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## Exploring Children's Insights about Participating in Recreational Activities with Horses and Farm Animals: Social Emotional Experiences and Belief in Animal Mind

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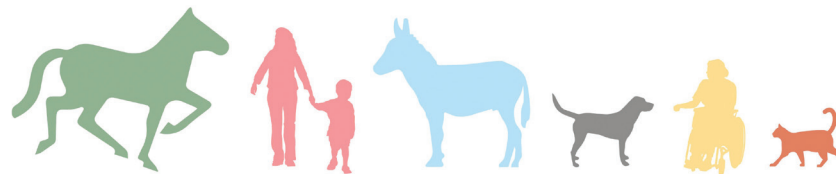
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### Cover Page Footnote

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## Exploring Children's Insights about Participating in Recreational Activities with Horses and Farm Animals: Social Emotional Experiences and Belief in Animal Mind

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**Keywords:** children, horses and farm animals, equine activities, children's belief in animal mind, child-animal bond

**Abstract** Research continues to shed light on the impact of children's interactions with horses in equine-assisted, learning, and therapeutic contexts. However, we know relatively less about the impact of children's recreational activities with horses and a diversity of farm animals. What is needed is research that explores how recreational programs involving activities with horses and farm animals are perceived by the child participants themselves. This pilot study sought to explore the insights of children who participated in a nine-week recreational program involving activities with horses and farm animals, with a focus on children's social emotional experiences and *belief in animal mind*, which involves attributing to animals the ability to think, feel, and experience emotions. Prior to beginning the nine-week program and upon its conclusion, we interviewed eight children (5 girls; 3 boys; aged 9 to 11 years) who were referred to the program because they were living in socioeconomically disadvantaged homes. Children responded to open-ended questions about their belief in animal mind and social emotional experiences. Salient themes in children's responses prior to and following their participation in the program were identified using qualitative content analysis. Overall, children's responses revealed new insights into animal minds and positive social emotional experiences following their participation in the program. Children's responses also revealed the following themes as key aspects of their experience in the program: (1) new opportunities and interest in the program, (2) feeling more confident with horses and farm animals, (3) new social opportunities and support, and (4) sadness that the program was ending. These findings hold significance for human-animal interaction practitioners and educators interested in supporting children's positive social and emotional experiences and stimulating children's belief in animal mind and knowledge of and respect for the needs of diverse animals.

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## Introduction

Research continues to highlight the benefits of children's interactions with horses in equine-assisted activities, facilitated learning, and therapeutic contexts (for a review see Kendall et al., 2014). Studies emerging from Europe (i.e., the UK, Italy, Norway) and the United States show that therapeutic riding can improve specific aspects of social functioning among children who have autism spectrum disorder (e.g., Anderson & Meints, 2016; Borgi et al., 2016; Erdman et al., 2015; Gabriels et al., 2012, 2015); can have positive effects on adolescents' self-perceived social support (Hauge, Kvaalem, Berget et al., 2013), task persistence and mastery (Hauge, Kvaalem, Pedersen et al., 2013), social competence, and behavior (Pendry, Carr et al., 2014; Pendry & Roeter, 2013); and can reduce cortisol levels and promote positive affective experiences among adolescents (Frederick et al., 2015; Pendry et al., 2018; Pendry, Smith, & Roeter, 2014).

Relatively less is known about the benefits that children derive from their recreational interactions with horses and other types of animals in farm-based contexts. In farm-based contexts, children are afforded opportunities to interact with and care for the land, nature, and a diversity of farm and companion animals including dogs, cats, horses, chickens, pigs, sheep, and cows. A key question is whether children's farm-based, recreational (outdoor leisure) activities with horses and animals can expand their thinking about animal minds and support positive social and emotional experiences. To date, studies on children's participation in equine-assisted activities and with animals in farm-based contexts have mostly focused on adults or children who have autism spectrum disorder, and/or included measures of mental health, well-being, and/or learning outcomes (e.g., Ferwerda-van Zonneveld et al., 2012; Kogstad et al., 2014; Pedersen et al., 2012; Schreuder et al., 2014). There is a gap in our understanding of how children's recreational activities with a diversity of animals might also stimulate their belief in animal mind and support positive social and emotional experiences.

## Children's Belief in Animal Mind

Research on *theory of mind* shows that by the age of four, children have a range of concepts relating to human minds including an understanding of desires, the origins of knowledge, and an understanding that others' mental states may differ from one's own (i.e., false beliefs; Saracho, 2014). Research shows that theory of mind ability is intimately connected to children's developing understanding of animals' inner lives (i.e., emotions and mental states) or their belief in animal mind (BAM; Hawkins & Williams, 2016). Belief in animal mind involves attributing mental capacities to animals, essentially believing that animals have mental states and the ability to think, feel, and experience emotions (Hawkins & Williams, 2016; Spence et al., 2017). The inclination to attribute mental states to animals is thought to be "commonplace, cross-cultural, species typical and almost irresistible" (Eddy et al., 1993, p. 88).

Young children actively interpret animals' mental states and emotional expressions in attempting to understand animal behaviors (Aldridge & Rose, 2019), and to guide their own behaviors vis-à-vis an animal (e.g., approach or avoidance behaviors; implications for dog bites). Further, belief in animal mind is a critical cognitive and emotional ability that may influence people's attitudes toward animals, as well as their sense of moral duty for animals' welfare (Ellingsen et al., 2010; Hawkins & Williams, 2016; Higgs et al., 2020; Spence et al., 2017). In one study, children's belief in animal mind was positively associated with attachment to companion animals and with more positive attitudes, compassion, and humane behavior toward animals; children's belief in animal mind was also negatively associated with the acceptance of intentional and unintentional animal cruelty and neglect (Hawkins & Williams, 2016).

Research suggests that children's and adolescent's belief in animal mind is linked to knowledge about and with family-based and cultural experiences with animals. Morrison and colleagues (2021) found that belief in animal mind was higher for female college students, students with service animal

experience, and students visiting natural history museums, whereas belief in animal mind was lower among students growing up in rural areas. In one study, children's ability to identify animal emotions increased significantly as a function of the child's age and experiences with companion animals at home (Rocha et al., 2016). Menor-Campos and colleagues (2018) found that Spanish children aged 6 to 13 years espoused belief in animal mind, regardless of the children's age, gender, pet ownership, or the species of the animal. However, the children had more difficulty attributing sentience to animals, particularly animal species they interacted with less regularly (e.g., cows, frogs, goldfish). Relatedly, research also shows that companion animals are commonly perceived to have higher cognitive capacities than other domestic or food-producing animals, and this might be a function of people's greater familiarity and exposure to companion animals (Maust-Mohl et al., 2012). Research suggests that children may overestimate animal minds in those they perceive as similar, familiar, or phylogenetically closer to humans (Knight et al., 2004). Still other research shows that belief in animal mind differed as a function of species (i.e., mammals, fish, birds, and insects) among adults, with belief in animal mind being highest for chimpanzees, dogs, and then dolphins (Higgs et al., 2020). These latter findings underscore the need for research that explores children's thinking about the minds of a diversity of animals.

Altogether, the above findings point to the importance of animal-related experiences and education in shaping children's belief in animal mind and positive social and emotional experiences. Spending quality, recreational time on a farm with horses and diverse animals over a sustained period might create the context for direct and close contact and bonding between children and animals and encourage new ways of thinking about animal minds. Studies have shown that children's interactions with dogs, cats, and farm/forest animals within the context of a camp-based setting are associated with children's ability to recognize and interpret emotional and mental states (e.g., intentions and desires) in animals

(Bosacki & Tardif-Williams, 2019; Tardif-Williams & Bosacki, 2017). This study responds to a knowledge gap in the field of human-animal interactions by exploring the role of participating in recreational activities with horses and farm animals to stimulate children's belief in animal mind and support positive social and emotional experiences.

These are important research questions to address for at least two reasons. First, children's companion animals are often diverse and can include dogs, cats, fish, birds, reptiles, and farm and forest animals (e.g., horses, pigs, goats, chipmunks), and all share an emotionally meaningful relationship with children and hold a special status in their lives (Amiot et al., 2016). Second, it is often more feasible and cost-effective to organize visits to farm-based contexts and to facilitate children's recreational activities with horses and a diversity of farm animals, as compared with organizing and overseeing children's participation in equine-assisted programs. In this way, farm-based contexts are also accessible to a greater proportion of children and youth who might otherwise not have the opportunity to experience the benefits of engaging with horses in equine-assisted contexts. Finally, this research responds to a timely need to innovatively reconnect children with animals and nature (Bekoff, 2014; Crain, 2014), to expand children's thinking about animal minds, and to enhance positive social emotional experiences through recreational activities with horses and farm animals.

### *Research Question*

Theoretically, this pilot study is informed by Wilson's (1984) biophilia hypothesis, which suggests that humans have an innate tendency to seek connections with nature, animals, and lifelike processes (Wilson, 1984). In this way, engaging in activities with horses and farm animals can capture and focus children's attention and promote a sense of connection and calm (Serpell, 1996). The aim of this study was to explore the insights of children who participated in a nine-week recreational program involving

activities with horses and farm animals, with a focus on how participation in the program expanded children's belief in animal mind and supported positive social emotional experiences. We also sought to understand how the child participants themselves experienced the program. The recreational program was designed to offer social and emotional support to children from economically disadvantaged homes through activities involving horses and farm animals. The program offered a once-weekly 3-hour-long session, for a total of nine weeks.

This study explored the following research questions:

1. Do children think about animal minds in new ways after participating in the program (i.e., making reference to animal thoughts and emotions)?
2. What insights do children have about their social and emotional experiences in the program?
3. What aspects of the program do children perceive as contributing to a positive experience overall?

First, we expected that a content analysis of the themes in the children's responses would reflect new insights into the nature of animal minds, citing animal thoughts and emotions. This expectation was based on the contact hypothesis (Allport, 1954), which suggests that spending time on a farm with horses and diverse animals over a sustained period might create the context for direct and close contact between children and animals and promote the type of social engagement and emotional bonding that leads to new ways of thinking about animal minds. Second, we expected that a content analysis of the themes in the children's responses would reflect mostly positive emotions and social emotional experiences. This expectation was based on research findings suggesting that participation in both equine-assisted and farming activities can strengthen well-being (e.g., self-confidence, feelings of mastery) in young people (e.g., Hassink et al., 2017; Hauge, Kvaalem, & Berget et al., 2013; Pendry et al., 2018). We also explored the children's responses to identify the program aspects (if any) linked with their positive experiences across the nine weeks.

## Methods

### *Participants and Procedures*

This pilot study was designed to examine the impact of a recreational program involving activities with horses and farm animals on children from socioeconomically disadvantaged homes. A sample of children enrolled in a nine-week Horse Cents for Kids program was recruited in the spring of 2019 from a school located in Southwestern Ontario, Canada. This study gathered qualitative data from eight children (5 girls; 3 boys) aged from 9 to 11 years from the same grade 4/5 split classroom. The sample of children was mainly Canadian-European (English as a first language) and was drawn from families that were identified by the school principal as currently experiencing socioeconomic challenges. None of the children had previously taken part in equine-assisted activities, engaged in a riding program, or had recent experiences interacting with farm animals.

All the families whose children were enrolled in the Horse Cents for Kids program were invited to participate in this study. The overall program was delivered by a local riding stable and included a total of nine 3-hour after-school weekly sessions (Friday afternoons). These weekly sessions included both individual and group-focused horse and farm animal activities. Each of the nine sessions was held in a large classroom-like setting within the stable and was led by the program facilitators, a husband-and-wife team with over 20 years of experience organizing camps for children, and four trained youth helpers. The youth helpers were all females ranging in age from 11 to 18 years who had previous training (from 1 to 10 years) in horsemanship activities. Their weekly interactions and their riding instructions and assistance with the children remained standardized each week. The program facilitators and youth mentors were not involved in any aspect of the research study and data collection.

University research ethics approval was obtained for this study (#18-272). Animal welfare and signs of distress were monitored during each session by the program facilitators, who had experience with recognizing signs of animal discomfort, fatigue,

and distress; no incidents of animal distress were reported during any of the sessions. Similarly, signs of emotional distress in children were monitored during the interview sessions by the researchers, and during the program sessions by the program facilitators; no signs of emotional distress were noted in any of the children. All children and their families were given contact information to facilitate easy access to mental health services if the children experienced a grief or loss reaction following the conclusion of the program.

After receiving parental consent (in writing) and the children's verbal assent, the children were interviewed individually in a private room. The researchers and study authors collected all data. All the children attended each of the nine weekly sessions, and no child dropped out of the study. Data collection took place during a total of two 3-hour sessions (April to June 2019), which took place at the beginning of the very first week of the program and was repeated at the end of the last day of the program—each data collection session lasted approximately 1.5 hours.

In-person interviews were carried out at two separate time points: before the Horse Cents for Kids program began on April 26, 2019, and when the program ended on June 21, 2019. Children were split up into two groups and two researchers (the study authors) conducted the interviews with the same children at both time points. Children responded to questions about what species of companion animal(s) (including horses), if any, their family lived with both currently and previously (during the child's lifespan). Six children reported currently having at least one companion animal at home, which included mostly cats and dogs, followed by reptiles. Two children reported that they did not currently have a companion animal at home, but both had had a fish in the past. Three children reported only having minimal previous contact with a horse either at a relative's home or at a birthday party, and none of the children reported having horses or farm animals at home. Examination of the data did not reveal differences in pet ownership (i.e., dogs versus cats) between boys and girls.

### *Horse Cents for Kids Program*

Each week the children came to the farm, which was surrounded by a variety of animals including miniature horses and donkeys, goats, two potbellied pigs, rabbits, cats, and dogs. The children could interact freely and engage in activities including horseback riding, grooming, and caring for horses and the farm animals. In addition to the time spent with the horses and farm animals, the children were provided with a warm dinner and engaged in some group-focused activities led by the two program organizers. Also, the four youth helpers assisted each week with the feeding, grooming, saddling, and riding of the horses.

The program schedule was designed based on the time frame of the overall program and the activities that would allow for the best experience with horses and other animals on the farm. Each week the children were split into two groups of four for the activities, with the program organizers each taking turns leading one of the two groups. The children were paired with the same horse and handler whenever possible, and no specific criteria were used to match horses to each child. Farm activities included: (1) engaging in horsemanship activities such as mucking out the horse stalls and grooming, tacking up, leading, and riding a horse for 30 minutes each session, (2) learning about horses and farm animals and their social and physiological needs, learning how to properly approach and interact with horses and farm animals, learning how to properly groom, care, feed and train the animals, understanding the physical, social, and emotional needs of the animals and how to help farm animals in distress, (3) interacting in games and physical activities with their peers about how to protect and play with horses and farm animals, (4) spending free time with and feeding the farm animals, and (5) making crafts involving horse and farm animal themes such as creating clay animals.

### *Measures*

**Qualitative Interviews with Children** The interview questions were designed to explore children's

insights about their belief in animal mind and their social and emotional experiences in the program after participating in the program. We used the same set of interview questions across both interviews (before and after participation in the program) to ensure consistency in the data that was collected. We asked how the children felt about the program and explored whether their participation in the program was associated with how they felt on a wide range of measures including: (1) *belief in animal mind* (i.e., their feelings toward and beliefs about the thoughts and feelings of different types of animals; e.g., How do you feel about companion/horses/farm/wild animals and do you think they have thoughts and feelings, and if so, why, or how do you know that?), (2) *perceptions of friendships and social connectedness, support, and belonging* (e.g., How well do you know the other kids in the program? Do you feel a sense of connection or a bond with the other kids in the program? Do you feel supported by the people in the program? How do you get along with your teachers and school friends?), and (3) *general feelings about the self* (i.e., positive and negative emotions at the start and end of the nine-week program, and on most days and on a day when they are not at the farm; e.g., How do you feel now that you have arrived at the farm? How did you feel each week when you arrived at (or left) the farm? Can you describe how you feel about yourself on a typical day when you are not at the farm?).

In the second set of interviews, we added questions specific to the program activities (e.g., Tell us a bit about your time in the Horse Cents for Kids program. What was the best part of the program? What was your most and least favorite program activity?). The interviews lasted between 15 and 25 minutes in length and were audio recorded. The researchers took independent field notes immediately after each set of interviews, and the interviews were transcribed verbatim by an undergraduate research assistant.

### *Data Analytic Strategy*

Interviews were recorded, transcribed verbatim, and subsequently thematically coded using a qualitative content analysis to identify salient themes in

children's responses both before and after participating in the program (Hsieh & Shannon, 2005; Neuen-dorf, 2017). An initial open coding process enabled us to identify themes and meaningful coding categories across the children's interview responses. We then developed and applied a final coding set to analyze the children's responses (see Table 1 for a description of this process and the final coding set applied).

A careful analysis was applied to the codes that resonated with themes of belief in animal mind and children's social emotional experiences. Themes of children's belief in animal mind included references to animal emotion (e.g., afraid, nervous, happy, excited, fearful, sad, worried) and thought (e.g., believes, thinks, wants, desires, wonders), references to animals by name (e.g., naming them), references to human-animal similarity (e.g., "I feel like animals can handle things better than humans, I think of them as actual human beings, they are the same, except they are animals"), and references to both positive (e.g., "I love my horse Romeo," "I feel comfortable around the goat") and negative (e.g., "I was extremely scared of the horse," "I have always hated some dogs") feelings toward the animals. Themes of children's social emotional experiences included references of positive emotion words toward the self (e.g., love, happy, excited, joyful), and references of negative emotion words toward the self (e.g., afraid, nervous, fearful, sad, worried).

The accuracy and trustworthiness of coding were ensured through independent reliability coding by two independent coders. During this process, the coders discussed the codes across 20% of randomly selected participant responses, and the percentage of intercoder agreement ranged from 75% to 96% across both the belief in animal mind and social emotional experiences codes. Discordant codings were discussed to clarify perspectives and reconcile codings. For example, in the preliminary analysis there was some discrepancy about how to code the use of the word "nice," with one coder interpreting it as an expression of positive emotion. Following discussion both coders agreed that in this context the use of the word "nice" should be interpreted as a positive statement rather than as a positive emotion. We explored



**Table 1.** Description of the Process for the Identification of Coding Categories and Final Coding Set Applied to Analyze the Children's Responses

Steps	Description	Observations
1	Identification of cognitive and emotion words	At this initial stage we noted that some children used cognitive words to describe animal minds, while other children used emotion words to describe animal minds
2	Grouping of positive and negative emotion words	We then noted that some children referred to animal minds using positive emotion words, whereas other children referred to animal minds using negative emotion words
3	Careful consideration of the context of children's responses to determine if they were referring to animals, the self, or other people in the program	At this stage we noted the types of animals and people (i.e., program organizers, youth helpers, peers) that children referred to in their responses. We noted that the children referred to many types of animals in addition to horses
4	Identification of comparisons between humans and animals and identification of use of animals' names	We noted the type and frequency of comparisons that children made between humans and animals and instances when they referred to animals by their names
5	Final coding categories were defined and coding sets finalized, which fit with the broader themes of children's <i>belief in animal mind</i> and children's <i>social emotional experiences</i>	We applied the final coding set to analyze the children's responses: <ul style="list-style-type: none"> <li>• Positive and negative emotion words to describe animals, the self, or other people in the program</li> <li>• Cognitive words to describe animals</li> <li>• Positive and negative emotions experienced in interactions with other people in the program</li> <li>• References to human-animal similarities</li> <li>• References to animals by name</li> </ul>

the children's responses to uncover poignant quotes related to each of the themes noted above and to identify the program aspects (if any) linked with their positive experiences across the nine weeks.

## Findings

Overall, participation in the recreational program was regarded as a positive social and emotional experience for all children and was associated with new insights in children's thinking about animal minds.

### *Children's Belief in Animal Mind*

Except for one child, most of the children's responses at the end of the program suggested that

they thought about animal minds in new ways. A qualitative content analysis of the children's responses suggested a greater awareness of animals' thoughts and emotions at the end of the program, as compared to when they first started the program. For example, one girl stated, "Now I think all animals have feelings and thoughts of their own. . . . Say a horse was bugging another horse and one of the horses got kicked. So the horse that was getting bullied got kicked . . . that horse would be sad." One boy shared the following:

Yeah, it has changed my life. I have learned how to groom and ride horses. It has kind of made me think, well I used to think farm animals didn't have any thoughts or feelings . . . now I do realize they do have thoughts and feelings.

Before starting the program, one girl stated: “They [animals] can be scared about things, not sure about others’ feelings,” but in her response at the end of the program she extended her thoughts about all animals having feelings in the following way: “I think all animals have feelings . . . it depends on what you are doing, if you like hurt them they will feel hurt inside and scared.” Yet, another girl revealed some uncertainty about animals’ feelings at the end of the program, but she could not elaborate on her feelings of uncertainty: “Usually I’m nervous and scared because sometimes horses can be rough. . . . Honestly, I don’t know. I don’t know if animals have feelings but uhm honestly, I think they do but I don’t know.” Similarly, another girl stated at the end of the program, “We are still animals, we have thoughts. So who knows, maybe they have thoughts and feelings.”

Children often offered different explanations to support their belief in animal thoughts and emotions. For example, one girl explained how she knew that animals have feelings in the following way: “I think all animals have feelings. Whenever I am near animals, I know they have feelings and that they can get hurt too.” Another girl stated, “Cause any animal, like it doesn’t matter what animal it is . . . it would still have feelings, just like humans.” One boy stated, “I like farm animals. They have thoughts and feelings. In the other room they are like nodding a lot, they are happy. If they are nodding they are happy.” Another girl explained her perspective about animals’ feelings in the following way: “They [raccoons] have thoughts and feelings, most of their thoughts are mostly what they do. Like hiding from predators like wolves, run away and hide from wolves.” Similarly, another girl stated, “They [horses] have thoughts and feelings. If they run away it means they are nervous or scared.” Finally, one boy explained his belief in horses’ thoughts in the following way:

Yes, like horses, they like, like my horse Levi if you tell him to like, if you say whoa he will stop. If he didn’t have thoughts that would mean he would not know what it was. So he hears it, it goes through his brain, he goes oh that means I should stop, and he stops.

Children’s responses also revealed more positive and less negative feelings toward animals at the end of the program, as compared to when they first started the program. For example, one boy stated, “It definitely changed me and my love of horses. I definitely have more compatibility with them [horses], and to understand their feelings and to like understand them and how they are thinking.” This feeling was expressed by another boy who stated: “I just love horses, they can be our companions, and they can be used as something to go places, not really anymore though. I just love horses. Probably like the clapping sound that they make.”

Finally, seven children’s responses made use of emotional descriptors when discussing animals at the end of the program (e.g., “I know they have feelings,” “I think they don’t cry,” “Because if they get scared they run away,” “For cats when they are happy they purr”). Further, at the end of the program six of the eight children referred to the animals by name in their responses; they did not use names when referring to animals in their responses at the start of the program. Overall, the children made few references to similarities in human–animal thoughts and emotions (e.g., one girl stated, “I would know—if the horse is sad—if he cried every night like I cry every night”). Interestingly, one girl eloquently noted the following difference in the way humans and animals can feel and express emotions:

I feel like animals have different feelings than us humans, because I don’t think that animals can cry. I don’t think they can cry with tears coming out of their eyes so I feel like they can handle things better than humans. Us humans, if I get hurt or something I cry, as animals they will run off. . . . I feel like they have different feelings to humans and stuff.

### *Social Emotional Experiences: Children’s Insights*

A qualitative content analysis of the children’s responses at the end of the study suggested that the recreational program was an overwhelming success

in terms of offering opportunities for social interactions and promoting positive feelings. For most of the children, the most pronounced feeling at the end of the program was one of personal enrichment and confidence. One girl stated, "Well, me being at the farm now makes me feel good, like I want to own animals when I'm older and I want to own horses," and another girl stated, "It's really satisfying and I like grooming the horses and riding the horses."

All the children reported that they felt better in terms of their emotions at the end of the nine-week program. One girl stated, "Every single week when I left, I was fine because I know there was another week after that and I would be coming back here." One boy stated that the program helped him to have more positive thoughts about himself: "I think of everything else like the horses and me riding and just . . . I feel like it's been making me feel better about myself." One girl discussed the importance of the program in temporarily alleviating her negative mood in the following way: "It kind of changed because now I don't have like, well it's kind of hard to say but depression like I used to . . . but it's hard to explain why I am not now."

Some of the children highlighted the many opportunities to interact not only with horses, but with different types of animals as well (e.g., a boy said, "And sometimes we groom the miniature horses, goats, pigs and everything, and the donkey"). Still, other children noted the importance of learning new skills when riding a horse or learning about the ways that animals communicate, whereas others cited opportunities to engage in a new activity that distracted them from their immediate personal and interpersonal concerns (e.g., a boy stated: "I feel like it's been making me feel better about myself, like making me feel better about how many fights I've gotten into and that I just push them away and don't really worry about it").

Importantly, all the children emphasized the unique bond they had developed with either their horses or the other animals. For instance, one girl stated that her interest in animals, particularly horses, had increased since participating in the program: "It's made me think that horses are cool

animals, and I want to be around them when I'm older and take care of them when I'm older." Another girl shared her excitement about coming to the program and seeing the horses each week: "I was actually very excited to come every single week, I would talk about it to my mum and my dad like every single week just about horse camp, that's all I would talk about, I would be so excited."

Lastly, some of the children's responses at the end of the program underscored positive feelings toward animals and feeling less fearful of animals. Before participating in the program one girl stated, "Well, I am actually very nervous because I have a lot of experience with horses . . . but I haven't been on them in a while." At the end of the program, this same girl stated, "I love any animal that's on a farm, like my horse Buddy. I love all the other horses, it doesn't matter what animal it is on the farm . . . any animals I love, I'm fine with any animals."

### *Aspects Linked with Positive Experiences in the Recreational Program: Children's Insights*

A qualitative content analysis of the children's responses revealed the following themes as key aspects of their experience in the program: (1) new opportunities and interest in the program, (2) feeling more confident with horses and farm animals, (3) new social opportunities and support, and (4) sadness that the program was ending.

**New Opportunities and Interest in the Program.** When asked what aspects of the program (if any) the children thought might have contributed to their positive experiences, many of the children discussed the new and diverse experiences including playing games and socializing with their school friends outside of school, and being able to interact hands-on with the farm animals. One girl explained it in the following way: "I am happy to be here too, this is a big opportunity. Just to be able to get used to animals more, and to be able to see more animals." It was clear that the children were feeling very positive about their experience in the program. Another

girl stated, “It was a great opportunity, and I spent every second loving it. I am more open to opportunities, and I will try new things.”

**Feeling More Confident with Horses and Farm Animals.** Some children stated that their favorite part of the program was the time that they spent with the farm animals and grooming and riding their horse. One girl stated, “I would probably actually choose grooming because that’s where you get the closest to the horse, it’s just a lot of fun to be with them.” Another girl shared, “My favorite part was probably riding because it’s like that’s what I’m here for. I am here to learn about horses and to get educated about the animals.”

Some of the children felt more comfortable and less fearful of the farm animals at the end of the nine-week program as highlighted in this girl’s quote: “Last time I said I didn’t really feel comfortable, but now I do feel much more comfortable ‘cause the goat here I was extremely scared of Oreo [goat] but now Oreo and Daisy are used to me.” Another girl stated, “You just have to get to know them. Oreo is my favorite goat.” For other children, feeling nervous or scared around the horses was associated with fear of the horses not liking them (e.g., one boy stated, “I feel kind of nervous and worried because I am worried the horses may not like me,”), whereas for others such feelings were related to a fear of being hurt (e.g., a girl stated, “I’m very excited because like—I’m also scared that the horses are going to like hit me, but I’m not so scared that I won’t deal with them”).

**New Social Opportunities and Support.** Most of the children stated the importance of having experienced new opportunities to connect with their school friends outside of the more formal school context. For example, one boy stated, “Most of them [other children] are like very good friends, so now I got to know them, like if their family owned horses.” The children also discussed the importance of experiencing new adult role models. One boy stated, “[The program organizers] saw something in us, I guess. Potential to become more than we are, which is really good with horses. Honored again because they are seeing me for

more than I am. Yes, it did change my life.” In some interviews emphasis was put on the staff’s ability to help them to solve interpersonal conflicts, as noted by one girl: “The [Program Organizer] comforts me when I’m sad, she makes people feel good and not upset and solves issues.”

**Sadness That the Program Was Ending.** Finally, it should be noted that no child could easily identify a least favorite program activity, although two children referred to “mucking the stalls.” All of the children expressed sadness that their experience in the program was ending and that they would miss the animals (e.g., a boy stated, “I am sad to leave Levi, Jackson, and Romeo and other horses”; another boy stated, “I’m sure he loves me. Like with my dog kisses, and my cat, so I’m assuming with horses it’s the same thing, so it’s a sign of love”). Other children also noted that they would miss the special bonds they developed with their peers, the program organizers, and the youth helpers.

## Discussion and Implications

To date, research has focused mainly on understanding children’s experiences with horses in equine-assisted programs (Melson, 2014). This study addresses an important gap in the human–animal interactions literature by exploring children’s insights and perspectives about their participation in a recreational program involving activities with horses and a diversity of farm animals. The findings from this pilot study add value to the field of human–animal interaction studies and can inform the development of larger-scale human–animal-assisted activities and programs for children and youth that involve interactions with horses, farm, and companion animals in both formal and informal contexts.

An important study finding is that several children’s responses at the end of the program suggested that they thought about animal minds in new ways by referring to animals using thought and emotion words. In one study, Spanish primary school children’s positive attitudes toward animals were

associated with their beliefs in animals' ability to feel emotions but not with their beliefs in animals' thinking abilities (Menor-Campos et al., 2019). In contrast, in our study, children's positive feelings (albeit not attitudes) toward horses and farm animals were more pronounced at the end of the program. In this way, children's belief in animal mind was connected to their positive feelings toward animals, and this finding supports previous studies emphasizing the positive effects of farm-based programs in creating a positive environment that facilitates the development of positive connections with animals (Hassink et al., 2017). However, future studies are needed that apply standardized measures to examine which aspects of children's belief in animal mind (i.e., emotions, thoughts) are linked to more positive feelings and attitudes toward and treatment of a diversity of animals.

Surprisingly, the children made few references to similarities in human–animal thoughts and emotions. We expected that children would note similarities between human and animal thoughts and emotions. Interestingly, one girl very elegantly described how humans and animals feel and express emotions *differently*, perhaps reflecting a more biocentric understanding of animal minds. Future research should explore the extent to which contact with farm animals might stimulate the development of a more complex and biocentric (versus anthropocentric) understanding of animal minds (Melson, 2014; Ruckert, 2016). Anthropocentric reasoning is human-oriented and characterizes children's thinking when an animal is valued only in terms of its similarity, appeal, or benefits to humans, whereas biocentric reasoning is nature-oriented and characterizes children's thinking when an animal is thought to hold unique and intrinsic value independent of its appeal or benefits to humans (Melson, 2014). In this study, however, we did not probe children's responses in this way and future research is needed to examine the role of children's experiences with animals in such a program and their tendency to adopt anthropocentric or biocentric language when discussing animal minds.

Another study finding was that the program had a positive impact on the quality of children's social

emotional experiences. The children's responses at the end of the program were overwhelmingly positive and suggested that the program offered an opportunity for meaningful social interactions and support, which translated into positive feelings. Specifically, this study's findings suggest that participating in the program increased children's positive emotions, fostered children's self-confidence, and even eased one child's feelings of depression. These positive social emotional experiences were associated with the bonds that children developed with the animals and their peers, including the program organizers.

Our findings are consistent with research indicating that when reflecting on their farm-based experiences, many people state that they value opportunities to be in contact with other people, and the feeling of a sense of achievement and belonging (Murray et al., 2019). Further, our findings are consistent with studies showing that a routine of care with the same animal can help to develop human–animal bonds (Hassink et al., 2017) and contribute to a sense of kinesthetic empathy and attunement in human–animal communication (Carlyle & Graham, 2020). In this study, the program organizers ensured that children interacted with the same horses across the nine weeks, thus facilitating the development of social bonds between the children and the horses.

### *Limitations and Future Directions*

There are several limitations of this pilot study that must be noted. First, this study involved a sample of young children living in homes facing socioeconomic disadvantage, and the findings might not generalize to children from diverse sociodemographic backgrounds. Future research is needed to better understand how children's age, gender, socioeconomic and ethnic diversity, and current and past relationships with companion animals at home might differentially impact their experiences in such a program. Second, to determine the impact of the program on children we relied uniquely on children's insights, which might have been skewed to reflect current life events. Also, the children might have felt a need to provide socially desirable comments because they

were receiving access to the program each week. Moving forward, future studies should adopt a triangulated approach to capture the views of multiple informants (e.g., interviews with parents or teachers, focus-group discussion, observations of children's behaviors) and standardized measures to more extensively document how participation in such a program might impact children's social emotional experiences, with a direct focus on well-being outcomes and their belief in animal mind. However, this study's focus on children's insights into their belief in animal mind and social emotional experiences following their participation in the program adds to the growing body of literature that employs an exploratory approach and/or participant-observation ethnographies to documenting more personalized experiences in recreational programs involving experiences with horses and farm animals among children and youth (Carlyle & Graham, 2020; Ferwerda-van Zonneveld et al., 2012; Kogstad et al., 2014; Laskowski et al., 2019; Pedersen et al., 2012; Schreuder et al., 2014).

Third, another potential study limitation involves the analysis of children's interview responses to uncover children's insights about their social emotional experiences and their thinking about animal minds. However, we suggest that a careful qualitative content analysis of the children's rich descriptive responses is an innovative and useful technique to expand our understanding of how children mentally represent the quality of their social and emotional experiences and the nature of animal minds (e.g., Bosacki & Tardif-Williams, 2019; Tardif-Williams & Bosacki, 2017). Also, this approach was useful in highlighting subtle nuances in children's thinking about animal minds and the social and emotional complexities of their experiences over the course of the nine-week program.

Finally, we do not know the extent to which the positive impact reported by the children in relation to their social emotional experiences will be retained across a longer period of time. Arguably, we might expect that children would report positive experiences after participating in a nine-week recreational program involving activities with horses

and animals. However, references to positive feelings and excitement did not fade, but rather increased for most children by the end of the program. In this way, rather than merely reflecting the novelty of the program, children's positive feelings seemed to be connected to their ongoing interactions with horses and animals during the program. This pilot study represents a first step in empirically examining children's insights and perspectives about participating in this type of program. Future longitudinal research is needed to explore if, and how long, these positive experiences last (e.g., one month, six months). Additionally, future research is needed to examine if children's new ways of thinking about animal minds might translate into more positive feelings, attitudes, and treatment toward animals, and to greater moral concern for the welfare of animals.

### *Summary for Practitioners*

Overall, our research findings suggest that participation in a recreational program involving activities with horses and farm animals can positively impact children's social and emotional experiences and expand their thinking about animal minds. This pilot study has some important strengths. First, to the best of our knowledge this is one of the first studies to explore how children themselves perceive their recreational experiences with horses and farm animals. Our exploratory research offers a deliberate focus on children's subjective perceptions and experiences to determine the feasibility of a nine-week recreational program involving activities with horses and farm animals to enhance children's belief in animal mind and to support positive social emotional experiences. By highlighting the children's voices, our findings attest to the feasibility and overall positive impact of such a recreational program, involving activities not only with horses but with a diversity of farm animals, on children's social emotional experiences. Such knowledge will be equally meaningful to human-animal interaction researchers, practitioners, and educators.

Our study findings also support the biophilia hypothesis (Wilson, 1984) as the children in this study

demonstrated a strong affinity and desire to connect with a diversity of animals throughout the program. Each week, the children were motivated to engage in the program and were focused on developing special bonds with the horses and farm animals, as evidenced by their requests to engage with specific animals and their inclination to refer to these animals by name as the program unfolded. Previous research indicates that such close bonds with companion animals can support children's feelings of self-efficacy and empathy, which are important psychosocial skills in developing close peer relationships (Song et al., 2019).

Kotrschal (2018) notes that, according to the biophilia hypothesis, the presence of dogs (and we suggest other friendly animals) might have a calming and socializing effect, thus supporting social communication and social approach behaviors. The presence of dogs (and other animals) might also increase children's engagement and enjoyment of animal-assisted activities and programming (Laskowski et al., 2019). Indeed, the findings from this pilot study also suggest that children's experiences in a relatively short (nine-week) recreational program with animals can promote positive feelings and support positive social and emotional experiences. These findings are also consistent with recent research showing that children's and adolescents' positive interactions with animals can stimulate social connections, support feelings of comfort and emotional regulation, reduce stress during exams or key transitions, and promote physical and psychological well-being (Barker et al., 2016; Binfet, 2017; Binfet et al., 2018; Crossman et al., 2015; Khalid et al., 2021; Pendry & Vandagriff, 2019; Philippe-Peyroudet & Grandgeorge, 2018; Sable, 2013).

Our study findings also suggest that children's experiences in a relatively short recreational program with animals can expand their belief in animal mind. These findings hold special relevance for educators and caregivers who are interested in promoting children's positive attitudes and behaviors toward animals. Previous research suggests that children's belief in animal mind is a critical cognitive and emotional ability that may influence

attitudes toward animals (Hawkins & Williams, 2016). As noted previously, children's belief in animal mind has been positively linked with attachment to animal companions and more positive attitudes, compassion, and humane behavior toward animals. Importantly, children's belief in animal mind has been negatively linked with the acceptance of intentional and unintentional animal cruelty and neglect (Hawkins & Williams, 2016). Educators could focus explicitly on designing curriculum to expand children's belief in animal mind.

Therefore, understanding the impact of children's recreational experiences with a diversity of animals has important implications for human-animal-assisted practice and educational policy. This study's findings support the inclusion of different types of animals, since the children in this study connected meaningfully with the horses and other farm animals. In this way, children would be given opportunities to generalize the knowledge they acquire in a farm-based context or about farm animals through educational curriculum to their experiences at home with their companion animals and vice versa. Also, animal-assisted interventions that aim to positively affect children's well-being by using animals as adjuncts to therapy often involve dogs (Binfet & Hartwig, 2019). Such interventions could involve participation by different types of animals to capture children's attention, promote positive child-animal interactions, and support children's well-being. Further, this study's findings are important and timely given the recent influx in educational efforts to expose young children to wild and farm animals through media sources, nature activities, and visits to farms, zoos, and aquariums (Rocha et al., 2016; Tardif-Williams & Bosacki, 2015). Our findings also support educational programs that aim to promote awareness of animal and environmental protection among children and youth (Kahn et al., 2009; Ruckert, 2016).

Further, this study's findings can inform educational policy and the development of educational strategies to expand children's understanding of animal minds and their concern about the welfare of different species of animals (Melson, 2014; Ruckert,

2016; Tardif-Williams et al., 2019). Human–animal practitioners and educators might consider program delivery using animal-related curriculum such as paper-and-print materials (e.g., drawing, photography, creative writing), peer-to-peer discussions about animal-based experiences, or what unfolds within alternative contexts (e.g., virtual, field visits to farms, sanctuaries, or animal shelters). It is often more feasible, accessible, and cost-effective to organize visits to farm-based contexts and to facilitate children’s recreational activities with horses and a diversity of farm animals, as compared with organizing and overseeing children’s participation in equine-assisted programs.

Also, the children in this study underscored the importance of seeing their peers in the after-school recreational program as this allowed them to explore other aspects of their relationships while enjoying animal-based experiences in a more relaxed environment. It is possible that animals served as a social lubricant, facilitating social interactions among the children (Collis & McNicholas, 1998). Therefore, educators might consider incorporating opportunities for children to learn about animals (e.g., field trips involving animals) while interacting with their friends in a different context (outside of school) to facilitate the formation of peer- and teacher-based connections that might not be easily developed at school. Possibly, these emotional connections can enhance the quality of children’s future school-based peer relationships. Relatedly, human–animal interaction practitioners and educators could offer some postprogram emotional support for children since they often create meaningful bonds with both the animals and humans, and they might experience a grief or loss reaction following the conclusion of the program. This might take several forms, including a planned visit to the farm after a specified time or a more formal, moderated session at the conclusion of the program to give children an opportunity to share and discuss these feelings. Additionally, human–animal practitioners and educators could consult with school-based mental health professionals when designing and delivering animal-based programs. Finally, human–animal practitioners and educators

might consider involving participation by caregivers and other family members to support family appreciation of diverse animals and their physical, social, and emotional needs.

## Conclusion

This pilot study addresses an important gap in the literature by illuminating children’s insights about their experiences with horses and farm animals within the context of a nine-week recreational program. This study’s findings suggest that children’s interactions with horses and farm animals might strengthen their social emotional experiences and expand their thinking about animal minds. Practically, this study’s findings have the potential to encourage human–animal interaction practitioners and educators to incorporate virtual and/or in-person field trips to the farm, to develop visitation programs, and to incorporate discussions about animal minds. Such programs have the potential to stimulate children’s knowledge of and respect for the minds and needs of diverse animals and support children’s positive social and emotional experiences. Overall, we believe that this study adds value to the field of human–animal interactions by exploring children’s unique insights into their participation in a nine-week recreational program involving activities with horses and farm animals.

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