the community. She also said that she did not encounter difficulty including all students in the activities. These were barriers that I specifically asked about rather than the previous ones where were offered.

There were several enablers that Jennifer credited with helping her overcome barriers. She has a unique set of experiences including a lifetime of pet ownership and work in a professional setting with animal interactions that have allowed her to be knowledgeable about, prepared for, and confident to undertake and participate in animal interactions. These experiences also allow her to plead a strong case to administrators to bring animals

into her classroom. She said “if a science teacher advocates strongly enough that this is something they can do it's, it's usually an okay thing. Um, the Outdoor Education Center certainly can offer guidance if you reach out to them”. She mentioned that she modeled her classroom after the Outdoor Education Center which had ecosystem displays. She also said that the Outdoor Education Center would be a good place to go for teachers who require assistance in advocating for the involvement of animals in their classrooms. She has taken advantage of programs such as the “Owl Prowl” funded by the Elementary Teachers’ Federation of Ontario which has further equipped her with knowledge and skills to incorporate animals into her practice. Additionally, Jennifer’s background allowed her to know which animals would be appropriate for schools. She was able to list animals that have been permitted along with those that have not been permitted at her school. She was also able to make connections between animal interactions and the curriculum which helped her advocate for her practice. For example, she said “so for grade seven [there are connections in] interactions in the ecosystems. But even in grade one and two, I believe grade two, there's something about metamorphosis and changing from one form to another from a larval state”. She said a teacher might bring in mealworms and have the students watch them become beetles. Evidently, the knowledge she has acquired through personal experience and non-teaching-related education has prepared Jennifer to navigate risks, make connections to curriculum, and advocate for animals in her practice.

Jennifer said that in order to encourage the spread of animals’ involvement in pedagogy there would need to be some systemic enablers in place. She funds her own programming and expects that the cost would be prohibitive to many educators. If there was a central fund, it could improve the uptake of animals in classrooms. She also said that having a knowledgeable point of contact could also be helpful to people without her experience. Similarly, she also felt that a training program could be of value. This could help educators be adequately prepared for an animal visit or resident pet.

Summary

Jennifer has successfully incorporated animals into her daily practice despite many barriers. She leveraged her passion and expertise from work in informal education to lobby for administrative support. She funds her programming herself and sacrifices space in her home to care for animals outside of school hours. Jennifer does this all gladly because she sees the benefits that students reap from interactions with animals; both academically and personally.

Participant 2: Diane

Biography

Diane is a 38-year-old Caucasian teacher. She has 10 years of experience teaching kindergarten to grade 10 in Ontario and 5 years in the United Kingdom. Diane currently teaches grade 8 in a remote learning program. She grew up with a respect for nature, having spent her childhood in Northern Ontario. Interactions with animals were commonplace in the rural North. Diane and her siblings had to learn about the animals and how to navigate them safely. She is currently a rescue-level diver and volunteers doing surveys of wildlife such as salmon. Diane grew up with dogs and has had some close bonds with her family dogs but is uncomfortable with cats. She recognizes the power of interactions with animals and expressed an interest in utilizing animals in her practice for the purpose of making cross-curricular connections. She has seen this in practice before when she hatched chicks with her elementary school students in the United Kingdom.

What does she know about animals, animal involvement in classrooms, and associated theories and concepts?

Diane has some knowledge of animals thanks to her upbringing in Northern Ontario where she would encounter wildlife regularly. She is familiar with how to safely interact with wild animals and has respect for nature. She said, “when I was growing up during the springtime there'd be certain times of the year where we would be told, *Okay, you're*

not going up out without an adult after a certain time of year. Bears are in the area, and they could be in your backyard. They could be down the street. Just that. That caution.” She knows that physical interactions with wildlife can be stressful or harmful to the animals and avoids them. Her family had dogs and a hamster growing up, so she is also familiar with the needs of pets.

Diane was aware of some benefits of a human-animal bond. She mentioned that she has seen some individuals benefit emotionally from interaction with animals. She was not familiar with any documented physical or psychological benefits. Diane did acknowledge that she feels that animals promote empathy. She felt that students may be able to experience these benefits with animals visiting her class.

Animal-assisted education was a new term to Diane however she was familiar with animal-assisted education programming. She had ducklings hatch in her classroom in the UK. She enjoyed the hands-on learning that they offered and noted the numerous connections to curriculum across all subjects. Regarding her experience with the ducks she said, “I’ve seen the effects of having those ducklings in the classroom for a couple of weeks, and the effect that it has on the children like just, they’re, they were excited. We had better attendance during those couple of weeks than we did leading up, and afterwards because the kids wanted to be there on the, especially on the days when their class was getting the ducklings.” Diane said that she would like to replicate duck hatching experience in her Canadian classroom.

As an educator who is always looking for opportunities for her students, Diane said that she would be interested in formal training around facilitating human-animal interactions. She hopes it would include how to care for the animal as well as curriculum connections and safety during interactions. Diane is not aware of any opportunity for this type of learning in teacher’s college, professional development, or in her personal life.

Diane was unaware of humane education but seemed to follow some of its practices in extracurricular activities, namely her school’s Eco Club. There, students chose topics to explore and teachers supported students as they came up with solutions to the problems

they identified. This is a similar approach to that of the Institute for Humane Education which promotes the “solutionary” model.

How does she perceive animals in the enactment of pedagogy?

Diane spoke fondly of her experience hatching ducks in her UK classroom. She described the experience as memorable and effective. She noted that there was a difference in student learning between animal visitors and the long term stay of the ducks. She said, “We were able to do the writing. We were able to do like... it was so cross curricular that we were able to cross off so much of our curriculum just from the, the events prior to, during, and then after.” Diane also noted the value of the experience for students in the city. She said that many of her students had not spent time in nature or interacted with many animals. Hatching the ducks in her class allowed students to experience a small piece of nature without leaving their community.

The duck hatching program helped Diane achieve curriculum goals and more holistic learning related to psychosocial development, though she did not use those specific terms. She said “we had some of our year 5 boys who we could not get to do much. They were, they were football, and they were phys ed, and that was, that was all they wanted to do. We had those boys racing down the hallway. *Have they hatched yet? Have they hatched yet?* That pure child excitement about seeing an animal become what it is. Like being hatched of an egg. And the fact that we were getting writing from them. They were writing stories.”

According to Diane, all age levels could benefit from interactions with animals. She noted that animals are exciting and make learning fun. She said all age levels would like the entertaining lessons. Diane mentioned that younger grades are more receptive to education on respectful handling. Some of the students she worked with in the past had some challenging behaviour including aggression, but the animals actually calmed these students. The one place that Diane said is not an appropriate setting for animal interactions was online learning. She was not sure of how such programming could function if a class is not in person.

Diane said that there is productive learning with animals. She said “having that animal in the classroom is not just for fun. It's, there's some reason that you're doing that as well. So there's a teaching moment there.” She said that the animals “move” students. “It's just they need something that moves them enough to create a product.” Diane’s teaching philosophy centers the students’ education and authentic learning which makes her more likely to incorporate novel learning experiences that reach all students. She stated that she feels it is worthwhile to take the necessary steps to overcome barriers to implementation of programming involving animals.

What experiences has she had that inform her opinions about animals and animals in the classroom?

Animals took on many roles in Diane’s home growing up. She described the family dog as a sibling and protector. Interestingly, the family hamster did not have the same role as the dog. Diane described it as “almost more of a toy”. There were also other dogs in her community growing up, but they were working dogs. Diane distinguished these from her family dogs as they lived very different lives. She said that the family dog would have their name on birthday cards. The working dogs would not have the same role in their families. These experiences may mean that she can envision a dog in her classroom as both a pet and a working dog who is there to serve a purpose.

In her role as a rescue level diver, Diane experiences being immersed in a wild environment. She said her philosophy is to “take only pictures and leave only bubbles”. She said, "I'd rather go and see, go out into the ocean and do a dive where I can see them naturally." She reported that she feels it is important to teach people how to interact with animals safely. Perhaps Diane would be more comfortable involving animals in her teaching in the form of a field trip as opposed to having them come into the classroom.

Some interactions with animals have not been as fun and carefree as Diane’s duck hatching program. She has a dislike of cats; a trait she shares with her father. She speculates that this is due to cats using her sandbox as a litterbox. She had many wary encounters with wildlife such as bears. She was taught to be respectful and distant with wild animals. Diane said that she had a friend who lost a parent due to an animal attack. It

seems she had been taught, repeatedly, to be cautious around wild animals. This is a lesson she relayed to her students in the UK. She taught them to avoid wild foxes and respect their space.

Diane did not always love animals as she currently does. She was attacked as a small child and subsequently developed a fear of dogs. She said that she eventually overcame her fear through an understanding of dog behaviour. She said that she realized that she was not interacting with the dog appropriately, so the attack was not random. Diane said, “in my teens or sometime around then I, I just realized that *you know what, there probably there was a reason that dog bit*. It was either excited or... I think it started with my science background. It might have been a science course I was taking, or something that kind of set me in the direction of understanding.” This experience could impact the way she navigates students who have a fear of animals. Perhaps we can speculate this is also part of why she has respect for wild animals and their space.

Diane said that she would definitely have a pet dog if she could. Her rental property does not permit dogs. She values pet ownership as does the rest of her family. She spoke fondly of her parents’ dog, Spot. She said that Spot would greet her with enthusiasm. Diane described interacting with him by saying, “Even when he got older, he would still go crazy like he did when he was a puppy. When we walked in the door like he would jump everywhere and wear himself out. He would lay on your lap, he would. Yeah, I would sit on the floor with them, and he would just lay on top.” They showed affection for each other through physical interaction. Diane feels that time, proximity, and physical interaction built her relationship with the family dogs. She experienced grief when Spot died and she could not be there when he died. This grief has not deterred her from pursuing another relationship with a different dog. This close relationship with her family dog could contribute to her interest in involving animals in her practice.

What barriers and enablers to the involvement of animals did she identify?

Diane thoroughly enjoyed her duck hatching lessons in the UK and wishes to implement similar programming in Canada but has faced some barriers. Her primary concern has

been access to animals. She is currently teaching distance learning which precludes her from facilitating animal interactions. She also has less funding available and is not aware of supports similar to those she had in the UK. There, she had a kit that came with the ducks which guided teachers through the programming. It included everything the ducks would need and a set of instructions for how to care for them. When the classes were finished hatching the ducks they were returned to the farm.

As it stands, she is unsure if she will have the funding, physical space, knowledge, or out-of-school care to bring ducks into her current class. These are barriers to implementation. Some other barriers that Diane highlighted include health and safety. Specifically, allergies and safety plans. She said that the safety plans should not be qualified as a burden, but they are an extra consideration. For the most part, Diane was able think of ways barriers could be navigated however, she noted that some students would not be compatible with the program due to self-regulation and behavioural challenges.

Another barrier could also be cultural differences. Diane noted that there was a difference in pet ownership between cultural groups she has lived near. For example, there were many working dogs in Northern Ontario. She noticed that they lived outside and did not have names. She also said, “in England, there were a lot of families with the Indian background and seeing that a lot of those families didn't have pets, so it was interesting”. Diane noticed that different families interacted with animals differently. She did not experience pushback when she implemented her duck program but perhaps, she could in the future due to cultural differences.

Diane’s experience in the UK also highlighted some enablers. She noted that animals fit well into the curriculum, particularly at the junior level. As previously mentioned, she had a kit to care for the ducks which made facilitation easy. Her experience with animals growing up was also helpful in her willingness and ability to run the program. Another enabler that might be of particular interest to principals could be that Diane noticed an increase in attendance during the time the ducks were in her class, particularly when they were close to hatching.

Summary

Diane recognizes the benefits of bringing animals into her classroom. Her upbringing in the North taught her to respect animals. Some of her more urban students may not be able to have similar learning experiences. Her experience in the United Kingdom was memorable and valuable. She hopes to replicate it here but worries about barriers such as allergies, funding, and lack of knowledge and support with respect to care for the animal.

Participant 3: Matthew

Biography

Matthew is a 32-year-old Caucasian teacher. He has 4 years of experience teaching kindergarten to grade 8 in the Greater Toronto Area. Some of his experience includes teaching special education in the Alternative Continuum of Education (ACE) stream. He is an enthusiastic educator who is interested in learning more about how he can better serve his students. Matthew's primary concern is student wellbeing. He is very reflective and willing to be critical of his own assumptions. Matthew spent time travelling around the world and in Europe where he visited family. He loves all animals and has had many memorable bonds with animals. He would have a pet now if not for his wife's allergies.

What does he know about animals, animal involvement in classrooms, and associated theories and concepts?

Matthew loves animals. He had a variety of pets growing up including a dog, turtles, birds, and fish. He has knowledge of how to approach animals and interact with them safely. He is aware of the responsibility associated with caring for animals. He mentioned that he has read about physical and mental health benefits associated with interacting with animals, namely serotonin release when petting dogs and cats. Matthew is knowledgeable enough about animals to feel comfortable and confident around them.

Matthew was not aware of animal-assisted education or humane education. He has not seen any opportunity to learn more about these practices in either teacher's college or through professional development. As both a student and teacher, he has seen animals in classrooms as visitors and classroom pets. Matthew expressed an interest in learning more about how he can support his student with animals.

How does he perceive animals in the enactment of pedagogy?

Matthew sees tremendous value in bringing animals into schools. He has had experiences in his personal and professional lives that demonstrate the benefits of interacting with animals. Matthew said that animals promote empathy, encourage responsibility, lead to conservation, and have physical and mental health benefits. For these reasons, and more, he believes that animals have a place in formal education.

Matthew feels that all ages would benefit from interactions with animals but that younger students would benefit the most. He said that animals are more exciting for younger students. Matthew said that children should be old enough to understand the interaction but young enough to be receptive. Primary grades likely fall into this window. He remembers the Humane Society visiting his school when he was in elementary school. They taught him how to safely approach animals and about responsible pet ownership. This experience was memorable. Matthew feels that school is a great setting to learn about how to safely interact with animals.

The way Matthew sees it, another important feature of classrooms involving animals is that they help students dispel their fear of animals. He pointed out that encountering animals is an inevitability in our society and that it's important to know how to navigate those interactions. It is a life skill to safely greet a dog or avoid a bear. Matthew recalls a rewarding experience where one of his students overcame fear and held a chick. He said, "And I remember that there was one student who was really scared in the beginning and then even seeing that they opened up and even held one and that was a big win for the student too." Another benefit of overcoming fear that Matthew mentioned related to conservation. He said that he feels that overcoming a fear of animals might mean that

students are more likely to participate in conservation efforts to help said animals. Matthew feels that schools can be safe and supportive settings to encourage students to overcome their fears about animals.

Meeting curriculum goals is of paramount importance to Matthew. Curriculum connections are the first piece that Matthew considers during planning. The next piece he considers is authentic learning opportunities. He said, “if you have that authentic learning. I think that's when you get some, some great learning opportunities that can come from it.” He reported that hands on experiences enhance his lessons. Regarding a lesson involving animals he said, “Yeah, the students said that it was, that they loved it. They went home and I remember even hearing about it on the playground, and even having some parents send some emails saying thank you for that, because they had a great opportunity”. Not only were the lessons exciting ways to reach learning goals but Matthew also said that the experience could lead to rich discussions about the environment and interconnection with humans and animals. He feels that if students connect with animals, he may be able to lead them into a discussion on climate change by connecting the Earth’s warming to the plight of wildlife. Animals have proven to be a useful tool for Matthew to reach curriculum goals in an exciting and authentic way.

What experiences has he had that inform his opinions about animals and animals in the classroom?

Matthew has had a lifelong love of animals. His dog was a special pet; he was considered a family member. He said, “For my dog it was definitely a lot of like a companion, a friend.” He described the relationship as reciprocal and credited his dog’s intellectual capacity for their ability to communicate. Matthew would care for him, take him for walks, and feed him. Matthew said that the dog was often “there” in his memories. The dog came on family trips. He thinks that the long-term entanglement of their lives made him and his dog close. Perhaps this intense love for an animal contributed to his love of all animals.

Matthew also had turtles, birds, and fish as pets. He enjoyed caring for them and ensuring they had all they needed. He said he found joy in the purpose he felt by caring for pets. Unfortunately, he had to rehome his turtles because his family was not prepared for the extensive care they required. Matthew said he cried when they had to rehome the turtles. He said, “in order to be a good pet owner, you need to give a lot of time to this pet”. He also said that he thinks it is important to be knowledgeable about an animal’s needs before acquiring a new pet. This may explain why Matthew expressed concerns about the amount of care a classroom pet would require.

Not all experiences with animals have been positive for Matthew. He has been bitten by a dog and scratched by a cat. He said, “I had a dog bite me and a cat scratch me but it was, I think when I was young, it was just I didn't handle the dog or the cat properly.” He understands that the animals did not wish him ill but were acting defensively. He said that these attacks were not scarring and have not dissuaded him from pursuing other relationships with animals. Matthew said, “Yes. I love interacting with animals and whenever there's, um, my friends have pet cats or dogs, like I'll go out of the way to go and spend time or play, play with them.” This experience may explain his concerns for student safety.

He also had a negative experience when his family dog died. Matthew grieved for the loss alongside his family. The loss did not harm future relationships with animals moving forward. On the contrary, Matthew said that he feels that the loss strengthened other relationships because he appreciates the time he has with other animals.

The experiences that Matthew has had with animals in schools have been memorable. He said that having the animals come in is exciting. He said it feels special when an animal accepts you. You feel chosen. Rejection can feel bad but is more forgivable than if a person were to reject you. Matthew did not offer a reason for this phenomenon. He also said that interactions without physical contact are also exciting and memorable due to their novelty. Matthew wants to offer novel and exciting learning experiences for his students.

Matthew has travelled and lived in many places around the world. We discussed culture and the impact on the perception of animals. He said that he had not put much consideration into how culture changes our view of animals. He could only speak to his lived experience. He has family in Europe and noted that they often had animals outdoors. They were not treated as the family member that his dog was. Matthew suspected that it may be a North American value to treat pets as family members. He wondered if this sentiment was spreading since his younger European family seemed to be bringing the animals into the house more often than the older generation. This interview may lead Matthew to think more about culture and equity when bringing animals into his class in the future.

What barriers and enablers to the involvement of animals did he identify?

Matthew was able to identify many barriers to the implementation of education involving animals and its associated practices. A big concern for Matthew was liability. He was worried that the school would withhold permission to bring animals in due to the legal risk. Matthew said that, due to liability, he would need to have administration approval, written communication with families, and ample preparation to avoid hazards such as bite risks. He also said, "I think it'd be really challenging to bring in an animal, if it did not tie into the curriculum at some point. And if we couldn't ensure the safety of the animal and the students too."

He expressed frustration around the inconsistency of expectations. Matthew said that each principal has different expectations for policy and procedure and that it was difficult to identify what was required of an educator wanting to bring in animals. In his experience, there are very tight regulations from both school administration and animal sources. One administrator requested that he meet a full page of requirements to bring in chicks. An educator would need to seek out each administrator's expectations before bringing animals in.

Matthew said he would be comfortable facilitating interactions but not necessarily leading them due to not knowing the animal; their triggers and warning signs. His

primary concern would be student wellbeing followed closely by animal welfare. These would be at risk if Matthew was unable to control the animal.

Yet another barrier that he identified was a lack of funding. He was unaware of any funding that he would be able to access outside of his own wallet.

There have been many barriers, but Matthew has still tried to bring animals into his classrooms. Matthew has experience teaching alternative continuum of education (ACE) which supports students with high physical and cognitive needs. He had many students who exhibited unpredictable and sometimes violent behaviours. Matthew recognized that these students would likely enjoy animals but worried about the safety of the students and animals given the unpredictable environment. He tried to bring in therapy dogs for his students but was ultimately unsuccessful due to the risk.

There were also many enablers discussed with Matthew. He was able to bring chicks into his primary class because he knew someone who could bring in animals, he advocated to administration, and he connected the experience to the Ontario public school curriculum. He noted that he had full attendance during the chick visit which may be a useful anecdote for motivating future administrators. Having had the prior experience of bringing in chicks would also make implementation easier in the future.

Matthew said that it would have been nice to be exposed to these ideas in teachers' college. He has an interest in keeping a classroom pet and having more visitors but is overwhelmed by the knowledge and resources he would need. He is unsure of where to begin. He noted that educators are the gatekeepers of new pedagogy and practice. He said, "I think that's where it all starts, right? It's just like the educators, the one that usually is the one trying to bring in the animal. From my lived experience I don't kind of see it being offered from the administrators or from a lot of community services". This means that if pedagogy involving animals is to spread, we need to adequately equip more educators.

Summary

Matthew is a new teacher with a commitment to student wellbeing and success. He is eager to learn new strategies to engage his students. His lifelong love of animals is something he would be interested in sharing with his students. Matthew has some experience with bringing chicks into his classroom and would like more support to expand on this experience.

Participant 4: James

Biography

James is a 34-year-old Caucasian teacher in the Greater Toronto Area who currently teaches grades 7 and 8 in a remote learning program. He has 11 years of experience teaching kindergarten through grade 11. He spent three and a half years in Australia teaching science to middle school students where a large budget allowed him to utilize animals in his practice. They even had a class python.

His personal philosophy of “cause as little pain as possible in our time on Earth” is a part of his professional and personal life. He has always had an affinity for nature. He spent extensive time as a child at his cottage exploring the outdoors. He found himself drawn to areas with water where he could find and catch wildlife. James once found a turtle that had been abandoned and has kept it as a pet since. He and his family are vegetarians and share a deep respect for animals. In addition to their turtle, they love their pet Labrador retriever.

What does he know about animals, animal involvement in classrooms, and associated theories and concepts?

Animals and nature have been a central feature of many of James’ memories. He fondly recalls exploring the woods at his cottage and finding creatures in streams. Through these experiences he has become familiar with how to interact with animals safely and respectfully. He was able to use this knowledge when he took some special needs

students to a small Canadian zoo and showed them how to feed animals in the petting area.

James has always had dogs and has had a turtle for many years. He is well acquainted with how to care for his pets and meet their needs. He knows how to interpret their body language. James would be able to care for similar animals that are a part of his teaching practice.

James was familiar with the benefits of human-animal bonds. He said that he had seen the physical and mental health benefits of interacting with animals first-hand. His dog encourages him to get outside and move, which provides a physical benefit and connection with nature. Interactions with animals have decreased his anxiety as well. He feels that interactions with animals could offer the same benefits to students.

Animal-assisted education and humane education were new terms to James. He was familiar with the practices involved in animal-assisted education such as visiting zoos or having therapy animals come into classrooms. He expressed an interest in learning more about how to involve animals in his practice.

How does he perceive animals in the enactment of pedagogy?

James feels that there is a place for animals in education. He sees them as the subject of study as well as a part of the classroom and school community. He has experience with animals in his practice and hopes to bring animals into his classroom in the future. James sees numerous benefits to bringing animals into classrooms including providing a novel experience, sparking curiosity, connecting with nature, conservation, and building a healthy community.

James has found that animal interactions make for meaningful learning. He said, “you're always looking for more efficient ways to do things and so when you're getting involved in that, those type of projects, [referring to animal involvement] I think the learning is really meaningful”. The practicality and application of learning to the real world are

important to James. He said it is important to voice your philosophy as an educator to foster greater support for your perspective. This would be true for more fringe philosophies like humane education.

In James' experience, animals are exciting. The novel experience engages students and sparks their curiosity. When asked about how he knows that animals are exciting he said, "[When we went to a petting zoo I saw] a lot of excitement in their face. One of the students was mainly nonverbal, but lots of noises and, and, and moving of their arms and, yeah, just definitely from their body language a lot of excitement." James said it was the best day of their school year. He feels that learning with animals can be beneficial and exciting for all ages and abilities. He said that students are more engaged when animals are involved. He also noted that the experiences were memorable and lead to an enthusiasm for learning.

Students that experienced animal interactions with James demonstrated curiosity. He noted that primary and junior students were particularly engaged and curious due to the hands-on nature of animal interactions. James had a class python when he taught in Australia. He said, "There was a lot of links to the primary in junior curriculum like when we were like, were like classifying species and, and things like that. And looking at cold versus warm-blooded creatures, there's a lot of connections there that having the python, there definitely sparked that interest, even further for sure".

James feels that exposure to animals in childhood is important for connection to the natural world. He said, "I thought everybody had that same connection to the natural world [and] the environment [as I do] and then I realized that that's not so much the case that the more that I've been teaching." He went on to say, "I think as teachers, it's, it's really important for us to try and provide those opportunities for [students] to interact [with nature] because then, of course, the more they interact with nature, and they care about nature then the more they want to deal with those problems that affect our environment like climate change and changing eating habits and different things that can be done". James said, "I think that when you're connected, and you care, that you want to

make positive changes". He feels that with purposeful instruction, animal interactions can help combat climate change and promote conservation.

A sense of community is another important aspect of a classroom that is enriched by animals. James said that in his experience with classroom pets, they are a part of the classroom dynamic rather than a physical feature of the space. The interactions between students and animals promote responsibility and empathy which may translate into improved interpersonal relationships. His students demonstrated empathy when one of their monarch chrysalises failed to hatch. There was a sense of loss experienced by the whole class. The animals brought all the students together while aiding in curriculum objectives.

James noted that it is ok for the animal to not benefit from an interaction if students are benefiting. He emphasized that animals should be well cared for and respected, but they did not necessarily need to experience a benefit from being in a classroom. The needs of the students are more important to James than the needs of the animal, though the needs of the animal are still important.

What experiences has he had that inform his opinions about animals and animals in the classroom?

James comes from a family that loves animals and the outdoors. They have always had Labrador retrievers. The dogs are considered family members. When the dogs died, the family would have a funeral service for them. James and his father enjoy spending time outdoors exploring nature and their dogs help them get outside. He said, "I think that really fostered that care that I have about the environment and interest to be outside, and I feel, I feel best, I feel healthiest when I'm outside and interacting with the environment". He also said, "I think that really stems from personal experience for sure. For one like, just feeling the company of your, your pet and the connection with nature is definitely positive for my mental well-being." He enjoys the time he spends walking his dog and appreciates that his dog makes him get outside. He would likely want to foster a similar feeling in his students.

James' love for animals expands beyond pets. Though he enjoys interacting with animals he also finds joy in observing animals in nature. He expresses love for wildlife by respecting their space. For example, he swerves for frogs on the road. His vegetarian diet also demonstrates his love for animals with whom he does not have a relationship. His personal motto is to cause as little pain as possible during our time on Earth. James shares his perspective openly. He may be more likely to involve animals in his classroom to share his love of animals with students and encourage them to be considerate of animals and nature themselves.

James appears to love animals on a spectrum. He loves them all but some more than others. He is closest to his dog. He said, "Dogs seemed to know how you're feeling and kind of what you need". He reported being less close to his turtle despite their long time together. Perhaps it is because the turtle is not as aware of his mood and needs as his dog is. These experiences with animals may lead to James be more inclined to involve interactive animals in his practice.

James' own children share his love of animals. They consider the dog a sibling. In reference to the bond he has with animals, he said, "I think that one of the things that builds that connection for me is seeing my two-year-old play with the dog and then those two just interacting. It's really adorable so that always warms your heart and builds that connection". He could derive the same heartwarming feeling from seeing students build connections with animals which may motivate him to involve animals in teaching.

When asked about traumatic experiences with animals, James could not think of an example in his life. He did, however, experience grief at the loss of his pets. The loss of his pets was his first experience with death. He said, "I hadn't had any close family members pass away so it was the saddest thing that I'd ever experienced." This loss has not precluded him from acquiring new dogs despite its devastating emotional impact. James also experienced grief when he went hunting and fishing with his family. He said he was still able to connect with nature during these activities but that the joy and connection were out shadowed by sorrow for the dead animals. These experiences with grief are unlikely to prevent him from bringing animals into his practice.

James is a science teacher. He has experience with bringing animals into his classroom and they had a positive and lasting impact on his students. His background in science may mean that he is more capable of interpreting studies on the human-animal bond. The science curriculum also more readily lends itself to animal involvement. His science background may lead him to be more likely to involve animals in his practice.

What barriers and enablers to the involvement of animals did he identify?

James has faced a number of barriers to involving animals in his practice. His primary concern was job consistency. He has found it difficult to establish novel practices when he has not been able to stay at a school for more than a year or two. Recently, James tried to implement a composting program at his school using worms. He won an award that would fund the venture but had to move schools due to his contract expiring. No other teacher was willing to pick up the responsibility due to the messiness of the worms. Unfortunately, the program never came to fruition.

Another barrier he has faced has been funding. When he worked in Australia, they had a substantial budget and an already established lab for middle school science. James said that he would not be able to have the funding to replicate the lab in Canada. He also said, "I don't think that economic reasons should be the limiting factor in people being able to get a pet, but unfortunately I think that's, that's reality." If schools could provide the opportunity for animals to interact with animals, it could help those who cannot afford pets to reap the benefits of interactions with animals.

Once he becomes established, James listed more barriers that he will have to overcome. He was concerned about hygiene issues. For example, bringing a turtle to a class would run the risk of spreading salmonella if students did not follow proper handwashing techniques. He was also concerned about administration approval. He said he would have to make a case and demonstrate his knowledge and ability to mitigate risks. James acknowledged that there would always be some level of unavoidable risk which may be problematic for some administrators. Yet another barrier James mentioned was the time commitment required by animals. He was unsure of his ability to care for animals outside of class time.

Culture would also have an impact on James' practice. He said that he was unsure of the reasons but that in his limited experience he has noticed that certain cultures were less likely to have certain animals, like dogs, as pets. James is concerned with equity and inclusion and would not impose his cultural views on his students.

James found that his experience has acted as an enabler for implementing practices similar to humane education and animal-assisted education. His grandmother brought monarch caterpillars to her class to hatch butterflies. James said that her students loved the experience and when James himself participated, he also loved it. Her practice is one that he aims to model. He recognizes the value of animals in schools. He said, "I think that the, the pros of that interaction kind of outweigh the cons there, because the benefits that the students get from that connection, I think, waste the cons".

Summary

James has a profound respect for nature and the environment. It is a passion that he shares with his students. He values concrete learning experiences that move students to make the world a better place. When he can establish his own classroom in a more stable position, he intends to utilize animals in his practice to make his lessons meaningful and memorable.

Participant 5: Emma

Biography

Emma is a 32-year-old Caucasian teacher in her first year of practice. She has had some experience teaching grades 1 through 8. She was a zookeeper and animal handler prior to teaching. Emma has worked with a wide variety of animals from domestic species to exotics such as reptiles and birds of prey. She has also owned many pets including but not limited to parrots, snakes, chinchillas, sugar gliders, and monitor lizards. She recently adopted a dog and has formed an intense attachment to him. Her love of animals was not inherited from her parents. Emma was born in Eastern Europe where her family had a

disdain for animals due to their impact on farming and interference in their quality of life. She has strong opinions on animals and believes that animals should be a part of education in Ontario classrooms. She intends to involve them in her practice but is nervous to ruffle feathers as a new teacher so is waiting to get more established.

What does she know about animals, animal involvement in classrooms, and associated theories and concepts?

Emma is well equipped with knowledge about animals and the human-animal bond. She is familiar with research outlining the physical and mental health benefits of interactions with animals. She said, “I mean the scientific part of me, would always refer back to those studies that show the positive benefits of, of having a pet. But just even from personal experience like the amount of joy that having, even a lizard brings you like, you know, I don't know, I strongly think that everyone should have at least one pet.” She has worked extensively with animals; domesticated and wild. Emma has also owned numerous pets of different species. She knows how to care for animals and how to interpret their body language. She noted that human beings have evolved alongside wolves and as such humans have an innate sense of what a friendly and unfriendly dog might look like. Emma has experience using this knowledge to facilitate interactions between humans and animals in professional settings.

Emma was familiar with classroom pets. During her practicum she worked in a kindergarten classroom with a pet hamster. She saw how it interacted with the class and determined that she would involve a pet in her own classroom in a more active manner. She would incorporate the animal into instruction more often as opposed to using it as a plaything.

Emma was not familiar with animal assisted education. She thought it may be when animals come in to support students with higher needs but this is in fact animal assisted therapy and not education (IAHAIO, 2018). She expressed an interest in learning more about animal assisted education. She was also unfamiliar with humane education. Similarly, she was interested in learning more.

How does she perceive animals in the enactment of pedagogy?

Emma made her thoughts on animals in the enactment of pedagogy involving animals explicit by saying, "I mean, my opinion is there should be more animals in the classroom". She has experience facilitating interactions between animals and the public. She has seen positive outcomes from these interactions. She is interested in continuing to facilitate human-animal interactions in her career as a teacher.

Before teaching, Emma was a zookeeper and animal handler. She taught the public about animals and travelled to schools with animals to perform in assemblies. Emma saw zoo visitors, students, and school staff respond with intense emotion to animals. For example, when she travelled to schools, she would have a bird of prey fly over the students' heads. She said "just the emotion that they exhibited. It was very clear that having a bird like, you know, go this close above your head, kind of, I don't know sparked something in there." She said that excitement was the predominant emotion. That excitement was deliberately channeled by animal handlers and teachers towards education and conservation. She said students would have empathy for the animal they saw as well as its wild counterparts. Empathy for animals suffering from climate change motivated students to make behavioural changes and support conservation efforts. Emma said, "I would definitely say the conservation and the empathy piece, are the ones that I personally think are the most important, especially with, you know, like climate change and all that stuff and kind of mitigating those impacts that's why I think it's so important to teach kids that empathy from a young age. And seeing it, like a live animal, up close, versus a picture like just... It has so much more of an impact, I guess. So I would say like the empathy piece for, for nature is the biggest one." Emma said that animals involved in this type of education do not necessarily benefit from their participation, but she feels the experience is still valuable because the species as a whole and students will benefit.

Not all assembly participants responded with excitement. Emma told a story of a teacher who was terrified of birds. She ended up overcoming that fear by holding an owl. Emma said, "I think that that was a really rewarding experience for an adult, as an educator, as

just a human being to do that kind of growth”, she went on to say, "it was the start of some sort of change in her". Emma thinks that this experience was important and a valuable impact of her programming with animals.

There was a classroom pet hamster in one of Emma’s practicum placements. She knew the value of having an animal in the classroom but did not feel that these were apparent in the classroom with the hamster. She said that students were not involved with the care of the hamster and that interacting with the hamster was a rare experience. Emma said, “I just thought it was kind of a waste to have a pet in a classroom that you're not going to use for education you know what I mean? Like I felt like it was just kind of there, like it was like a chair or a table” It was not the animal that Emma took issue with but rather the method of instruction. She said, "you could do great things with a hamster, but it has to be deliberate". Emma thinks that animals need to be involved in curriculum and the classroom community to achieve specific goals.

Emma highlighted the benefits of physical interaction with animals. Touching a new animal can be fun and exciting. She thinks that bonds with animals are formed through proximity and time. The more contact, the closer the bond. Animals communicate through body language and it takes time, patience, and empathy to interpret their movements’ meanings. She finds joy in this experience whether there is physical touch or not. Though she would likely enjoy touching all animals she respects an animal’s space and always seeks to decrease stress. She said, “I usually try to make it at their own terms like I don't ever want to go up to an animal and like, like, hug them or force my, my need to touch on the animal.”

What experiences has she had that inform her opinions about animals and animals in the classroom?

Emma has had a lifelong love of animals. Her immediate family did not share this love but Emma and her uncle, a veterinarian, bonded over their love and fascination with animals. Emma would explore outdoors and find creatures when she was young. She was delighted to learn about them. When she was older, she brought home her first pet, a

snake. This was one of many animals to come. She has had a parrot, lizards, snakes, rodents, and more. She reported being enthralled by learning about animals through their care. She said that she finds joy in seeing animals thrive. This includes wild animals in her community. Her interest in animals makes her likely to enjoy bringing animals into her classroom and more willing to take on the responsibility of their care.

There have been many meaningful relationships with animals in Emma's life. She said that there is a spectrum of love. The degree to which she loves an animal depends on how it responds to her and reciprocates her affection. Her dog is closest to her. They spend time together daily and he eagerly greets her. Her parrot treated her similarly. She said, "I have had a pet parrot in the past and I would describe him the same way as I would my pet dog, because he also had that social capacity in that social interaction. Whereas, lizards, on the other hand, just aren't as social, because the parrot was like bonded to me as a person and he recognized me and he sought out my companionship". Unlike some other participants, she does not consider her animals to be children. She said it feels special to be chosen by an animal.

Physically interacting with all her animals cultivated trust and built their relationship. Emma said that intelligence impacts an animal's ability to communicate and connect and therefore her ability to bond with them. Emma understands the different needs and capacities of animals. She is more likely to know risks and opportunities posed by interacting with different animals.

Emma has also been able to forge relationships with wild animals. Ron the Rabbit has been a visitor to her backyard for years. He was initially fearful of her but has grown to trust her. He demonstrates this comfort by grazing contentedly in close proximity. Emma is delighted by her wild friend. She may be more likely to encourage students to explore the outdoors and care for non-domesticated animals.

There have been some negative experiences associated with animals in Emma's past. She was attacked by a snake. The snake latched on and would not let go. The attack happened in front of children. Emma was not significantly harmed in the attack, but she considers it traumatic due to the heightened emotion of the experience. She said, "it was just an

overwhelming situation because I was supposed to be the one that, you know, knows what they're doing and I'm like demonstrating something to children and I'm teaching. And then the snake just totally like misses [the mouse I was feeding it] and kind of, you know, and it happened in front of all the kids. So I think that's why I even found it traumatic is because it happened in front of the kids if, if it was more of like a subdued situation, I wouldn't have even been that upset by it." She did not want to panic in front of the children or have them be fearful. Emma was sure to explain that it was not the snake's fault and that she did not wish harm to it. The experience did not translate to fear of other animals, just that particular snake. She stated that her fear of that snake was irrational and that it was only acting on instinct. Emma's traumatic memory may lead her to be more likely to use caution in schools. It also illustrates her respect and care for animals in the way she accepts blame for the attack.

Inevitably, pet ownership leads to loss. Emma has experienced grief due to her animals dying. She said "it's a natural part of, of having a pet. They pass away. It's very sad. And depending like there's, there's a grief period, all the time but I wouldn't say it would impact my relationship with other animals or other pets." A fear of dealing with grief is not likely to prevent her from keeping a class pet.

What barriers and enablers to the involvement of animals did she identify?

Emma identified numerous barriers to involving animals in her practice. She recognizes that her experience is unique and that the vast majority of teachers would be unable to bring animals into their classrooms due to lack of knowledge and training. Emma was not exposed to animal assisted education or humane education in teachers' college. She said that there is a lack of guidance and support from the board and administration for programming involving animals. This means that there are no clear guidelines or experts with whom teachers may consult. More barriers identified by Emma include funding, risk of injury and liability, and the need for teachers to have a connection with the animal that is involved. She noted that animal care is expensive as are programs which have visiting animals. There is no fund that she is aware of that could cover the cost. Animals and

children can be unpredictable which carries an inherent risk of an animal, student, or other person involved being injured. If the teacher or facilitator has a bond with the animal involved, they may be more in tune with the animal's needs and body language which could mitigate risk. However, owning an animal takes time and money which could be a barrier for an educator.

Emma was born in Eastern Europe and was able to offer insight on the impact of cultural perspective. She said that her cultural background impacts the way animals are perceived. She said, "I'm from Eastern Europe, and having animals like reptiles specifically, there's just a lot of... I'm not going to use the word stigma but they're just very much thought of as these creepy weird animals associated with negative and evil things. And my family's not like that at all. They're very much based in reason, and science, and education but because they grew up in a society where reptiles for example were thought of as evil, spooky then that's kind of what they've internalized." In her lived experience, there is no place for relationships with animals in the lives of people from her background. Even cats and dogs are thought of as utilitarian as opposed to family members. Emma is unusual in her family in terms of her love for animals. Though she loves animals she would not impose her love on students. She said, "I feel that it's not always our place to question people's cultural, cultural and religious beliefs". Students with a cultural perspective that prohibits interactions with animals could be a barrier to the involvement of animals in schools.

Like some participants before her, Emma believes that all the barriers are worth overcoming so students may reap the benefits of animal interactions. She was able to list some enablers that would allow her to overcome many of the barriers she identified. Her vast experience with domesticated and wild species makes her more prepared to facilitate interactions with many animals. She has the knowledge regarding animal behaviour and care to mitigate risk to animals and students. She is always willing and excited to learn. Her enthusiasm enables her to implement new practices. Emma has found social media a useful tool for learning more about what programming is available to teachers.

Summary

Emma has a unique skill set that includes ample experience with wild and domesticated animals. She has in-depth knowledge of how to facilitate human-animal interactions. As a new teacher, she is hesitant to ruffle feathers by bringing in animals but is hopeful that she will be able to in the future as she has seen the tremendous impact animals can have on students.

Participant 6: Peter

Biography

Peter is a 51-year-old Caucasian teacher with 21 years of experience teaching in Ontario. He has experience teaching grades 7 through 12 in public and private school boards. He identifies as a humane educator having recently acquired his master's degree in humane education. He actively works to dismantle anthropocentrism in education systems. This is evident in his creation and participation in a conference for educators with this shared goal. Peter's love for animals is central to his daily life. He is a vegan with a passion for animal rescue and educating people on animal exploitation. He loves his dog, Susie, deeply.

What does he know about animals, animal involvement in classrooms, and associated theories and concepts?

Peter is somewhat familiar with animal care and responsible interactions. He has learned how to navigate problematic dog behaviour through caring for pet dogs. He has adopted two rescue dogs in his adult life. He also had family dogs growing up. He said that he has had mental health benefits from interacting with his dogs. He said, "Yeah, I mean, that really is one of the things that really brings me happiness. You know, is to see her happy. That, you know, that, that really brings us a lot of joy. Brings me a lot of joy, for sure." Peter was pretty sure that there would also be physical health benefits from interacting with animals but was not able to reference any research or mechanism that would explain

the benefits. When asked about his confidence leading an interaction between students and animals, he said that he would be comfortable facilitating an interaction but not necessarily leading one.

Peter has heard of animals visiting schools but not the term animal-assisted education. He said that he has seen therapy dogs come in to support students' mental health. This is an example of animal-assisted therapy and not animal-assisted education (IAHAIIO, 2018). Peter was interested in learning more but expressed concern for animal welfare. He would only involve animals in education under specific conditions that ensure the animal would not experience undue stress or physical harm.

Peter identifies as a humane educator and as such is knowledgeable about humane education and its practices. He recently completed a master's degree in humane education. It is there that he learned about humane education philosophy. He was not exposed to humane education in teachers' college. He sought out his graduate education after becoming vegan and exploring how to bring his worldview into teaching. Peter is confident in his new approach to teaching. He feels that it will contribute to a climate change solution and better world.

The definition of humane education differs between some educators. Peter interprets it as "trying to incorporate these 3 pillars of human rights, environmental, and animal protection. And again, how those are interlocked with each other, you know, how they're usually in mesh with each other. You can't really separate them out". Peter talked about climate change as an example of this entanglement. He emphasized that as the planet warms due to human activity, water reserves deplete, and animals are displaced and endangered and humans and animals suffer in tandem. To protect the environment is to protect human and non-human animal life. He said, "I started studying and I realized there's all these different interpretations of what humane education is." He said the differing definitions are problematic when humane educators collaborate.

Peter's definition of humane education highlights the plight of non-human animals. He explicitly uses the term "non-human animal" to make humanity's role in the environment clear and emphasize animals; we are animals. Peter thinks that there is a lack of animal

focus in schools. According to him, most other humane educators focus on human rights and the environment and not animal protection. As part of his education, he created a conference for similarly-minded educators. He did this because he discovered that humane educators in Canada feel isolated. There is not the same support in Canada as there is in the United States. He has seen success with his conference and feels that change is coming to Canadian schools that are in line with his approach.

How does he perceive animals in the enactment of pedagogy?

Above all else, Peter seeks to minimize harm to animals in all aspects of his life. He said, “we really have to look at other ways in which we're interacting in a mesh with animals and other ways that we're participating in their cruelty.” This includes in school settings. He expressed concerns about the consumption of animals in school cafeterias. He also shared an anecdote about a plan for animal visitors to come to his school as a morale building activity. Peter petitioned the administration to prevent the animals from coming. He was ultimately successful. Peter believes that there is a place for animals in education if animals are not harmed.

Peter loves animals. He loves all animals from cats and dogs to wild animals to agricultural animals. He was not always as intense about his love as he is today. Susie, his rescue dog unlocked something inside of him. He said that Susie was a catalyst. Her experience with neglect made him see that animals suffer all over the world and that humans can stop this suffering. Peter sees a tight link between combatting animal suffering and fighting climate change and advocating for human rights. He also sees schools as a vector for change in all three areas. He thinks that interactions with animals could cause a similar unlocking in some students.

Peter views schools as a touchpoint for culture. He wishes to see a change in the anthropocentricity of curriculum, instruction, and operations. He feels that this change is coming and that there will be more continuity in an approach to animals in education that focuses on what humans can do for animals as opposed to what animals can do for humans. He said, “In the Ontario curriculum, and even more broadly, it's like there's such

emphasis on wildlife, you know, and there's very little emphasis on other animals that human beings are exploiting, you know, in research or entertainment, or food”.

Resistance to this change is expected but he also thinks that the voices against the exploitation of animals will become louder. Peter feels that the “why” behind a teacher’s pedagogy is critical, particularly when animals are involved. Peter states that in his utopia, all educators would decenter humanity in education.

Peter has utilized the emotional weight of animals in his geography instruction. He found that his students were enthralled by animal-themed activities. More so than when he focuses on the environment. He said, “We looked at sanctuaries, so we are looking at animals. All the different types of animal sanctuaries, and how they differ from zoos, and accredited zoos and non-accredited zoos, and shelters, and animal theme parks, and then they had to design their own sanctuary based on an animal, and they were just enthralled by it, you know. They were really... there was something about them getting so close to an animal through a project.” Peter has also brought his focus on animals to climate change lessons. He said, “climate change is happening now, it's not something that's in the distance. It's killing animals now. We don't know exactly what it's doing. But those are good questions to be asking when you're talking about climate change as opposed to *what is that gonna mean for me living in Toronto? What is that gonna mean for my energy usage?*”

For Peter, sometimes animals are not appropriate for involvement in education. Peter takes issue with involving animals if it means harming animals or alienating students. For example, Peter said no good comes from interactions with wildlife. Students traipsing through a habitat or bringing an animal out of their habitat can harm or kill the animal. Peter was unsure if a focus on animals was a Eurocentric idea, but he was familiar with differing perspectives on animals. He discussed a conversation he had with an Indigenous leader at his school. They commiserated over their disapproval of dissections despite different views on the utility of animals. Peter was hesitant to implement programming which would offend different perspectives.

What experiences has he had that inform her opinions about animals and animals in the classroom?

Peter's dogs have had a tremendous impact on his life. He had dogs growing up and enjoyed playing with them but his interactions with the rescue dogs he cared for in his adult life changed the way he views the world. He and his wife refer to their dogs as their children so, like responsible parents do, they focus on their animals' welfare. Peter credits his first rescue dog, Susie, for being the catalyst for his paradigm shift when it came to pet ownership. After learning about puppy mills and thinking about the day-to-day lives of caged animals like his beloved Susie he started to look at all animals differently. He explained, "Susie was the spark or the impetus to start actually [taking action against non-human animal suffering]. There was something, like something inside of [me and my wife] that flicked. There was a switch that flicked on at that point, and then that kind of led to all these other things." Since becoming attached to Susie, Peter, and his dog, started following a vegan lifestyle. He also began exploring humane education. Now he lives each day in pursuit of decreasing the suffering of non-human animals.

When describing his relationship and interactions with his dog, Peter said that he is in tune with her emotions. He said that he is familiar with her body language and can tell when she needs to be comforted. He felt he was more sympathetic rather than empathetic when interpreting her behaviour. Peter built this connection over time and with patience. About his dog's happiness, he said, "I mean, that really is one of the things that really brings me happiness. You know, is to see her happy. That, you know, that, that really brings us a lot of joy. Brings me a lot of joy, for sure." His dog also brings him joy by keeping him active and going on walks, being sweet and cuddly, and making him laugh with silly behaviours. Perhaps Peter would be interested in a classroom pet to help students who cannot have pets, experience similar benefits from interacting with animals.

Losing Susie was the most devastating event in Peter's life. She was killed prematurely when she got off leash while on a walk and was struck by a car. Peter said this was traumatic. He said, "I think that's like the, the most upset I've ever been. I think. I think it's the hardest I've ever been hit by something." He said that it felt like the loss of a child.

This loss did not deter him from getting another dog. He adopted another rescue about six months after the loss of his previous dog. Peter said, "Because I remember when I lost Susie, I just desperately wanted to do like one last thing with her. I was like, I just wanted to go for one last walk one time. I wanted to hold her one last time. I wanted to sleep together one last time, you know, and, and so I think about that quite a bit with, with Lucy that you know just even her being here right now. You know me being able to reach out and scratch her, it's like so great. It's such a great thing. So I try. I try as much as possible without, you know, getting too lost with business and stuff. But I do try and like consciously remember how precious it is to actually like be with these, you know, animals and what they mean, you know, and not to take that for granted."

Wild animals also bring Peter joy. He associates animals with a healthy environment. He said when he is out for a walk he thinks "this is probably a healthier environment, the fact that the animals are here. There's a bit more of a robust ecosystem compared to living in a big city like Toronto, where there's so much concrete and noise and, and pollution. So, it's kind of a reminder it's like *Oh, you know, this is probably a healthier environment the fact that the animals are here*". He also said that when he sees an animal it "just feels like something's right, you know."

Peter loves all animals but does not enjoy interacting with all animals. When asked about interactions he would not enjoy, Peter said that interacting with bed bugs would not be pleasant. It is interesting that he thought of bed bugs. Many people would not consider bed bugs animals or valuable parts of the ecosystem; many people would dismiss them as pests. Peter acknowledges their value though he is not interested in offering his home as a habitat.

Peter has learned a lot through his relationships with his pets: from the intricacies of love and loss to responsible interactions. He explained that from experiences with pets while growing up he knew a little about how to interact with dogs, such as to offer them the back of his hand when meeting them, he was woefully unprepared to help his newly rescued dog deal with her anxiety. He said he learned about how to interpret behaviour and communicate with his dog by going to training classes and getting to know her. He

wishes he had learned about safe interactions with dogs sooner and more explicitly. He finds that people in his neighbourhood often approach his dog in a way that makes her feel unsafe. Perhaps a school setting would be a good place for this learning.

Veganism and Indigenous values can have some diametrically opposed practices. Many vegans do not eat, wear, or support any product that comes from animals. Some Indigenous practices necessitate the use of parts of animals. It would be conceivable that these two groups may experience conflict. In Peter's experience, this was not the case. His school has the privilege of working with an Indigenous leader who supports teachers with knowledge and planning. Peter and this individual have had numerous conversations about how the school system should change. They both agree that animals should be treated differently in schools. They specifically take issue with the practice of dissection. Both love animals and respect nature; they show it in different ways. Peter is welcoming to other perspectives and is excited to engage in conversation about teaching in a way that decreases the suffering of animals.

Peter feels the burden of anthropocentric climate change. As a geography teacher, he is acutely aware of the dangers of global warming. He sees a need for rectification and sees schools as being part of a solution. He utilizes specific terminology, "non-human animals" to distinguish humans from other animals. This demonstrates that humanity is one with nature.

There have been some assignments and activities in Peter's class which follow this animal-centered perspective. Peter said that they have been very successful. He can accomplish learning goals and engage students. He said, "I've had some really good success working with like specific lessons and activities, and projects I've done that really stand out to me as like this comprehensive humane approach or like you're saying like decentering the human experience. Like, I know I know it's completely viable in that actually students you want this. They want this." The positive reinforcement that Peter has seen from these activities drives him to continue to enact more humane education pedagogy.

What barriers and enablers to the involvement of animals did he identify?

Peter was hesitant to commit to a condition in which he would be able to bring animals into schools. He discussed the nuance of human-animal interactions. Many barriers were identified. His primary concern was animal welfare. Peter wanted to be sure that the animal would benefit from the interactions before, during, and after meeting students. He also said that the teacher's approach "is everything". How teachers introduce and involve animals in their practice was critical to him.

Some barriers of lesser significance identified by Peter included parental approval, religious and cultural inclusion, and lack of knowledge. Peter had not experienced resistance from parents but was concerned that it could be an issue in the future. He was aware of some Jain students in his school. He was concerned that having animals in schools, including on the cafeteria menu, would violate their religious beliefs. Peter has noticed that when he talks about veganism in schools there is often pushback from students. They feel passionately about their diet and lifestyle. There is less pushback when the same ideas are shared in the context of religion. Peter would be wary of bringing animals in if it excluded people, like his Jain students, from participation. When asked if he would feel comfortable leading interactions, he said that he was not prepared with the required knowledge to do so.

In an ideal world, Peter would use humane education in his everyday practice. He said that he is constrained by working in a "profoundly anthropocentric system". The Ontario curriculum necessitates a focus on humans. For example, Peter referenced the geography curriculum. He said that it discusses animals as part of a Gross Domestic Product and not sentient beings. In order to meet curriculum requirements Peter cannot use humane education for every lesson.

Summary

Peter is a humane educator who exudes a love for animals and the environment. Animal welfare is his primary consideration in most choices throughout his day. He wants more

people to care for and choose animal welfare over convenience and comfort. One way this change can happen is through education in schools. He said, “generally I feel that schools and school communities have to have a dramatically different relationship with animals. Dramatically different.” He calls for a systemic change to stop the consumption of animals in school cafeterias and the use of animals in dissections, and to de-center the human experience within the Ontario curriculum. He feels that, with the right steps, there is a place for animals in education.

Participant 7: Dana

Biography

Dana is a 29-year-old Arab teacher with 5 years of experience teaching grades 9 to 11. Her background is in biology but she currently teaches math. She is passionate about students' wellbeing and learning and is interested in facilitating authentic learning opportunities. She values hands on learning. Dana has strong opinions on teaching philosophies that focus on equity and inclusion. She would be interested in facilitating experiences with animals in her classroom despite not being interested in physical interactions herself. Dana has had traumatic experiences with cats and dogs in the past including a serious dog attack. She is Muslim and therefore has not had a dog due to beliefs about their hygiene but did live with her sister's cat growing up. She enjoys animals from a distance but is not interested in sharing her home with a pet.

What does she know about animals, animal involvement in classrooms, and associated theories and concepts?

Dana has a proficient knowledge of the Ontario public school curriculum. She said that animal interactions would be useful in meeting curriculum objectives. She said, “I feel like there's, you know, definitely fits into ecology. It's a big biology component and I think, you know, little kids especially are very curious. So it's good to like feed that curiosity and help them to see why certain animals are like this”. Dana feels that meeting

curriculum goals in an engaging way is valuable. She was able to think of multiple objectives that could be met by involving animals in her classroom, specifically those relating to form and function.

Dana was familiar with the benefits of human-animal interactions. She said that she knew that dopamine was released when humans see cute animals. Dana said that she thought there were likely physical and mental health benefits of interacting with animals related to this hormonal release.

Animal-assisted education and humane education were unfamiliar terms to Dana. She expressed an interest in learning more about them.

How does she perceive animals in the enactment of pedagogy?

Dana sees animals in education as fun for all ages. The novelty is exciting and sparks students' curiosity. This is particularly true for classroom visitors as opposed to pets which carry the responsibility of care. In Dana's experience learning opportunities involving animals are a rare but memorable occurrence.

Dana expressed an interest in animals for their ability to reach curriculum goals. She feels that demonstrating the applicability of knowledge immediately is valuable to students. For example, the biology curriculum discusses how form and function of organisms are related. Dana feels that seeing an animal's form and seeing how that form leads to a specific function would be more effective than "just a video". She also feels that hands on is more engaging and an important part of learning. She said, "I think it would stick better in people's minds, because, you know, reading from a book, a book versus having a conversation with something physically, tangibly, in front of you is very different. It's more engaging and I think, you know, especially if you're bringing animals that we don't see very often. It can really excite people or scare them or, you know, elicit these emotions that are going to stick a lot better than just reading the book."

There was a fish tank in one of the classes in which Dana was a supply teacher. She noticed that no instructions were left for the care of the fish and none of the students

cared for them. The fish appeared hungry to Dana so she fed them. Evidently, they were quite hungry since they ate their food voraciously. She said, “it didn't seem like a classroom pet, it seemed like a pet in the classroom.” Dana feels that a classroom pet should be a shared responsibility and that students should care for the wellbeing of the animal. She said that there should be intentional instruction involving the animal. She thinks that animals could be of use in conservation education but that the instruction needs to be deliberate. Connection to content is paramount.

Dana has had some traumatic experiences with animals and as a result has some fear about sharing a space with them. She is, however, not concerned if the animals are calm and controlled. She said, “I wouldn't feel uncomfortable going into the school if there were dogs there, or anything like that.” She would gladly overcome her anxiety over animals for the benefit of her students.

What experiences has she had that inform her opinions about animals and animals in the classroom?

Animals have not been a central feature of Dana's life. She did have a cat in her home growing up, but it was not considered a family member. Her family enjoyed it because it was cute and cuddly and generally kept to itself. Dana was sad when the cat eventually died but moved on relatively quickly. She does not think of her relationship with that cat, or any other animals, as memorable attachments. She does not feel compelled to interact with animals that she encounters. She has respect for them, their space, and their role in the world. She enjoys watching animals from a distance. There are some scenarios that she would not wish to observe such as a predator devouring prey but generally, she is happy to see animals happy. She said, “Generally I don't mind animals that are calm. But I don't like animals that get on me, or in my, invade my personal space.”

Dana's hesitancy around animals is due to some traumatic interactions in her past. She was attacked by a cat and a dog. She said, “[the cat] just flipped out. I think it didn't want me to hold it and I was young. I didn't understand the cues. With the dog I have no idea why. I just entered the room, and I think it was just cause I was stranger. It freaked out

and attacked me.” The attack by the dog was particularly dramatic and dangerous. It has left her wary of animals she encounters. Though she does not trust them, she does respect them. This is evident in the way she rationalizes the behaviour of the cat who attacked her. She claims responsibility for the attack and understands that the cat was trying to communicate and she was not understanding.

Culture may also impact how Dana perceives animals. She said, “I can only speak to my own experience, but as like a Muslim, for example, it's like really, like dogs are seen as dirty. Like as opposed to cats. Cats are not seen as dirty. Like, for example, if you're playing with a dog, and it licks you like that's considered dirty. You have to clean yourself. And you can't pray if a dog licks you or anything, whereas some people like pray with their cats. So it's very different - how they view it. How they view dogs and cats or other animals.” Dana may have internalized this perspective which may account for her lack of attachment to animals. She made sure to emphasize that she loves animals. She does not wish them ill will. She simply does not want them near her.

Dana understands that other peoples' lived experiences differ from her own. She said, “I know, for some people, like their dog is more important than people in their life. Because like, it's like I've heard people say that the dog is always there for you, or it doesn't care. It doesn't have, like the same cognitive things that a human can so it's not like if your dog's judging you, you know, or if your cat's judging you, or whatever. Whereas with people there's that nuance that makes things a little more difficult, sometimes connecting is a little harder.” She may be interested in providing students with animal experiences for this reason.

What barriers and enablers to the involvement of animals did she identify?

Dana was able to list several barriers to her implementing practices involving animals. For Dana to bring animals in she would want explicit curriculum connections, class approval, funding, administration support, emotional fortitude, and a knowledgeable point of contact. Her primary concern is equitable engagement. She would not use any strategy if it meant isolating or marginalizing some of her students.

Curriculum connections would be a starting point for Dana. She could identify curriculum connections to biology and other sciences but not math. She is currently teaching math and would not bring animals in since she was unaware of how to involve them in mathematics instruction.

Dana's class is a democratic community. She would seek the approval of all students before bringing in animals. She would not want to leave a student out due to allergies or fear. When asked if she thought that classroom pets are a Eurocentric idea, she said "I guess so because like if I'm thinking that like in the Middle East, I don't think that's like a regular thing to have a class pet, especially like a hamster. But yeah, yeah, I think it's a Eurocentric thing to have a class pet in general." Dana may feel that it could be culturally insensitive to bring animals into her class.

Bringing in animals can be expensive and problematic. Dana said she would want to have funding as well as administrative support. Administration would be able to help her navigate pushback from community and protect her from liability. She is not aware of funding opportunities. She is also unaware of how her administration feels about animals in the school.

Because of her traumatic experiences with animals, she has some anxiety sharing a space with animals. She said she would not want to panic or have an emotional outburst in front of students. Dana would need to know that the animals were safe and under control so she would not be anxious.

A way Dana could feel safe and prepared is if she was supported by a person who is an expert in animal interactions. Dana said she would prefer a human being to a pamphlet or some other form of educational material.

Summary

Dana is a relatively new teacher who cares for her students. She is interested in any strategy that will engage students as they meet curriculum goals. Though she is not personally interested in sharing her space with animals, she would be interested in

bringing animals into her classroom for the sake of her students. She recognizes the benefits of bringing animals in but feels ill equipped to implement programming involving animals in her current classroom.

Chapter 5 : Findings and Discussion

The following chapter answers each research question individually by summarizing the participants' responses. Commonalities and divergent opinions amongst individuals are discussed along with notable quotations. This section concludes with a proposal for the adoption of a new term, animal-enriched pedagogy. This term would allow future researchers and professionals to explore ideas, practices, and programming related to animals in schools in a cohesive manner. The implications of the findings are discussed and further explored in the following chapter, the conclusion.

Research Question 1 - Determine the knowledge base of teachers with respect to animals, humane education, and animal-assisted education and its associated theories and concepts

There was a wide spectrum of knowledge amongst participants. Each had differing experiences and education around animals, their care, the human-animal bond, animal-assisted education, and humane education. There was no knowledge of animal-assisted education informed by humane education. All interviewees indicated that they were interested in learning more. This section reviews what individuals knew, were unaware of, and interesting trends.

All participants had some experience with pet ownership and animal care. Some were limited, like Dana, whose sister had a cat, while others have extensive experience, like Jennifer and Emma who have had numerous exotic pets. All participants said they enjoyed animals in one form or another, but their enjoyment manifested in different ways. For example, Dana described her cats by saying "they're cute and cuddly" but she did not want them on her. She would occasionally feed her sister's cats or change the litter but was not very involved in their care. Jennifer and Emma on the other hand love keeping animals as pets and interacting with them. They have had many pets from cats and dogs to snakes and lizards. They both expressed the feeling of joy in seeing their animals thrive. Jennifer and Emma are aware of and comfortable around different species and their care. Jennifer and Emma would be able to keep and care for animals in their

classroom without much additional research or support. Dana would not be equipped or have the desire to keep a classroom pet.

It should be noted that the sample for this research is not representative of teachers or Canadians as a whole. The Canadian Animal Health Institute (2021) reported that, in 2020, 58% of Canadian households had a cat or dog. Future research is needed to investigate the research questions with teachers who do not have any experience with pets or animal care. Perhaps that subset of the population would be more averse to implementing pedagogy involving animals.

Interestingly, Emma and Jennifer have both cared for animals and supported human-animal interactions in professional settings. Jennifer worked in two different science programs that involved animals. Emma worked as a camp counselor at a zoo and an animal handler at an animal outreach organization. Thanks to these unique experiences, Jennifer and Emma have had training and feel equipped to navigate human-animal interactions in a school setting. They are aware of risks and how to mitigate them. They are uniquely prepared to petition school administrators for support. Both educators acknowledged that other teachers would likely be unable to replicate their practice due to the lack of experience.

All the teachers were aware of the impacts of human-animal bonds to some extent. Jennifer, Emma, and Matthew all referenced scientific studies that concluded that animals were beneficial to mental and physical health. This is in line with the studies in the literature review such as Heady, Na, and Zheng (2008) and Kertes et al. (2017). Heady, Na, and Zheng found that pet owners had better physical health than non-pet owners. Kertes et al. (2017) found that petting dogs reduced stress in children. The other educators spoke about their personal experience and how animals in their lives improved their own health and mental wellbeing. For example, James talked about how his Labrador connects him with nature. His dog causes him to exercise and be outside; activities he enjoys. Dana said that she does not experience a serotonin release when petting dogs, but she was aware that other people do. Overall, all participants believed that interactions with animals were beneficial to physical and mental health.

A few participants talked about therapy dogs as evidence that animals promote mental health. Some of these participants were unaware of scientific research backing these programs. It is interesting that the existence of therapy dog programs legitimizes the practice for these individuals. The development of more programming involving animals such as an animal-assisted education, may have a similar effect, legitimizing the involvement of animals in schools.

None of the interviewees were familiar with the term animal-assisted education. Many guessed that therapy dogs visiting schools was an example of animal-assisted education, but these visits did not appear to have a learning goal and would therefore not meet the definition of animal-assisted education. The therapy dogs' visits were more likely to be an example of animal-assisted therapy or an animal-assisted activity. Jennifer seemed to utilize animal-assisted education without being aware of the term. Animal-assisted education (AAE) is defined by the International Association of Human-Animal Interaction Organizations (IAHAIO) (2018) as “a goal-oriented, planned, and structured intervention directed and/or delivered by educational and related service professionals. AAE is conducted by qualified (with degree) general and special education teachers in either the group or individual setting. [...] AAE, when done by special (remedial) education teachers is also considered therapeutic and a goal oriented intervention. The focus of the activities is on academic goals, pro-social skills and cognitive functioning. The student’s progress is measured and documented. The professional delivering AAE, including regular school teachers (or the person handling the animal under the supervision of the education professional) must have adequate knowledge about the behavior, needs, health and indicators and regulation of stress of the animals involved.” Jennifer keeps model ecosystems in aquariums in her classroom. She refers to them as examples for lessons in middle school science. The following features of animal-assisted education are present in her class: the lesson is directed at student attainment of curriculum goals; Jennifer is trained and knowledgeable about the animals and curriculum; and the animal’s well-being is respected. All participants, including Jennifer, expressed an interest in learning more about animal-assisted education. No participants were aware of any opportunity to experience learning in their area.

There are no Canadian institutions offering formal, standardized training in animal-assisted education. Lakeland College offers a college-level program that covers animal-assisted wellness which touches on various animal-assisted interventions. Other organizations such as the Canadian Psychological Association offer training for animal involvement in therapy and counselling settings. There are some private organizations such as Green Chimneys (<https://www.greenchimneys.org/>) that offer therapeutic schooling for special education students, but they do not offer training. Emma and Jennifer, the only participants familiar with the practice of animal-assisted education, acquired their learning through work experience. There are no Canadian universities or colleges offering teacher-specific training on protocol, procedures, and policies related to animal-assisted education.

One participant was familiar with humane education. Peter has a master's degree in humane education. He identifies as a comprehensive humane educator and seeks to promote animal welfare and care for the environment in his classroom. He is well acquainted with the tenets of humane education. He defines it as an approach which focuses on human rights, animal rights, environmentalism, and how the three are interconnected. This is a definition promoted by the preeminent authority on humane education, the Institute for Humane Education. Notably, this definition varies from other people and organizations. For example, in Canada, humane education is sometimes affiliated with humane societies which focus on animal welfare and responsible pet ownership (Humane Canada, 2022). Peter tries to bring humane education into his everyday practice but finds himself bound by a “profoundly anthropocentric system”. More about this is discussed in the response to research question 2 below.

Canada has significantly fewer opportunities for professional learning in comparison to the United States. There are no university programs for humane educators, hence Peter needing to take his master's as an international student. Similarly to animal-assisted education, all participants expressed an interest in learning more but were unaware of how they might acquire that knowledge. Some organizations offer support such as the Alberta Humane Society that offers information and resources which connect curriculum and character development to lessons designed for K-12

(<https://everylivingthing.ca/search-resources/>). The opportunities for learning in Canada require educators to seek information and comb through websites to find resources that are in line with their definition of humane education.

The intersection of humane education and animal-assisted education occurs naturally for some educators (Fine, 2019, p. 199) but there is no formal training available with a focus on how animal-assisted education can be informed by humane education. All the participants thought that the philosophy informing a teacher's practice was critical. For example, Peter disagreed with bringing in animals for the sake of children's entertainment. Diane felt that animal involvement had to relate to curriculum. Emma felt that animals do not need to benefit from interactions but that there should be a positive outcome and their welfare should be considered. Evidently, the *why* behind animals in the classroom is important to educators and there is not a resource available to guide the development of their philosophy and approach to animals in their classroom.

All educators expressed a desire to learn more about humane education and animal-assisted education. Those who were aware of animal-assisted education and humane education did not look at these ideas in tandem. Any learning related to animal-assisted education was acquired through unique work experiences. Learning related to humane education necessitated enrollment in schooling based in the United States due to a lack of opportunities in Canada. There is clearly a need for formal education in the area of animals in schools. This is discussed further in the next chapter.

Research Question 2 - Determine how teachers perceive animals in the enactment of pedagogy

The overarching theme in participants' responses was that animals are fun and exciting. Each participant shared a story from their experience as students or educators that was memorable. Many participants talked about the emotional weight of animals. Jennifer described visiting animals by saying "it's the equivalent of going to fireworks" and a classroom pet as being like "blowing out birthday candles every year". Fireworks are a big event and novel. Blowing out candles is fun but predictable and not the focus of a party. Both are enjoyable. Some of the participants' stories of exciting animals follow.

Jennifer had many stories of students squealing with glee, overcoming fears, and feeling chosen. She said, “When you see a grade eight hold a chick, you know that it's just cementing in their memory that they're just going to have that forever so it's, it's a very different experience [from a kindergartener]”. She went on to say, “I think with their nearly adult bodies, it is a very different experience physically to hold the chick, that it's so much lighter, that they are so much more powerful than it. I think just again that that physical connection, that emotional connection with an animal, seeing what it does, seeing if the animal chooses you, because when it nestles down into their hands, you can just see them going *it's picking me*”. Jennifer values the emotional power of animals to support student learning and development within and outside of curriculum goals.

Dana recalled a time when a snake and a legless lizard were brought into her classroom as a teacher candidate. They were used to explore the form and function aspects of the high school biology curriculum. Even the adults in teacher's college were excited to see animals. She said, “I remember when you brought in the legless lizard and that was like, uh, big. That was a great topic, because it gave us a good quote, a good point of conversation. About like why, why are certain animals like this? Why does it have that? Why is it like this? Why is this not a snake, you know, like stuff like that. So, I think it's great for if, if you're teaching ecology, or biology, which you can do in those younger grades, and you should be doing. I think it's a great, a great stepping stone, and it gets kids interested because, like they can physically see the animal in front of them.” Dana appreciates the motivation animals can provide.

Emma talked about an educator in an assembly she was running who overcame her fear of birds. She told the story, “So I did a show, and it stands out to this day, where one of the teachers was absolutely terrified of birds. Like she would shake she would cry she could not handle it. And there was no reason other than certain people just have an innate fear of birds. And it happens. But she was so motivated to get over this fear that eventually and even though we have like a strict no-touch policy, we were able to get her on board, with the support of her students, to put on a glove and hold an owl. And at first, she was like **mimes holding arm far away**, to get as far as possible and then eventually she like got more and more comfortable. And I think that that was a really rewarding

experience for as an adult, as an educator, as just a human being to do that kind of growth.” Though the growth was not academic, Emma feels that the growth that happened with the owl was valuable. She said, “I still remember what she looks like, 100%, because it was just such a like a momentous occasion.”

Peter has not had as many experiences with hands-on learning with animals but has still seen the emotional impact that animals can have. He said, “I did this project with my grade sevens where [...] we looked at sanctuaries, so we are looking at animals. All the different types of animal sanctuaries, and how they differ from zoos and accredited zoos and non-accredited zoos and shelters, and [...] animal theme parks, and then they had to design their own sanctuary, based on an animal, and they were just enthralled by it, you know. They were really... there was something about them getting so close to an animal through a project”. Even a theoretical connection motivated students and had an emotional impact.

Diane, Matthew, and Jennifer had experience with hatching chicks from eggs. Diane said, “I've seen the effects of having those ducklings in the classroom for a couple of weeks, and the effect that it has on the children like just they're, they were excited. We had better attendance during those couple of weeks than we did leading up, and afterwards because the kids wanted to be there on the, especially on the days when their class was getting the ducklings.” Matthew said “I think it was just seeing like the engagement because you can see that when there is something that is making the students so interested. Like, if they can get so interested in, instead of like looking at it and pictures, it just, if you have that authentic learning. I think that's when you get some, some great learning opportunities that can come from it.” All of the educators who brought in chicks saw the emotional impact of the chicks and how they motivated students to learn.

Connection to the curriculum was important, if not necessary, to many of the participants. Diane was delighted by the duck hatching program's ability to hit multiple curriculum objectives across subjects. For example, she had students write stories, create art, and learn about duck lifecycles. These hit objectives in language, art, and science. Diane said “we had some of our year 5 boys who we could not get to do much. They were, they were

football, and they were phys ed, and that was, that was all they wanted to do. We had those boys racing down the, the hallway. *Have they hatched yet? Have they hatched yet?* That pure child excitement about seeing an animal become what it is. Like being hatched of an egg. And the fact that we were getting writing from them! They were writing stories. They were writing log books. We were having journal writing done like the, the cross curricular aspects of it. We did artwork. We drew ducklings, and we, we painted, and we. They all got to hold them a couple of times, and just that it, it was just I, I would do it again if I had the chance here in Canada”.

Other participants felt that animals could be involved for non-academic growth. Dana said, “there's always a spot to talk about animals. And even if you just disregard content fully, you know, mental health is another reason that you can bring animals in for public education.” Many of the participants were aware that there are mental health benefits of interacting with animals as was discussed in the previous section (Kertes et al., 2017). The participants also felt that animals promoted respect, empathy, responsibility, and conservation. Diane said, “we also found that students who had behaviour issues did even better with the, the animals around”. This perspective is in line with previous studies' findings (Ascione and Weber, 1996; Robin and ten Bensel, 1985; Thompson and Gullone, 2003).

Animal interactions in a classroom setting were also linked to conservation. Almost all the participants felt that a connection with an animal could motivate students to care about climate change and other conservation concerns. Emma spoke of her work with animal ambassadors. She said, “I guess, their job, essentially, was to be an ambassador for the species and go to the school and be like hey [...] look at all these things that I can do. And then maybe the kids would want to help save their wild counterparts kind of thing”. This sentiment has also been echoed in research (Learmonth, 2020). In this way, animals could support teachers by meeting Relating Science and Technology to Society and the Environment (STSE) expectations of the Ontario public school curriculum.

Many of the participants noted that animals helped build the classroom community. Jennifer said that she felt that when students saw her interacting with animals it improved

their relationship. She said, “when people interact with animals they're softer, they're, they're kinder, gentler because they're not just using words. You have to use body language and tone. And so it's a very different person that you see and yes, I think students, when they're looking at a teacher that they respect, and that teacher is showing animals respect, that's going to carry over into that relationship.” Other participants also felt that the community and relationship building opportunity provided by visiting animals was valuable.

There were varying views on how animals experience a classroom. Some individuals, like Peter, focused on the animal's experience. He wanted to ensure that the animal was not being used but rather was involved and benefitted from the experience. Others like Jennifer, James, and Emma felt that the animal did not need to be directly benefiting if the greater good was served by the experience. Diane, Matthew, and Dana focused on the student experience and what students were getting out of the interaction but still expressed concern for the animal.

Only Jennifer and Matthew were aware of any protocol to follow that ensured student and animal wellbeing. Both Jennifer and Matthew have had experience with school administration setting stipulations before permitting animals in the classroom. For example, Jennifer has had administration prohibit any animal with teeth. Matthew was told that chicks must be freshly hatched to bring them in. Many participants expressed frustration at a lack of consistency between schools. Along the same path, they indicated an interest in a list of guidelines. Dana specifically wanted an expert to consult.

Generally, animals were viewed as a useful option for teachers. They are engaging, support cross-curricular learning, encourage social emotional growth, motivate conservation, and promote a sense of community in the classroom. Most of the participants see animal involvement as a novel experience to accomplish specific learning or social emotional goals. Jennifer views animals as interwoven into the school community.

Research Question 3 - Determine what experiences teachers have had to inform their opinions about animals in the classroom

All the participants in this research had some experience with animals. Some of the experiences were positive while others were negative. These experiences have shaped the way these teachers perceive animals in their practice.

Many of the experiences with animals involved pets. All of the participants had some level of experience with pet care. Jennifer and Emma have had innumerable pets from dogs to snakes to birds. They love to care for their pets. They do not hesitate to dedicate their time, money, and home to their animals. When asked if she had memorable attachments to animals Jennifer jokingly said, "How long is the interview?" implying that there are too many to list. Contrastingly, Dana's only experience with pets was occasionally caring for her sister's cat. There were no notable correlations with pet care and interest in animal involvement in education. While Jennifer and Emma had more experience in animal-assisted education, other participants expressed as much enthusiasm for and interest in the practice. Dana, who did not have any interest in owning a pet of her own, expressed interest in bringing animals into her classroom for the sake of her students.

Jennifer, Emma, Matthew, and James have experience with common pets like cats and dogs as well as less common pets like turtles. They talked about the spectrum of bond they had with these animals. Regarding relationships with animals Emma said, "it's almost like on a spectrum, right? And [a relationship with a fish] would be like the least amount of relationship versus like let's say your dog or your pet bird you'd have like the closest and most relationship with." Jennifer was asked to compare the relationship she has with her different pets. She said, "[My fish are] less physically connected with me and therefore less emotionally connected, they have their personal space, and I have my personal space." Jennifer, Emma, Matthew, and James all expressed a closer connection to their dogs than reptiles or fish. Emma suspected that this was due to a lower level of cognition and therefore an inability to communicate as readily. When the teachers could get emotional feedback from their pets, they felt closer to them. Being closer to animals

through physical connection may be why they are interested in facilitating interactions with animals for their students.

Love for animals applied to wild animals as well. Dana loves seeing birds outside. She appreciates their beauty and role in the world. Jennifer showed love for wild animals by caring for animals in need. About what love for wildlife looks like to her she said, “last September it looked like me getting up four times every night to go feed baby squirrels in the tree house. So, it has varied. Sometimes it's reminding people to leave wild animals alone. Sometimes it's fostering wild animals that have come into contact with humans that have interfered. Sometimes it's moving turtles off the road.” Emma has a rabbit, Ron, who has visited her yard for the last three years. Ron trusts Emma and is comfortable grazing near her. The demonstration of trust makes her feel close to Ron. The fact that the wild animal has a name, Ron, may indicate a level of attachment. Other research has found that giving animals a human name may be related to how they are perceived in a family dynamic (Albert, 1987). The manifestation of love for animals was different for each individual though all participants said they love animals.

A few participants discussed traumatic interactions with animals. Jennifer was attacked by a cat as a young child. Diane and Matthew were bitten by a dog. Emma was bitten by a snake during a demonstration for children. It latched on and would not let go. All these interactions were traumatizing but each individual has continued to love animals and has a desire to keep pets of their own. Dana was attacked by a dog and a cat. The dog attack has significantly impacted her. She has continued to fear dogs since. Interestingly, this has not dissuaded her from an interest in involving animals in her classroom. Despite her personal fear, she is willing to set her own feelings aside for the sake of her students' learning. Trauma did not have any correlation with an interest in animal involvement.

When asked about traumatic experiences with animals Peter talked about a dog he had lost. Peter went to the feeling of loss while others recalled attacks. His dog was killed when it got off leash while a dog walker had her and she was struck by a car. Peter described it as feeling as though he had lost a child. It is interesting that his trauma was related to loss given his world view. He values animal life tremendously. His love for

animals guides his daily choices as he lives a vegan lifestyle. Though the loss of his dog is likely not responsible for his worldview, it certainly illustrates his perspective. It may aid to explain his hesitance to involve animals in his practice since he fears jeopardizing their wellbeing for the sake of student learning.

Many of the individuals discussed the role of culture on the view of animals. Jennifer is married to an Indigenous man. She said, "The indigenous culture, if you go to a powwow, and a dog wanders into the powwow ceremonial grounds, you're supposed to cook it and eat it. And my, my husband is Indigenous and is aware of this and so of course we have never taken our dogs, anywhere near a powwow, because if they happen to get off lead and you have traditional practicing people there, your dog will be eaten." She had no judgement for individuals who practice this tradition but rather acknowledged it and changed her behaviour to accommodate the culture. She would likely do the same for her students.

Emma is from Eastern Europe. She said, "I'm from Eastern Europe, and having animals like reptiles specifically, there's just a lot of... I'm not going to use the word stigma but they're just very much thought of as these creepy weird animals associated with negative and evil things. And my family's not like that at all. They're very much based in reason, and science, and education but because they grew up in a society where reptiles for example were thought of as evil, spooky then that's kind of what they've internalized." She also said, "as public educators, I feel that it's not always our place to question people's cultural, cultural and religious beliefs." She knows how culture impacted her family and would not impose her way of thinking on students.

Dana had a similar perspective to Emma. She said, "I can only speak to my own experience, but as like a Muslim, for example, it's like really, like dogs are seen as dirty. Like as opposed to cats. Cats are are not seen as dirty. Like, for example, if you're playing with a dog, and it licks you like that's considered dirty. You have to clean yourself. And you can't pray if a dog licks you or anything, whereas some people like pray with their cats. So it's very different - how they view it. How they view dogs and

cats or other animals.” Dana is aware of the differing perspectives and consequently would want the class to all agree to an animal coming to visit.

Human-animal bonds are complex and challenging to articulate. The experiences of these teachers cannot capture the experiences of all teachers. Their anecdotes can provide some guidance as to how some people might foster positive relationships with animals. They may also demonstrate how negative associations are formed. These insights may be used to develop programming to encourage positive experiences for students and educators.

Research Question 4 - Determine potential barriers and enablers to teacher implementation of pedagogy involving animals

The teachers interviewed in this research identified many barriers and enablers to involving animals in classrooms and associated practices. Table 3 lists the barriers identified during this study. They are organized by the stakeholder responsible for placing the barrier. For example, barriers of animal origin are the difficulties presented by acquiring, keeping, and interacting with an animal. Barriers of administration origin come from school administration preventing animals from coming into the school.

Table 3*Barriers to Involvement of Animals in Classrooms That Were Identified by Participants*

Animal Origin	Teacher Origin	Administration Origin	Student/Parent Origin
Access to animals	Lack of exposure	Liability	Allergies
Bite risk	Lack of knowledge – animals, behaviour, safety	Policy/approval	Cultural background
Stress on animal/ animal welfare	Lack of learning opportunities	Lack of consistent procedures/ guidelines	Inclusion/ compatibility
Responsibility of care	Time commitment	Advocacy	Fear
Different needs for different animals	Relationship to animal	Lack of demonstrable proof of deeper understanding	Written communication/ parental permission
Physical space	Resistance to new practices	Health and safety measures	Risk of injury
Hygiene/messiness	Job consistency	Funding	
Zoonotic disease			

Some of the barriers of animal origin are unavoidable and others can be mitigated. For example, if an educator does not have access to animals (pets or through an organization) they cannot bring them into their schools. Any animal with a mouth poses a risk of biting anyone who comes near. Bite risk can be lowered through safety protocol, but it cannot

be avoided altogether. All animals need to be cared for and can experience stress. The degree of stress experienced by an animal can be decreased through an understanding of their behaviour, triggers, and practices that ensure the amount of stimulation experienced is not overwhelming. Caring for animals requires time, energy, money, and knowledge. Further, not all species or individuals require the same care meaning that teachers need to learn about general care and specifics for species and individual animals. Another barrier related to the care of animals is the space they need. A classroom pet needs space in the room for an enclosure, food, and water. Even visiting animals need space so that all students can interact safely. Space is often a challenge in Ontario classrooms. Cleanliness was a concern for some of the teachers. They were worried about the mess animals make as well as the spread of disease. These concerns may be addressed through frequent vet checks, training an animal, and a cleaning protocol. Many of the participants noted that though bringing in animals involves inherent risk, it is worth it for the benefit of students.

Interestingly, many of the barriers identified by participants are the same as the participants in Zasloff, Hart, and DeArmond's (1999) research. This means that the concerns of teachers have not changed in over twenty years. There is clearly a need to address these barriers if animal involvement in schools is to grow in popularity.

Teachers act as gatekeepers for their classroom. To increase the prevalence of animals in schools, teachers need to have an interest in bringing them in and need to be prepared for their arrival. The teachers in this research identified several factors that have left them feeling unable to involve animals in their practice. For instance, many of the interviewees had limited experience with animals in schools. A lack of exposure to practitioners to model and opportunities to partake in programming with animals meant that teachers had not considered animal involvement as an option. An additional barrier was a lack of knowledge with respect to animals, their behaviour, and safety protocol related to holding and interacting with animals. Those that were interested in acquiring this knowledge were unaware of how they could learn. Caring for an animal takes time. This is often time outside of school hours and therefore unpaid. Teachers must be willing to spend their time with animals. This is important for their care and so they may build a relationship

with the animal to know their behaviours and triggers. One participant noted a lack of job consistency as a barrier to unique practices like animal involvement. A teacher decides what practices they will bring to their classrooms and involving animals in their practice is no exception.

Every participant was concerned about barriers placed by administrators. Their main concern was liability. The teachers thought that many administrators would stop animals from coming into schools due to the legal risk associated with injury to students, staff, or animals. In the experience of the teachers interviewed for this research, many administrators would not approve programming with animals and would cite policy as their reasoning. However, it seemed that there was no central policy or guidelines because some of the educators interviewed said that different administrators within the same board had different rules and approaches. Because of the lack of consistency and because animal involvement is not a widespread practice, teachers are required to advocate for themselves. This takes time and has a risk of rejection which carries emotional weight. One tool that could be used to sway administrators could be evidence of heightened understanding when interacting with animals however, the educators who had experience with animals in their classroom did not see a change in grades, only anecdotal evidence of learning. One participant, Matthew, said that his chick hatching lesson was conditionally approved. He had to prove that he was following a full page of recommendations for proper health and safety. Finally, administrators that worked with the participants did not have funding to support animals in the classroom.

Students and their families were associated with barriers as well. A frequently mentioned barrier was allergies. 10-20% of people worldwide are allergic to cats or dogs (Chan and Leung, 2018). These allergies can be severe and therefore a teacher could not bring in animals if they have a student with an allergy. It should be noted that a teacher should be prepared for allergies in case a student is unaware of their allergy. A few participants talked about culture and the importance of inclusion. Just as students with allergies should not be excluded, students from all cultural backgrounds and abilities should be included. Jennifer noted that her neighbours come from a culture that is wary of dogs. She stated that she would never push animals on a student. If she had a student from the

cultural perspective of her neighbours, she would reconsider animals in lessons. Similarly, students who have behavioural challenges or disabilities which preclude them from interacting with animals should not be excluded from the class and therefore the class should not have an animal. Matthew talked about working with students in a special education class. He tried to bring in therapy dogs but some of the students were not compatible with animals due to physical aggression. He was ultimately unable to bring in the dogs. One way that teachers can prevent incidences related to allergies and exclusion is by communicating with families in writing. Though identified as important and worthwhile, communicating with families is extra work for educators. Finally, as previously discussed, there is always a risk of injury with animals. There are steps that teachers can take to minimize the risk of harm but any animal with a mouth can bite.

An interesting barrier discussed by Peter were the challenges he faces by working within an anthropocentric system. He is a humane educator who seeks to highlight the exploitation of animals. Peter was unable to link his personal philosophy to his everyday practice due to the constraints of the curriculum and school system. He said, "I'm working with other teachers, teaching the same course in these course teams. I'm working in a school culture. I have my own patterns that I've developed over 20 years, 21 years. And so I have, like I can put it this way. I've had some really good success working with like specific lessons and activities, and projects." He is able to use humane education in smaller pieces but unless the curriculum undergoes a paradigm shift and schools view humans as one with nature and not masters of it, he will be unable to make humane education a focus of every day teaching.

Each participant was asked if they felt that classroom pets and visiting animals were Eurocentric practices. Everyone paused before answering and many were unable to come to a conclusion having not thought about it before. Some felt that it could be because classroom pets do not appear to be common in certain parts of the world. Others felt that it could not be due to teachers all over the world taking up a humane education approach. This research is not able to conclude on the matter. Further study is required.

In addition to barriers, the participants identified enablers. These are resources, experiences, and supports that would allow them to overcome barriers and encourage them to do the extra work around involving animals in their work. Enablers identified included personal experience and interest, experience with animals in classrooms, knowledge of the effect of animals on students, links to academic learning, training opportunities, and funding.

The teachers that had an interest in animals prior to teaching seemed motivated to involve animals in their practice. For example, Jennifer was interested in animals all her life and was willing to pay for, care for, and advocate for animals in her classroom. Her interest led to learning which also helped her facilitate interactions between animals and students.

Jennifer had the most experience with animals in classrooms followed by Emma. Both had professional experience in informal learning environments that utilized human-animal interactions. Their work experience provided them with training to ensure the safety of both the humans and animals involved. Jennifer said, “There was no how to hold a chick school. No, no, I think it's just repeated exposure. So I grew up in a, an area that was very rural, we had a lot of farms so my friends had baby chicks. So that was information that was shared.” They also learned how to connect the curriculum to interactions with animals. Their experience prepared them to navigate classroom learning, safety, and advocacy with administration.

Having people to model their practice after also helped Jennifer and Emma. Jennifer talked about when she saw the ecosystem aquariums at an outdoor education center, “I went on my first visit to the outdoor ed center [...] when I went there, it's, it just solidified, *oh I can do this in my classroom, I can find enough old tanks that people aren't using and turn them into something useful.*” Emma learned about monarch hatching programs through social media. Both teachers were inspired by seeing what others had done.

The teachers who had experience with animals in their class all talked about what a memorable and productive learning experience it was. Jennifer said, “I mean, the stories

that are going to stem from a rabbit visit for the next three weeks are incredible. But you have to get the rabbit there first.” Diane said, “we had some of our year 5 boys who we could not get to do much. They were, they were football, and they were phys ed, and that was, that was all they wanted to do. We had those boys racing down the hallway. *Have they hatched yet? Have they hatched yet?* That pure child excitement about seeing an animal become what it is. Like being hatched of an egg. And the fact that we were getting writing from them. They were writing stories.” Matthew noted that he had perfect attendance when animals visited. Stories like these encourage these educators to repeat the practice and may inspire others to follow.

All the participants valued learning. Everyone talked about tying the experience to curriculum. Diane spoke of how she was able to meet many cross-curricular goals by hatching ducks. Dana talked about how there are numerous opportunities to involve animals in the biology curriculum. Jennifer reported that animal interactions led to "a deeper understanding of the ecosystem related parts of the curriculum".

Dana had the least experience with animals of all the participants. She was interested in providing an animal experience for her students but wanted to be prepared and equipped with knowledge. She wanted a knowledgeable expert who could be a point of contact and preferably the person providing the interactions with animals. Diane was given a kit to care for the ducklings she hatched in her class. This kit provided all the materials and information she needed to care for the eggs and chicks. Other participants expressed an interest in workshops or courses to teach them how to care for animals and involve them in lessons. Jennifer and James were aware of some resources to support teachers interested in animal-assisted education. Jennifer mentioned that the Elementary Teachers’ Federation of Ontario (ETFO) sponsored an “Owl Prowl” which taught teachers how to walk outside and point out interesting plants, animals, and phenomena. James won a grant from the Jane Goodall Foundation which funded a worm composting program. Opportunities and resources like those described are likely to enable teachers to overcome funding and knowledge barriers.

Proposal for Animal-Enriched Pedagogy

Animal Enriched Pedagogy <i>Philosophy-Informed Instructional Tool</i>		
Humane Education <i>Philosophy</i>	+	Animal-Assisted Education <i>Instructional Tool</i>
<ul style="list-style-type: none"> - Life-affirming ethic - Humans, animals, and nature mutually interdependent - Consciousness about and critical discernment of value systems - Democratic, active citizenship 	+	<ul style="list-style-type: none"> - Planned event - Structured - Designed to reach academic/educational goals - Directed by an education or related service professional - Requires animal present
=		
A holistic learning experience involving interaction with an animal where all parties (human and animal) benefit.		

Figure 3

Visualization of Animal-Enriched Pedagogy as the Intersection of Humane Education and Animal-Assisted Education

There is a need for a new term in the field of animal-assisted interventions. Animal-assisted interventions have tremendous variation in their implementation and the definition of humane education has been muddled by various disciplines offering their own perspectives on what humane education should be. These terms no longer have the same meaning to all those who use them. Researchers have called for further research into human-animal interactions, specifically regarding the implementation and evaluation of programming involving animals in schools (Fine, 2019; Ngai et al., 2021). By creating a new term, animal-enriched pedagogy, we can set clear expectations and share language amongst researchers going forward.

Animal-enriched pedagogy shall be defined as the intersection of the philosophy of humane education and the practice of animal-assisted education. It involves animals in

classrooms in a way that is purposeful and focused on meeting curricular expectations and social emotional learning. It harnesses the emotional impact of animals while focusing on the animal's experience. This intersection allows animals to be involved in the practice of education without exploiting or harming them. The following are key features of animal-enriched pedagogy:

- Meet curriculum expectations
- Provide a hands-on experience with animals
- Ensure animal welfare before, during, and after involvement in the classroom
- Provide explicit instruction around kindness, empathy, and respect for animals
- Follow best practices as laid out by researchers (to be determined)

This definition of animal-enriched pedagogy helps to navigate some of the barriers and enablers identified by the participants. For example, Peter expressed concerns over animal welfare in schools. This approach would ensure that the animal's experience is a focus of educators. Diane appreciated the cross-curricular impact of her programming with animals. The approach outlined above allows for curriculum expectations to be met while promoting character education. Dana values authentic and hands-on learning like that of Dewey (2004). This approach provides hands-on learning with an animal and connects the experience to curriculum expectations for deeper understanding. Jennifer's background in informal education with animals acts as an enabler since she is equipped with the knowledge to mitigate risks. A list of best practices informed by people like Jennifer would enable other teachers who do not have her experience to replicate her practice.

Echoing Fine (2019), who said "We recommend researchers and practitioners in the field of [human-animal interactions] take the lead in promoting the awareness of, and value in involving animals in classroom settings. Universities and other organizations could set up continuing education courses on this topic", I propose the development of teaching materials and a workshop or course based on the idea of animal-enriched pedagogy so that teachers may learn more about bringing animals into their classrooms. By informing the practice of animal-assisted education with the philosophy of humane education we

empower teachers to engage in holistic pedagogy (enriching students' minds, bodies, and spirits). A course would allow for greater standardization of approach and implementation. This would further promote the safety and wellbeing of animals, students, and educators involved in human-animal interactions in the classroom. Each educator interviewed in this research expressed an interest in learning more about animals in schools. A course would provide that opportunity.

There are also other aspects of animal-enriched pedagogy that would benefit from further exploration. It would be valuable to know if animal-assisted education looks different when informed by a humane education philosophy. An assessment of an animal-enriched program would answer the call set by other researchers (Ngai et al., 2021) and determine the impact of a humane education lens on animal-assisted education. Impact on teachers, students, material retention, community building, character development, and conservation could be explored.

Chapter 6 : Conclusion

This thesis provides insights into the practice and perspective of Ontario teachers with respect to animals in classrooms. The findings are unable to be generalized but add to the growing body of evidence in support of animal involvement in schools. It also outlines some opportunities for further study. Educators who are interested in involving animals in their practice may also be interested in this work due to its list of barriers. This list could be used to adequately prepare a classroom for animal visitors or provide a starting point for those beginning to explore animal-assisted education. Researchers and practitioners interested in animals in schools should consider using the term, animal-enriched pedagogy to streamline future endeavors. Animal-enriched pedagogy should be explored as a means of informing animal-assisted education with humane education philosophy so as to limit animal welfare concerns and promote ecological mindsets.

Limitations

The intricacies of human-animal bonds are challenging to qualify and quantify. They rely on individuals' experiences, worldviews, and opportunities. Any research investigating human-animal bonds and interactions will be limited by time, resources, and expertise. Part of why there is a need for more cohesive terminology (such as animal-enriched pedagogy) in this field is due to researchers from a variety of disciplines contributing to definitions. Fully capturing teachers' perspectives on animals in the classrooms is not feasible for a single study.

Teacher and student buy in is a challenge for research and practice. Animal-enriched pedagogy is a unique practice with inherent risk. It also involves a heightened level of work for teachers and heightened liability for administrators. It is difficult to find teachers who have taken on this burden. Future studies will likely also face this challenge.

Due to the sampling methods, sample size, and the complexity of the topic of study, the findings of this research cannot be generalized. A convenience and purposive sample followed by snowball sampling was used due to limited time and lack of access to the population. This may have led to bias within the sample. Seven individuals cannot

possibly encapsulate the teacher experience, particularly within a complex subject like human-animal interactions. This sample is not reflective of the population as a whole. For example, no teachers without experience with animals were interviewed which means that this perspective went unexplored. As previously discussed, animal relationships with humans are impacted by culture. Therefore, the findings may change drastically for a different cultural context. Further research is required to build our shared understanding of human-animal bonds, particularly within the field of education.

Theory/Research

There is a need for further research into human-animal interactions in school settings (Brelsford et al., 2017). This research has outlined the experiences of teachers and their thoughts on barriers and enablers to bringing animals into their classrooms thereby contributing to the growing body of research. Understanding how teachers think could provide investigators with insight to help facilitate the recruitment of practitioners willing to try an animal-enriched pedagogy approach in their classrooms. It could also contribute to an understanding of what personal experiences lead to a professional practice or value. This research may provide a steppingstone for further study.

This research identifies numerous barriers to involving animals in a teacher's practice. These barriers could be used to design better guidelines for research design. Brelsford et al. (2017) noted that research in the field of animal-assisted interventions in educational settings lacked adequate consideration for the safety and well-being of both the students and animals involved. This research could be used to create a protocol that protects students and animals by addressing the barriers identified by teachers.

Brelsford and their colleagues (2017) call for more consistent terminology. Animal-enriched pedagogy is a proposed term that is specific to animal-assisted interactions in an educational setting that is guided by humane education. It necessitates a focus on student and animal welfare. The specificity of criteria may allow educators and researchers to communicate more effectively. It may also guide the development of programming that centers animal welfare.

Practice

The findings of this research echo that of previous research which found that teachers perceive animals as contributing positively to classrooms settings (Steel et al., 2021). Animals were identified as exciting and useful in furthering curricular learning within the Canadian context. Teachers may see this research as justification to incorporate animals into their practice. It may also motivate teachers to learn more about humane education so that they may appropriately involve animals in student learning.

All the participants were interested in further learning, but Canadian universities and colleges do not offer courses or programs related to animals in classrooms. There are no opportunities to learn about animal-assisted education in isolation. There are limited opportunities to explore humane education. There are no courses or programs that address how animal-assisted education can be supported by humane education. There may be a need to offer animal-enriched pedagogy courses or programs in teacher's colleges in Canada.

Policy

Many teachers identified administrator approval as being a barrier to the implementation of animal-enriched pedagogy. Perhaps this research could contribute to the enactment of policies and procedures which could guide administrators and educators interested in animal-enriched pedagogy. A consistent set of guidelines followed across Ontario would eliminate some barriers expressed by teachers in this research.

As the prevalence of animal involvement in education increases it will be important to ensure some regulation is in place. All stakeholders must remain safe before, during, and after any learning experience involving animals. It may be prudent to utilize this and other research to develop policies, practices, and potentially legislation to help practitioners protect all people and animals participating.

Future Directions

This research focused on the first barrier to implementation of animal-enriched pedagogy, teacher buy-in. Understanding why or why teachers would not bring animals into their classrooms is essential before programs are developed and tested. Without teacher participation no amount of support or research would bring a program to students. To extend this research I would use the concerns and interests expressed by teachers in this study to develop an animal-enriched pedagogy course for teacher candidates. Some research questions that I would address might include:

- How does taking a course/program impact a teacher's philosophy with respect to animals in education?
- Does a course/program increase the prevalence of animals in classrooms?
- Does a course/program impact an educator's credibility?
- Does a course/program impact an educator's ability to petition administration for program approval?
- Are risks effectively mitigated after taking a course on animal-enriched pedagogy?

It would also be interesting to compare an animal-enriched pedagogy program to traditional programs that do not intersect animal-assisted education and humane education. This would respond to the call by Lendrum and Humphrey (2012) for research that evaluates existing programs.

A different direction for research involving animals and education could be the intersections and disconnects between animal training programs and formal schooling, both of which often involve a behaviourist approach. Perhaps animals could benefit education of humans through metaphor or by example. Further study could clarify the extent to which animals may act as a vector for such learning.

An additional note identified after the conclusion of this research pertains to anthropomorphism. It was noted that some of the research (including this study) in human-animal bonds, animal-assisted education, and humane education uses language

that anthropomorphizes animals. For example, “the dog encourages the child to read” ascribes agency to a dog that has no concept of what is happening. The child may feel an incentive to read in the presence of the dog but the incentive does not originate with the dog’s desires. Uses of this language may be detrimental to animal welfare as it disavows the dogs lived experience and overlays a human consciousness. Future research could look into the reality of the experiences of animals in education and determine the authenticity of anthropomorphizing statements.

This research cannot help but to conclude that the area of animals in education is one that demands greater scrutiny.

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Appendices

Appendix A: Interview Questions

A.1 Interview Questions

Initial Questions are based on Risley-Curtiss, Rogge, and Kawam (2013) and *The Psychology of the Human-Bond* (Blazina et al., 2011). Further questions arose as we followed natural conversation. Questions were not be forced if they were inappropriate given the flow of the interview.

1. Demographics
 - a. Age
 - b. Gender
 - c. Race/Ethnicity
 - d. Years in practice
 - e. Grades taught
 - f. School board

2. Do they or have they owned a personal companion animal?
 - a. If yes: What species?
 - i. What is the meaning and significance of their relationship with their pet?
 - ii. In what role(s) do they envision current or past pets?
 - iii. Did they have pets growing up?
 1. If yes: How did their pets interact with the family?
 2. If yes: What was the responsibilities of each family member with respect to the pet's care?
 3. If yes: Do they raise their current pets the same way their parents did?
 - b. If no: How come?

3. Do they generally enjoy interacting with animals?
 - a. If yes or no: How come?

4. Have they had a traumatic experience with animals in the past?
 - a. If yes: What happened?

5. Do they have any memorable attachments with animals?
 - a. If yes: Can they describe the relationship and how it was built?

6. Have they ever had a pet die?
 - a. If yes: Has this loss impacted their relationships with other pets or animals?

7. Do they think that everyone should have some sort of pet?

- a. If yes or no: How come?
8. Do they think that culture plays a role in how people interact with animals? Why or why not?
9. Are they affiliated with any organizations that involve humans interacting with animals?
10. Have they heard of animals visiting classrooms?
 - a. If yes: Describe the encounter with which they are familiar
11. Have they heard of classroom pets?
 - a. If yes: Did they know the person with the classroom pet?
 - b. If yes: Would they have a classroom pet of their own?
 - c. If yes: Did they hear about it during their teacher education?
 - d. If no: Would they be interested in learning more about it?
 - i. If yes: Share resources
 - ii. If no: How come?
12. Have they heard of animal-assisted education?
 - a. If yes: Have they received any professional training?
 - b. If yes: Did they hear about it during their teacher education?
 - c. If yes: Do they use it in their professional practice?
 - d. If no: Would they be interested in learning more about it?
 - i. If yes: Share resources
 - ii. If no: How come?
13. Have they heard of humane education?
 - a. If yes: Have they received any professional training?
 - b. If yes: Did they hear about it during their teacher education?
 - c. If yes: Do they use it in their professional practice?
 - d. If no: Would they be interested in learning more about it?
 - i. If yes: Share resources
 - ii. If no: How come?
14. What worries do they have about involving animals in their teaching?
15. Do they believe that interactions with animals (elaborate for each)
 - a. Are fun?
 - b. Have unavoidable risk?
 - c. Are valuable?
 - d. Encourage responsibility in children?
 - e. Promote empathy?
 - f. Encourage conservation?
 - g. Have physical health benefits?
 - h. Have mental health benefits?

i. Have a place in education?

16. Do they see value in bringing animals into educational settings? Why or why not?

17. Is the philosophy justifying animals in the classroom important? Why or why not?

18. Would they be comfortable leading a class in animal interactions? Why or why not?

19. Is there anything else they would like to share about their experiences with animals and/or the role of animals in education?

A.2 Relevant Background Materials

Some examples of questions included in *The Psychology of the Human-Bond* (Blazina et al., 2011):

- What is the individual's personal history of making and sustaining attachments with people and animals?
- What is the meaning and significance of an individual's relationship with his/her pet? In what role(s) does one envision current or past pets?
- How does an individual's personal history with the loss of a pet affect his/her relationships with other pets?
- How do aspects of identity such as race, ethnicity, social class, age, nationality, sexual orientation, religion, and level of physical and mental ability, shape one's perceptions of the human-animal bond?
- What are the prevailing attitudes towards the human-animal bond in one's family of origin? How do they incorporate or reject those attitudes?
- In construction of one's own family in adulthood, what aspects are retained from the family of origin and what new perspectives have been added?
- Does one affiliate with social networks or organization in which the experience of the human-animal bond is pertinent?
- How are experiences of the human-animal bond different and similar across cultures?

Appendix B: Recruitment Material

Dear Educators,

You are being invited to participate in a research study exploring what experiences teachers have with animals in education. To be eligible, you must be a certified teacher in Ontario and willing to engage in a recorded interview. Experience in grades 3-6 is preferred.

Participants will engage in an interview lasting approximately one hour which will cover topics such as the individual's personal experiences with animals, classroom pets, animal-assisted education, and humane education. Upon completion of the interview, all participants will receive a \$50 gift card.

For more information and/or questions, please contact:

Avery Harte (MA Candidate)



We thank you for your consideration. Your participation in this study will provide valuable information regarding teacher attitudes, perceptions, and beliefs around animals in the classroom.

Appendix C: Letter of Information and Consent



Western
Education

Letter of Information and Consent – Participant

Project Title: An Exploration of Experiences of Ontario Teachers with Animals and Their Perception of Animal -Enriched Pedagogy

Investigators & Contact

Principal Investigator
Dr. Anton Puvirajah, Ph.D., Faculty of Education
Western University



Master's Student
Ms. Avery Harte, M.A. Candidate, Faculty of Education
Western University



1. Invitation to Participate

You are being invited to participate in a research study exploring what experiences teachers have with animals in education. To be eligible, you must be a certified teacher in Ontario and willing to engage in a recorded interview. Experience in grades 3-6 is preferred.

2. Why is this study being done?

A greater understanding of why teachers might or might not incorporate animal-enriched pedagogy into their classrooms may guide further research and support those who seek to increase the prevalence of this and associated practices by addressing barriers to teacher buy-in. Understanding how teachers' experiences and perceptions impact their practice is important to the implementation of animal-enriched pedagogy because teachers determine what types of learning experiences occur for their students. More tools available to teachers can only mean that they have more ways in which they can meet the demands of the teaching profession and differentiate learning for their students.

An exploration of the potential connection between humane education philosophy and animal-assisted education practice may also be beneficial for strengthening existing programs. Humane education and animal-assisted education programs are growing in popularity, but they do not usually intersect. Understanding how each program can complement the other may allow existing programs to offer greater benefits for their participants.

3. How long will you be in this study?

You are invited to participate in one interview that will last approximately one hour

4. What are the study procedures?

If you agree to participate:

- a) You will be asked to meet with the researcher in person or via Zoom to discuss the study and answer any questions you may have.
- b) You will participate in a semi-structured interview which will cover the following categories: demographics, experiences with pets; experiences with human-animal interactions; knowledge of the human-animal bond; knowledge of animal-assisted education; knowledge of humane education; experiences with animal-assisted education; and vicarious experiences and knowledge of animals in classrooms.
- c) Your responses to interview questions will be collected via audio and video recording and transcribed so that we can learn from your perspectives and experiences. We will be sure to not use any information that personally identifies you in published materials. Your data may be published through de-identified descriptors (pseudonyms), paraphrasing and direct quotes of interview responses, and through discussion of themes identified in participant responses.

5. What are the risks and harms of participating in this study?

Generally, the procedures used in this study present no risks to you beyond what you might encounter in everyday activities. Some topics of discussion in the interview may be triggering to some participants as we may inquire about your traumatic experiences with animals, loss, and other emotionally loaded topics.

6. What are the benefits?

Participation in the study may directly benefit you by offering information on animal-enriched pedagogy which may be of interest to you in your professional practice. Additionally, the results of the study have the potential to contribute to our understandings about animal-enriched pedagogy and its associated practices. This knowledge may allow existing programs to be improved.

7. Can participants choose to leave the study?

You can be withdrawn from the study at any time by simply letting the Principal Investigator know of the desire to withdraw from the study either verbally or through written notice. When you are withdrawn from the study, we will ask you whether we could use the data already collected for research purposes. If you do not wish for us to use the data, we will not use the data and, if possible, your data will be erased from our records with the exception of consent forms which will be kept as a record of your participation

NOTE: Once the study has been published, we will not be able to withdraw your information.

8. How will participants' information be kept confidential?

All information gathered will be kept secure and confidential. At the end of your interview, we will replace your name with a pseudonym, so that that your real name is not used in the data analysis. The master sheet that connects your name with the pseudonym will be kept in an encrypted password protected computer file separately from the rest of the data that only Avery Harte and Anton Puvirajah will have access to. All research data, including

video and audio recordings, and any notes that we may take will be kept securely in a password protected computer database.

Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

The principal investigator will keep any personal information about you in a secure and confidential location for a minimum of 7 years. A list linking your study number or pseudonym with your name will be kept by the researcher in a secure place, separate from your study file.

If the results of the study are published, your name will not be used. De-identified quotes may be used in publications.

Open Access: For the reasons of transparency and education, it is strongly encouraged by many journals and other authorities to publish the anonymized data from studies for public use (anonymized means no data which can identify you would ever be published). This data is visible to researchers or the general public after the study is over.

Anonymized data from this study may be published in an open – access journal. All identifiable information will be deleted from the dataset collected so that individual participant's anonymity will be protected. The de-identified data will be accessible by the study investigators as well as the broader scientific community.

9. Will participants receive any incentives to be in this study?

Upon completion of the interview, all participants will receive a \$50 gift card.

10. What are the Rights of Participants?

Your participation in this study is voluntary. Even if you provide consent to participate, you have the right to not answer individual questions or to withdraw from the study at any time. If you choose not to participate or to leave the study at any time it will have no effect on you or your relationship to Avery Harte. Note, to receive the gift card, you must complete the interview.

We will give you any new information that is learned during the study that might affect your decision to stay in the study.

You do not waive any legal right by signing this consent form.

11. Whom do participants contact for questions?

If you have questions about this research study please contact either investigator at the contacts listed at the beginning of this letter.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Human Research Ethics (519) 661-3036, 1-844-720-9816, email: ethics@uwo.ca. This office oversees the ethical conduct of research studies and is not part of the study team. Everything that you discuss will be kept confidential.

This letter is yours to keep for future reference.

Project Title: An Exploration of Experiences of Ontario Teachers with Animals and Their Perception of Animal Enriched Pedagogy

Letter of Information and Consent – Participant

Investigators & Contact

Principal Investigator
Dr. Anton Puvirajah, Ph.D., Faculty of Education
Western University



Master's Student
Ms. Avery Harte, M.A. Candidate, Faculty of Education
Western University



I have read the Letter of Information, have had the nature of the study explained to me, and I agree to participate. All questions have been answered to my satisfaction.

CONTACT FOR FUTURE STUDIES

Please check the appropriate box below and initial:

I agree to be contacted for future research studies

I do NOT agree to be contacted for future research studies

Name: _____

Email: _____

Phone: _____

Print Name

Signature

Date (DD-*MMM*-YY)

My signature means that I have explained the study to the participant named above. I have answered all questions.

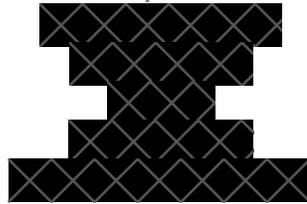
Print Name of Person
Obtaining Consent

Signature

Date (DD-*MMM*-YY)

Curriculum Vitae

Avery Harte



Employment History

Teacher

Waterloo Region District School Board
Sept 2019 – Present

Graduate Research Assistant: STEM Learning for students with ASD

University of Western Ontario
May 2019 – Present

Occasional Teacher

KidsAbility Schools
Apr 2019 – Present

Tutor

Indigo Tutoring and Consulting
Nov 2018 – Present

Camp Co-Founder and Director

Hands On Exotics
Oct 2016 – Aug 2017

Camp Counsellor/ Head Staff

Safari Zoo Camp at Jungle Cat World
Jun through Aug 2013 – 2016

Animals Care Attendant

Bayview Hill Animal Hospital
Sept 2009 – July 2011

Education

Candidate for Master of Arts – *Curriculum Studies*

University of Western Ontario
Faculty of Education
Sept 2018 - Present

Bachelor of Education – *Intermediate / Senior General Science and Biology*

University of Western Ontario
Sept 2016 – June 2018
*Graduated with Distinction

Bachelor of Science – *Zoology*

University of Guelph
Sept 2011 – Dec 2016

Professional Qualifications

AQ Inclusive Classrooms Part 1

Queens University
June 2021

ABQ Senior Math

University of Western Ontario
July 2020

ABQ Intermediate Math

Trent University
Apr 2020

AQ Special Education Part 1

University of Western Ontario
July 2019

ABQ Primary

University of Western Ontario
July 2019

Animals in Human Health – *Animal Assisted Education*

Graduate Certificate
 University of Denver
 Oct 2017 – June 2018

Applied Suicide Intervention Skills Training (ASIST)

Living Works
 Apr 2017

SafeTalk

Living Works
 Feb 2017

First Aid and CPR– *Infant/Child/Adult and AED*

Simple CPR
 Renewed June 2018

Conferences

Science Teachers Association of Ontario Presentation – *Animal Assisted Education*

STAO Conference
 Nov 2017

Horwood Conference – *Bringing Animals into the Classroom*

Queens University
 Feb 2017

Volunteer Experience

Kitchener Waterloo Humane Society

Zoom conference for summer campers during their insect week
 August 2020
 Teach campers about bees and beekeeping by bringing them into my personal hives

Vista Hills BeeCast

Online live stream for Vista Hills Students
 June 2020
 Support environmental education during school shutdown

Community Partner

Kitchener Public Library

August 2019

Bee-yond Cool: Fun with Bees at KPL

Teacher's Assistant

KidsAbility

Feb 2019 – present

Facilitated animal-assisted education program

Beekeeping Educator

Toronto District Beekeeping Association

Oct 2016 – present

World Wildlife Fund – *Fundraiser*

CN Tower Climb for Nature

Apr 2016, 2017, 2018, and 2019

Education Student Council – *Vice President Social Affairs*

University of Western Ontario

Sept 2016 – May 2017