ORIGINAL RESEARCH

Rural children’s perceptions of child farm safety printed communication strategies

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ABSTRACT

Introduction: Child farm safety has been identified as a key public health concern in Australia. To date, communication strategies for child farm safety have primarily targeted rural based adults as custodians of children, and because the greatest proportion of deaths occur in pre-school children. However, emerging international literature acknowledges the importance of understanding the perceptions and practices of children and adolescents as active agents for identifying and preventing hazard risks and accidents. This qualitative exploratory study examined how rural students aged 7-12 years read farm safety messages in printed farm safety communication tools, developed predominantly by Farmsafe Australia and Farmsafe Queensland. The study also identifies students’ ideas to improve communication tools.

Methods: Seventeen focus groups were conducted in rural-based schools in a number of commodity regions across Australia. There was an average of eight students in each of these focus groups. The sample included children aged between 7 and 12 years. Focus groups were generally split into two age cohorts: 7-9 years (seven focus groups) and 10-12 years (eight focus groups). Two focus groups were conducted with students in a composite age range of 7-12 years, due to the small number of students in those schools. Semi-structured questioning was used to explore students’ perceptions of child farm safety printed communication tools, predominantly developed by Farmsafe Australia. The tools used for discussion were: a poster on the provision of a safe play area and the dangers of moving vehicles; a fridge magnet with dot points used to emphasis five farm based behaviours that address child safety; and a child farm safety educational resource kit developed by Farmsafe Queensland (Safety on the Land), which included activity sheets, stickers and a build-it-yourself money-box. Focus group discussions were audiotaped, transcribed and analysed using qualitative interpretative methods.

Results: There was variance in the way children read meanings in child farm safety messages on the poster. In particular, there were misinterpretations of the messages portrayed in the poster by 7-9 years olds. Students found the Safety on the Land kit helpful
for delivering the farm-safe message, due to its participatory format. The findings show that the use of cartoon style illustrations and comic formats to communicate child farm safety messages was positively perceived by the age groups in this sample.

**Conclusions:** Farmsafe Australia’s poster was open to varied interpretations by students, some of which missed the safety message altogether. The use of a broad communication tool such as a poster is problematic because it is displayed in public places which, by implication, reach a wide audience. Future design of farm safety communication tools should take into account the views of primary school children as a specific target audience. Students enjoyed the participatory nature of the Safety on the Land kit and made suggestions about how this tool could effect change in behaviour. The findings of the study also indicate the potential effectiveness of cartoon style illustrations and comic formats for delivering child farm safety messages to a target audience of 7-12 year olds.

**Key words:** primary school aged children, prevention, printed communication strategies, target audiences.

**Introduction**

Child farm safety has been identified as a key public health concern in Australia. As a result, various national and state-based child farm safety interventions have been developed over the past 15 years (eg Farmsafe Australia’s Child Farm Safety Strategy; Giddy Goanna Education Program funded by the Federal Department of Workplace Health & Safety; and state government safety on farms school programs). Farmsafe Australia (an incorporated association of interested rural- and health-based agencies) has produced the most comprehensive campaign for improving community awareness and education to promote safe environments and behaviour for children on Australian farms. To date, Farmsafe Australia’s communication strategies for child farm safety have primarily targeted rural based adults, as they are the custodians of children, and the greatest proportion of deaths occur in pre-school children. However, concurrently emerging international literature has acknowledged the importance of understanding the perceptions and practices of children and adolescents as active agents for identifying and preventing accidents and hazard risks. As analyses of health communication campaigns have demonstrated, behavioural change is most effective where the audience is accurately defined, analysed and targeted, and school-aged students form various target communities with specific understandings and ways of learning. This article explores how rural primary students (aged 7-12 years) perceive established farm safety communication strategies.

Fitzgibbon et al’s recent review also advocated alternative evaluative analyses which not only explore behaviour change, but also focus on behavioural antecedents such as knowledge, beliefs and perceived barriers. This study used a qualitative research methodology to reflect its exploratory nature and to focus on perceptions of child farm safety printed communication tools. The article begins with a contextual description of mortality and morbidity rates for children on farms. The methodology is then outlined, and an analysis of school students’ responses to a selection of printed media strategies developed by Farmsafe Australia and Farmsafe Queensland is provided.

**Child farm safety in Australia: contextual background**

On average, 30 children aged 0-14 years die on Australian farms each year as a result of injury. One-third of the fatalities involve children who visit farms. Five hundred and seventy-five children are hospitalised annually for farm-
related injuries, which equates to more than 10 children admitted to hospital because of farm injuries per week\textsuperscript{12}.

Vehicles, machinery and water bodies cause the highest number of child fatalities for the age group in this study, being responsible for 31 deaths over 3 years. In addition it has been demonstrated that children aged 10-14 years suffer the highest rate of non-fatal injuries, compared with all other age groups, with vehicles being the most common cause of injury\textsuperscript{12}. The connection between child development and type of injury on farms has been acknowledged by agencies developing intervention and education strategies. With regard to the age groups covered in this study, it is recognised that children aged 5-9 years tend to learn through play, act before thinking, and are easily distracted\textsuperscript{10}. Although children aged 5-9 years lack lateral thinking skills and have short attention spans, they may understand and follow simple tasks, but cannot be relied on to remember them. The Farmsafe Australia Guidance Note predicts that older children arrive at emergency departments more often due to ‘their expanding leisure activities and work roles’\textsuperscript{10}. Older children aged 10-14 years can identify and assess hazards, foresee consequences and follow rules and basic operating procedures. Yet older children can be easily distracted from safe practice, may challenge adult authority, have unfounded confidence, and can be influenced by their peer group.

Methods

The results in this paper come from a larger evaluation project which examined the awareness and effectiveness of a sample of Farmsafe Australia and Farmsafe Queensland printed communication strategies\textsuperscript{13}. Beyond the evaluation of specific communication tools, the study also provided important data on ways in which rural children (aged 7-18 years), and farming parents and grandparents, perceive child farm safety hazards and respond to media prevention strategies. While this paper focuses on primary school aged children, the perceptions of parents and other stakeholders to child farm safety communication strategies can be found in the study’s final report\textsuperscript{13}.

Data were collected using focus groups in rural schools, because this method gave an insight into the ways in which children talk about risk-taking behaviour\textsuperscript{14}, and encouraged a dialogue between focus group participants and facilitators when exploring young peoples’ perceptions and ideas. Seventeen focus groups were conducted with an average of eight participants in each of the focus groups (Table 1). The sample included children aged between 7-12 years. Focus groups were generally split into two age cohorts: 7-9 years (seven focus groups) and 10-12 years (eight focus groups). Two focus groups were also conducted with students in a composite age range of 7-12 years, due to the small number of students in those schools. The focus groups were run in a variety of rural settings, including different agricultural commodity regions. While not all students lived on farms, all lived either on, or in close vicinity to, farms.

Ethics approval was gained from state educational authorities and schools prior to contact with teachers and students. Information letters and consent forms were given to all invited school students and their parents. The sample excluded children who had been involved in, or had family members or close friends involved in a serious farm accident.

A childhood media education specialist developed questions for focus groups to enhance children’s participation. Time was allowed at the end of each session for debriefing. Data collection began with an exploration of children’s awareness of farm hazards, and how they and their families could prevent accidents. Evaluative data was then collected on three printed communication strategies: a poster; a fridge magnet; and a Safety on the Land education kit. These strategies were chosen for their relevance and accessibility to these age groups studied.
### Table 1: Number of focus groups by age groups and states

<table>
<thead>
<tr>
<th>Age group (years)</th>
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<th>Total</th>
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<tr>
<td></td>
<td>SA</td>
<td>QLD</td>
<td>NSW</td>
<td>WA</td>
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<td>7–9</td>
<td>2</td>
<td>1</td>
<td>4</td>
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<td>7</td>
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<tr>
<td>10–12</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td></td>
<td>8</td>
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<tr>
<td>7–12</td>
<td>2</td>
<td>2</td>
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<td>17</td>
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NSW, New South Wales; QLD, Queensland; SA, South Australia; WA, Western Australia.

The language used in focus group questioning was sensitive to age. For example, questions about the poster for primary children included: ‘What do you think this poster is trying to tell us?’ and: ‘What do you think is safe or unsafe in this poster?’ Before collecting data, the questions were piloted with two groups of primary school students in rural South Australia. As a result, the number of communication strategies evaluated was reduced from five to three, because the students demonstrated that they were only able to concentrate on a maximum of three tools before losing attention.

Focus groups were audio-recorded, and the recordings were transcribed for analysis by interpretative methods. This method required interpreting data by giving them coherent meaning, and assigning significance. Analysis began with children’s interpretations of printed communication tools and what they understood by child farm safety. This qualitative analysis sought to find patterns and non-patterns in interpretations, and ideas for improvements to these printed media. All transcripts were read and coded to summarise trends and divergent opinions, across and between regions, states and other social groupings. Analysis was undertaken by the authors. Responses were coded under the following four main headings which reflected the key questions raised at focus groups:

1. The main messages of the communication tool.
2. The portrayal of safe and unsafe practices and reminders of safe behaviour.
3. What the children liked most about the communication tool.
4. How the children would use the tool to promote farm safety.

Data were analysed in relation to these four main headings by examining interpretations of illustrations, slogans, text and reactions to the interactive aspects of them media, such as quiz sheets. Coding showed where there were strong patterns or a large variance in responses.

### Results

**Student’s responses to child farm safety printed communication strategies**

The study looked at how primary school children responded to three printed communication and education strategies; a poster, a fridge magnet (Farmsafe Australia) and the *Safety of the Land* educational resource kit (Farmsafe Queensland). The analysis presented here is not a formal evaluation of the communication tools per se; however, these tools were used to explore children’s perceptions and knowledge of child farm safety. While it has been asserted that intervention strategies to prevent workplace injuries ‘have come along way from relying on safety posters to educate workers’ in the Australian child farm safety context, posters and brochures are used as communication tools for rural communities (although Farmsafe Australia has recently developed a school-based educational resource kit focused on child farm safety). The following sections summarise...
student responses to printed communication strategies and raise issues for consideration in the future development of communication messages on farm safety.

**Poster:** The poster was published by Farmsafe Australia and focused on safe play areas and the dangers of moving vehicles. It contains three images: the first is of a child dressed in a superman costume running across a paddock; the second panel shows the child kneeling behind a mesh fence with a small dog, and a utility truck on the other side of the fence with its reversing lights on; the third panel shows a more dominant image of the utility truck with the child and dog behind a fence. These images are predominantly black and white, with the child dressed in a superman costume in colour. The three panelled images are separated by a blurring effect. White blocked captions were placed beneath each image: ‘Faster than a speeding bullet’; ‘But not made of steel’; ‘Does your farm have a safe play area?’ The Farmsafe Australia logo and contact details are in the upper left corner, and a sponsor’s logo in the right.

7-9 year olds While students in the 7-9 year cohort generally understood that the poster portrayed a safe and fenced playing area for children, there was also evidence that the poster was open to wide interpretation and some confusion resulted. The following quotes illustrate how the majority of 7-9 year olds understood the poster’s message regarding child safety and vehicles on farm:

Facilitator: What do you think this poster is trying to tell you?

Student: The girl should be in the car.

Facilitator: OK.

Student 2: Stay away from moving vehicles.

Facilitator: Anything else?

Student 3: Stay with parents.

Fence them in and tell them to be safe.

Go in front of driver so he can see you.

Don’t play behind vehicles.

There is no adult supervision.

However, some children focused on the second and third panels of the poster and in particular on the dog, missing the farm safety message altogether. The following quotes clearly illustrate the confusion displayed by some students:

Facilitator: What do you think the poster is saying?

Student 1: Only play with pet animals not wild dogs.

Student 2: Or don’t let children get bored and they won’t wander off.

You can’t go into cages with animals and lock it, so you [the children] can’t unlock it.

Keep your dogs away from cars.

The dog was not the only misinterpreted image in the poster. Children aged 7-9 years also responded to the portrayal of a fence and paddock in the poster in varying ways. The examples below illustrate how this audience interpreted the fencing between the paddock and the truck:
Facilitator: What is unsafe in the poster?

Student 1: She [the child] is out of the play area.

Facilitator: Is she?

Student 1: Yes.

Facilitator: Have a good look; do you think it is clear?

Student 1: Ahh…

Facilitator: What do you think?

Student 2: I think she is inside the fence.

Facilitator: Do you think it is clear?

Students: No. [in chorus]

and

Don’t play behind a fence.

and

Look out for trees fences and cars.

and

Don’t make fences of steel.

and

Stay away from places with long grass.

and

Don’t lock yourself up in fences without gates or anything….

This same confusion was displayed evenly across all schools, regions and ages within this cohort. Lack of a coherent interpretation of the poster by these primary school students demonstrated the difficulties of effectively delivering health messages to different audiences. Because the poster is most likely to be displayed in public areas, children as well as adults will see it. Thus, the use of tools which aim to reach a wide audience can be problematic, and are likely to create ambiguity for some target groups.

10-12 year olds This age cohort better understood the key messages of the poster and, as the following quotes illustrate, their interpretation generally reflected their different developmental stage. They were better able to deduce safety messages, particularly in relation to the importance of fencing in child farm safety:

Put up fences to keep kids safe.

and

Don’t play near cars or machinery.

and

Have play stuff to keep kids busy.

and

Look behind you when reversing.

and

Children like to wander – keep them safe.

and

Keep animals and children safe.

and

Supervise children and obey rules.
When asked to say what was safe and unsafe about images in the poster, students generally mentioned lack of adult supervision, lack of fencing, and moving vehicles. For example:

Facilitator: Can you tell me what’s safe and unsafe about the poster?

Student 1: There are reversing lights.

Student 2: The fence is keeping her safe.

Facilitator: Anything unsafe?

Student 3: I think it’s an unsafe area to play.

Student 1: Yeah, nobody is watching the child.

No supervision and she will get hit.

Might get her hand caught in the chicken wire.

She’s running and not looking.

The presence of the dog did not cause the same level of confusion in this age group, although a few students did concentrate on the dog’s interaction with the child, for example ‘she might annoy the dog and it will bite her’, rather than the key safety message.

This group of students also responded to the wording in the poster which was ‘Faster than a speeding bullet; But not made of steel’. While many interpreted the slogan in the manner that was intended, that is, students said; ‘Kids are not invincible’ and ‘She [the child portrayed in poster] might be strong and fast but she can get hurt’, some students made extraneous connections between the wording in the slogan and the image of the fence in the poster, for example; ‘Don’t make the fence out of steel!’

These students had difficulty with the presentation of the images and message, including the separation between scenes and the sequence of events. Thus, they suggested the following improvements to the poster: enhancing clarity by more effective separation of sections in the poster, using more colours, and possibly using cartoons or comic style images.

**Fridge magnet:** The fridge magnet was produced by Farmsafe Australia and focused on five key farm based practices for child farm safety. The magnet’s dimensions are 124 mm by 100 mm. The information on it is separated by varied background colours (brown, black, green and white). The magnet features a small photo of a child dressed as superman in the upper left corner, with the Farmsafe and sponsor’s logos and contact details for Farmsafe Australia at the bottom. Captions on the magnet are; ‘Kids area not made of steel …’ followed by ‘… so we have a securely fenced safe play area’. The five key child farm safety behaviours targeted through the use of dot points related to: safe play areas; seatbelts; not riding on machinery; and helmets.

Students in both age cohorts had a general understanding of the purpose of fridge magnet and its message. Most of the participants stated that the fridge magnet was useful as it reminds people about farm safety. For instance they commented that this tool communicated:

All the safety things you need to do on a farm.

It shows the rules of being on a farm.

It shows tips on being safe.
However, there was an underlying disinterest in the magnet as a communication mechanism as expressed in the following comments made by students:

Facilitator: What do you think the magnet’s message is?

Students: [silence]

Facilitator: Does it tell you anything or remind you of anything?

Student: I don’t think it would remind me of anything as I don’t usually read them – I just look at the pictures, and these pictures don’t make sense.

Student 2: It might remind you to wear protective equipment, eg helmet when on motorbikes.

Student 3: I think it’s mainly for adults.

and

It just shows safe rules for the farm.

and

I’m not sure if the child is in a safe or unsafe place.

Primary school students went on to suggest that the magnet was not attractive, and needed brighter and more varied colours, more pictures and less writing. Alternative formats such as comic or cartoon illustrations were also suggested by many students.

Safety on the Land kits: The Safety on the Land educational resource kit was developed and published by Farmsafe Queensland. The kit is presented in a folder which features a cartoon style logo: ‘safety on the land’. This folder and all resources in the kit also feature this logo. The colours used throughout the kit are purple, green, red and white. Resources included in the folder are: a sheet of six stickers depicting safety messages; a make-it-yourself moneybox in the shape of a tractor; and five worksheets. Each targets a danger area on the farm. These sheets are brightly coloured and include cartoon shaped characters. Examples of activities incorporated in the sheets are a dot-to-dot picture and a word find quiz.

The choice of material available in the Safety on the Land educational resource kit was attractive to children and successful in generating interest. In the 7-10 year age group, the moneybox and stickers were the most popular material. In 7-9 year old focus groups, the stickers generated a detailed discussion about where the students would use the stickers:

Student 1: I think the stickers are the best thing in this pack I would stick them everywhere.

Facilitator: Where would you put the stickers?

Student 1: Outside, I would keep them until Mum and Dad were in a dangerous spot and stick them there, stick it on the door so people would see before they go outside.

Student 2: I would keep them until there was a good spot in the room but if you don’t have a spot you have to wait to have right spots; peel them off and stick around the house; on the buildings.

Student 3: You could put [them] on a piece of paper and laminate them.

Student 2: Put on stables when going to ride horses; put on tractor, around kettle.

There were many other suggestions for the use of stickers and moneybox around a farm:

I could put the stickers on horse helmets, and the pictures on the stickers help you understand.

and

I like the bright and colourful activities and stickers.
The students also gave a positive response to the activity sheets, including suggestions on how they might be used to change family behaviour:

Student: I would put the completed activities where they can see it; where they go often.

Student 2: On the fridge; on a glass door around my Dad’s height.

Student 1: You could put them around machinery and chemicals in the shed.

Facilitator: Any other suggestions?

Student 3: You could put stickers on helmets and on a sunscreen bottle.

Student 1: [I] wouldn’t do activities.

Facilitator: Why’s that?

Student 1: ‘Cause I would put them out and just look at it because if you write on them you wouldn’t be able to use them when dangerous things happened.

Student 2: I would do activities and put them up where I could see them.

Student 3: I would rather laminate the activities so that I could do them over again.

Other students commented that the activities meant that; ‘Kids can learn and have fun’; and ‘If you’re bored you would have something to do’.

The students’ responses relate to the participatory nature of this communication strategy for this target audience. The feedback on the Safety on the Land kits indicated that it may promote family discussion on farm safety and serve to increase family awareness. The kits remained popular with the older children (10-12 year olds), for example:

If I was a little kid I would use the stickers – If I was a big kid I would do the activities.

and

Putting stickers on bad things [on tractors etc…]

and

[You could] read it with mum and dad.

and

Show my family/read it to them.

and

Pin up [activity] sheets.

and

Stick stickers on the fridge and on dangerous areas around the farm.

Alternative formats for presenting child farm safety message

Throughout the focus group discussions, students offered suggestions on alternative formats for presenting child farm safety messages (eg colours, size of print, use of pictorial images). Frequent feedback about the printed communication tools was for the inclusion of cartoon style illustrations and comic formats. There has been widespread use of these formats to promote health and educational messages within Australia and internationally18–20. In Australia, ‘Streetwise’ (a not-for-profit organisation) has
extensively used comic format and cartoon style illustrations to research and communicate social issues to young people, Indigenous communities and people of culturally and linguistically diverse backgrounds. This organisation has concentrated on developing comics as a communication tool to deliver messages on, for example, health, education, employment, and the law. Streetwise has reported that independent evaluations of their products have consistently demonstrated the effectiveness of comics over other print media in delivering information to young people. Although evaluations of cartoon style illustrations and comic formats as a public health media tool have generally been positive, Jones et al.’s evaluation of British drug information leaflets demonstrated that, for teenagers, high quality factual information presented in a serious format may be more effective than comic strip illustrations. The 13-17 year olds involved in Jones et al.’s study were critical of the cartoon illustrations because they were ‘too babyish’ and ‘tried too hard to be cool’. Jones et al.’s evaluation illustrates the importance of involving the target audience in the design and evaluation phases of health promotion material. It also shows that cartoon style illustrations and comic formats should reflect age specific perceptions of the target audience.

Difference in the age of young people was also found to be a key variable in the effectiveness of communication tools in the Australian ‘Slip Slop Slap’ sun protection campaign. The ‘Slip Slop Slap’ evaluation indicated that easily identifiable mascots and cartoon characters attracted children’s attention, and delivered the sun protection message. These cartoon images were frequently presented on posters and television advertisements. Importantly, evaluation found that teenagers did not respond in the same way to cartoon formats. Rather, they indicated that the campaigns were ‘boring’, ‘lacking realism and believability’, and did not address their age group. The teenagers did say, however, that the advertisements were associated with positive feelings about the use of sun protection and heightened their awareness of the dangers of skin cancer. While 7-12 year-olds often suggested cartoon and comic style formatting as an alternative, our analysis indicated that this may not prove so effective for other audience groups, especially teenagers. Consequently, this study highlights the difficulties of using communication formats with diverse target audiences.

Conclusions

This article has explored primary students’ perceptions of established child farm safety printed communication strategies. The use of facilitators within age specific focus groups was an effective method for exploring young peoples’ perceptions and ideas about communication strategies and child farm safety more generally. Qualitative analysis of the data demonstrates that media tools intended to reach a wide audience are likely to be problematic, as the interpretation of their message varies, depending on children’s developmental stage. This article provides an empirical example of how images in a poster may confuse and distract young readers (7-9 year olds). As such, this analysis may inform future development of farm safety communications strategies.

Future design of farm safety communication tools is likely to benefit from the views of primary school aged children as a specific target audience. However, the study also demonstrated those students’ perceptions of some media messages may change with age, even during the primary school years.

The participatory nature of one tool (the Safety on the Land kit) elicited a positive response from students, including suggestions on how this tool could effect change in behaviour. This study also indicated the potential effectiveness of cartoon style illustrations and comic formats for delivering child farm safety messages to a target audience of 7-12 year olds.

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