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Cover Page Footnote

The authors would like to thank all those educators who gave their time to respond to the survey.

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An International Survey of Animals in Schools: Exploring What Sorts of Schools Involve What Sorts of Animals, and Educators' Rationales for These Practices

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Keywords: animal-assisted interventions, animal-assisted education, well-being, learners, school dogs, school pets

Abstract Over recent decades, the use of animal-assisted interventions (AAIs) in educational settings has attracted growing international interest both among educators and the research community. However, there has been little comparative analysis of the demographics of participants and the rationale behind such practices. The aim of this paper is to address this. An anonymous online questionnaire was distributed via social media and other networks. Quantitative and qualitative data were collected from 610 participants across 23 countries, mostly from the United Kingdom and North America. In total, 315 (51.6%) participants reported involving animals in their settings. The results show that although animals featured from preschool to adult education contexts, the primary school years (5–11) accounted for 60% of responses. More than 30 different species were reported, with dogs being the most popular. The overriding reason educators give for involving animals is the perception that they make an important contribution to children's well-being. Practices around the involvement of dogs provide a focus for discussion. The research breaks new ground in highlighting commonalities and contrasts in school demographics associated with the involvement of animals across a range of international contexts. It also points to a consensus around the perceived well-being benefits for children of such interventions. For practitioners, the paper has value in prompting reflection on the need for a clear rationale before embarking on such an intervention, and highlights practical considerations needed before bringing an animal into an educational setting. The paper also suggests potential areas for future research, relating to possible benefits for and agency of the animals who are involved.

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Introduction

Animals have been present in schools, particularly science classrooms, for many years, providing vivid, powerful, real-life examples of the variety of life on earth (Mayer, 1980). Over recent years, schools and other educational settings have increasingly recognized animals' potential to enrich children's learning and well-being. There has been a move from viewing animals as experimental objects through which to ascertain the fundamentals of anatomy and physiology, toward the view that animals can provide broader experiences across the curriculum (Mayer, 1980). Indeed, over the last 50 or so years, interest in animal-assisted interventions (AAI) has grown steadily among both academics and educators. Since the publication of Levinson's article "The Dog as 'Co-Therapist'" (1962), the initial medical perspective among researchers has broadened to consider potential educational gains.

Various terms are associated with the involvement of animals in educational contexts. The International Association of Human-Animal Interaction Organizations (IAHAIO) introduced the overarching term *animal-assisted interventions*, defined as "goal-oriented and structured interventions that intentionally incorporate animals in health, education, and human service for the purpose of therapeutic gains and improved health and wellness" (IAHAIO, 2018, p. 5). As such, AAIs incorporate animal-assisted therapy (AAT), which are structured therapeutic interventions applied across a variety of disciplines by professionals including occupational therapists, nurses, social workers, and speech therapists. AAI also includes animal-assisted activity (AAA), which aims to motivate participants and bring recreational benefits, usually through informal arrangements conducted by specially trained volunteers, professionals, or paraprofessionals. Animal-assisted education (AAE) is another form of intervention, targeting measurable gains in academic goals or social skills.

In this paper AAI is used as the umbrella term relating to animal-assisted interventions and AAE refers to the broad range of educational activities being undertaken within a school context. The paper focuses on AAE, including the various therapies, schemes, or activities featuring animals in school settings with the overall aim of improving the quality of participants' (human and nonhuman) lives.

In this study, the term *school dog* refers to any canine involved in a school context for the purpose of contributing to children's learning and personal development. It is often a taken-for-granted term (e.g., Drabble, 2019) and as a result sometimes lacks the sharpness of definition that supports analysis of impact. Although Beetz et al. (2012) distinguish between "trained therapy dogs" and "school dogs," in this study we were not concerned with comparing the impact of dogs brought in by external handlers and those owned by teachers themselves, and so we use "school dog" as an umbrella term.

Other key terms discussed in this paper are *educators* and *well-being*. The term "educators" describes those involved in providing some form of instruction, including teachers, teaching assistants, administrators (instructional leaders), lecturers, student teachers, and external consultants. The concept of well-being has been defined in different ways depending upon the disciplinary focus and means of measurement. However, most definitions acknowledge the importance of both objective (e.g., educational achievement) and subjective indicators (e.g., self-reported feelings). Well-being is a dynamic concept because it emerges from children's interaction with their world at different points in their lives. It is not necessarily the same as being happy, since anger, anxiety, and sadness are part of everyday life (Statham & Chase, 2010). This paper adopts a broad "quality of life" definition of well-being (OECD, 2020). It includes the self-reported social and emotional aspects of children's development, as well as their mental health.

Potential Benefits of Animals in Educational Contexts

There is now a growing body of knowledge around the potential benefits of animals for learners in educational settings. Gee et al. (2021, p. 2) apply a biopsychosocial model to the field of AAI to help conceptualize "how biological, psychological, and social influences

combine to determine human health and well-being." The relationship between humans and animals is a dynamic one. Not only does a person's biological, psychological, and social state influence the nature of interaction with a dog, but the animal's presence triggers biological, psychological, and social reactions. Certainly, in an educational context studies suggest well-planned interventions can impact learners' biological, psychological, and social development. For example, AAIs may reduce student anxiety (Julius et al., 2012), promote social responsibility (McNicholas & Collis, 2000), develop students' empathy (Zilcha-Mano et al., 2011), enhance language, imagination, and self-reflection (Myers, 1998), increase reading motivation and engagement (Fine, 2019; Wohlfarth et al., 2013) and help students develop fine and gross motor skills (Beetz et al., 2011; Kropp & Shupp, 2017). However, such benefits are not universal and should not be taken for granted (Rodriguez et al., 2021).

The success of AAE is often attributed to the calm and nonjudgmental presence of the animals, who provide children with support in times of stress (Crossman, 2017; Jalongo et al., 2004). Dogs contribute to perceived feelings of safety, comfort through touch, and grounding support (Gee et al., 2021; Lewis, 2017). The child–animal bond represents a nonhierarchical relationship, which means that children are less likely to feel inferior and fear the risk of failure. Animals can also support the development of curriculum knowledge; for example, they can provide learning opportunities in literacy, numeracy, and science (e.g., Foulkes & Pinto, 2015; Herbert & Lynch, 2017).

Although the reported educational benefits of animals in educational contexts are encouraging, research has been largely confined to local case studies (e.g., Scandurra et al., 2021). For example, one study of 2,000 teachers in Indiana found that one in four teachers involved animals, mainly to provide enjoyment and hands-on educational experiences for students (Rud Jr. & & Beck, 2003). In another study of elementary school teachers in California, Zasloff et al. (1999) highlighted the perception among many respondents that the presence of live animals provided a focus for teaching humane values, as well as extending scientific learning.

Systematic literature reviews also highlight several important limitations of existing research. Many lack rigorous experimental designs, while the varied methodological approaches and timeframes make it difficult to draw solid conclusions (Brelsford et al., 2017). Despite the widely cited view that the presence of dogs may lower human participants' stress levels, a recent scoping review found that the range of stress biomarkers is limited, and more research is needed to better understand the impact on people and dogs (Gandenberger et al., 2022).

In the case of reading to dogs, the most popular of interventions, one recent review concludes that while the practice may produce beneficial effects, which enhances the environment for reading (e.g., Lewis, 2021), the evidence base is of low quality (Hall et al., 2016). Moreover, many studies of animal-assisted interventions in educational contexts are skewed toward those with specific learning needs due to conditions such as autism spectrum disorder, cerebral palsy, and conduct disorder (Davies et al., 2015; O'Haire, 2013; Pavlides, 2008), which raises questions about the generalizability of their findings for mainstream teachers.

There is also a lack of robust evidence about why AAIs in general may be effective. López-Cepero (2020) argues that studies should spend more time focusing on the mechanisms that are effective within AAIs rather than describing the physical characteristics of the animals (e.g., breed, color, sex, neutered or not) and their training. She maintains that despite a decade or so of research, attempts to measure the efficacy of AAIs have not produced "a single, shared conclusion regarding the usefulness of these interventions" (López-Cepero, 2020, p. 985). Gee et al. (2021, p. 8) suggest that the biopsychosocial model would be a useful frame for research since

> the reciprocal relationship of the psychological, biological, and social domains can be used to elucidate the mechanisms that both impact and are impacted by interactions between humans and animals.

Given the widespread interest in AAE, surprisingly little is known about the demographics of educational

settings across international contexts, the types of animals involved, and the reasons behind the decisions teachers make to embark on such an intervention. This paper seeks to address these gaps. It aims to generate initial insight into which animal species are being used, in which settings, and why.

Research Questions

This paper therefore aims to answer the following questions:

1. What sorts of schools involve animals in their educational practices, and what sorts of animals are involved?
2. What are the reasons teachers give for involving animals and how do they implement this?
3. With a focus on dogs, what are the perceived benefits, challenges, and possible misconceptions of involving animals in educational contexts?

Methods

This study was conducted using an online branching questionnaire. Such a technique allows for the tailoring of questions to each respondent, so that individuals with different characteristics, experiences, knowledge, or opinions are routed to particular questions (Lavrakas, 2008). The structured questionnaire comprised 56 items in total, a combination of closed and open-ended questions. It was arranged in four sections. The first was designed to obtain contextual information. Questions, for example, were asked about the backgrounds of the respondents, their roles, type of educational setting, the age range they taught, whether they had any school pets, and if so, where they were based and their characteristics (e.g., gender, age, breed). The second section focused on the reasons for having animals in school, with the respondents asked to rank seven possibilities in order of importance on a sliding scale. They could expand on their choices in a free text box. The third section focused on dogs, whether they were trained, and if the educators themselves received any training. It also raised questions around preparations, such as notifying parents and governors and completing risk assessments as well as practices when the dog was in school. The final section asked for views on potential gains associated with AAE. This paper focuses primarily on the responses to questions in sections 1, 2, and 3.

The choice of a questionnaire enabled the gathering of a large amount of comparative international data on the characteristics and attitudes of educators toward AAE in a low-cost and efficient manner. The questionnaire represents a reliable means of data collection with the option of asking existing respondents to repeat the questionnaire later to track changes over time, or opening the questionnaire to other participants. Although a similar approach using an online questionnaire has been used to ascertain the attitudes of Italian doctors to AAIs (Pinto et al., 2017), to the authors' knowledge, this is one of the first international surveys of demographics and perspectives on practice among educators.

The growth of online social media has provided researchers with new and specific sources for gaining data with the increased engagement with online forums, blogs, communities, social network sites, group communication, and other collaborative platforms (Callegaro et al., 2015). The sampling approach taken was a direct open invitation by posting a message on Twitter and on prominent Facebook education groups such as "Keeping Early Years Unique" and "Dogs@School." The snowballing technique was employed to encourage participants to share the link. The link was also distributed via Swansea University to its 27 partnership schools and advertised on the website of the Chartered College of Teaching (a UK-based leading professional body for teachers). There was no attempt to target a particular audience or profile of users (e.g., by age, gender, or location). The study design was approved by the university ethics committee and followed the latest ethical guidance provided by the British Educational Research Association (BERA, 2018). Participation in the online survey was entirely voluntary, and

consent could be withdrawn at any time during the completion of the questionnaire. Upon submission the data could no longer be withdrawn as responses were anonymous, and participants were made aware of this. The questionnaire was open for completion between December 2020 and February 2021.

All data was collected using Qualtrics survey software and analyzed using SPSS. A descriptive analysis was performed, calculating frequencies for categorical variables. Bivariate analysis was also used to investigate relationships between key variables of interest.

Results

The sample comprised 610 educators from 23 countries. Of these, 75% worked in England and Wales and 12% in the United States. The remaining responses were drawn from other parts of the United Kingdom, mainland Europe (e.g., Slovenia, the Netherlands, Norway), and a wide range of countries including Australia, Canada, Egypt, Hong Kong, Kuwait, Morocco, New Zealand, Saudi Arabia, South Africa, Thailand, and the United Arab Emirates.

The respondents are employed in various roles in education: 29.8% as senior leaders, 29.6% as classroom teachers, 15.6% as middle managers, and 7.7% as teaching assistants. Middle management roles included heads of department or units, while senior-level roles cover principals, executive head teachers, chair of governors, and directors. The remaining 17.1% classified under "other" include specialist internal (e.g., technicians, school counselors, and librarians) and external roles (e.g., university researchers, volunteers from charities involving animals in educational contexts, and consultants).

1. *What sorts of schools involve animals in their educational practices, and what sorts of animals are involved?*

As shown in Table 1, of the 315 respondents who said they had a school pet, the large majority were from a primary school (children aged 3–11 years), followed by secondary schools and special schools. Most of the respondents were based in either a town or city. The majority had just one type of school pet. Special schools were more likely to have three or more school pets. A wide range of species were involved in classroom practices. Most respondents who had a school pet had a dog (73%); the next most common

Table 1. Demographics of Schools That Have a School Pet, Showing Species

		N	%
School type	Nursery	5	1.7
	Primary	194	66.4
	Secondary	49	16.8
	Special	38	13.0
	Post-16	6	2.1
School location	Town	157	50.2
	City	97	31.0
	Rural	56	17.9
Number of pets	1	178	61.8
	2	53	18.4
	3+	57	19.8
Species	Dog	230	73.0
	Cat	9	2.9
	Rat	3	1.0
	Mouse	6	1.9
	Gerbil	8	2.5
	Hamster	16	5.1
	Guinea pig	43	13.7
	Rabbit	36	11.4
	Chicken	38	12.1
	Fish	45	14.3
	Snails	23	7.3
	Stick insect	18	5.7
	Tortoise	24	7.6
	Terrapin	3	1.0
	Other	33	10.5
Total		315	100%

pets were fish (14.3%), guinea pigs (13.7%), chickens (12.1%), and rabbits (11.4%).

2. *What are the reasons teachers give for involving animals and how do they implement this?*

Respondents were asked to rank their three main reasons for getting a school animal (Table 2, where a lower score indicates a higher rank). A nonparametric Friedman test of differences among these measures was conducted and revealed a chi-square value of 912.66, which was significant ($p < 0.001$). The highest mean ranking reason was "to improve student well-being" (mean rank = 1.51). Table 2 shows how each statement was ranked on average. The Mean Rank column shows the average placing for each item (e.g., all responses added together and divided by the number of participants that responded to the question). This is the arithmetic average of each statement's position in the list according to the views of those surveyed.

A one-way ANOVA was conducted to compare the effect of setting type on the reasons for having a school pet. A significant difference was found for the statement "to fit in with a particular curriculum topic" (F (2, 242) = 6.81, $p < 0.001$). Post hoc tests using the Bonferroni correction revealed that special schools ($\bar{x} = 5.79$) were significantly more likely to rank this response highly compared to primary schools ($\bar{x} = 6.41$) ($p = 0.005$, 95% C.I. = [0.15, 1.10]).

Table 2. Ranking of Reasons for Introducing an AAI

Reason	Mean Rank
To develop pupils' well-being	1.51
To develop pupils' empathy	2.86
To develop pupils' responsibility	3.28
To develop pupils' knowledge and understanding of the world	3.84
As a reward for pupils	5.12
My own or colleagues' personal interest	5.18
To fit in with a particular curriculum topic	6.20

Table 3. Ranking of Reasons for Having a School Dog

Reasons	Mean Rank
Wanted to improve pupil well-being	3.50
Wanted to improve pupil confidence (e.g., in reading)	4.30
Wanted to improve pupil behavior	4.55
Read some research about benefits	4.65
Wanted to improve pupil attitudes (e.g., to reading)	4.85
Staff member with suitable dog	5.45
Wanted to improve pupil attendance	5.60
Personal interest in dogs	5.95
Head about other schools with a dog	6.15

Participants who said that they involved dogs were also asked to rank their three main reasons for getting one (Table 3). A nonparametric Friedman test of differences among these measures was conducted and revealed a chi-square value of 11.43, which was not significant ($p = 0.178$). In line with Gee et al.'s (2021) suggestion of the value of the biopsychosocial model, the highest mean ranking reason was "wanted to improve student well-being" (mean rank = 3.5). Table 3 shows the mean rank for each statement.

One-way ANOVA tests showed no significant difference between school type and reasons for getting a school dog.

Respondents who did not have a school dog (n = 216) were asked to rank the reasons why they did not have a dog (Table 4). A nonparametric Friedman test of differences among these measures was conducted and revealed a chi-square value of 303.5, which was significant ($p < 0.001$). The highest mean ranking reason was "Not an educational priority in this school" (mean rank = 2.61). Table 4 shows the mean rank for each statement.

A one-way ANOVA was conducted to compare the effect of setting type on the reasons for not having a school dog. A significant difference was found for the statement "Not sure how to find a suitable dog" (F (2, 191) = 0.82, $p = 0.02$). Post hoc tests using the

Table 4. Ranking of Reasons for Not Having a School Dog

Reasons	Mean Rank
Not an educational priority in this school	2.61
Concern over allergies among staff/pupils	2.90
Concern over safety of children	3.52
Concern that harm might come to the dog	4.23
Not sure how to find a suitable dog	4.56
Not convinced of the value of dogs in school	4.61
Dislike of dogs among staff	5.56

Bonferroni correction revealed that primary schools ($\bar{x}$ = 4.2) were significantly more likely to rank this response highly compared to secondary schools ($\bar{x}$ = 5.18) (p = 0.03, 95% C.I. = [−1.86, −0.09]).

The specific environment where the interventions took place varied within each setting. Of the respondents who said that they had a school pet, 153 (48.6%) interventions took place within the general classroom, 125 (39.7%) within the school grounds, and 116 (36.8%) in a quiet area other than the school library. Other areas included corridors and the offices of head teachers, counselors, halls, and designated areas set aside for nurture groups or teaching children with special educational needs (classified under "other"). Some respondents reported that space was used flexibly. In three cases, there was no fixed location as the dog followed the owner or therapist. In one school, rabbits were let out during timetabled periods to run around and interact freely with pupils in the classroom. One respondent noted that the dog "doesn't do lots of work in classrooms but does a lot during break and lunchtime."

Of those interventions that took place out of class, only two were assigned specific areas (the forest school and farm), while in two further cases, the intervention took place at a child's home and within an "alternative provision" setting. In England, this describes the local authority's responsibility to provide full-time education for children or young people who are unable to access mainstream school for reasons including school exclusion, behavioral issues, or illness (DFE, 2013).

In terms of the amount of time animals spent in the settings, around half of the respondents who said they involved animals did so on a permanent basis, just over a third (35%) brought in animals on set days at regular intervals, while 5% used them occasionally. A few respondents operated a flexible timetable. Hence in one setting, pigs were brought in from spring to autumn while in other settings pigs were present on a permanent basis. Most settings reported arrangements for animals to be cared for outside academic terms, although this depended upon the nature of the animal's needs and the relationship with the owners. For example, in one setting a caretaker lived on site and looked after the fish, while all the other animals were taken home by different members of staff during half terms. In another setting, hens and ducks were ever-present while a school dog visited every Thursday and another each Friday.

3. *With a focus on dogs, what are the perceived benefits, challenges, and possible misconceptions of involving animals in educational contexts?*

All participants were asked how strongly they agreed with statements looking at their perceptions of dogs and dog behavior on a 5-point Likert scale (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). Chi-square tests (X^2) were conducted to see if there were any significant differences between those with and without a school dog. Table 5 shows the differences in responses between those who did and did not have a school dog.

Those in bold had a z score of +1.96, meaning that those in this category were significantly more likely than expected to select this option. Those in italics had a z score of −1.96, meaning that those in this category were significantly less likely than expected to select this option.

As shown in Table 5, those with a school dog were more likely to "neither agree nor disagree" or "disagree" that some breeds are more suitable than others (X^2 (4) = 20.48, $p < 0.01$) and that a wagging

Table 5. Perceptions of Dogs and Dog Behavior

How strongly do you agree or disagree with the following statements?		Have you got a school dog?					
		Yes		No		Total	
		N	%	N	%	N	%
Some breeds are more suitable for this kind of work than others.	Strongly agree	96	48.0%	148	56.5%	244	52.8%
	Somewhat agree	50	25.0%	85	32.4%	135	29.2%
	Neither agree nor disagree	**38**	**19.0%**	*21*	*8.0%*	59	12.8%
	Somewhat disagree	**7**	**3.5%**	*2*	*0.8%*	9	1.9%
	Strongly disagree	9	4.5%	6	2.3%	15	3.2%
A wagging tail is a sign of a happy dog.	Strongly agree	51	25.9%	75	28.6%	126	27.5%
	Somewhat agree	*61*	*31.0%*	111	42.4%	172	37.5%
	Neither agree nor disagree	52	26.4%	54	20.6%	106	23.1%
	Somewhat disagree	**21**	**10.7%**	*13*	*5.0%*	34	7.4%
	Strongly disagree	12	6.1%	9	3.4%	21	4.6%
Some breeds are hypoallergenic and so more suitable for this work.	Strongly agree	48	24.0%	98	37.1%	146	31.5%
	Somewhat agree	68	34.0%	92	34.8%	160	34.5%
	Neither agree nor disagree	51	25.5%	59	22.3%	110	23.7%
	Somewhat disagree	**21**	**10.5%**	*8*	*3.0%*	29	6.3%
	Strongly disagree	12	6.0%	7	2.7%	19	4.1%
A dog that growls should be reprimanded.	Strongly agree	10	5.1%	13	5.0%	23	5.0%
	Somewhat agree	22	11.2%	43	16.5%	65	14.2%
	Neither agree nor disagree	*45*	*23.0%*	**103**	**39.5%**	148	32.4%
	Somewhat disagree	61	31.1%	63	24.1%	124	27.1%
	Strongly disagree	**58**	**29.6%**	*39*	*14.9%*	97	21.2%
Lip licking and yawning can indicate that a dog feels stressed.	Strongly agree	**80**	**40.2%**	*61*	*23.2%*	141	30.5%
	Somewhat agree	**62**	**31.2%**	50	19.0%	112	24.2%
	Neither agree nor disagree	*46*	*23.1%*	**136**	**51.7%**	182	39.4%
	Somewhat disagree	11	5.5%	15	5.7%	26	5.6%
	Strongly disagree	0	0.0%	1	0.4%	1	0.2%
Rescue dogs would not be suitable as school dogs.	Strongly agree	12	6.0%	20	7.6%	32	6.9%
	Somewhat agree	19	9.5%	40	15.3%	59	12.8%
	Neither agree nor disagree	68	34.2%	103	39.3%	171	37.1%
	Somewhat disagree	51	25.6%	63	24.0%	114	24.7%
	Strongly disagree	**49**	**24.6%**	**36**	*13.7%*	*85*	*18.4%*

tail is a sign of a happy dog (X^2 (4) = 12.5, p = 0.01). Those with a school dog were more likely to "disagree" that some breeds are hypoallergenic and so would be more suitable for this work (X^2 (4) = 20, $p < 0.01$) and were also more likely to "disagree" or "strongly disagree" that a dog that growls should be reprimanded (X^2 (4) = 24.92, $p < 0.01$). Those with a school dog were more likely to "strongly agree" or "agree" that lip licking and yawning can indicate that a dog feels stressed (X^2 (4) = 41.91, $p < 0.01$) but were more likely to "strongly disagree" that a cross-breed or mongrel will be healthier than a pedigree dog (X^2 (4) = 12.34, p = 0.02). Finally, those with a school dog were more likely to "strongly disagree" that rescue dogs would not be suitable as school dogs (X^2 (4) = 11.5, p = 0.02).

The discussion section explores the research questions further, drawing on qualitative responses from participants.

Discussion

The survey data shows clearly that support for AAE is spread across education phases from preschool through to adult education. AAE takes place in mainstream as well as special school contexts. AAE is also evidenced in the public and private sectors. The geographical spread shows that there are AAE practices taking place across the globe, although we received more respondents, particularly with relation to the involvement of dogs, from the UK and North America, where the organizations to support such interventions have some provenance. The UK's Pets as Therapy, for example, was established in 1983 while the Alliance of Therapy Dogs has 30 years' experience and now operates across the United States. Both organizations were among those named by respondents as providing training for dogs and guidance to schools. This may also reflect our sampling techniques, as one method of gaining responses was via existing networks, and these were mainly in the UK and United States.

Further research is needed to explore the relationship between the local and national infrastructure and the take-up of AAE within each country. For example, at a local level, it is interesting to note that 45% of respondents were in either middle or senior leadership roles. But does the style of leadership make a difference to the implementation of these approaches and to how successfully they become embedded into practice? In this survey personal interest in dogs and word of mouth were less of a factor in deciding to implement AAE than the wish to improve pupil well-being, confidence, and behavior. However, several respondents who did not have AAE commented that this was something they would like to implement but could not, due to lack of support from senior management. In future research it would be interesting to consider how factors such as curriculum requirements, health and safety regulations, and the existence of supportive networks affect decisions as to whether AAIs should be implemented.

Turning to the animals, then, clearly certain species (e.g., horses) require a more significant environmental infrastructure and financial investment compared to "low-maintenance" species (e.g., goldfish, snails). Responses indicated that dogs were by far the most frequently involved animal, although again this may partly reflect our sample. Although the questionnaire did not specifically ask respondents why they chose a particular animal, or the perceived advantages of keeping one species over another, comments illustrate strong views on the subject, particularly when considering dogs. Dogs were viewed as suitable by many due to their potential to bond with children; for example, some said that dogs have "a special relationship" with children, and others that they were "well suited to forming positive relationships with children."

The data highlights some of the debates that need to be raised among the educational community when thinking about involving dogs in educational practices. The well-being of any animal partner needs to have equal consideration when planning activities, which should enrich the dog's experiences as well as those of the children; however, the survey demonstrated a wide variety of approaches. For example, in the case of dogs, nearly 40% of respondents noted that their dog was in school daily, and

38% noted that their dogs were in school weekly. Many responses referred to the positives of the dog being present, and this was reported by several as being good for staff as well as pupils:

> We have found that having a school dog has benefits for our staff members as well as the students. This is a factor which contributed to us getting a school dog as staff well-being is high on our agenda due to the context of the school, which is directly under Grenfell Tower. As such the mental well-being of both staff and students is a key priority.

Others also felt that bringing the dog to school was of benefit to staff, pupils, and the dog:

> The staff find her VERY therapeutic at the current time. They take her out and it gives them some mind space to breathe and relax for a short time. The rest of the day she's in my office sleeping eating playing. With me and my team. Better than her being at home alone!

The survey indicates that some dogs are expected to work very flexibly, adapting to working with children and adults in a variety of environments, with varying numbers of people, and often for considerable amounts of time. The need for schools to follow guidelines to ensure the safety and welfare of dogs is gaining traction as interest in AAIs increases (Grové et al., 2021). While many responses indicated that dogs typically work with individual children (45%), one in 10 responses indicated that the dog worked with whole classes. While many dogs may thrive in these situations, there may be others for whom this causes stress, overexcitement, and anxiety. As one respondent noted, "We did have a school dog, but it didn't work out as it got excited and sometimes overwhelmed by the children. I think there is an awful lot to consider when deciding on a school dog."

The results clearly show differences of opinion in practices around the involvement of young dogs. In the UK, the Kennel Club Educational Trust (n.d.) recommends that dogs be at least 12 months old before becoming involved in AAE, yet this was not reflected in responses in the data. For example, there was no disguising one respondent's excitement about having a puppy: "I've just bought a puppy and can't wait to take him to school!" What is unclear is the extent to which individuals had undertaken sufficient research as to the pros and cons of featuring a puppy within an intervention. One respondent was clear that puppies should not feature in any intervention as "they need their sleep!" Another expressed "grave concerns over the use of puppies in schools" and likened it to child labor, commenting, "Puppies should enjoy puppyhood." Other respondents perceived value in bringing in a puppy so that they became familiar with the school environment from a young age:

> I brought my dog in to school from getting him as a puppy, getting him used to the school building with a visit once a week over the summer holiday. He met a few children from my class who were in the holiday club there and built up to him being with the whole class.

Other areas of debate related to breed of dog. It is clear from responses that some educators believe that breed may determine suitability for the role, although those with a school dog were more likely to "neither agree nor disagree" or "disagree" that some breeds are more suitable than others. Some responses highlighted choice of breed as important—for example, selecting a cockerpoo puppy specifically to "minimize risk of allergies" among child participants. Again, those with a school dog were more likely to "disagree" that some breeds are hypoallergenic and so would be more suitable for this work, and research suggests that no specific breed of dog can be guaranteed to shed less allergens than another (e.g., Nicholas et al., 2011). Some selected a puppy because of the perception that a specific breed had a reputation of being "good with children." Other respondents had a broader understanding of dogs as individuals. As one respondent put it, "Each dog is an individual—breed utilized, time in direct contact with pupils, etc. Temperament must be perfect!"

Several respondents indicated choosing to involve their dog because they were such fantastic family

pets. However, school life and home life are very different environments that produce very different experiences. The IAHAIO White Paper (2018, p. 8) is very clear that "not all animals, including many that would be considered 'good pets' by their owners, are good candidates for AAI," and some responses did acknowledge context-specific factors:

> The dog needs to be right for the school and well trained. This should never be a situation of oh my great pet would make a great therapy dog.

The extent to which personal testimony played a part in deciding whether to use a particular dog needs to be explored further. One respondent, for example, drew on their own rescue narrative:

> My dog used to live in someone's backyard and was 20 lbs overweight. They were moving and I was able to rescue her to be with my blind almost deaf 17-year-old dog. She had to learn to walk on a leash. Her personality was transformed moving in with us. So, a dog you never would have thought could do this is perfect for the job. Her developing temperament let me know that we should test train and apply.

Temperament featured in many of the responses. IAHAIO recommends that "only those with the proper disposition and training should be selected for AAI. Regular evaluations should be performed to ensure that the animals continue to show proper disposition" (2018, p. 8). Organizations such as Pets as Therapy and Burns by Your Side have structured training and assessment programs. However, where educators bring in their own dogs, such arrangements may be less rigorous. In this survey, 91% of the dogs involved belonged to members of staff. While the majority had undertaken specific training to become involved, 18% had only been to basic puppy training classes, and 12% of respondents had done no specific training with their dogs before bringing them in to school.

No respondent acknowledged that environment could play a role in how well an animal may cope with a given situation. For example, as well as dogs sometimes being expected to be flexible enough to work with individuals and small and large groups, they were expected to do this in quiet rooms, classrooms, and informal learning spaces such as the playground. Howie (2015) recommends that handlers pay better attention to what is going on around them, understanding what is distracting or stressful for the dog, anticipating these factors, and having a plan for dealing with them. Being such a centered, present, and attentive handler is important, but may be particularly challenging for teachers who bring their own dogs into the classroom and thus by necessity divide their attention between dog and children.

The amount of time a dog was in school also varied greatly. Fifty-seven percent of responses indicated that the dogs were in school for 5–7 hours at a time. However, more research is needed in how this time is spent, as this could vary from setting to setting. For example, one respondent stated:

> I think it's important to note that whilst our school dog is in school for a long number of hours on her days at school, no more than 3 hours of this are contact time with students. The remainder of the time she is in an office with myself or our HR manager, with a bed and toys etc.—this is her relaxing time. She stays at work with me as she much prefers being in my office or the HR manager's office than being at home on her own. She is also walked three times a day by staff who volunteer to do this.

Very few responses acknowledged the role of the handler as also being an important element in successful interventions. It was unclear as to whether preparation had been given to help handlers understand the children's needs too, which is important as "handlers need to understand the needs of the recipients involved. They should have received training in the human context in which the AAI will occur" (IAHAIO, 2018, p. 7), although one respondent did suggest:

> The training of the animal is often given more importance than that of the human handler. It

should be required that the human go through graduate-level courses focusing on AAI before having a therapy dog in their school.

Several responses acknowledged that some respondents had very little personal experience with dogs, although they felt positive about the benefits of a school dog:

I am aware that our school are looking into introducing a reading/well-being dog within the setting in the next couple of years. I am really looking forward to being involved. I have never had a dog of my own, although have some experience of dogs within my extended family. I believe that the benefits of children's positive interactions with animals are vast and should be promoted within education settings.

Further research is needed to establish the role environmental factors such as regulatory restrictions and, more generally, cultural attitudes play in the adoption of AAIs. As one respondent from Asia explained:

I work in an international school in Thailand. Cultural attitudes towards dogs in Asia can be very mixed and are very different to the West. Dogs as pets (usually pedigree) is a relatively modern/middle-upper class development. Some of our students do have dogs and care deeply about animals, but there are many strays in Thailand and an attitude of indifference towards them/helplessness about fixing the problem from the general population.

An organisation working in one country in the Middle East explained that while it can operate its reading-to-dogs scheme in several international schools, there are challenges in that dogs are perceived by some parents, staff, and elements in society at large as being dangerous and unclean. Studies based on surveys of children and adults in the UK, Italy, and Spain suggest that those whose families own dogs generally have a more positive attitude than those who do not (Lakestani et al., 2011).

The limitations of this study are those associated with online surveys, including the lack of interviews to clarify answers and the potential bias of those who chose to participate. As with most studies of this nature, there is selection bias in gathering data from participants that chose to host AAIs. Participants were also required to have access to the Internet and, given its international scope, to feel comfortable completing the survey in English. While the survey captured wide-ranging data on the characteristics of educators and animals, as well as perceptions on the use of AAIs, further studies might explore the characteristics of the intended beneficiaries.

The field of AAIs is an emotive one that attracts strong views, particularly from those who are passionate about animal rights. There are important ethical considerations, and the lack of universal guidance raises questions around potential abuses. As one respondent explained:

I fundamentally disagree with using animal for human benefit. . . . I would not advocate having pets of any kinds in school. We have birds and squirrels, a mouse and the occasional fox that choose to visit us of their own free will and to leave when they are scared. Our children learn how to care for these wild animals.

The focus on education and training is an important theme that emerged from the research conducted for this paper. As one respondent succinctly put it:

A lot of schools seem to bring a staff pet in to school and declare it their school dog. This casual approach creates a risk both for the pupils and for the dog. School dogs need to be well trained, pupils and staff instructed on how to interact with it, and the school needs a structured and planned approach.

The growing enthusiasm for AAIs should not blind educators to the challenges. There is a danger of overlooking the negative aspects of such interactions, including economic costs, potential injuries, how animals might distract learners who are not part of the intervention, and logistical challenges. And, at a fundamental level, it cannot be assumed

that all children like animals or will respond in a positive manner. As one respondent put it:

> Some children do not like animals and don't always have a choice at school as to whether they are in the same room. My experience of a dog in a different school to the one I worked in caused a lot of emotional distress for a couple of children. People who love animals don't always seem to understand the genuine distress from someone who doesn't like animals or has a fear of dogs.

We also need to consider what the dog may be gaining from the process. Our survey tended to find responses focused on benefits for children, with occasional references to staff and dog well-being. While this may reflect the questions posed, it also is something to consider. One response noted, "It's a very romantic idea but the dog can be very needy and won't always participate." This was listed as a negative of AAE, but we would argue that the dog needs to be viewed as sentient and should have the right to be able to withdraw their consent to participate at any time. The paramount consideration behind any AAI should be the welfare of all participants, particularly children and the animals themselves. Organizations such as the UK's Royal Society for the Protection of Animals (established in 1824) and other animal welfare charities provide guidance on how to educate children and young people on meeting the five basic needs of animals: a suitable home, good diet, the opportunity to express normal behavior, to live with or apart from other animals according to their needs, and to be protected from pain, suffering, injury, or disease. We would argue that we should go beyond this, so that interventions enrich the lives of the animals involved. Further research to explore how this can be recognized and managed in educational contexts would help identify best practices.

Summary for Practitioners

This international study provides empirical data on the views of over 600 teachers and other education stakeholders about the involvement of animals in educational contexts. We asked questions about what sorts of animals were to be found in schools, what activities they undertook, and what rationale educators gave for their presence. There is a shared fundamental belief that animals can make a positive difference in the education of children and young people. Otherwise, these animals would not be present in such varied contexts and receive support from wide-ranging stakeholders. A particular emphasis was placed on the potential role animals can have in supporting learner well-being.

A wide range of animal species were reported to be involved in schools of all sizes and in rural and urban contexts. Animals were involved in interventions with learners of all ages, although most of our respondents were working with 3–11-year-olds.

The most popular species reported in this study were dogs, some of which visited as part of programs organized by external organizations. The nonprofit nature of the organizations that support the educational providers, and the wide use of volunteers, reflects the largely altruistic nature of animal-assisted interventions (AAIs).

While the survey suggests a strong appetite for AAIs, underpinning this are some important questions about the implications of an unregulated system. The survey revealed a variety of perspectives and positions regarding how AAIs could be implemented most effectively, and this results in a varied picture of practice. For example, while most external organizations with visiting dogs limited time spent in school to 1–2 hours, the data reveals that many dogs who are in school belong to staff members, and so are in school for 5–7 hours at a time. There were a variety of perspectives regarding how appropriate it is for puppies to be in school. Dogs were expected to be very flexible—working with individuals, groups, and whole classes, in classrooms, small spaces, and outdoors.

While different contexts will require appropriate approaches, the need for high-quality, robust education and training is an important theme that emerged from the research conducted for this paper. Several respondents noted that they sought practical

advice from social media because there were limited alternative sources of guidance. As one respondent put it:

> A lot of schools seem to bring a staff pet in to school and declare it their school dog. This casual approach creates a risk both for the pupils and for the dog. School dogs need to be well trained, pupils and staff instructed on how to interact with it, and the school needs a structured and planned approach.

In fact, we would argue that we need to raise educators' awareness of the animals in these interventions to ensure they go beyond meeting the basic needs of any animal. While Table 5 indicates that in this survey, those respondents with school dogs have fewer misconceptions about dog behavior (for example, they were less likely to agree that a dog who growls should be reprimanded) than those without dogs, in several schools limited training for staff and pupils in preparation for the interventions had taken place. Thus, there is a need for more guidance to be developed for use in school settings.

We need to support educators in their practice so that they are able to recognize the animals as partners in the process. This will enable them to plan their experiences to enrich the lives of the animals, while advocating for their well-being—just as we would for our learners. As described so eloquently by Suzanne Clothier, we must bring joy into their lives in the same way they can bring joy into ours:

> At first unconsciously, and then with deliberation, I began to evaluate all methods, philosophies and techniques against this simple standard: the light in the dog's eyes. Over and over I asked myself, "Does this allow the light to shine?" And in every dog's eyes I found my answer. (Clothier, 2002, p. 3)

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References

Beetz, A., Julius, H., Turner, D., & Kotrschal, K. (2012). Effects of social support by a dog on stress modulation in male children with insecure attachment. *Front. Psychology*, *3*, 352.

Beetz, A., Kotrschal, K., Turner, D. C., Hediger, K., Uvnäs-Moberg, K., & Julius, H. (2011). The effect of a real dog, toy dog and friendly person on insecurely attached children during a stressful task: An exploratory study. *Anthrozoös, 24*(4), 349–368.

BERA. (2018). *Ethical guidelines for educational research* (4th ed.). BERA.

Brelsford, V. L., Meints, K., Gee, N. R., & Pfeffer, K. (2017). Animal-assisted interventions in the classroom—a systematic review. *Int J Environ Res Public Health*, *14*(7), 669.

Callegaro, M., Manfreda, K., & Vehovar, V. (2015). *Web survey methodology*. Sage.

Clothier, S. (2009). *Bones would rain from the sky: Deepening our relationships with dogs*. Grand Central Publishing.

Crossman, M. K. (2017). Effects of interactions with animals on human psychological distress. *Journal of Clinical Psychology, 73*, 761–784. https://doi.org/10.1002/jclp.22410

Davies, T. N., Scalzo, R., Butler, E., Stauffer, M., Farah, Y. N., Perez, S., Mainor, K., Clark, C., Miller, S., Kobylecky, A., et al. (2015). Animal-assisted interventions for children with autism spectrum disorder: A systematic review. *Educ. Train. Autism Dev. Disabil., 50*, 316–329.

Department for Education (DFE). (2013). *Alternative provision statutory guidance for local authorities.* DFE.

Drabble, C. (2019). *Introducing a school dog: Our adventures with Doodles the Schnoodle*. Jessica Kingsley.

Fine, A. H. (Ed.). (2019). *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions* (5th ed.). Academic Press.

Foulkes, D., & Pinto, L. E. (2015). Well-being and human-animal interactions in schools: The case of "Dog Daycare Co-Op." *Brock Education Journal*, *24*(2), 61–73.

Gandenberger, J., Flynn, E., Moratto, E., Wendt, A., & Morris, K. (2022). Molecular biomarkers of adult human and dog stress during canine-assisted interventions: A systematic scoping review. *Animals, 12*(5), 651. https://doi.org/10.3390/ani12050651

Gee, N. R., Rodriguez, K. E., Fine, A. H., & Trammell, J. P. (2021). Dogs supporting human health and well-being: A biopsychosocial approach. *Frontiers in Veterinary Science*, *8*, 630465. https://doi.org/10.3389/fvets.2021.630465

Grové, C., Henderson, L., Lee, F., & Wardlaw, P. (2021). Therapy dogs in educational settings: Guidelines and recommendations for implementation. *Frontiers in Veterinary Science*, *8*, 655104. https://doi.org/10.3389/fvets.2021.655104

Hall, S. S., Gee, N. R., & Mills, D. S. (2016) Children reading to dogs: A systematic review of the literature. *PLoS One*, *11*(2), e0149759.

Herbert, S., & Lynch, J. (2017). Classroom animals provide more than just science education. *Science & Education*, *26*, 107–123.

Howie, A. (2015) *Teaming with your therapy dog.* Purdue University Press.

International Association of Human-Animal Interaction Organisations (IAHAIO). (2018). *The IAHAIO definitions for animal assisted intervention and guidelines for wellness of animals involved in AAI.* https://iahaio.org/wp/wp-content/uploads/2021/01/iahaio-white-paper-2018-english.pdf

Jalongo, M. R., Astorino, T., & Bomboy, N. (2004). Canine visitors: The influence of therapy dogs on young children's learning and well-being in classrooms and hospitals. *Early Childhood Education Journal*, *32*(1), 9–16.

Julius, H., Beetz, A., Kotrschal, K., Turner, D., & Uvnäs-Moberg, K. (2012). *Attachment to pets*. Hogrefe.

Kennel Club Educational Trust. (n.d.). *Bark and read: Standards of practice for providers of animal assisted interventions in schools*. https://www.thekennelclub.org.uk/media/1935/bark-and-read-standards-of-practice.pdf

Kropp, J. J., & Shupp, M. M. (2017). Review of the research: Are therapy dogs in classrooms beneficial? *Forum on Public Policy Online*, no. 2. https://forumonpublicpolicy.com/wp-content/uploads/2018/02/Final-Draft-Kropp-and-Shupp.pdf

Lakestani, N., Donaldson, M., Verga, M., & Waran, N. (2011). Attitudes of children and adults to dogs in Italy, Spain, and the United Kingdom. *Journal of Veterinary Behavior*, *6*(2), 121–129.

Lavrakas, P. J. (2008). *Encyclopaedia of survey research methods*. Sage.

Levinson, B. M. (1962). The dog as a "cotherapist." *Mental Hygiene*, *46*, 59–65.

Lewis, H. (2017). Puppy dog tales: Working with children and animals. *Early Years Educator*, *19*(6), 46–48.

Lewis, H. (2021). How school pets can help children to learn and read. *The Conversation*. https://theconversation.com/how-school-pets-can-help-children-to-learn-and-read-160064

López-Cepero, J. (2020). Current status of animal-assisted interventions in scientific literature: A critical comment on their internal validity. *Animals, 10*(6), 985.

Mayer, W. V. (1980). Objectives of animal use in biology classes. In H. McGiffin & N. Brownley (Eds.), *Animals in education: Use of animals in high school biology classes and science fairs*. https://www.wellbeingintlstudiesrepository.org/cgi/viewcontent.cgi?article=1000&context=hebg

McNicholas, J., & Collis, G. M. (2000). Dogs as catalysts for social interactions: Robustness of the effect. *British Journal of Psychology*, *91*(1), 61–70.

Myers, G. (1998). *Children and animals: Social development and our connection to other species.* Westview Press.

Nicholas, C. E., Wegienka, G. R., Havstad, S. L., Zoratti, E. M., Ownby, D. R., & Johnson, C. C. (2011). Dog allergen levels in homes with hypoallergenic compared with nonhypoallergenic dogs. *American Journal of Rhinology & Allergy*, *25*(4), 252–256. https://doi.org/10.2500/ajra.2011.25.3606

OECD. (2020). *How's life? 2020. Measuring well-being*. OECD.

O'Haire, M. E. (2013). Animal-assisted intervention for autism spectrum disorder: A systematic literature review. *Journal of Autism and Developmental Disorders*, *43*(7), 1606–1622.

Pavlides, M. (2008). *Animal-assisted interventions for individuals with autism*. Jessica Kingsley.

Pinto, A., De Santis, M., Moretti, C., Farina, L., & Ravarotto, L. (2017). Medical practitioners' attitudes towards animal assisted interventions: An Italian survey. *Complementary Therapies in Medicine*, *33*, 20–26.

Rodriguez, K. E., Herzog, H., & Gee, N. (2021). Variability in human-animal interaction research. *Front Vet Sci., 7*, 619600. https://doi.org/10.3389/fvets.2020.619600

Rud Jr., A. G., & Beck, A. M. (2003). Companion animals in Indiana elementary schools. *Anthrozoös*, *16*(3), 241–251. https://doi.org/10.2752/089279303786992134

Scandurra, C., Santaniello, A., Cristiano, S., Mezza, F., Garzillo, S., Pizzo, R., Menna, L. F., & Bochicchio, V. (2021). An animal-assisted education intervention with dogs to promote emotion comprehension in primary school children: The Federico II model of healthcare zooanthropology. *Animals* (Basel), *11*(6), 1504. https://doi.org/10.3390/ani11061504. PMID: 34067357. PMCID: PMC8224599.

Statham, J., & Chase, E. (2010). *Childhood wellbeing: A brief overview*. Childhood Wellbeing Research Centre.

Wohlfarth, R., Mutschler, B., Beetz, A., Kreuser, F., & Korsten-Reck, U. (2013). Dogs motivate obese children

for physical activity: Key elements of a motivational theory of animal-assisted interventions. *Frontiers in Psychology*, *4*(796), 1–7.

Zasloff, R. L., Hart, L. A., & DeArmond, H. (1999). Animals in elementary school education in California. *Journal of Applied Animal Welfare Science*, *2*(4), 347–357. https://doi.org/10.1207/s15327604jaws0204_8

Zilcha-Mano, S., Mikulincer, M., & Shaver, P. R. (2011). Pet in the therapy room: An attachment perspective on animal-assisted therapy. *Attachment & Human Development, 13*(6), 541–561.