Attitudes Toward Roles in a Wilderness Education Program

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Abstract—This study examined students' attitudes toward the impact monster and the good guy roles in the impact monster skit and determined if attitudes differed by gender and grade level. In addition, differences in high- and low-involvement with the skit were analyzed. The impact monster skit is a popular wilderness education program designed to teach appropriate wilderness behavior and low-impact skills. Results indicate that the students had favorable attitudes toward the "good guy" and unfavorable attitudes toward the "impact monster." Significant differences were found for grade level and gender attitudes toward some message sources. There was no difference in the attitude scores of high- and low-involvement individuals.

Wilderness education efforts frequently involve communication from a source to a recipient. For example, a wilderness ranger may formally or informally communicate appropriate behavior to a wilderness visitor. The message content and/or the message source may cause the recipient to develop favorable or unfavorable attitudes toward the individual delivering the message. This, in turn, could influence subsequent wilderness behavior.

The impact monster skit is a popular and frequently used wilderness education program that relies on the source and content of a message. The skit, designed to teach low-impact skills, typically involves an "impact monster" who demonstrates inappropriate behavior in a wilderness setting and a "good guy" who corrects the behavior (Hendricks and Watson 1999). In a survey of wilderness educators regarding this skit one concern was the perception that the roles played in the skit might encourage stereotyping or inappropriate student attitudes about the roles displayed (Hendricks and Watson 1999). For example, the impact monster might be perceived as being "cool," and students might then engage in wilderness activities modeled after this role rather than the "good guy." The good guy is usually a wilderness ranger or hiker who may or may not be viewed as favorably as the impact monster. This problem was considered more likely in upper grade levels (sixth grade through high school). The purpose of this study was to examine students' attitudes toward the impact monster and the good guy roles within the skit.

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Persuasive Communication

The basis for the study comes from the persuasive communication literature. According to a theoretical perspective based on the Elaboration Likelihood Model, persuasion occurs when communication results in a change in attitudes. These attitudes may guide behavioral processes (Petty and Cacioppo 1986). Two generally recognized communication approaches for messages are the peripheral and central routes to persuasion (Petty and Cacioppo 1981, 1986; Petty and others 1992; Roggenbuck 1992; Roggenbuck and Manfredo 1989). The central route focuses on the recipient's motivation levels and ability to process messages; the peripheral route relies more heavily on message cues, including the attractiveness, credibility, similarity, likeability and trustworthiness of a message source. The importance of the peripheral route is magnified when the cognitive abilities necessary for message processing are inadequate for a central route message. Roggenbuck and Manfredo (1989) suggested that this might be the case with children; therefore, the presenter of a message in a children's wilderness education program or activity needs careful consideration.

Attitudes

A key element of persuasive communication is the attitudes formed through the communication process and the behavior that follows attitude formation or change. Although there are varying conceptual and operational definitions of attitude (McGuire 1985), Vincent and Fazio (1992) have simplified the definition to "the association in memory between an object and an evaluation." Similarly, Petty and Cacioppo (1986) defined attitudes as general evaluation held toward objects (including people and issues).

Attitudes toward an object may result from positive and negative cues associated with a message source (Petty and others 1983). Program recipients may view message sources, including wilderness rangers, peers, wilderness hikers, charismatic individuals and symbolic characters such as Woodsy Owl or Smokey Bear, favorably or unfavorably (Hendricks 1999). Attitudes are likely to develop about these potential sources of a wilderness education message. If wilderness education programs are designed to influence attitudes and behavior, the source of the message may ultimately affect the learning and behavioral outcomes of the program.

Message Recipient

The message recipient is also a critical factor in the success of a persuasive message and attitude change. Among

the message recipient characteristics commonly investigated in previous research are age and gender (Ajzen 1992; McGuire 1985). Results have been mixed in investigations of various recipient variables related to persuasive communication (Ajzen 1992) and environmental education. For instance, Gifford and others (1982) examined the environmental attitudes of college students and found significant differences in gender for knowledge, affect and verbal commitment. Men were more knowledgeable, but women were more verbally committed and expressed greater affect. Differences in attitudes based on age were not significant in the study. When investigating environmental ethics of a wider range of ages (12, 15 and 18 years old), Szagun and Mesenholl (1993) found age differences for consideration of nature, enjoyment of nature and sympathy. Furthermore, females had stronger ethical and emotional attitudes than their male counterparts. In a third study, age and gender both resulted in significantly different knowledge and attitudes toward animals among second, fifth, eighth and eleventh grade students (Kellert 1985).

A more complex recipient variable in persuasive communication research is the level of involvement of the individuals on the receiving end of a message. As individuals become more involved, the amount and type of information processing that occurs may vary (Petty and others 1983). In most cases, high-involvement individuals are more likely to engage in central route processing. Low-involvement individuals are more likely to be influenced by peripheral cues. Contrary to the expected results of one study, Petty and Cacioppo (1980) found that a peripheral message source was just as effective with low- and high-involvement recipients.

Behavioral Intentions

Whereas the Elaboration Likelihood Model emphasizes the attitude changes that occur within the persuasive communication process, the Theory of Reasoned Action (Ajzen and Fishbein 1980) links attitudes to behavior through behavioral intentions, attitudes and beliefs. The attitudes are toward the behavior; another concept in the theory, subjective norm, refers to what a significant other thinks about the behavior performance or the motivation to comply with this individual. This theory and the Elaboration Likelihood Model's emphasis on message sources for a peripheral route might indicate that attitudes toward a message source help determine behavioral intentions.

Methods

The subjects participating in the study were 574 first, third and sixth grade students in 24 elementary school classes in the central coast area of California. This area borders the Los Padres National Forest, which contains 10 designated wilderness areas. The classes were selected based on availability and similarity of students among the schools. The students live in smaller communities (population under 6,600), with English being the first and primary language of nearly all students. Once classes were selected, they were randomly assigned to treatment groups. As a portion of a larger study, one aspect of the treatments involved messages communicated from varying sources (roles).

The randomly assigned message sources within the treatments represented an impact monster dressed as "cool" in brightly colored clothing or as a "typical" wilderness hiker and the good guy dressed as a wilderness ranger or wilderness hiker. Thus, there were two levels for each of these message source variables toward which students might have favorable or unfavorable attitudes.

Independent variables were gender and grade level. Grade levels were, again first, third and sixth grade students. There were 200 (34.8%) first graders, 202 (35.2%) third graders and 172 (30.0%) sixth graders in the study.

In a separate analysis, high and low involvement with the skit was treated as an independent variable. Before the skit began, eight students were randomly selected to play skit characters of three rocks, a frog, a snake, a tree, a sign and a flower in each of the 24 classes (192 total students). These students were considered high-involvement individuals. The students observing the skit were considered low-involvement individuals.

Attitudes were measured with a five-item, five-point scale containing bipolar adjectives. In a pilot study with a single class from each grade level, a modification of an attitude scale used by Morgan and Gramann (1989) was employed. It was discovered that the first and third grade students had difficulty responding to the scale, raising concerns about the validity of their responses. The scale was then modified by using a variation of a face scale (Andrews and Withey 1976) to represent each point between the bipolar adjectives. The five pairs of adjectives were good/bad, uncool/cool, icky/neat, wonderful/terrible and gross/super. The alpha coefficient to determine inter-item reliability for the scale was 0.81.

Following exposure to the skit, the students were given the scale and asked to complete it by indicating their feelings toward the message sources. As a class, they were taken through each item of the scale independently and asked to respond to one item at a time. The explanations of the scale items were provided to the class by a narrator dressed in an U.S. Forest Service volunteer uniform. The same research assistant played this role each time the skit was performed. A second research assistant held up an enlarged copy of the scale that was used as a visual aid during the explanation.

A 2 x 3 factorial ANOVA was employed. Data analysis included an examination of overall attitudes toward a message source, regardless of the level (ranger or hiker), and an examination by each level. Differences in grade levels and gender were also analyzed. In addition, a secondary analysis with a Pearson's product-moment correlation was used to determine if a relationship existed between behavioral intention scores following exposure to the skit and attitudes toward the impact monster and good guy roles. The behavioral intention scores were derived by asking the students to indicate, by circling behaviors on an illustration, the "activities they would do the next time they went camping in a wilderness." This follows a format similar to the measurement of behavioral intentions in previous recreation resource management literature. Typically, subjects are asked, using a Likert-type scale how likely they are to do something (Trafimow and Borrie 1999; Young and Kent 1985) or what they plan to do (Dowell and McCool 1985). Eleven inappropriate and six appropriate behaviors were possible. Inappropriate behaviors were coded negative one, and appropriate behaviors were coded

positive one; thus, scores could potentially range from negative 11 to positive 6 (see [Hendricks 1999] for further description of the instrument and procedures). A final analysis included attitude differences of high- and low-involvement individuals.

Results

For overall attitudes toward the good guy source of a message, there was a significant interaction between grade and gender $F(2, 550) = 6.53$, $p < 0.002$. Main effects for grade level $F(2, 550) = 4.23$, $p < 0.015$ and gender $F(1, 550) = 11.76$, $p < 0.001$ were also significant (table 1). The total sample aggregate attitude mean score was 24.09 for the five-scale items. Grade levels were 24.09, 24.40, and 23.72 for first, third, and sixth grades, respectively, with a significant difference between third and sixth grade scores. Girls (24.44) had a significantly more positive attitude than boys (23.77) overall and at the sixth grade level.

There was also a significant interaction for the wilderness ranger level of this role variable $F(2, 262) = 59.79$, $p < 0.001$ (table 1). Main effects were again significant for grade level $F(2, 262) = 4.36$, $p < 0.014$ and gender $F(1, 262) = 7.14$, $p < 0.007$. Differences in mean scores were present for first (24.20) and sixth grade (23.23) and third (24.37) and sixth grade. Once again, girls' scores (24.38) were significantly greater than boys (23.61) overall and in sixth grade.

The wilderness hiker level of the good guy message did not result in significant main effects or an interaction effect (table 1). Mean scores were 23.96, first grade; 24.43, third grade; and 24.20, sixth grade. Girls and boys scores were 24.49 and 23.94, respectively.

In overall attitudes toward the impact monster role, main effects for grade level $F(2, 551) = 3.63$, $p < 0.027$ and gender $F(1, 551) = 31.58$, $p < 0.001$ were significant, but an interaction effect was not present (table 1). There was a significant difference between first (8.64) and sixth grade scores (7.36). Sixth grade and third grade (7.73) had the more desirable lower scores. The higher the score, the more positive the attitude toward the impact monster, which is not the favorable response in this case. Overall, boys (8.87) had more positive attitudes than girls (6.88) toward the impact monster. There was also a significant difference in gender at each grade level.

Main effects for grade level $F(2, 303) = 4.43$, $p < 0.013$ and gender $F(1, 303) = 19.61$, $p < 0.001$, but not an interaction effect, were also significant when examining attitudes toward the cool impact monster (table 1). First graders (9.23) had a more positive score than third (7.73) and sixth (7.20) graders, and boys (9.09) had a more positive score than girls (6.91). Significant differences were also present between boys and girls in first and third grades.

The wilderness hiker/impact monster treatment resulted in a significant difference in the gender main effect $F(1, 242) = 13.05$, $p < 0.001$(girls, 6.85; boys, 8.60), but not the other effects. Grade level scores were first grade, 8.04; third grade, 7.73; and sixth grade, 7.54, with a significant difference exhibited for third grade boys and girls.

A secondary analysis investigated the relationship between role attitudes and low-impact camping behavioral intentions after the skit. There was a significant negative correlation (–0.30) between attitudes toward the impact monster and behavioral intentions following the skit. A significant positive correlation (0.22) existed between attitudes toward the good guy and behavioral intentions following the skit. A breakdown of grade and gender levels provided further insight. The correlation of impact monster attitudes to behavioral intentions increased to –0.41 for first grade girls, –0.55 for sixth grade boys and –0.41 for sixth grade girls. The relationship between attitudes toward the good guy and behavioral intentions improved to 0.32 for first grade girls, 0.52 for sixth grade boys and 0.55 for sixth grade girls. There was also a significant negative correlation (0.49) between attitudes toward the impact monster and attitudes toward the good guy.

A final analysis of the data examined differences in high and low involvement with the skit (table 2). There were no significant differences in attitudes toward the message sources, based on students who played roles in the skit (high-involvement) and those who simply observed the skit (low-involvement).

Discussion

The results of the study may assist in adopting more appropriate roles within the impact monster skit to discourage unintended attitudes and behavioral intentions. Overall attitudes toward the impact monster and good guy are in the desired directions. The results are the reverse of what would be expected according to wilderness educators' perceptions of attitude problems in the skit (Hendricks and Watson

Table 1—Attitudes toward the good guy and impact monster.

Attitude variable	First grade			Third grade			Sixth grade			Total gender	
	M	F	Total	M	F	Total	M	F	Total	F	M
Good guy											
Overall	24.10	24.08	24.09	24.21	24.60	24.40[a]	22.71*	24.56*	23.73[a]	23.77*	24.44*
Ranger	24.36	23.95	24.20[b]	24.24	24.50	24.37[c]	21.88*	24.65*	23.23[bc]	23.61*	24.38*
Hiker	23.82	24.21	23.98	24.18	24.70	24.43	23.74	24.49	24.20	23.94	24.49
Impact monster											
Overall	9.37*	7.61*	8.64[a]	8.84*	6.52*	7.73	8.18*	6.67*	7.36[a]	8.87*	6.88*
Cool	10.21*	7.70*	9.23[bc]	8.64*	6.75*	7.73[b]	8.13	6.52	7.20[c]	9.09*	6.91*
Hiker	8.46	7.51	8.06	9.18*	6.11*	7.73	8.23	6.85	7.53	8.60*	6.85*

[a,b,c] Indicate significant differences $p < 0.05$ between grade levels for each message source variable.
*Indicates significant differences $p < 0.05$ between boys and girls at a grade level or overall.

Table 2—Good guy and impact monster role involvement attitudes.

Attitude variable	Good guy		Impact monster	
	Mean score	Significance	Mean score	Significance
Overall				
Role playing	24.07		7.69	
Observer	24.10	.898	8.04	.342
Wilderness hiker good guy				
Role playing	24.28			
Observer	24.17	.718		
Wilderness ranger good guy				
Role playing	23.86			
Observer	24.02			
Wilderness hiker monster				
Role playing			7.34	
Observer			8.01	.204
Cool monster				
Role playing			7.99	
Observer			8.06	.891

1999). Although upper grade students may exhibit overt behavior indicating the impact monster is cool, these results suggest that they are developing appropriate attitudes.

Of notable concern are the attitudes of boys. Boys' attitudes are inferior to girls in most analyses. This may be due to the nature of the impact monster skit and the attempt to persuade the students to indicate that they will behave in an ethical or appropriate manner. Previous research suggests that girls have higher levels of ethical concern for the environment (Szagun and Mesenholl 1993). Willingness to minimize impacts probably includes empathy toward the environment and ethical behavior that may have indirectly been manifested in the results of this study.

Boys and girls have higher scores with the wilderness hiker than the wilderness ranger, so a role played by someone perceived as a peer may be more effective than someone considered an authoritarian figure. This was particularly apparent for sixth grade boys. These results indicate that similarity or likeability (Petty and others 1983) of the message source may be an important characteristic within the skit. One plausible explanation for the gender differences in source attitude scores may be related to the gender of the message sources. The wilderness ranger/hiker was a woman, and the impact monster was a man. Reversing these roles may have influenced the attitudes by gender.

Although relationships between role attitudes and behavioral intentions are significant, the moderate correlation coefficients bring into question the actual practical relationship. It is obviously unlikely that behavioral intentions can be predicted from this variable alone, and that was a rationale for calculating correlation coefficients rather than conducting a regression analysis. Nevertheless, the coefficients for sixth grade students show promise for future research in this area. Further analysis needs a more complete model of the persuasive communication factors in order to rationalize a link between these two variables within the skit.

At this point, wilderness educators should continue to use the program considering the roles of each player in the skit. It would be advantageous for these educators to informally or formally view the behavior of boys and girls to determine if the inappropriate behaviors observed (Hendricks and Watson 1999) are due to the skit or classroom management problems. It might also be helpful to use peers or various wilderness users in impact monster and good guy roles.

We are beginning to get a handle on the effectiveness of the impact monster wilderness education program as it continues to be used by federal agencies. Additional attention should be given to the various scripts and roles used for the skit. Attempts should also be made to ascertain the effects of the skit on actual behavior. Behavioral intentions, message content and message sources have been examined elsewhere (Hendricks 1999); exposure to the skit has improved knowledge of wilderness education behavior (Tracy 1995); and the perceived effectiveness of the program is now documented (Hendricks and Watson 1999). Nevertheless, a statement posed by one wilderness educator still looms over the needed research: "The kids have a great time with it—just can't tell if it is making a difference" (Hendricks and Watson 1999).

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