Characteristics of instructors at Farm Safety 4 Just Kids day camps

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Abstract

Objective This paper describes the characteristics of instructors at six farm safety day camps sponsored through local chapters of Farm Safety 4 Just Kids. What are their backgrounds and experience? What motivates them to participate as farm safety instructors? How do they prepare and present their instruction?

Design Data from 69 instructors were gathered as part of a larger evaluation of farm safety day camps conducted during the summer and fall of 2002.

Setting Farm safety day camps occur throughout North America. The camps selected for this study were conducted in five states within the United States. The overwhelming majority of instructors were community volunteers without formal instructional training.

Method A two-page survey was completed by the instructors on the day of the camp, and selected camp instructional sessions were videotaped and analysed by instructional design experts.

Results Case examples of instructor characteristics and instructional styles are presented in order to promote a better understanding of persons who provide children with farm safety instruction at farm safety day camps. Preparation, training, teaching methods, and other characteristics of the camp instructors are discussed.

Conclusion Findings from this analysis can be used by organisations that provide community-based injury prevention programmes as a planning tool for selecting instructors that can optimise the experience for children.

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Introduction

> *Why should I let my child go to that farm safety camp? I don't know anything about the people who will be teaching my child. How do I know what they will teach them? What gives you the right to claim you are an expert on the topic? We live on a farm. There's a lot you have to know.*
>
> [Parent correspondence to author]

At first, we were astonished that a parent would refuse to let a child attend a farm safety day camp. Why would the parent feel threatened or apprehensive about an event that intended only good for the child? As we pondered this question, it dawned on us that the parent had a valid point. What could she know about the instructors? They are primarily volunteers whom we assume have a passion for children, their safety, and perhaps for farming. But would their messages be accurate? Would they rely on personal experience or would they be well versed in proven safety techniques? Despite the fact that farm safety day camps have been held over the last decade and continue to grow in numbers, very little is known about the people who provide the heart of the programme: the instructors. The purpose of this paper is to provide a case report on the characteristics of instructors who participated in selected day camps across the United States. Findings from this analysis can be used by organisations that provide community-based injury prevention programmes as a planning tool for selecting instructors that can optimise the experience for children.

Background

Nearly two million children live on, work on, or visit American farms. Each year about 32,800 injuries are sustained by these children[1]. In addition, annual estimates of fatal injuries to children due to farm hazards exceeds 100[2]. Because of the difficulty in physically separating the farm work area from the farm residence, it is imperative that all children on farms, whether residents or visitors to the farmstead, be cognisant of farm hazards and follow appropriate safety techniques. Nothing replaces direct adult supervision of children to prevent harm; however, if children understand the hazards and are equipped to protect themselves, their injury risk decreases.

The goal of farm safety day camps is to provide a fun-filled environment in which children learn about farm hazards and ways to prevent injuries to themselves and others on the farm. Over the course of a day, children receive information on a variety of topics. Instruction on safety precautions related to farm tractors, animals, machinery and equipment, sun exposure, fire, and electricity are common at farm safety day camps. It is not unusual for ten or more different health and safety subjects to be addressed during the five or six hours of camp. The fast pace of instruction and the myriad topics highlight potential farm dangers that children could encounter and equip the child to minimise

personal risks of injury. Camps are not designed to provide performance training like a tractor operation safety course or a hunter safety course is designed to do. Camps focus totally on safety knowledge, attitudes, and behaviours.

The camps use local community volunteers to plan and conduct all camp activities. Volunteers register children, provide physical set-ups for everything done during the day, deliver the safety instruction, and clean up after campers depart. It is not unusual to see farmers, electricians, fire fighters, 4-H leaders (4-H is an organisation that teaches young people about leadership, citizenship, and life skills), and health care providers working side by side at the camp. In addition, groups from The National FFA Organization (formerly called the Future Farmers of America), cooperative extension personnel, and equipment dealers frequently provide instruction. Some camps have become so institutionalised in their communities that no one questions their quality. Reviews of the camps by camp volunteers, campers, and their parents have generally indicated that the camps are fun and worthwhile, and parents would recommend them to others[3]. Despite these glowing reports, DeRoo and Rautiainen[4] recommended that camps should be systematically evaluated using more rigorous techniques and measures. In a review of interventions to prevent childhood farm injuries, Hartling, Brison, Crumley and Pickett included only one published study on the effectiveness of farm safety camps[5]. That study reported only on the knowledge gain of children who attended the camp[6]. Missing from the literature is a systematic examination of the context of the camps or their personnel. Our paper presents findings from a case series of farm safety day camps within the context of the camp's history and personnel.

In 2001, the National Institute of Occupational Safety and Health (NIOSH) funded the Evaluation of Farm Safety 4 Just Kids (FS4JK) Day Camp Project as part of the national initiative to prevent childhood farm injuries. The overall purpose of the study was to evaluate the effectiveness of FS4JK farm safety day camps for the children who attended the camps, their parents, and the communities in which the camps were conducted. One component of this study was to examine the instructional methods used in the camps for age-appropriateness, reading difficulty level of written materials, and appropriateness to the developmental and cognitive levels of the children[7]. The hypothesis was that instructional techniques aimed at appropriate developmental levels would be more effective in increasing the child's safety knowledge, improving attitudes toward farm safety, and increasing intent to practise safe farm behaviours. This paper presents results about the characteristics of the volunteers who presented that instruction.

Sample and Methods

Six farm safety day camps located across the United States were purposively selected to participate in the study. The National FS4JK organisation asked local FS4JK chapters to participate in the study. Consideration was given to geographic diversity, history of presenting farm safety days camps at least once before the study, and previous working

relationship with the national organisation. In an effort to capture the qualities of both large and small camps, the number of children attending camp in previous year(s) also was considered. To minimise the challenges of instructional messages delivered across variable age groups, the chapters had to plan to have a school-based farm safety day camp for fourth or fifth grade students in the upcoming year. All camps who met the criteria for selection agreed to participate. The final sample included camps in Colorado, Iowa, Kentucky (two camps), North Carolina, and Wisconsin. The study protocol received the approval of the institutional review boards of the University of Kentucky and FS4JK prior to each phase of the study.

Chapter camp leaders (CCLs) worked with the research team to obtain the required research participation informed consent forms, facilitate data collection, and provide historical contextual data that framed the background of the camp. In the 23 months following the camps, qualitative data were gathered from the CCLs via teleconferences and personal interviews about how they prepared for the camp, how instructors were selected, information provided to instructors prior to the camp, and verbal feedback the CCLs received from instructors. Collectively, these data provided a more complete understanding of the contextual environment, instructor characteristics, and the context of the camp's natural history. The CCLs received a small stipend for their participation.

A two-page survey instrument was developed by the research team to collect data from the instructors about their reasons for participating in the camp, experience teaching children, preparation for the instructional session, and self-assessments of their instructional techniques. Surveys were completed at the conclusion of the instructional sessions. Data were entered into a computer program and analysed using statistical software SAS version 8.12. Missing data were set to 'missing', rather than imputed. In addition to the surveys completed by the instructors, the research team video- and audio-taped instructors and students who participated in sessions on animal, tractor, and power equipment safety. The video tapes were analysed for instructional setting, content, message, teaching style, and camper engagement and response. Two instructional design specialists with expertise in agriculture independently viewed and analysed the videotape data[7].

Results

Camp descriptions

In 2003, 47 farm safety day camps were sponsored by 37 local chapters of FS4JK. A total of 9,350 children attended these events. Five chapters sponsored the six camps included in this sample. Three of the five chapters conducted their camps under the auspices of the Progressive Agriculture Foundation (PAF) guidelines. PAF camps are provided with instructional materials, liability insurance, and t-shirts for all campers and staff. The camp leader completes a two-day training session several months prior to the camp.

One chapter camp was organised and delivered completely by an FFA group. The final chapter camp was coordinated through a local office of the Cooperative State Research Education and Extension Service.

All of the camps in this study were school-based. Children were bussed to and from the camp site on a regular school weekday. They were accompanied by their teachers and chaperones. Weather conditions forced one camp to move inside, but for the most part, camps were conducted outside in large open areas. The length of the camps ranged from 3 hours to 7 hours, with the number of sessions per camp ranging from 9 to 21. The attendance at the camps varied; however, the camp leader knew in advance the number of children to expect, which made it easier to plan for the appropriate number of instructors and groups. A total of 1,347 children attended the six camps. None of the camps charged campers to attend. Vignettes of the camps are provided to illustrate the historical context and working environment of each camp. Data were provided by chapter leaders and through on-site camp observation and video tape records by the research team.

Chapter 1, Camp A – This FS4JK chapter had been conducting farm safety day camps for seven years under the leadership of the same chapter leader with basically the same instructors each year. No formal training sessions were held for the instructors or other volunteers other than by phone. The camp used FFA members to assist with instruction, and some class time was devoted to discussing the training sessions with FFA students involved in the camp. The camp used the PAF guidelines for conducting the camp. This camp was held in the spring (April 2002) at a local fairground. The weather was windy and sunny with comfortable temperatures. The age group served was primarily 4th and 5th graders but included kindergarten through 5th grade children as a result of allowing home-schooled children to attend the camp. The 165 children who attended the event rotated through 21 training sessions during the 7 hours of the camp. Children attended the individual sessions in groups ranging in size from 5 to 14 campers. The primary mode of instruction in each of the three sessions evaluated was lecture/demonstration. Props were used in the animal and power equipment sessions.

Chapter 2, Camp B – This group was organised as a FS4JK chapter in April 2000 but had been conducting farm safety day camps for at least two years prior to that. This camp was unique in that it was conducted solely by FFA students under the direction of the FFA instructor who was also the FS4JK chapter leader. The students selected a topic and worked on their presentations throughout the year. Presentations were periodically made and critiqued by the teacher and fellow students. By the time the camp was held, students were very knowledgeable about their subject, comfortable with the message, and fully prepared to teach the campers. The camp was held in the spring (April 2002) and was scheduled to be outside at the school; however, cold and windy temperatures forced them to move inside. The camp length was 3 hours and consisted of 13 different training sessions. The camp was attended by 58 children aged 9–11. Session group sizes

ranged from 4–6 campers, and children were seated in chairs or on the floor during the sessions. The primary mode of instruction was lecture accompanied by demonstrations, videos, and/or handouts.

Chapter 3, Camp C – This FS4JK chapter had offered farm safety day camps for seven years and conducted its camps under PAF guidelines. No formal training sessions were held for instructors. FFA students served as instructors for the three sessions evaluated. This camp was held in late April 2002 and had 271 children in attendance. During the 3-hour camp, 14 training sessions were conducted. The camp was held outdoors at a local fairground. Children were placed in groups ranging from 4 to 22 campers. The campers stood up during the presentations of the 3 sessions video taped in our study. Lectures with props (live animals/equipment) were the primary methods of instruction. The number of instructors per station was between four and five. The student instructors indicated their participation was part of their class work.

Chapter 4, Camps D and E – This chapter had been conducting farm safety day camps for five years under the PAF guidelines, with the same leadership and basically the same instructors. No formal training sessions for instructors were held; however, letters were mailed to instructors along with the information provided in the PAF manual for the session to be taught. Two camps from this chapter were included in our study. Both were held outdoors at a local fairground and served 4th grade students from local schools. Children sat on hay bales or chairs during the individual sessions. Group sizes ranged from 18–22 campers. The scheduled 5-hour camps consisted of 10 individual sessions plus one overall session on powered equipment safety. The primary mode of instruction was lecture with props and hands-on activities included in each of the sessions. The first camp was held in May 2002 but was cut short due to a tornado warning. Not all of the 173 children who attended the first camp were able to complete all sessions. The second camp was a two-day event held in September 2002 with 167 children attending the first day and an additional 152 from different schools attending the second day.

Chapter 5, Camp F – This chapter had been conducting farm safety day camps for over 10 years. They conducted camps on two successive days for 4th grade students. Each day was for a specific county. Both were held outdoors – one at the fairgrounds and one at a county park. A total of 361 children attended. Children were placed in groups of 21–26 campers. Tiered benches or picnic tables were available for campers to sit on during the sessions. The camps contained 9–10 training sessions and lasted 5–5.5 hours. No formal training sessions were held for the instructors. Lectures were the main method of instruction but hands-on activities and props were used as well.

A total of 339 volunteers worked in these 6 camps, with a range of 20–79 volunteers per camp. Most of these volunteers were involved in support services for the day such as registering children, providing physical set-ups and clean up, and serving lunch. Reports from only the 69 volunteers who provided instructional sessions and completed survey forms were used in the following analysis.

Trainer characteristics

The majority of instructors in our study lived and/or worked on farms (52, 75 per cent) and had extensive farm work experience (55, 80 per cent) (*Table 1*). While nearly all of the instructors knew of someone who had experienced a severe farm-related injury, a substantial portion (17, 25 per cent) had sustained such an injury themselves. Instructors' knowledge of farm work, hazards associated with such work, and repercussions of unsafe behaviour led these individuals to share with children the importance of taking precautions and following safety rules. Over 51 per cent (n=33) of the instructors cited the importance of farm safety as their primary reason for participating in the day camps; however, 20 per cent (n=13) of the instructors indicated they participated because it was part of their paid job or they felt pressured to participate. Other reasons cited for participating in the camps included 'like to work with children' (10, 16 per cent), 'personal experience with farm injury' (2, 3 per cent), and 'other' (6, 10 per cent).

TABLE 1 Instructor demographics (n=69)

Characteristic	Frequency	Percentage
Live and/or work on farm	52	75%
Extensive farm work experience	55	80%
Experienced a severe farm-related injury	17	25%
Knew someone who had severe farm-related injury	63	91%

Experience with presentations

The presentation experience of instructors ranged from little or no experience (20, 31 per cent) to extensive experience (19, 30 per cent). In our study, instructors were as likely to have done their safety presentation fewer than six times compared to six or more times prior to this camp (*Table 2*). Instructors' extent of training in children's educational techniques was more widespread, with 13 per cent (n=9) having 'no training' and 23 per cent (n=16) having 'a lot' (*Table 3*). Instructors reported several other community places where they provided instruction to children including schools, churches, and group organisations. Only three instructors reported no other instruction to children (*Table 4*). A third of the instructors reported they had conducted presentations in three or more different settings. The average prior number of settings in which instructors had taught was 1.93.

TABLE 2 Instructor experience with presentation (n=64)

Made presentation	Frequency	Percentage
0–1 time	20	31%
2–5 times	12	19%
6–10 times	13	20%
>10 times	19	30%

TABLE 3 Extent of training in children's educational techniques (n=69)

Amount of training	Frequency	Percentage
None	9	13%
Some	44	64%
A lot	16	23%

TABLE 4 Other places instructors teach children (n=69)

Place	Frequency	Percentage
Schools	46	67%
4-H	28	41%
Church	26	38%
Boy/Girl Scouts	12	17%
Other	21	30%
None	3	4%

Teaching styles

Instructors used a variety of sources to prepare their presentations (*Table 5*). It was not surprising that instructors drew extensively on their farm experience. The majority of instructors cited 'personal experience' as a primary source of information for their presentation topics. Print materials, especially short reference materials like brochures, were used by many of the instructors. Internet resource use was less common. Agricultural organisations were tapped frequently. 'People-based' information sources, such as agricultural safety specialists or commercial farm equipment dealers, were used infrequently. Overall, instructors relied on multiple sources of information for their topic. The number of sources reported ranged from zero to 8, with an average of 2.64.

Instructors were asked to rate the importance of features of the materials they distributed at the camp. They rated each feature as 'not important', 'somewhat important', or 'very important'. Slightly less than half (33, 48 per cent) of the instructors reported that they distributed printed materials to the children at the day camps, typically at the

TABLE 5 Source of topic information (n=69)

Source	Frequency	Percentage
Personal experience	41	59%
Brochures/leaflets	31	45%
Agriculture organisations	26	38%
Internet	20	29%
Research articles	18	26%
Farm magazine	17	25%
Agriculture safety specialists	14	20%
Commercial dealers	6	9%
Other	9	13%

end of the day. For those who did distribute materials, the message the material contained was the feature cited by the most number of instructors (28, 90 per cent) as being very important in selecting the materials (*Table 6*). Other features considered very important were reading level (17, 57 per cent), pictures (17, 55 per cent), colour (15, 48 per cent), and price (11, 37 per cent). Only one instructor who was videotaped was observed handing materials to children during their session. Camp leaders reported that some materials were placed in campers' resource bags prior to the camp.

TABLE 6 Importance of features in printed materials

Feature	n	Not important	Somewhat important	Very important
Message	31	—	10% (3)	90% (28)
Reading level	30	16.67% (5)	27% (8)	57% (17)
Pictures	31	9.68% (3)	35% (11)	55% (17)
Colour	31	19.35% (6)	32% (10)	48% (15)
Price	30	46.67% (14)	17% (5)	37% (11)

The predominant teaching approach was didactic, fast-paced information sharing. Most presenters exhibited enthusiasm for their topics and held students' attention with an engaging tone of voice and multiple activities designed to exemplify key points. Instructors felt they held the attention of their audiences and that children were able to grasp the important features of the presentation.

Concrete objects were often used to support didactic information and to demonstrate points regarding hazard recognition. The video documentation revealed that the students were highly attentive across all sessions, regardless of the numerous, noisy distractions evident in the backgrounds or the inclement weather at some camps. Instructors were clearly pressured to cover a sizeable amount of content in a short amount of time.

Feedback

Of the 31 instructors who had presented six or more times, 35 per cent (n=11) had 'never' or 'rarely' received any written feedback on their performance as a station instructor. Less than half (13, 42 per cent) reported they 'sometimes' received feedback. Only 23 per cent (n=7) noted they 'often' received feedback. The content and quality of the feedback was not assessed. For the entire sample, the extent of debriefing and follow up with instructors by the chapters was limited. Most chapters sent a thank you letter to each instructor following the camp, but such letters did not address what went well or what areas needed improvement. Chapter meetings were conducted post-camp, but unless instructors were chapter members, they were not present. Thus, many instructors had no opportunity to hear the appropriate feedback through this mechanism.

Discussion

Farm safety day camps reach thousands of children each year. Many of these camps occur year after year in the same communities and are widely accepted by the communities as good venues for promoting safe behaviours in children who live on, work on, or visit farms. Camp leaders and planning groups have the responsibility of selecting safety instructors who are not only willing to give of their time but who also deliver accurate messages in ways that maximise children's ability to learn. Results from this study illustrate that the prior teaching experience of safety instructors varied widely, but that overall the instructors expended a great deal of time and effort to prepare appropriate messages for the children.

It was not surprising that the majority of instructors had farm backgrounds. In the rural areas where the camps were held, one would expect at least a working knowledge of farming; however, nearly 80 per cent of the instructors reported extensive farm work experience. This background can contribute to the realism of their instruction. When other information about safety is coupled with the instructor's personal experiences, instructors have the potential to create powerful stories for the children and should be encouraged to develop these as part of their teaching tools. Stories that are meaningful and memorable for children and adults are known to influence subsequent behaviour[8].

One of the most important dimensions of the instructor's characteristics is why the instructor participates in the camp. For this sample, only half of the instructors cited the importance of farm safety as the primary reason for their participation, and another 16 per cent indicated it was because they liked working with children. Twenty per cent of the instructors indicated they participated solely because it was part of their job or class (that is, they were not participating by choice but were required to do so). While we acknowledge that the quality of messages cannot be inferred by the reason for participating, there is a concern that instructors 'forced' to participate in the day camps may not have the same motivation as those individuals participating because of their interest in children's safety on the farm.

Instructors in this sample acknowledged their limitations in educational techniques appropriate for teaching children. Only 23 per cent reported that they felt they had 'a lot' of training for teaching children; however, most reported a substantial amount of instructional interactions with children in a variety of community organisations. This interaction should contribute to instructors feeling more at ease with children and thus enhance their effectiveness. It would be helpful to gather more precise data on the prior types of pedagogical training the instructors had received and the type of training they feel would be helpful. These insights could be used in the future to prepare educational modules for community volunteers with limited formal training for teaching children.

To deliver their safety messages the instructors relied heavily on didactic, lecture-based instructional styles. Instructors had only 15 to 20 minutes to cover their topics and appeared to be pressured to 'stand and deliver' in order to finish in time. Instructors

were creative in using scale models and real machinery and animals to demonstrate key points in their instruction. Instructors relied predominantly on their own personal experiences for topic information. Only a few instructors indicated accessing research reports or agriculture safety specialists for their preparation. While personal experience can be important, it may be biased or not based on good safety practice. Instructors should be encouraged to combine their personal experience with information and knowledge from agricultural safety organisations and injury prevention research.

Nearly half of the instructors also provided some type of take-home material for the child. Instructors used appropriate selection criteria (message, reading level, pictures) when choosing these materials. In almost all instances these take-home materials were prepackaged in the resource bag sent home with the child and not distributed or referred to by instructors during their sessions. It may be beneficial for the instructors to incorporate reference to these materials into their presentations.

Instructors may benefit from constructive feedback both before and after the camp. In this study only one camp provided systematic training for the instructors. In this camp FFA students were the primary instructors. The FFA youth were fluent with their topics and effective in working with the children who attended their sessions. Video analysis of these instructors revealed that they actively engaged the children in their sessions and used appropriate instructional techniques. This type of preparation, though time consuming, demonstrates the positive outcomes of thorough preparation, constructive feedback, and evaluation as a means to improve instruction.

Many years ago, research by the renowned educational psychologist Robert Gagne and his colleagues established feedback as a critical component in the learning of all types of skills[9]. Feedback is a critical component involved in the learning of habitual attitudes and behaviour, cognitive skills, and appropriate sociocultural attitudes, roles, and interactions[10]. Teaching is a complex skill that requires all of these types of learning. To become talented instructors, teachers require feedback about the effectiveness of their instructional practices and interactions with students[11,12]:

> *In addition to providing evidence of success, feedback provides opportunities to clarify ideas and correct misconceptions. Especially important are opportunities to receive feedback from colleagues who observe attempts to implement new ideas in classrooms. Without feedback it is difficult to correct potentially erroneous ideas*[11]. (p.184)

Furthermore, Bransford et al[11] note that those who teach in community-centred environments other than traditional classrooms also require feedback if they are to improve their effectiveness (pp.185–186).

This study found that feedback is infrequent for camp instructors. Of those instructors who had conducted their instruction in the community at least six times prior to the camp, over one third never or rarely received feedback. Improvement can be much more difficult to achieve without evaluation of prior performance. Incorporating a plan for feedback should be part of the camp process. Despite the level of experience,

feedback is critical for positive outcomes and is generally welcomed by caring and concerned individuals. Informing an instructor about the effectiveness of a presentation contributes to his or her improvement as a teacher.

Day camp coordinators must not limit themselves to mere thank you notes after the camp. They should enlist the assistance of other accomplished instructors as peer observers who can provide constructive feedback to camp instructors. Such constructive dialogue can assist camp instructors and coordinators in evaluating the effectiveness of instruction and determining to what degree the camp objectives were met. Constructive feedback from peer observers can reinforce sound practices and identify areas that need improvement for future camps. These evaluative dialogues can help determine whether individual instructors should be invited to instruct at future camps.

Conclusion

Community volunteers in this study who gave of their time and expertise to instruct children in farm safety exhibited remarkable teaching skills and talents. Despite little guidance or feedback they demonstrated ability to deliver important safety messages in appropriate ways under tight time constraints. Persons involved in planning, organising, and providing guidance for farm safety camps or similar community-based instructional events should provide opportunities for volunteer instructors to prepare quality instruction. This includes guidance about where to access accurate safety information and acquisition of instructional techniques that are particularly appropriate for children. Following the camp, instructors should have the opportunity to participate in the evaluation of their own teaching practices as well as in an evaluation of the broader camp programme. This should include ways to improve teaching performance and camp attendees' learning outcomes.

References

1 Myers JR, Hendricks KJ. *Injuries among youth on farms in the United States, 1998*. DHHS (NIOSH) publication no. 2001-154, 2001.

2 Rivara FP. Fatal and non-fatal farm injuries to children and adolescents in the United States, 1990–3. *Injury Prevention*, 1997: **3**(3): 190–194.

3 Baker AE, Esser NM, Lee BC. A qualitative assessment of children's farm safety day camp programs. *Journal of Agricultural Safety and Health*, 2001: **7**(2): 89–99.

4 DeRoo LA, Rautiainen RH. A systematic review of farm safety interventions. *American Journal of Preventive Medicine*, 2000: **18**(4S): 51–62.

5 Hartling L, Brison RJ, Crumley ET, Pickett W. A systematic review of interventions to prevent childhood farm injuries. *Pediatrics*, 2004: **114**(4): e483–e496.

6 Hughes W, Hartley J. Georgia Healthy Farmers Farm Safety Camp: Description and evaluation of a model program. *J Agromedicine*, 1999: **6**: 43–59.

7 Mazur JM, Cole HP, Reed DB, Claunch DT. Instructional practices at Farm Safety 4

Just Kids (FS4JK) safety day camps. *Journal of Safety and Health*, 2005: **11**(2): 257–264.

8 Cole HP. Stories to live by: A narrative approach to health-behavior research and injury prevention. In: DS Gochman (ed), *Handbook of Health Behavior Research*. New York: Plenum, 1998.

9 Gagne RM. Learning outcomes and their effects: Useful categories of human performance. *American Psychologist*, 1984: **39**(4): 377–385.

10 Cole HP. Cognitive-behavioral approaches to farm community safety education: A conceptual analysis. *Journal of Agricultural Safety and Health*, 2002: **8**: 145–159.

11 Brandsford JD, Brown AL, Cocking R (eds). *How People Learn: Brain, Mind, Experience, and School*. Committee on Developments in the Science of Learning, National Research Council. Washington, DC: National Academy Press, 1999.

12 Chickering AW, Gamson ZF. Applying the Seven Principles for Good Practice in Undergraduate Education. *New Directions for Teaching and Learning Vol. 47.* San Francisco: Jossey-Bass, 1991.