Children Australia
Volume 37 ▌ Number 3 ▌ pp. 115–123 ▌ © The Authors 2012 ▌ doi 10.1017/cha.2012.30

Advising the Alien: Investigating Young Children's Learning of Dog Safety Messages

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The purpose of this study was to evaluate the impact of a dog safety program on the protective behaviour knowledge of children in the first year of school. This mixed methods study utilised pre- and post-testing (N = 121), observation of six sessions and individual interviews with a sub-group of children (N = 49). These interviews utilised a co-constructed narrative strategy where children were invited to assist an imaginary alien to safely navigate hypothetical safety scenarios. All schools improved their knowledge of safe dog interactions, with an overall increase in knowledge of 18%. Most children were able to apply abstract knowledge to hypothetical scenarios involving accompanied and unaccompanied dogs. Of concern, 24% of children still believed that dogs liked being patted on their heads and 16% of children had not overcome their intuitive reaction to run from a threatening dog. Whilst the program has made significant improvements to children's knowledge of safe dog-interactions, more gains can be made. We identify important opportunities for improving dog safety programs in general. We comment on the need to consider the impact of different models of child–dog relations in terms of either similitude or difference.

■ **Keywords:** children, safety, prevention, risk, knowledge integration, educational intervention

Introduction

Young children and dogs are often presented in the media as playful companions. As adults, we experience a warm feeling when presented with images of soft puppies being cuddled by attractive children. Having a family pet is seen in our society as a suburban birthright and as a means to teach children about caring for a smaller dependent. Unfortunately, interactions between young children and dogs do not always tell a happy story. As the hospital statistics show, young children are the citizens most at risk of serious injury from physical altercations with dogs.

This paper reports a research study which investigated young children's participation in a dog safety education program. We describe how we designed a research process which embraced the challenge of protecting child participants while treating them as reliable informants of their understandings. We discuss how the education program, though intended to teach children protective behaviours, had mixed effects, owing to the diverse ways in which children interpreted the safety messages they encountered.

Young children and dogs: a recipe for injury

Available information about children's exposure to risk from dogs comes mainly from statistical reviews of hospital admissions following dog attacks. A remarkably consistent pattern is seen over time, and from different state and national health systems (Feldman, Trent & Jay, 2004; Greenhoulgh, Cockington & Raftos, 1991; Hornsberger, Staft, Rufnacht, Pillenel & Steiger, 2004; McBean, Taylor & Ashby, 2007; Thompson, 1997). Children are at greater risk from injury from interactions with dogs than are adults, and this is particularly the case for children aged 0 to 6 years old. Children's injuries tend to be to the head and face, making them more severe than adults. Males are also more highly represented in statistics for dog bites than females, making young boys the highest risk group (Chapman, Cornwell, Righetti & Sung, 2000; Feldman et al., 2004; Greenhoulgh et al., 1991; McBean et al., 2007).

Family pets and known dogs constitute the greatest risk to children on the basis of hospital admissions (Feldman et al., 2004; McBean et al., 2007). Whilst some dog breeds have a bad reputation for aggression, there were more dog-related human fatalities from Labradors than Pit-Bull terriers (2:1) recorded in the United States in 2001 (Peak, 2002,

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p. 450). In fact, the common risk perception that some dog breeds such as Labradors are particularly suited to families and tolerant of children may be a risk factor for reduced vigilance around these dogs, increased contact with them and therefore increased incidents. Further evidence from an observational study indicates that children generally initiate interactions with pet dogs, rather than the reverse, and further identifies child behaviours that disturb dogs including making loud noises, pulling tails and sitting on them (Wilson, Dwyer & Bennet, 2003). The American Veterinarian Association also identifies children's tendency to maintain eye contact with dogs as a risk factor (American Veterinary Medical Association [AMVA], 2001). Children's problematic interactions with dogs may be motivated by well-intended affection. In one study, 40% of parents surveyed agreed their child would 'hug or kiss' a pet dog (Wilson et al., 2003). Much of this reported behaviour is consistent with studies of young children's normal play behaviour with peers (e.g. running and yelling) and with toys (e.g. manipulating and cuddling) (Jarvis, 2007; MacNaughton, 1995). This suggests it may be problematic for children to transfer understandings of play from other contexts (peer and toy play) to their interactions with dogs. Widely reported gender differences in children's play, which report boys' play as more boisterous than that of girls, may help to explain the greater representation of boys in dog bite statistics.

Adults' approaches to supervision may also contribute to children's risky interactions with dogs. One study reports that most bites occurred when there was no active supervision (Kahn, Bauche & Lamoureux, 2003). This was confirmed by a parent survey that found 70% always allowed unsupervised child-dog interactions and 55% did not believe their pet dog would ever bite their child (Wilson et al., 2003).

Many aspects go unexamined in this research, which generally relies on the standard data collection practices of hospital emergency departments. It is worth noting that '[e]ach community has a unique set of dog-bite related problems' (AMVA, 2001, p. 1734). This suggests that local factors relating to characteristics such as social class, ethnicity and geographic location might impact on the nature of children's interactions with dogs. The statistical studies do not cast light on these dimensions. For instance, it is known in Australia that rural indigenous communities foster different kinds of relationship between dogs and families than mainstream suburban families (Bradley & Litchfield, 2009). Depending on the particular indigenous community, this may involve the use of dogs for hunting, for physical warmth and comfort and, in the case of the dingo, the spiritual significance with which it is associated (Rose, 2000). In multicultural societies such as Australia, there may well be a range of cultural beliefs and practices impacting on children's interactions with dogs in ways that are seldom reported. For example, children from cultures that in general do not keep dogs as companion animals, such as Muslim cultures, may be at less risk of physical injury from dogs due to reduced exposure, or may be at higher risk due to less familiarisation and experience in 'reading' dog emotions, demeanours or behaviours (for more information on companion animals and Muslim cultures, see Al-Fayez et al., 2003).

Educational interventions

Educational programs aim to reduce the likelihood that children will experience aggression from dogs and, more broadly, promote responsible and enjoyable pet ownership. The most common program types involve a single session (30–60 minutes) conducted in a school classroom by an expert dog handler. Emphasis is generally given to recognising from a dog's demeanour whether it is safe to approach; how to approach a dog when it is safe to do so; and protective behaviours for the child to adopt in the case of potential dog aggression. Examples include Prevent-a-Bite (Chapman et al., 2000), Delta Dog Safe (Wilson et al., 2003) and Responsible Pet Ownership (Coleman, Hall & Hay, 2008). Supplementary materials for teachers aim to encourage teacher follow-up and knowledge consolidation after the session.

Alternative approaches are targeted directly at parents or children. For instance, in the PAWS program offered in some US states, a package is distributed by post which consists of a colouring-in book, information sheet and the URL of a local hospital dog safety web-page (Bernardo et al., 2001). Digital technologies and the internet have recently begun to be used in the delivery of dog safety education. The American Veterinary Medical Association has produced the 'Blue Dog' CD rom with parent guide and has a set of short videos accessible from its website (Meints & Keuster, 2009).

The Prevent-a-Bite program has been evaluated by videoing children's interactions with a tethered dog in the school yard (Chapman et al., 2000) This is a rare example of a study using a real dog, which the tightening of ethics approval processes has now removed from the realm of possibilities available to researchers. It was found that children exposed to the program were more cautious in their approach to the dog. However, restrictions on the free movement of the dog limited the researcher's access to the full range of children's learned protective behaviours. Moreover, the fact that it was tethered may have prompted children to infer that it was an 'owned', 'familiar' and 'trained' dog as opposed to a stray.

The Responsible Pet Ownership program evaluation provided children with a range of contexts for displaying their ability to recognise dog emotions post intervention (Coleman et al., 2008). Cartoons, photographs and video footage of dogs were all used and children were also asked to role-play safe behaviours when approaching dogs. It was found that most children could identify dog emotions in the manner taught after two weeks, but not after eight weeks. Children's role-play responses did, however, persist for four months. This suggests that behavioural training may hold more promise for longer-term retention of dog safety messages by children than interpretation of emotional signals.

A study of kindergarten children exposed to the Delta Dog Safe program used more context-based depictions of dogs (Wilson et al., 2003). Children were shown pictures of dogs in different contexts, representing high risk (e.g. while eating) and low risk (e.g. on leash) conditions for interaction and were simply asked whether they would or would not approach the dog. There was a general increase in caution persisting to four weeks; however, children were less able to distinguish between high and low risk scenarios. Interestingly, children whose parents had received an information sheet made the greatest gains. This suggests the need to consider the broader socio-educational network in which children are located including their parents as educators.

The most recent study evaluated a CD-based resource featuring cartoon characters designed to engage children and parents in learning about dog safety outside a classroom context (Meints & Keuster, 2009). Unlike the other studies (but consistent with ours), it began by establishing a baseline of children's untrained reactions to depicted scenarios. The researchers devised a 'test yourself' option using similar scenarios to those depicted in the CD. The child had to decide whether the character should interact with the dog or engage in an alternative activity based on judgements of safety. Children found the CD easy to use and their performance improved significantly on exposure to the resource. Additional practice with parents resulted in greater improvements for younger children (3–5 years old). Only short-term gains were measured in this study which was undertaken two weeks after initial exposure. Families' access to technology is also a limiting factor in the effectiveness of such a program.

Methods

A mixed methods design, incorporating quantitative and qualitative methods, was chosen for the evaluation. The project was designed to investigate both immediate and longer term impacts of the Delta Dog Safe program by incorporating assessment measures at two weeks and at eight to ten weeks. Over the longer term, it is not recall alone but the integration of new information into a child's knowledge base which is necessary for its application in practice and transfer into contexts not identical to those featured in the educational program. An innovative method using imaginary character scenarios was developed to investigate knowledge integration in the longer term. The design took into account the importance of both local context (class, school and community factors) and generalisability. The total number of children involved in the pre- and post-test phases (over 120) was adequate for generalisation regarding the impact of the program.

Council district boundaries were used to guide school selection for the reason that dog ownership and infringement statistics are kept by municipal councils. At the same time, schools were selected for their ability to represent a range of community profiles. One school from each of five metropolitan and one rural council district were identified based on a list of schools due for a DDS presentation within the study time frame. The limitation of rural sites to a single school was based on the low representation of these schools participating in the DDS program and the need to keep researcher travel time within reasonable parameters. Owing to the low representation of rural schools in the project, a rural-urban comparison was not conducted.

Children in the Junior Primary grades (aged 5 to 7 years) were targeted for this evaluation based on their identification as a high risk group in the epidemiological studies identified by the literature. A cohort of one class from each of six schools (estimated as 20–25 students per class totalling at least 120 children) was judged to adequately balance the demands of both the statistical and the qualitative data analyses.

The study was carefully designed to minimise the risk of distress to children and to be developmentally appropriate. Personnel conducting child interviews were experienced in working with young children. Informed consent was gained from a very high percentage of parents (100% in most classes) indicating their perception that the project was both valuable and non-threatening. Consent was also sought and gained from class teachers and DDS presenters.

Observation of sessions

Delta Dog Safe sessions run for one Junior Primary class in each participating school (six sessions in total) were observed by a member of the research team. Detailed notes were taken using a standardised but flexible template, which covered the mode of delivery, sequence of activities, language used by the presenter and interactions with children. A different presenter gave each session.

Session notes were analysed to identify similarities and differences between sessions and the coverage of 'key messages' as defined by the program. Key messages were defined in terms of their core concepts and their components based on resource materials provided by Delta Dog Safe (see Appendix A). For instance, Key Message 7 (*There is a correct way to behave if approached by an unleashed, unknown dog*) has five message components: see if the dog looks frightened, angry or friendly; check the adult you are with; ask the owner's permission and ask the dog's permission. The final message component relates to how to pat a dog. The DDS program advises children not to reach over a dog's face to pat it on the head, but to pat its chest instead. Avoidance of the head is consistent with advice offered by Peak (2002) who cautions that reaching over a dog's face to pat its head 'may make the dog nervous' (p. 452). However, Peak differs regarding a safer alternative; she recommends patting the dog on its shoulder or back.

The researchers scored each session based on the coverage of key messages and subsidiary message components. Analysis of program delivery sessions also attended to the language and examples used by presenters and children. For instance, researchers noted the use of generalised and

specific descriptive terms for child and dog behaviours. They noted the use of comparative terms implying either differences or similarities between child and dog characteristics e.g. "You don't like loud noises and dogs don't either" (similar) or "That is not a smile; the dog is baring its teeth" (dissimilar). Such comparative terms, encouraging a child to consider dogs as like or unlike themselves, may influence children's behaviour towards dogs and, hence, the risk of dogs responding aggressively.

Assessing baseline knowledge and key message recall

A short quiz was used both to establish children's baseline knowledge one week prior to the DDS session and to assess recall two weeks following the session. Given the age of the children, the quiz was designed to be administered in a non written form using a show of hands to derive class scores. An 'eyes closed' format was chosen to minimise peer influence. This instrument was fully scripted to communicate clearly at the appropriate developmental level.

The quiz items were based on information emphasised in the Delta Dog Safe materials as communicating key messages of the program. The same quiz questions were administered on each occasion, but in a different sequence. Children's responses were analysed statistically by question and by school.

Knowledge integration

The imaginary scenario method has been used previously and successfully by researchers working with children in order to elicit their risk assessment and decision-making processes in a non-threatening manner (Gladwin, 2005; Hardwin, Backett-Milburn, Scott & Jackson, 2000). The extent to which DDS messages had become internalised by children over the longer term was assessed by the use of imaginary scenarios in individual interviews, held eight to ten 10 weeks after the presentation (see Appendix B). For this activity, a story concerning Gimbo, a little alien (Figure 1), was devised to elicit children's response. Embedded into this narrative were five scenarios involving elements of risk, three of which specifically involved dogs. Each scenario describes a situation that Gimbo finds himself in after landing in our strange world and stops at the point when Gimbo needs advice about 'what to do next'. The child is asked to provide Gimbo with advice. This cues the child to access his or her knowledge about strategies for managing general and dog-related risks in order to 'help' Gimbo.

Teachers were requested not to refer to the DDS session or dog safety when informing children of the interviews. The intention was to avoid as much as possible cuing the child to recall the DDS session rather than to draw on internalised knowledge. The two non-dog-related scenarios also off-set the effects of any 'priming'. Children's responses were analysed to identify themes relating to the DDS Key Messages.

FIGURE 1

(Colour Online) "Gimbo" an imaginary alien, visual stimulus for children's advice giving in interviews.

A sample of nine or ten children from the five suburban schools participated in this activity (total children = 49). 'Farmlands Primary' did not participate in this phase owing to insufficient parent consents. A gender balance in each class was aimed at and achieved in three out of five classes; the overall cohort was close to balanced at 25 boys and 24 girls.

Results

It was evident that the children enjoyed the Delta Dog Safe sessions and found them engaging. Though each Delta Dog Safe presenter had a different personal style, a high degree of consistency was found in the structure of sessions. All Key Messages (KM) were covered in most (4) schools. KM 1 (*A dog might not want to interact*) received the most consistent coverage. All presenters emphasised this point and explained a number of reasons why a dog may not want to interact with children, e.g. being fed, sleeping, feeling sick. KM 4 (*A frightened dog can be identified by signs it is displaying*) also

TABLE 1

Participating schools and their characteristics

School pseudonym	Enrolment	School card*	NESB	Dog:resident ration for district
Foothills Primary	230	10%	23%	1:7
Coastal Primary	170	17%	10%	1:6
Multicultural Primary	250	60%	40%	1:6
Eastern Primary	700	14%	50%	1:6
Outer North Primary	680	30%	30%	1:5
Farmland Primary	220	15%	0%	1:4

* In Australia, students from financially disadvantaged families are allocated a school card which enables discounts on school fees and other expenses. NESB: non-English speaking background.

received strong coverage with most presenters identifying several signs of fear, e.g. cowering, head down, looking away.

KMs 2 and 3 both concern angry dogs. Only one presenter included all components for both these messages. KMs 5 and 6 concern how to behave if approached by an unleashed, strange dog. While nearly every presenter covered these messages, none managed to include every one of the components recommended in the DDS materials.

Comparing base-line and recall quiz results

Looking at base-line results of testing a week prior to the dog safety session (Table 2), it is clear that children did not lack prior knowledge of dogs and that some of their existing beliefs were consistent with the DDS key messages. However, there was also evidence of misconceptions.

At pre-test, a high percentage (90%) of children were accurate in answering question 1: *If a dog is with its owner, should you ask if it is OK to touch the dog?* Most (84%) also responded correctly to question 6: *If a dog's ears are laying flat down on its head, is it unhappy?* indicating an existing level of awareness of certain signs of dog emotion.

Prior to the DDS session, many children were incorrect when asked to guess dogs' preferences regarding the kinds of close contact they prefer. When responding to question 5: *Do dogs like to be patted on their heads?* two-thirds answered in the affirmative which is inconsistent with DDS messaging. In response to question 3: *Do dogs like you to look into their eyes?* a third answered incorrectly (that is, 'yes').

The lowest ranking for baseline knowledge was achieved by Multicultural Primary and this may relate to the characteristics of the student population with high numbers of children from non-English speaking backgrounds. However, the next lowest scoring group was Foothills Primary where there was a low incidence of non-English speaking backgrounds in the student population. Here it may be that comparatively low rates of dog ownership explain children's relatively lower achievement on the baseline test.

Two weeks after the DDS session, aggregate scores were higher for every question (Table 3). There was an 18% improvement overall in the children's displayed knowledge of dog safety following the DDS presentation. Improvement was seen for every item, but was particularly marked for question 3 (28% improvement) and question 5 (44% improvement). This indicates that the DDS program was particularly effective in addressing children's common misconceptions about the kinds of close contact dogs prefer. It may be that children are cued to attend more closely when the information being presented is surprising, i.e. disconfirms an existing belief.

However it should be noted that even at post-test, nearly a quarter of children answered question 5 incorrectly, indicating they still believed that dogs like to be patted on their heads, despite this being discouraged by DDS presenters.

Children's knowledge integration: responses to imaginary scenarios

In the DDS sessions, presenters advise children about how to interact most safely with a dog in two situations: (1) where the dog is accompanied and effectively controlled by its owner, and (2) where the dog is roaming free and displaying signs of aggression or exuberance. The 'Gimbo' story incorporated both of these scenarios, as well as inviting children to volunteer any other advice they saw as relevant to achieving 'good' relationships with dogs.

For the accompanied dog scenario, to reflect the key messages of the DDS program, a child would be expected to incorporate three elements of an interaction routine: (1) ask the owner, (2) 'ask' the dog, and (3) pat in an appropriate manner (i.e. on the chest). Nearly all of the children (46) incorporated the first of these elements into their advice,

TABLE 2

Children's baseline knowledge of dog safety: pre-test results

Question	Correct response	Number (%) correct at pre-test (total = 121)
1. If a dog is with its owner, should you ask if it is OK to touch the dog?	YES	109 (90%)
2. Are all dogs friendly?	NO	89 (73.5%)
3. Do dogs like you to look into their eyes?	NO	76 (63%)
4. If you meet a strange dog, should you stand still?	YES	95 (78.5%)
5. Do dogs like to be patted on their heads?	NO	39 (32%)
6. If a dog's ears are laying flat down on its head, is it unhappy?	YES	101 (83.5%)
7. If a dog shows you its teeth, is it feeling happy?	NO	92 (76%)
Total correct responses		601 (71%)

TABLE 3

Overall improvement in performance – all schools aggregated

Question	Correct responses pre-test	Correct responses post-test	Difference
1	109 (90%)	103 (97%)	+ 7%
2	89 (73.5%)	95 (90%)	+ 16.5%
3	76 (63%)	96 (90.5%)	+ 27.5%
4	95 (78.5%)	99 (93%)	+ 14.5%
5	39 (32%)	81 (76%)	+ 44%
6	101 (83.5%)	95 (90%)	+ 6.5%
7	92 (76%)	94 (89%)	+ 13%
Totals	601 (71%)	663 (89%)	+ 18%

Total students for pre-test = 121, total students for post-test = 106

i.e. they told Gimbo to ask the dog's owner before patting the dog. Fewer children (14) incorporated two elements into their advice and fewer still (11) incorporated all three elements. In three schools, only one child managed this.

For the higher risk scenario involving an uncontrolled dog, a child would be expected to recognise from the hints given in the story that this dog is angry. Fewer than half (22) of the children described the dog as angry (or 'mad', 'cross' etc).

> Example: *If it shows its teeth it means it's angry and it will think you are going to have a fight.*

DDS teaches children that in this situation, they should: (1) stand still, (2) keep their hands to their sides or tucked in, (3) keep quiet, (4) avoid eye contact, (5) wait for the dog to leave before walking away, and (6) tell an adult. Most of the children (29) stated that Gimbo should stand still. However, fewer children incorporated two of the correct response elements (12) and hardly any (2) offered three correct elements.

Some children (8) interpreted the scenario as requiring the most cautious response and advised Gimbo to curl up like a 'stone' or 'snail'. Some children chose to role-play these responses in the interview. In a few cases, the child adopted a stance that involved protruding or moving body parts, e.g. 'like a snail' was enacted by one with fingers waving representing antenna, something that could exacerbate the risk of injury if a child was being attacked by a dog.

A number of children (8) stated that Gimbo should run away, even though this is explicitly warned against by DDS presenters, since it can prompt the dog to chase. In some cases, the advice incorporated contradictory elements, indicating that the child's first instinct was to run, but that the DDS message about safe behaviour has also been retained:

> *He should tell the teacher. And then he should run . . . no he wouldn't run because the dog will chase him.*
>
> Interviewer: *So we should tell him not to run?*
>
> *Yeah and then . . . I know about dog safety. You can't look at the dog and then the dog will go away and then you can play.*

To identify other dog-related knowledge that children may have learnt from the DDS session, children were also invited to advise Gimbo on how to look after a dog if he wanted to take one back to his home planet. Here we were looking for whether children had integrated DDS messages about dogs having feelings and rights (such as the right to eat undisturbed). Just over half the children (15) indicated that it is important to be aware of dogs' feelings and that child behaviour can impact on or respond to these feelings:

> *The little gun makes dogs scared like a pretend gun but some children do that and go [shoot shoot noises]. Shouldn't do that.*

One child took the idea of dogs' rights so seriously as to recommend asking the dog if it wanted to go to planet Blazon!

Just over half (15) were concerned with 'being nice' in general or more specifically with showing affection to their pet dogs. In some cases, this involved a high level of physical contact. For example:

> *When it's tired, put it in your hands like a baby and wrap something around it.*

DDS also teaches that dogs have instincts which may cause them to react to child behaviour in ways that pose danger to children. More than half (16) mentioned dogs' instinct to run and chase in their advice to Gimbo:

> *He needs to know that if he run away from the dog, the dog will chase you, the dog will think that you're playing with me.*

This comment indicates that one of the ways in which children integrated the dog safety messages was to consider how dogs may be interpreting human behaviour.

Discussion and conclusions

There is a high level of pet ownership in Australia (Australian Companion Animal Council, 2010) and evidence of significant social and health benefits of interacting positively with companion animals (Headey, 1999; Wood et al., 2005). There are also very real risks to young children of such interactions going wrong. For both these reasons it is important to find effective strategies for managing child–animal interactions safely and enjoyably for all parties. Dog safety education programs have a place in contributing towards this goal.

The DDS program's key messages are on the whole clearly and consistently delivered and able to be retained by children two weeks after presentation. DDS messages appear in children's safety advice with minimal prompting at eight to ten weeks after exposure to the program; however, few children have internalised all the actions that are taught. Complete coverage of all components of the key messages is clearly difficult to achieve in a 30-minute time slot. This means presenters must necessarily make choices about what is most and least important. If this brief time slot cannot

be extended, it may be helpful to guide presenters' choices so that emphasis can be given to clarifying common misconceptions rather than reinforcing already strongly held beliefs.

At the heart of such educational interventions is assisting children to understand themselves in relationship to dogs and, thus, their behaviour as potentially impacting on dogs in ways that contribute to risk. In the children's narrative responses, we saw two ways of understanding dogs, each with different implications for human–dog relationships and potentially for children's levels of risk in their interactions with dogs. One perspective sees the dog and the child in a relationship of likeness. This may be promoted by presenters when they encourage children to identify dogs as having feelings and (as we saw in some instances) made direct analogies between children's emotional responses and those of dogs ('You wouldn't like that so the dog won't either'). Children also brought other frames of reference through which they related dog and human emotional responses, for instance, treating a dog as a baby. This way of explaining dogs to children opens up a wide range of responses depending on the child's own preferences and upbringing. For instance, some children indicated that they liked to be patted on the head (by nodding when the presenter asked this) although the DDS message is that dogs do not like to be handled in this manner.

Children's personalities and upbringing both influence their preferences regarding such interactional aspects as proximity and intensity of contact. For this reason, it is hard to predict how a child may respond to the proposition that dogs like and dislike the same things as (s)he does. Instruction from this perspective will not guarantee children will behave in ways conducive to safe interactions with dogs. Indeed it could contribute to the pattern seen in dog injury statistics of young males being over-represented (Ozanne-Smith, Ashby & Stephakis, 2001). Young boys are often socially conditioned to enjoy rough and tumble play (Pellegrini, 1993) and thus may be inclined to believe that dogs enjoy the same activities. For this reason, our advice to the DDS coordinator was that children not be invited to project their own feelings onto dogs. Certain feeling terms are particularly problematic. For instance, the term 'sad' should be avoided as a descriptor of dog feelings since children are taught that when they are sad, physical comfort is offered. We suggest that if a child uses the term 'sad' this should be corrected: 'The dog is not sad. It is frightened and doesn't want anyone to go near.'

Popular culture representations of dogs (e.g. in animated films) also play into this view by portraying them as having human characteristics. It may be helpful for dog safety educators to draw attention to such cultural representations as being not real and therefore a poor guide as to how actual dogs feel and respond.

A second way of understanding a dog is as a species of animal different from a human. This perspective was made available to children when presenters referred to dogs as having 'instincts' and used terms like 'hunter' and 'prey' to explain dogs' tendencies to chase and bite. This way of understanding dogs was also drawn on by children in their narrative responses and does appear to assist them in interpreting dog's behaviour in ways that can contribute to safer interactions. However, this perspective, in drawing an analogy between the running child and the hunting dog's 'prey', may invoke an intensified fear response. DDS advice to children in such situations is to stand still and keep their limbs close to their bodies. Children's narrative responses indicated they experienced conflict between following this advice and their own instinct to run away from danger.

Another comment we would make is regarding the distinction, which is emphasised in DDS, between a 'leashed' and an 'unleashed' dog. Firstly, the representation of 'leashed' dogs in the sessions implied that interacting with them was inherently safer as they were under the control of an owner. This may not be a safe assumption to make as dogs with a past history of aggression may be more likely to be under restraint. Secondly, the representation of the 'unleashed' dog was in terms of it being an unfamiliar dog which the child may encounter in a public place. However, dogs in domestic homes and gardens are also generally unleashed and spend much of their time not being directly regulated. Accident statistics confirm that it is in homes that children are most likely to be injured by a dog (Feldman et al., 2004; McBean et al., 2007). Thus, it is important to emphasise to children to be alert to signs of imminent dog aggression regardless of where and how they encounter a dog.

Children from schools in which there are high percentages of children from non-English speaking backgrounds (NESB) have a lower base line of knowledge about dogs and dog safety. NESB children made significant gains in knowledge on exposure to the DDS program, but still are well behind their counterparts on post-test. For these schools, additional resourcing should be considered, e.g. a follow-up session, the participation of a bilingual community member, information provided in translation.

Overall, it is important to be aware that children are constantly interpreting safety messages in the light of other cultural information, including other safety messages. Advice not to run from a dangerous dog, for instance, may conflict with what children may be learning about protecting themselves from other kinds of risks. Running away may indeed be an appropriate response in other circumstances in which children may feel unsafe. Ideally, short-span limited interventions like DDS will be followed up by teachers with further activities designed to explore the meanings and practices associated with risk management. Because of the complexities of risks and associated protective behaviours, schools and services could usefully consider dog safety programs within the broader context of child protection more generally, to maximise benefits and minimise conflict.

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Appendix A: Delta Dog Safe Key Messages

Based on statements made in the *Delta Dog Safe Teachers Resource Kit* (2005)

Messages about dog feelings and behaviour

1. A dog might feel sick, angry, sleepy, or frightened and not want to interact. It might be eating or playing with a favourite toy and not want to be interrupted.
2. Angry and frightened dogs are unfriendly and may bite.
3. An angry dog will stand up straight, prick its ears, look at you, straighten its tail, might growl, lift its lip and bark.
4. A frightened dog may cower, look away, put its head down, raise its hackles.

Messages about what to do around unleashed, unknown dogs

5. If alone and approached by an unleashed, unknown dog e.g. in a park or on a bench:
   a. stand still like a tree
   b. be absolutely quiet
   c. hug yourself
   d. look away from the dog
   e. don't squeal or yell
   f. don't run away
   g. wait for the dog to go away
   h. tell a grown-up what happened.
6. If knocked down by an unleashed, unknown dog:
   a. curl up like a snail
   b. be quiet and still
   c. put your hands over your head
   d. look at the ground or close eyes
   e. tell a grown-up what happened.

Messages about how to approach a friendly dog

7. To pat a friendly dog:
   a. see if the dog looks frightened, angry or friendly
   b. check the adult you are with
   c. ask the owner's permission
   d. ask the dog's permission by: standing quietly next to dog, putting hand out near dog, watching to see if the dog looks friendly, tickle under its chin
   e. do not pat a dog n its head. Dogs don't like it any more than you do.

Appendix B: Embedded Scenario Instrument (excerpt)

Gimbo's first challenge

Gimbo's invisible space-ship has come down in a grassy space where there are trees and paths. It's a sunny day and Gimbo can see people walking around and sitting on the ground. In this place there are some **very interesting looking things**, things you can climb on and go up and down on. One of the things has a **seat that is hanging from ropes**. Do you know what kind of place this is?

[If child does not volunteer] **It's a playground!** Gimbo watches some children on the swings. [He/she] thinks that **looks like fun to do**. When the children have finished, Gimbo sits on one of the swings and figures out how to make it move. Pretty soon [he/she's] swinging back and forth and **going higher and higher**. But uh-oh! Gimbo **doesn't know how to get off** the swing. Can you tell Gimbo what to do?

Prompts:

What should Gimbo do then?

Is there anything Gimbo shouldn't do?

Gimbo's second challenge

Thanks, you are really good at helping Gimbo. Would you like to help Gimbo with another challenge? Now Gimbo is walking through the park along a path when [he/she] **sees in the distance a strange animal covered in fur** – one he has never seen before. It's standing on four legs and has a tail. What do you think it is?

[Wait for child's response] It's a dog. But Gimbo **doesn't know anything at all about dogs**. Is there **anything** Gimbo needs to know?

[Wait for child's response]

You know some interesting things about dogs! Back to Gimbo, Gimbo notices that this dog is **not on its own**. This dog is **walking beside its owner** on a leash. When they come to Gimbo, the owner stops walking and the dog **stands quietly** beside. Gimbo **likes the look of the dog's shiny fur**. [She/he] would **really like to touch** the dog. Can you tell Gimbo what to do?

Prompts:

What should Gimbo do then?

Is there anything Gimbo shouldn't do?

■