

Taking Aim at Youth Development

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Shooting sports is simultaneously a game of skill, knowledge, equipment, practice, concentration, and relaxation. A young person stands on the firing line, raises the bow, breathes, relaxes, focuses on the target, releases the arrow, and follows through by counting to two. It takes more than two minutes to shoot one arrow, but is worth the time as each hits the bull's-eye. Consistently shooting a best score demands intense concentration and relaxation. The life skills developed in shooting sports carry over to other areas of life such as school and work. "I'm not afraid to be the last person taking a test anymore because I take my time to think through every question," says Ross Severson, 4-H shooting sports/wildlife participant from Wright County.

The Shooting Sports/Wildlife (SS/W) program is more than projecting bullets and arrows into paper. It's a fun way for youth to develop

life skills, and build confidence and self-esteem. The SS/W project is a national program developed through the collaborative efforts of shooting and hunting education organizations, industry, and the 4-H program (Howard, 1987). Nationally, 40 states have active shooting sports programs reaching more than 100,000 youth through 20,000 certified volunteer leaders (Smathers & Smathers, 1998). The project area resulted from concerns of shooting organizations, hunting educators, industry, and 4-H. 4-H faced several concerns: Males were underrepresented as members and volunteers in 4-H programs; 4-H clubs were experiencing a long-term decline in membership around age 13; and creative programming was necessary to address urbanization of counties. The SS/W program began in Minnesota in 1980 with 13 counties implementing pilot programs involving 500 youth (Carlson & O'Brien, 1994). Currently the program operates in 44 counties. Lack of volunteer leaders (not equipment or youth interest) has been cited by some counties as the reason for not having an active program.

The underlying goal of the SS/W program is to develop "fundamental life skills" (Howard, 1987) which can be categorized into three groups: Coping, competencies, and contributory. These life skills are integrated in the fun, hands-on, experiential learning offered by the SS/W program.

The most recent SS/W program evaluation was conducted through a survey distributed at the Minnesota State Shoot in September 1997.



The purpose was to determine how well the program was meeting its goals and how the program had changed since a 1993 evaluation. Forty-two percent (138) of State Shoot participants completed the survey. The evaluation was designed to gather information on individual knowledge, behavior, problem-solving skills, and family involvement, as well as resiliency factors such as participation in activities outside of 4-H.

Demographics

Of those who completed the survey, 62% were male and 37% were female—an 8.5% increase in female participation since 1993. A majority of respondents described themselves as white (85%) and living in a rural community (93%). Participant ages ranged from 8 to 19 years, with the average being 14. Seven percent (nine youth) said they had a disability, of which four indicated they had a learning disability. Participants had been involved in the SS/W program for 1-12 years with the mean being 3.37 years. Within the SS/W program, the average respondent participated in two of five disciplines in 1997.

According to the survey, most 4-H SS/W members participated with at least one other family member (94%). Fathers participated with their children 74% of the time, while mothers participated 48% of the time. Family participation increased 12% since 1993. Only 6% of respondents indicated they participated without other family members (Graph 2). The survey also indicated that families are actively involved in other shooting and wildlife organizations, with the National Rifle Association being the most frequently cited shooting organization (50% holding active memberships). More than two-thirds also belong to wildlife organizations such as the Minnesota Deer Hunter's Association.



Of the 19 activities that may contribute to greater resiliency in youth, the top three were “doing things outside” (68%), “play or practice sports” (58%), and “do homework, study” (57%). Each of these is a positive activity in which learning takes place. Overall, the average responding youth participated in six different activities for two or more hours on any given day. One-third (36%) participated in four or fewer activities on any given day. Ironically, this same percentage was identified as “at-risk” in the 1993 survey. This, however, does not suggest low resiliency in 36% of youth unless those four activities are mindless, such as playing video games, driving a vehicle, partying, or talking on the phone. The survey reviewer found only 19 youth (14%) with potential for not developing the resiliency needed for a productive and happy adulthood.

This sample contains evaluations from 31 of the 35 counties (85%) that attended the Minnesota State Shoot in September 1997 and is thought to be representative of the population of youth involved in the SS/W program throughout Minnesota.

Overall Results

Initial survey results indicate that many youth are intrinsically motivated to participate in the SS/W program (Graph 1). This conclusion comes from viewing the top reasons youth

Table 1: How SS/W members describe themselves. (N=138)
(On a scale from 1 to 5; 1 being never and 5 being always)

Statements	1993 Mean	1997 Mean	Difference
I learn best when I can do the activity	4.4	4.5	.1
I practice sportsmanship	4.4	4.5	.1
I attend club/county project meetings	3.9	3.8	-.1
I ask questions when I don't understand	3.9	3.7	-.2
My parent(s) attend project meetings	3.9	3.7	-.2
When planning, I set short-term goals	3.3	3.3	0

reported for joining the program: Interest in hunting or wildlife (64%), to shoot competitively (59%), and to learn about firearm safety (40%).

Participants were asked how frequently they exhibit certain behaviors (Table 1). A five-point Likert Scale was used, with one representing never and five representing always. Respondents were given seven statements describing their participation in the SS/W program. The results showed little change from four years ago.

Survey respondents identified which environmental actions or activities they have participated in of the nine listed (Table 2). This question was used to indicate the environmental responsibility of youth involved in the SS/W program. The average number of reported behaviors was 3.82 (SD=2.03), slightly lower

than the 1993 mean of 4.4 (SD=2.16). The top five behaviors remain as listed in Table 2; however some of the percentages have decreased.

A measure of participant knowledge, consisting of a 15-item true/false section, also was included in the survey. Questions focused on safety, laws, and practical procedures. Scores ranged from 4 items correct (26%) to 14 correct (94%), with a mean score of 11.21 (SD=1.85) comparable to the 1993 mean score 11.26 (SD=1.68).

Critical Thinking

Critical thinking skills were measured with the same situations used in the 1993 survey (Table 3). Participants were asked to share their ideas of how they might react in the following

Table 2: Activities in which SS/W participants have been involved. (N=135)

Behaviors	1993 Percent	1997 Percent	Difference
Putting up birdhouses	76%	74%	-2%
Telling others how to be safe hunters	66%	67%	1%
Participating in community clean up	62%	60%	-2%
Used hunting topics for fair exhibit	52%	44%	-8%
Used hunting topic for school report	49%	38%	-11%

Table 3: Critical thinking scenarios with mean number of answers. (N=136)

Scenarios	1993		1997		Difference
	Mean	SD	Mean	SD	
Falling through the ice	2.9	1.63	2.2	1.15	-.7
Coaching a friend	2.5	1.42	1.8	1.09	-.7
Heard a noise in some bushes	2.6	1.23	1.6	.99	-1.0

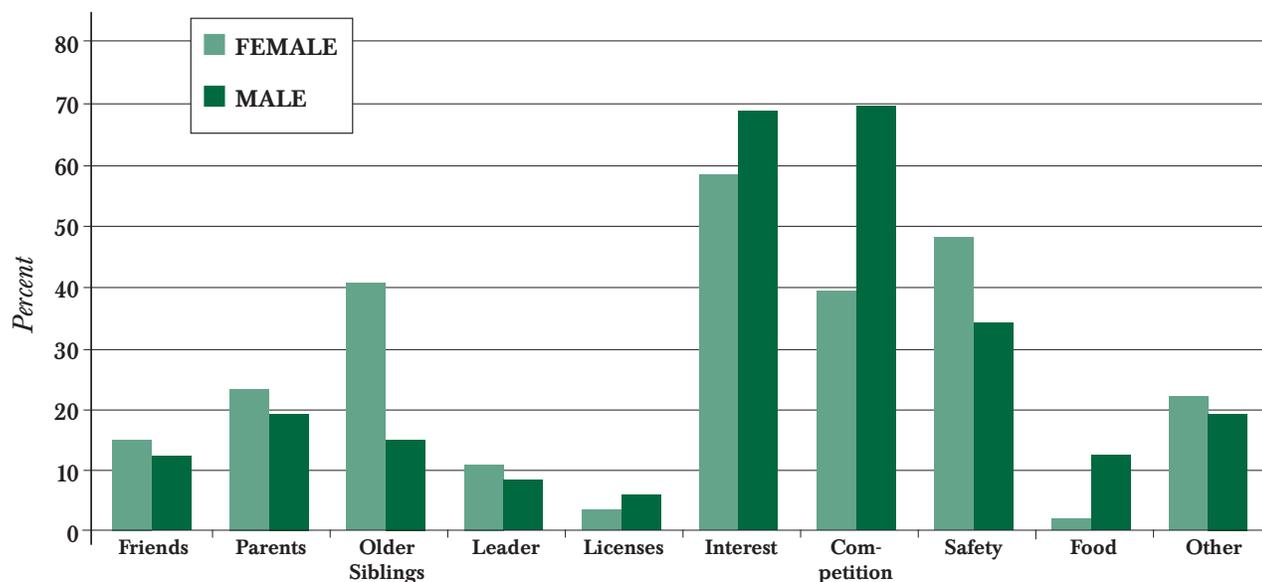
situations: “I am in the woods and have fallen through the ice on a creek and am soaked. I . . .,” “I am helping coach my friend on the firing range. I tell them . . .,” and “I am hiking with a friend and hear a noise in some bushes. I . . .” Participant responses were scored based on the number of responses to each question. Although responses were reviewed by two independent reviewers, scoring was highly consistent. Just as in the 1993 survey, the highest number of responses was given for the falling-through-the-ice scenario. Overall, however, the number of

responses decreased for all three scenarios in this year’s survey. The standard deviation decreased as well. Eleven survey participants did not respond at all.

Gender

Survey results suggest that females and males participate in the SS/W program in much the same manner, with only slight differences. Males generally participated in the program at an older age and for a longer duration than females. No significant differences between

Graph 1: Male and female comparisons of reasons for joining the SS/W program (N=138)



males and females were found in the level of involvement, environmental behaviors, knowledge, or critical thinking skills.

The main objective of SS/W is to develop fundamental life skills. Although shooting is a carrot to draw youth into the program, it should not be the only focus.

The only significant difference between male and female survey participants was their reason for participating in SS/W (Graph 1). Males' number one motivation was shooting competitively. Females' top motivating factor was an interest in hunting or wildlife. Other motivating factors for males were an interest in hunting or wildlife and to learn about firearm safety, respectively. Females' other reasons were to learn firearm safety and because of an older sibling. Shooting competitively was ranked fourth for females. In 1993 shooting competitively was the second most popular reason among females for joining.

Male and female youth showed striking differences in the activities in which they participate for two or more hours on any given day. Females were more likely to spend time shopping, talking on the phone, and reading ($p<.0001$); doing homework ($p<.001$); and participating in clubs, and being alone ($p<.05$). Males were more likely to build or fix things ($p<.0001$) and work in paid jobs ($p<.05$). The number of potential resiliency factors was high in males and females with a total of 117 resilient youth (85%). It appeared, however, that female respondents were more resilient than males ($p<.05$). This may be due to their involvement in diverse activities that provide meaningful

roles and responsibilities. According to Benard (1992), meaningful roles and responsibilities are necessary to prevent alienation from community and, ultimately, delinquency.

Minority Participants

The number of survey participants who had disabilities or were of color was too small to generate valid sample sizes for data comparison. This was also the case in 1993. Minority participation in the SS/W program has not increased. It is important that 4-H not only be open to all people, but work to include and make the program more accessible to people with disabilities and of color. Ensuring that all people feel welcome and succeed in this program must be a top priority.

Age

According to the survey, participant age only affected a few factors in the SS/W program. As age increased, so did the average number of years of participation. In general, youth participate longer in the SS/W program today than they did in 1993. The longer youth are in the program, the more likely they are to participate in a greater number of disciplines.

In the area of critical thinking skills, the only age-related significance ($p<.01$) was for the falling-through-the-ice question (which also received more answers overall). For 8–12 year olds ($n=37$) the average number of responses was 1.70, for 13–15 year olds ($n=61$) it was 2.38, and for 16–19 year olds ($n=38$) it was 2.50.

As youth get older, the activities they choose to participate in for two or more hours a day changes. Older youth were more likely to work at a paid job, drive, party ($p<.0001$); and talk on the phone and be alone ($p<.05$). Although each of these, with the exception of working at a paid job, may be construed as unmeaningful activities, they must be viewed in

the context of the other activities in which these youth are involved. The data indicates that as youth get older, they are involved in more activities ($p < .05$). According to the survey responses, 8–12 year olds were involved in a mean of 4.95 activities ($SD=3.45$), 13–15 year olds were involved in a mean of 6.43 activities ($SD=3.76$), and 16–19 year olds were involved in a mean of 7.58 activities ($SD=3.61$).

Although the 1993 study indicated differences among age groups for level of involvement, environmental behaviors, and knowledge scores, these were not found in 1997. It is important to note that, at a time when other 4-H programs are losing participants, the 4-H SS/W is retaining youth until the age of 18 and 19—even more so than in 1993.

Level of Involvement

The degree of one's involvement in the SS/W program was measured by disciplines in which they participate. According to survey responses, level of involvement does not impact environmental behaviors or knowledge levels. No significant changes were demonstrated between these groups. This may imply, as in 1993, that what is taught is consistent throughout the disciplines and therefore the number of disciplines in which a participant is involved is less important than the quality of knowledge, behaviors, and critical thinking they receive from participating in that discipline. This finding points to the need to emphasize the main objective of SS/W: Develop fundamental life skills.

Although shooting is a carrot to draw youth into the program, it should not be the only focus.

By allowing youth to exert control over their environment, parents and families help develop resilient youth.

Involvement in Shooting or Wildlife Organizations

Involvement in shooting and/or wildlife organizations outside of 4-H programs was measured. Based on survey results, 65% of those involved in SS/W are members of at least one other shooting organization. This is up 18% from 1993.

Involvement in these organizations appears to impact other aspects of the SS/W program. The total number of environmental behaviors reported increased from 2.95 ($SD=1.58$) for those not involved in any shooting organization to 4.2 ($SD=2.04$) for those who are members of at least one shooting organization ($p < .05$). How-



ever, the overall number of environmental behaviors is down from 1993 when the mean reported environmental behavior was 3.5 for no other shooting organization membership and 5.1 for members of at least one other shooting organization. In 1993 membership in a shooting organization indicated the number of years participants would be involved in the 4-H program. This is no longer the case.

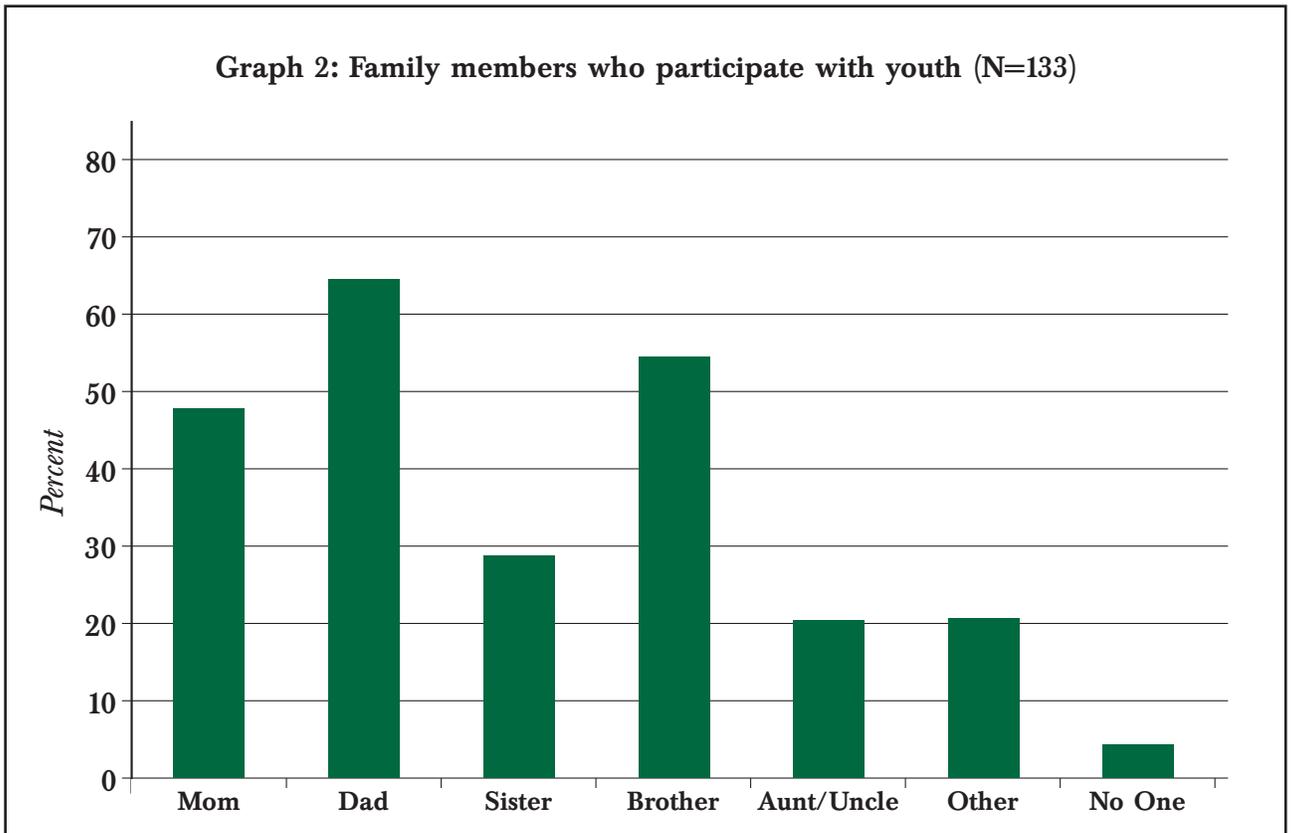
Involvement in wildlife organizations was a significant indicator of reported environmental behaviors ($p < .0001$). The greater number of wildlife organizations in which youth and their families were involved, the higher the number of reported environmental behaviors. Involvement in wildlife organizations also correlated with youth talking with adults. The more wildlife organizations with which youth and their families were involved, the higher the number of adults youth spoke to about personal matters.

Family Involvement

The value of family involvement in SS/W is evident in a number of ways. Those who participate without parents averaged 1.38 wildlife organization memberships ($SD = .5$), while those who participate with one or both parents averaged 1.73 wildlife organization memberships ($SD = .45$)—significant at the .01 level. There were no other significant differences for 1997 survey respondents based only on parents' participation. This differs from the 1993 survey, which indicated differences in number of disciplines, reported environmental behaviors, and knowledge scores for those whose parents or siblings participated.

Benard (1992) states that most children identified as resilient had the opportunity to develop a close bond with at least one adult (not necessarily their mother or father), and social relationships among family members are the

Graph 2: Family members who participate with youth (N=133)



best predictors of children's behavioral outcomes. Taking this into consideration, comparisons ranged from no family member involvement up to six family members participating. Greater resiliency was found among youth with more family members participating ($p < .0001$). Those with no family members participating averaged 2.78 (SD=2.64) activities outside of 4-H, those with one or more family members participating averaged 6.57 (SD=3.69) activities, and those with five family members participating averaged 7.83 (SD=2.79) activities.

Those with no family participating with them tended to be involved in fewer disciplines ($p < .01$) compared to those with at least one family member participating. Youth also scored significantly higher ($p < .05$) on the knowledge questions when family members were involved: Those with at least one family member scored a mean of 11.29 (SD=1.78) compared to a mean of 10.11 (SD=2.57) for those with no family members involved. This suggests that, as Benard (1992) stated, it is not parental involvement that is required to develop healthy resilient youth, but instead total family involvement, whatever that family is considered to be. Graph 2 shows the percentage of family involvement noted by the survey respondents.

Discussion

Results of the 1997 SS/W evaluation reveal a number of interesting points. There are some obvious areas in which the program continues to operate well; there are also some areas that require change and improvement. Interesting differences between the two surveys (1993 and 1997) are shown as well.

Family involvement is one area that can be seen as very strong. A small percentage (6.5%) of survey participants said they did not participate in SS/W with any family member. In addition to this, only 13.1% responded "never" on the Likert



Scale question, "Attend club meetings with my parents." These numbers indicate that SS/W is a family-oriented program. Not only are youth participating with their siblings, but parental involvement is also high with 42% of survey respondents participating with both parents. Youth who participated with family members were more resilient, more involved in various disciplines, and scored higher on knowledge questions. This supports the importance of including all family members in the SS/W program.

Another strength of the SS/W program is its emphasis on citizenship and good environmental stewardship. Of those who completed the survey, 74% had put up birdhouses, 67% instructed others on how to be safe hunters, and 60% had participated in community clean-up projects. Involvement in other shooting and wildlife organizations is a good indicator of individual environmental behavior. It was found, however, that 32% did not belong to any wildlife organization and 27% did not belong to any shooting organization. This indicates that fewer youth and their families are participating in other organizations today than in 1993. Since such memberships have such significant difference on environmental behaviors, they should be encouraged.

Most 4-H SS/W members participate with at least one family member.

A third area in which the SS/W program is doing well is firearm safety and wildlife management education. Overall, scores on the knowledge questions were high, indicating an understanding of the concepts being taught. No significant differences were found on knowledge scores relative to number of years involved in the SS/W program. This could indicate that a majority of the important concepts are being taught early and are reinforced frequently enough so that learning occurs early on in the program. Therefore, it appears, as in 1993, that leaders are doing a good job of teaching basic concepts important in the early stages of a youth's SS/W program career.

Findings in the areas of why youth are joining the SS/W program were positive. The top three reasons for involvement were the same as in 1993 and continue to be largely intrinsic. This differs from a study done in Ohio (Cano & Bankston, 1992) on factors influencing minority youth participation in 4-H programs. Their reasons for joining were largely their parents' influence; a relative who served as an agent, assistant, or leader; or a friend. However, by allowing youth to exert control over their environment, parents and families are helping to develop resilient youth (U.S. Department of Education, 1995). The 1997 SS/W evaluation results reemphasizes that youth learn best through hands-on activity. Sixty-three percent of respondents "always" learn best when they perform the activity. A final positive note about the SS/W program is the high development of sportsmanship among participants, 64% indicated they "always" practice sportsmanship.

Several areas of the SS/W program are in need of improvement or change. One of these is the low number of participants who are consid-

ered minorities, have a disability, or live in an urban area. Carlson and O'Brien (1994) outlined a marketing approach to target minority youth which included photographs of minority participants in marketing materials, as well as recruiting minority volunteers to serve as role models to promote 4-H to underrepresented populations. Some marketing pieces with photos of minority members have been done, but this still remains a challenge. A survey of minority youth in Ohio found the following barriers to participation in 4-H: Lack of awareness or skewed view of the 4-H program, and lack of adult role models (Cano & Bankston, 1992).

However, these same youth felt they were positively rewarded by 4-H through increased self-esteem, development of leadership skills, recognition for a job well done, and learning about different project areas—especially farms and farm animals. Minnesota 4-H has few adult volunteers from minority populations. Unfortunately this corresponds with 4-H volunteers across the U.S. whose ethnic backgrounds have barely changed since 1950 even though the makeup of America has. Currently minorities make up one-third of the U.S. population (Culp, 1996). According to Culp (1996), the average 4-H volunteer is a white female, age 43, raised on a farm, has 14 years of education, was likely in 4-H herself, and whose children are now in 4-H. The only changes have been societal ones: A volunteer is likely to have fewer children and work outside of the home more often.

4-H involvement runs in the family, and so in order to have minority volunteers in the future, we must have minority youth in clubs now. These youth need similar role models. A greater effort must be made to recruit minority



volunteers if the Minnesota SS/W program seriously wants to include people of all abilities and all ethnic backgrounds on a larger scale.

The 1997 survey indicates that setting short-term goals and working as a team are being done little over “half the time.” This was listed as a potential concern in 1993. The U.S. Department of Education (1995) states that resilient youth must have the ability to set goals and make plans for the future, therefore setting short-term goals must be addressed more directly within the SS/W program. The U.S. Department of Education (1995) also acknowledges the ability to act independently as part of developing social competence in resilient youth and encourages opportunities for students to work collaboratively to develop communication skills, practice negotiation skills and anger management, and develop positive relationships with peers. Therefore, working on a team half the time and independently the other half may be a good ratio.

A relatively low number of participants indicated they had argued the non-hunting point of view (17%). Because SS/W is a youth development program, alternate solutions to issues should be presented so that youth are able to make informed decisions as to what he/she believes in or values (U.S. Department of Education, 1995; Benard, 1992). The fact that such a small number of those involved have argued the non-hunting point of view may be attributed to the same reasons given in 1993. Perhaps it is that this view is not being presented to the participants or it is not being presented in a way that encourages them to adopt it. On the other hand, it may be that the individual, prior to joining the SS/W program, already formed his or her opinion on these issues. The number of individuals who are members of the National Rifle Association and other hunting related organizations may support this second possibility.

Another area for further evaluation is the ability of the SS/W program to promote involvement in natural resources or related programs and to encourage interest in the shooting sports or wildlife as a career. Only 23% responded that SS/W led them to other 4-H projects, 21% reported an interest in a career in the shooting sports industry, and 34% reported an interest in a career in wildlife. Those indicating an interest in a career related to shooting sports or wildlife decreased 12% each since 1993.

Perhaps the area that may need the greatest attention, even more so than in 1993, is development of critical thinking skills. According to Shermis (1992), the rationale that “students need to become critical thinkers,” has scarcely changed over the last century. Developing critical thinking skills has become a national concern for both formal and informal educators (Torres & Cano, 1995). The 1997 survey results indicate more must be done to assist youth both in understanding issues at deeper levels and developing the ability to transform and interpret information



4-H must include and make the program accessible to people with disabilities and of color.

(Keating, 1988). The low number of responses to situational questions indicates a need to improve how the SS/W program teaches and fosters development of critical thinking in youth.

One possible explanation for the low level of critical thinking skills expressed is the high priority of safety within the SS/W program and specifically on the firing line. Safety requires strict guidelines and at times a very autocratic style of leadership (Carlson & O'Brien, 1994). This style may carry over into other areas of the program where such regimentation is not necessary. Although, as Bernard (1992) found, families labeled authoritative had low rates of adolescent alcohol and drug use, these families also were characterized by warmth, support, and clear rules and expectations.

Instructors need training on learning styles and need to construct an educational environment conducive to promoting critical thinking.

A second reason for low critical thinking skills may be greater emphasis on developing shooting skills and wildlife knowledge through one method of teaching rather than teaching in a variety of learning styles. Torres and Cano (1995) found learning styles play a significant role in promoting the development of critical thinking in youth. Instructors need training on learning styles and need to construct an educational environment conducive to promoting actions that contribute to critical thinking. As the 4-H SS/W audience becomes broader and more diversified, steps should be taken to determine which style of teaching is most effective for each individual (Rollins, et al., 1992).

Conclusion

Based on the responses of 138 youth that attended the 1997 State Shoot, it is clear that the program is successful in many areas. The areas in which the SS/W program appears to be strong include:

- Strengthening family relationships
- Teaching safe, responsible use of firearms and archery equipment
- Learning sportsmanship and ethical behavior
- Developing leadership and citizenship
- Strengthening personal and social competence
- Developing lifelong recreational pursuits
- Complementing existing SS/W programs

It is important that the program continue to place emphasis on these areas so that youth will continue to have the opportunity to achieve these objectives. Areas in need of increased emphasis are:

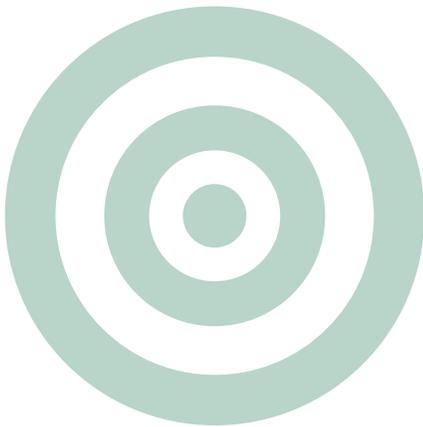
- Encouraging participation in natural resources and related natural science programs
- Developing critical thinking skills of youth
- Including youth with disabilities, from urban areas, and minorities
- Strengthening vocational competence

It is important that the state, county, and clubs focus more attention in these areas. In order for the SS/W program to be successful in developing complete, competent youth it is imperative that these objectives become observable outcomes.

Recommendations

Based on the results of the Minnesota 4-H SS/W program evaluation, a number of recommendations for future focus areas can be identified. Program specific recommendations include:

- Determining methods that will make the program known and more attractive to minority youth and youth in urban areas
- Including greater numbers of youth with disabilities
- Changing curriculum to provide greater focus on development of critical thinking skills
- Training leaders on learning styles of youth and how to better promote the development of critical thinking skills
- Training leaders in all areas that need improvement
- Continuing efforts in areas in which SS/W is currently doing well



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