

IMPEDIMENTS TO YOUTH PARTICIPATION IN HUNTING

by

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participation by youngsters that are susceptible to
change by DEC's sportsmen's education programs.

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EXECUTIVE SUMMARY

Introduction

This paper reviews research about young people's participation in hunting, and examines research findings in the context of moral and cognitive developmental theory. It synthesizes research about hunting behavior and developmental theory to help predict the educational programs and social environment that would encourage young people's participation in hunting over time. The hypotheses formulated as a result of this synthesis provide the basis for the development, limited implementation, and evaluation of a pilot experiential program for hunter education. We encourage critical review of the proposed program and hope this paper will serve as a springboard for a more detailed discussion and planning for actual program implementation.

Problem Identification

Substantial amounts of time and money are expended by state agencies to train hunters through hunter education programs. However, the number of course graduates not participating in hunting may be substantial (Applegate and Otto 1982, Decker and Brown 1982b). Those HTC participants who are interested in hunting as a potential personal recreational activity but do not go on to hunt may be symptomatic of a deficiency of the typical course in meeting participants' particular informational, motivational, or logistical needs. If wildlife management agencies expect HTC graduates to participate in hunting in future years, then agencies may need to go beyond information transfer in the classroom to innovative programming that provides the mechanisms that facilitate a hunting experience.

Hunting Adoption Theory

An explanation for the different hunting involvement levels of people who enroll in HTC's can be found by using the classical innovation-adoption process espoused by Rogers and his coworkers (e.g., Rogers and Shoemaker 1971). Application of the innovation-adoption concept requires us to recognize that becoming a hunter is not a single-decision event. Rather, the decision to hunt is the outcome of a series of decisions occurring at various stages of involvement. Figure 1 is a simplified illustration of this process of developing hunting involvement (Decker and Purdy in press). The stages range from initial awareness of hunting as a recreation activity, to gaining interest in it, to actually trying it, and finally to adopting and continuing it as a recreational pursuit. Note that inactivity or desertion from the process may occur at any stage. Reentry from a period of inactivity, as discussed by Applegate (1977), may occur also.

Individuals in different stages of the process are likely to require different kinds of information that will facilitate a decision regarding their "passage" to the next level or stage. Understanding this process is important because influencing an individual's hunting participation may be more effective if one's stage of hunting-adoption can be identified accurately and appropriate information typically sought by people in that stage is provided.

Moral and Cognitive Development Theory: Its Application to Hunter Education

If HTC's could facilitate the progression of people from one stage to the next in the hunting-adoption process, course participants would be more likely to continue hunting in future years. Important considerations when trying to affect this transition are the age of the individuals involved and the experiences and people that are most likely to influence them.

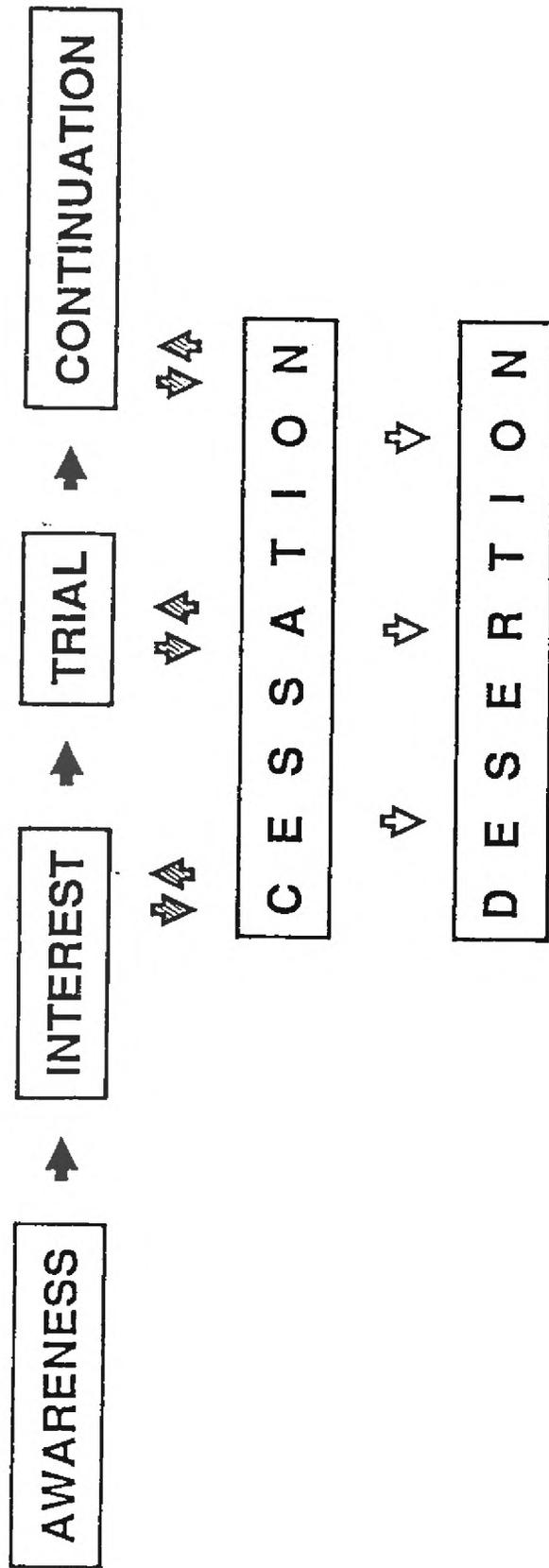


Figure 1. Conceptual model of process of adopting hunting as a recreational activity (Decker and Purdy 1986).

Moral development theory indicates that the relative influence of adults and peers changes with age. The experience provided by a HTC has the potential to affect the behavior of a hunter and whether that person affiliates with people who will encourage participation in hunting. It is the opportunity to participate in the social settings of family and peers that facilitates the development of moral reasoning. Moral development theory would lead us to predict that parents will have a greater influence on younger children's hunting participation, whereas peers will be more influential with adolescents and young adults. It is the recognition of the stage of a child's cognitive and moral development as well as the identification of the social influences of greatest importance at these stages that has direct implications for the education of young hunters. Course content geared to age-appropriate cognitive and moral abilities combined with experiential programs that emphasize contact with adults or peers should facilitate the development of ethical sportsmen and encourage participation in hunting over time.

Research Hypotheses

Moral development theory provides the theoretical framework to examine the factors most likely to influence a person's progression in the hunting-adoption process and suggests the following research hypotheses:

- 1) A greater proportion of people with an apprenticeship experience than without will be in the continuation stage of hunting adoption.
- 2) An apprenticeship experience is more effective for younger than older people in getting them to the continuation stage.
- 3) More preadolescent hunters with a family support system will be in the continuation stage of hunting adoption than those with a nonfamily support system.

- 4) More adolescent hunters with a nonfamily support system will be in the continuation stage of hunting adoption than those with a family support system.
- 5) People who have had an apprenticeship experience and have a social support system are more likely to be in the continuation stage of hunting than those who have only had the apprenticeship but lack support.

Figure 2 combines the hunting-adoption process with socialization factors that influence this process in youth and adult audiences.

Empirical Evidence of Factors That Promote Hunting Participation

Apprenticeship Experience

The opportunity to accompany hunters afield prior to legal hunting eligibility is one of the most important factors in the development of hunting interest and levels of participation (Decker and Purdy in press). The relationship of an apprenticeship experience to level of hunting adoption was demonstrated by Purdy's and Decker's study [in progress] of 1983 HTC graduates. The majority of those HTC graduates who did not have an apprenticeship experience were in the interest stage of hunting adoption. The majority of those who did have an apprenticeship experience were in the continuation stage of hunting. Of particular interest is the fact that 10% of those without such an experience ceased hunting compared to only 2% of those with experience.

There is evidence that the apprenticeship experience has a greater influence on younger hunters (<19 years of age) than older ones (>20 years of age). The apprenticeship experience is still important for hunters >20 years of age. It is more valuable, however, in getting these older individuals to try the activity than in influencing their continuation with the sport.

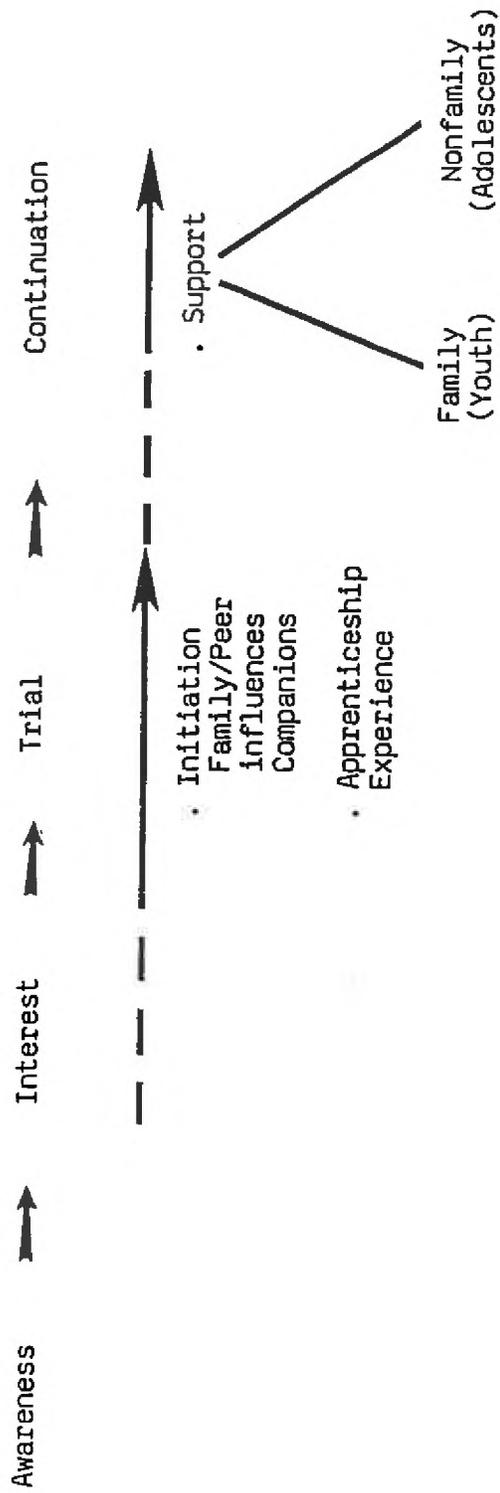


Figure 2. Socialization factors that influence the hunting-adoption process.

The above evidence provides support for the first 2 hypotheses. People who have the socialization opportunities afforded by an apprenticeship experience are more likely to continue participation in hunting and the impact of the experience is greater on younger hunters than older ones.

Social Support: Companionship and Opinion Influences

People who influence a person's hunting opinions provide the social environment that either encourages or discourages an individual to initiate hunting. Another important aspect of a support system is the person or people who facilitate a new hunter's actual participation; the companions who accompany a new hunter afield. The findings of the survey of HTC graduates indicate that hunters 15 and younger are most receptive to family initiation into the sport. The influence of nonfamily companions, however, predominates between 16 and 19 years of age. Nonfamily influence on hunters' continued participation is less after age 20, but seems to be an important factor influencing people's advancement to the trial stage of hunting adoption during this period of life.

The data from the study of HTC graduates support the ideas that both an apprenticeship experience and a social support system encourage progression in the hunting-adoption process. The question that remains to be answered is whether the apprenticeship experience alone is sufficient to get people to the continuation stage, or if a social support system is a vital ingredient necessary for continued hunting participation.

Management Implications: Program Strategies

Encouragement in hunting activities is provided by individuals and satisfying experiences. The people who influence a new hunter's attitudes toward hunting include those who provide the initiation into the sport, the

apprenticeship opportunities, and the companionship in the field. Importantly, hunting-related experiences should be recognized as key factors that facilitate participation in hunting.

The empirical evidence suggests that the relative impact of these factors varies with the age of the individual, and elements of a support system necessary for younger hunters differ from those that are most effective for older hunters. Examining the influence of support system elements in terms of a hunter's stage in the hunting-adoption process provides insight for the types of programs that could best promote an individual's progression to the continuation stage. Creation of innovative educational and management programs that are based on sound theoretical underpinnings and used to complement the regular hunter training course should help reduce some of the impediments to hunting faced by youth and promote the participation of hunters over time.

Pilot Hunter Education Programs

We propose using the model outlined in Figure 3 as a means of establishing and evaluating a pilot hunter education program that has as its goal an increase in the proportion of HTC graduates who progress to the continuation stage of hunting adoption. To test the hypotheses stated above, it will be necessary to have an experimental design that compares the effects of 2 treatments: (1) an apprenticeship experience, and (2) the combination of an apprenticeship experience with a form of social support. A group that has neither the experimental apprenticeship nor surrogate social support will be a control group. The types of experiential, surrogate hunting partner, and youth-adult programs that will be used in this pilot program will be geared to the age of the HTC participants.

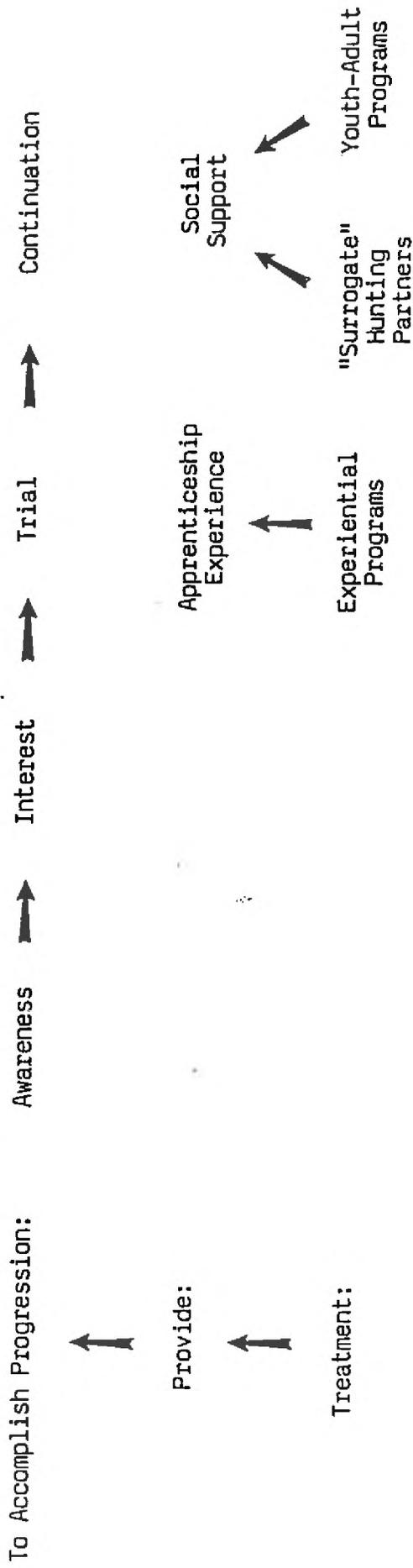


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Introduction

This paper reviews research about young people's participation in hunting, and examines research findings in the context of moral and cognitive development theory. It synthesizes research about hunting behavior and development theory to help predict the educational programs and social environment that would encourage young people's participation in hunting over time. The hypotheses formulated as a result of this synthesis provide the basis for the development, limited implementation, and evaluation of a pilot experiential program for hunter education. We encourage critical review of the proposed program and hope this paper will serve as a springboard for more detailed discussion and planning for actual program implementation.

Problem Identification

It is important for a variety of reasons to examine the factors that prevent young people from participating in recreational hunting. Youngsters who are interested in hunting and adopt the activity as a lifelong recreational pursuit represent the future financial support base for organized wildlife management activities. The management programs of state fish and wildlife agencies have strongly reflected the recreational interests of this major constituency and wildlife agencies have operated primarily on sportsmen's revenues. The trend in recent years, however, has indicated that a smaller proportion of the general population is continuing to participate in hunting. Wildlife management agencies want to continue to provide recreational benefits for their constituents but foresee difficulty in continuing the current breadth of programming or levels of services with diminishing funds. One approach to this problem is to maintain or increase the number of people who continue to participate in recreational hunting. It is not necessarily the objective of wildlife management agencies to convert non-hunters to hunters, but rather to

facilitate the continued participation of those people with an interest in the activity.

Substantial amounts of time and money are expended by state agencies to train hunters through hunter education programs. These programs generally have the dual objective of training prospective hunters in firearms safety and promoting responsible behavior. The ultimate purpose of hunter education, however, is to help those people who wish to do so gain maximum benefit from the wildlife resource through safe and enjoyable hunting experiences. Yet for many hunter training course (HTC) participants, these benefits are never attained. Even among those who have completed a HTC, uncertainty about their hunting future and intentions to cease activity are common (Decker and Brown 1982a,b). In addition, the number of course graduates not participating in hunting may be substantial (Applegate and Otto 1982, Decker and Brown 1982b).

This post-course inactivity has significance for planning hunter education programs on at least 2 levels. First, the presence of HTC participants who are interested in the relationship of hunting to wildlife management, but not in actually hunting themselves, may be an important audience segment that could be dealt with more effectively if identified beforehand and provided information appropriate to meet their needs (Decker and Brown 1982a). Second, those HTC participants who are interested in hunting as a potential personal recreational activity but do not go on to hunt may be symptomatic of a deficiency of the typical course in meeting participants' particular informational, motivational, or logistical needs.

Hunting Adoption Theory

If wildlife management agencies expect HTC graduates to participate in hunting in future years, then agencies may need to go beyond information transfer in the classroom to innovative programming that provides the

mechanisms that facilitate a hunting experience. An explanation for the different hunting involvement levels of people who enroll in HTC's can be found by using the classical innovation-adoption process espoused by Rogers and his coworkers (e.g., Rogers and Shoemaker 1971). The concept of innovation-adoption has provided valuable insights to decision making and behavior when applied to recreation participation generally (Brandenburg et al. 1982), to wildlife recreation (Decker et al. in press), and specifically to hunting involvement (Decker et al. 1984, Decker and Purdy in press). We believe it can be applied usefully to the hunter education arena, as well.

Application of the innovation-adoption concept requires us to recognize that becoming a hunter is not a single-decision event. Rather, it is a temporal, multistage process of increasing interest characterized by a series of decisions and related behaviors. If educators involved in state and other hunter education programs, such as the 4-H Shooting Sports, could determine which stage in the hunting-adoption process members of their audience had reached prior to the program, they could segment the audience accordingly. As others (Kozicky 1977, Applegate and Otto 1982) have noted, the value of such audience segmentation is that hunter educators could tailor curricula to the needs typical of people at the various stages of hunting involvement. Educators also could evaluate the influence of their programs in accelerating people through the process of hunting-adoption.

As discussed by Decker et al. (1984) and Decker and Purdy (in press), the innovation-adoption process described by Rogers and Shoemaker (1971) is well suited as a conceptual model of the process by which hunting is adopted as a recreational activity. The model indicates that the decision to hunt is rarely spontaneous, but rather the outcome of a series of decisions occurring at various stages of involvement. Figure 1 is a simplified illustration of this

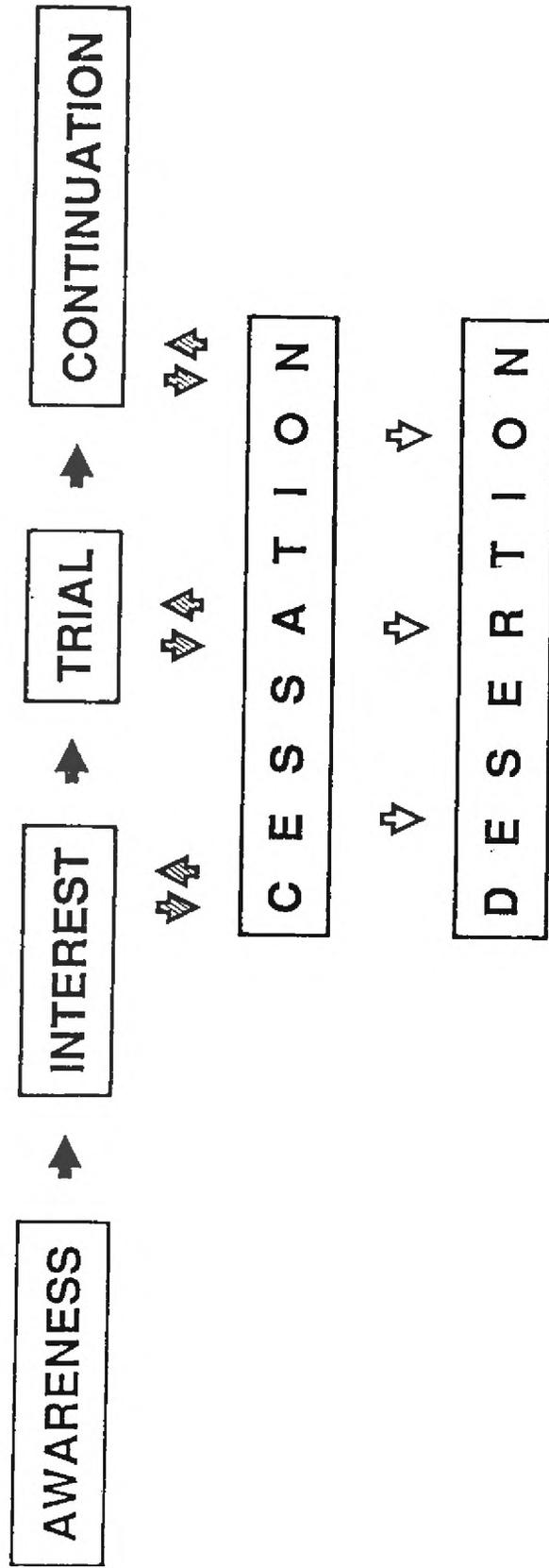


Figure 1. Conceptual model of process of adopting hunting as a recreational activity (Decker and Purdy in press).

process of developing hunting involvement (Decker and Purdy in press). The stages range from initial awareness of hunting as a recreation activity, to gaining interest in it, to actually trying it, and finally to adopting and continuing it as a recreational pursuit. Note that inactivity or desertion from the process may occur at any stage. Reentry from a period of inactivity, as discussed by Applegate (1977), may occur also.

Individuals in different stages of the process are likely to require different kinds of information that will facilitate a decision regarding their "passage" to the next level or stage. Understanding this process is important because influencing an individual's hunting participation may be more effective if one's stage of hunting-adoption can be identified accurately and appropriate information sought by people in that stage is provided. This is not an easy task in state hunter education programs because courses typically are dispersed geographically and temporally. Furthermore, the instructors are usually volunteers who have varying levels of skill in applying standardized procedures for the promotion and administration of individual courses. Nevertheless, the key to attempting to become more effective in segmenting HTC audiences is understanding the underlying concept of hunting-adoption and having a technique available for identifying stages in the process.

Moral and Cognitive Development Theory: Its Application to Hunter Education

Presumably, persons who begin legal hunting by successfully completing a HTC have already passed through the initial stage: awareness. Remaining are individuals who are experiencing 1 of the other stages: interest, trial or continuation. If HTCs could facilitate the progression of people from one stage to the next in the hunting-adoption process, course participants would be more likely to continue hunting in future years. Important considerations when

trying to affect this transition are the age of the individuals involved and the experiences and people that are most likely to influence them.

The field of moral development has examined the factors that influence the behavior of young people. Moral development theory offers a broad integrative framework for dealing with a wide range of theoretical and empirical concerns in the study of both child development and adult behavior (Lickona 1976). It attempts to explain the underlying reasons for honoring moral norms and obeying laws (Ripple et al. 1982). The study of the development of moral behavior is an interdisciplinary concern that draws on numerous perspectives including those of psychology, sociology, and education (Lickona 1976). Examining the factors that influence an individual's moral behavior enables us to understand the factors that influence behavior in general. Hunting is a behavior with important ethical considerations. If we understand the factors that influence the development of ethical sportsmanship, we can apply that knowledge in the utilization of appropriate strategies in the education of young people.

Moral development theory indicates that the relative influence of adults and peers changes with age. Saltzstein cites evidence to support the following two hypotheses:

1. Adult influence should be most potent at the younger ages because of the child's compliance orientation, involving deference to power (Kohlberg's Stage 1, obedience orientation) [Table 1]. Adult influence should decline with age, with peers becoming increasingly prepotent Adults should again become influential as the child moves to Stage 4, where conformity to legitimate (traditionally accepted and institutionalized) authority becomes one's duty. Subsequently, the importance of the source of the influence, as contrasted with the message that the influence conveys, should decline as the adolescent approaches principled moral reasoning.
2. With development, group interdependence should increasingly become grounds for justifying conformity to the group. . . . Several studies (e.g., Costanzo & Shaw 1966; Iscoe, Williams, & Harvey, 1963) have found a curvilinear (inverted U shape) relationship between social influence and age, with children at or about early adolescence conforming the most to group judgments on perceptual tasks. (Saltzstein 1976:263).

Saltzstein (1976) and others such as Piaget (1932), Mead (1934), and Kohlberg (1969) propose that the development of a child's moral reasoning is determined largely by the role-taking opportunities afforded by social participation in the family, peer groups, and other social settings. Selman (1976) points out the importance of the ages between 8 or 9 to 12 for the development of general social thought and interpersonal experience.

The experience provided by a HTC has the potential to affect the behavior of a hunter and whether that person affiliates with people who will encourage participation in hunting. Moral development theory would lead us to predict that parents will have a greater influence on younger children's hunting participation, whereas peers will be more influential with adolescents and young adults. These are important points to keep in mind when considering alternative types of programming for hunter education. Research on the factors that influence hunters lends support to this hypothesis and will be discussed more fully. However, before examining research findings that bear on this issue, it is necessary to discuss another important developmental process, that of cognitive development.

Implicit in the study of moral development is the need to understand children's cognitive development. Cognitive development theory and educational practices have been influenced greatly by Jean Piaget (Ripple et al. 1982). Piaget believes that children attempt to bring coherence and stability to their concept of the world and to understand inconsistencies in experience. As children incorporate and modify their conceptions of objects and experiences they establish organized patterns of behavior and thought. Piaget and other developmental theorists claim that the ability to think in terms of abstract hypotheses (formal operations) develops only after a child has gone through a series of cognitive stages from infancy to adolescence.

As children go through the stages of cognitive development, they likewise pass through a series of stages in the development of moral reasoning.

Kohlberg and Gilligan (1971) point out it is Piaget's and their view that both moral-stage development and cognitive-stage development are types of thought and types of valuing that children use to establish organized patterns of behavior and stabilize their concepts of the world. In Piaget's terms, the child forms a state of "psychological equilibrium" that balances conflicting interpersonal claims and allows the child to develop a sense of justice. The equilibrium of justice involves many of the same features as the equilibrium of cognitive schemes. That is not to say "that moral judgement stages are cognitive--they are not the mere application of logic to moral problems--but . . . the existence of moral stages implies that normal development has a basic cognitive-structural component" (Kohlberg and Gilligan 1971:1071) (Table 1). The development of cognitive maturity is necessary before an individual can develop maturity in moral judgment. However, cognitive maturity alone is not sufficient for an individual to reach the highest stages of moral reasoning.

A child's development of a sense of justice has direct implications for hunter education. Although the teaching of hunting skills is a primary aspect of hunter education, the development of ethical hunting behavior is of equal concern. Moral development theory tells us that we cannot expect children to be ethical sportsmen who base their actions on internal moral standards until they have reached the higher levels of cognitive development and go beyond the moral stage of doing what society expects. A child of 13 or 14 years of age is at a different point in her moral and cognitive development from someone who is 17 or 18. Both the 13 year old and the 17 year old should be in the formal operational stage in cognitive development. The younger teenager, however, is just beginning to conceptualize abstract ideas, while the older one about to

Table 1. Relations between Piaget's logical stages and Kohlberg's moral stages^a (all relations are that attainment of the logical stages is necessary, but not sufficient, for attainment of the moral stage).

Logical stage	Moral stage
Symbiotic, intuitive thought	Stage 0: The good is what I want and like.
Concrete operations, Substage 1 Categorical classification	Stage 1: Punishment-obedience orientation.
Concrete operations, Substage 2 Reversible concrete thought	Stage 2: Instrumental hedonism and concrete reciprocity.
Formal operations, Substage 1 Relations involving the inverse of the reciprocal	Stage 3: Orientation to interpersonal relations of mutuality.
Formal operations, Substage 2	Stage 4: Maintenance of social order, fixed rules, and authority.
Formal operations, Substage 3	Stage 5A: Social contract, utilitarian law-making perspective
	Stage 5B: Higher law and conscience orientation.
	Stage 6: Universal ethical principle orientation.

^aTaken from Kohlberg and Gilligan 1971.

graduate high school is much more facile at generalizing from specific to general situations and better able to respond to ethical dilemmas from a personal rather than societal perspective. The manner in which hunting issues are discussed and the content of those issues should be geared to the developmental stage of the individual. An older child is better equipped to deal with conflicts between personal desires and societal rights and wrongs. It is unrealistic to expect a 13 year old to apply the same logic that an 18 year old brings to an ethical dilemma.

Langenau and Mellon-Coyle (1977) have applied Kohlberg's stages of moral development to the stages in the development of ethical sportsmanship for hunting. The new hunter starts out regarding the kill as his most valuable measure of success. The seasoned sportsman, however, indicates the thrill of the chase and the intimacy with nature as the most satisfying parts of his hunting experience. The satisfaction sought by the novice hunter is an external reward, while the experienced hunter finds his reward internally (Jackson et al. 1979). Similarly, the child developing a sense of moralism decides to behave correctly because of the external punishments she will incur if she misbehaves. The mature moral individual, on the other hand, bases behavior on internal standards (Kohlberg 1963).

Utilizing information about cognitive and moral development in the structuring of educational materials and methods is important to the success of an educational program. Selman (1976:310) points out that,

Recognizing the social-cognitive stages of each child helps the teacher in several ways. First, she can better understand the behavior of her class by understanding how her children view social relationships, rights, and obligations. This kind of diagnosis also helps the teacher to determine her own expectations for her students' developmental goals. Most of all, it helps the teacher not to overestimate the affective as well as cognitive capacity of children.

By understanding the basic stage of a child's development, it should be easier to interpret how concepts about wildlife and the natural environment are incorporated into a child's cognitive schemes at a given age. Designing successful materials and methods to increase the incorporation of that knowledge depends on this understanding.

It is important to keep in mind that these age-related changes do not take place in a vacuum. As mentioned previously, it is the opportunity to participate in the social settings of family and peers that facilitates the development of moral reasoning. Kohlberg (1976) and others define the factors of general social experience and stimulation as "role-taking opportunities." Role taking involves "taking the attitude of others, becoming aware of their thoughts and feelings, putting oneself in their place" (Kohlberg 1976:49). Kohlberg points out the term "role taking," coined by G. H. Mead (1934), is preferable to terms such as "empathy" or "sympathy" because:

. . . (1) it emphasizes the cognitive as well as the affective side, (2) it involves an organized structural relationship between self and others, (3) it emphasizes that the process involves understanding and relating to all the roles in the society of which one is a part, and (4) it emphasizes that role taking goes on in all social interactions and communication situations, not merely in ones that arouse emotions of sympathy or empathy.

To understand the effects of the social environment on moral development one must consider that environment's provision of role-taking opportunities to the child in terms of the child's relation to his or her family, peer group, school, and larger structure of society (Kohlberg 1976). Research indicates that moral thinking undergoes significant shifts under the impact of brief exposures to the social influence of alternative models (Aronfreed 1976). Moral judgment and conduct evolve from continuities in the interaction between the child's cognitive capacity and his social experience. An understanding of how conscience is acquired will therefore depend on a knowledge of how concrete

experiences of socialization both induce and capitalize on the structural changes in children's thinking (Aronfreed 1976:69).

It is the recognition of the stage of a child's cognitive and moral development as well as the identification of the social influences of greatest importance at these stages that has direct implications for the education of young hunters. Course content geared to age-appropriate cognitive and moral abilities combined with experiential programs that emphasize contact with adults or peers should facilitate the development of ethical sportsmen and encourage participation in hunting over time.

Research Hypotheses:

Moral development theory provides the theoretical framework to examine the factors most likely to influence a person's progression in the hunting-adoption process and suggests the following research hypotheses:

- 1) A greater proportion of people with an apprenticeship experience than without will be in the continuation stage of hunting adoption.
- 2) An apprenticeship experience is more effective for younger than older people in getting them to the continuation stage.
- 3) More preadolescent hunters with a family support system will be in the continuation stage of hunting adoption than those with a nonfamily support system.
- 4) More adolescent hunters with a nonfamily support system will be in the continuation stage of hunting adoption than those with a family support system.
- 5) People who have had an apprenticeship experience and have a social support system will be more likely to be in the continuation stage of hunting than those who have only had the apprenticeship but lack support.

Figure 2 combines the hunting-adoption process with socialization factors that influence this process in youth and adult audiences. Previous studies of factors that promote participation in hunting lend support to these hypotheses and are discussed in the following section. Existing empirical data suggest the importance of hunting experiences combined with age-appropriate social support from family and nonfamily members as key components in the hunting-adoption process. The above hypotheses need to be examined more carefully, however, to determine their relative impact on continued hunting participation. The establishment and evaluation of a pilot program for hunter education that incorporates these factors will help determine whether innovative management programming can reduce the impediments to continued participation in hunting.

Empirical Evidence of Factors That Promote Hunting Participation

Apprenticeship Experience

The opportunity to accompany hunters afield prior to legal hunting eligibility is one of the most important factors in the development of hunting interest and levels of participation (Decker and Purdy in press). Persons who accompanied other hunters afield before initiation were more likely to participate in their first opportunity to hunt by participating in small game hunting than those who lacked this "apprenticeship" experience (54% vs. 31%) (Purdy et al. 1985).

The relationship of an apprenticeship experience to continued participation has been observed by others. A survey of young hunters in Michigan found that 84% went along on a hunt with someone else before they were legally able to hunt (Langenau and Mellon 1980). Heeringa (1984) emphasized that "attitudes developed as a child and young adult tend to persist into adulthood, particularly if these attitudes are reinforced through actual experiences." The results reported by Decker and Brown (1982a) affirm

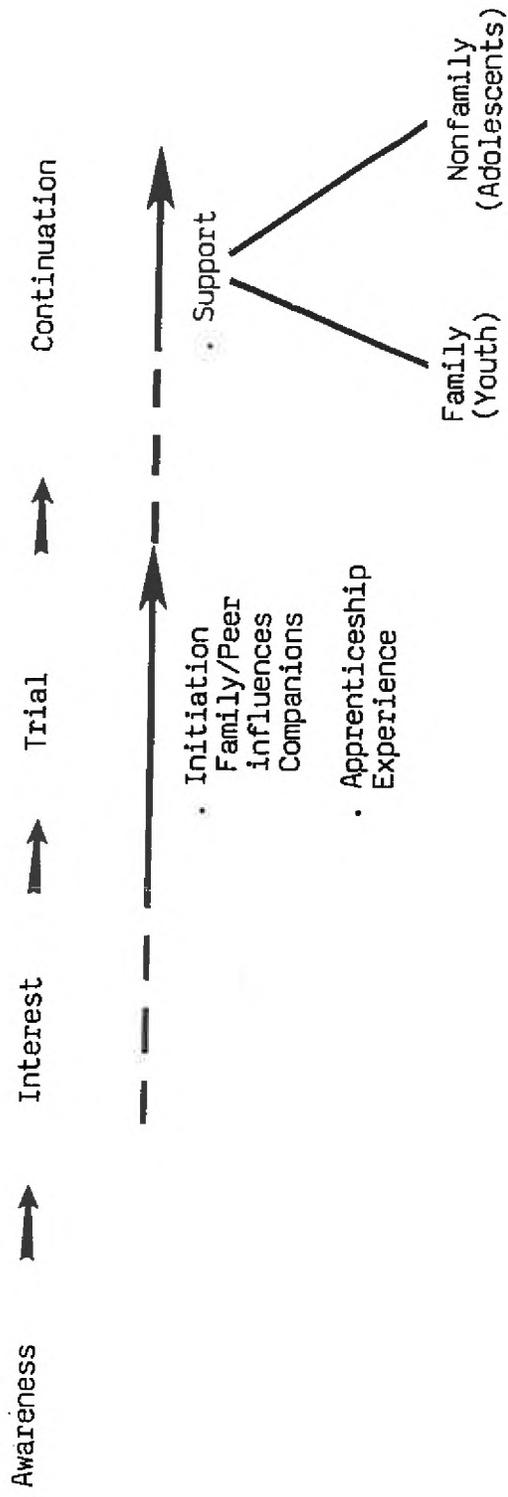


Figure 2. Socialization factors that influence the hunting-adoption process.

Heeringa's conclusion; more committed hunters (2/3) had some type of previous hunting experience compared to nonhunters (1/2).

The relationship of an apprenticeship experience to level of hunting adoption was demonstrated by Purdy's and Decker's study [in progress] of 1983 HTC graduates. The majority of those HTC graduates who did not have an apprenticeship experience were in the interest stage of hunting adoption (Table 2). The majority of those who did have an apprenticeship experience were in the continuation stage of hunting. Of particular interest is the fact that 10% of those without such an experience ceased hunting compared to only 2% of those with the experience.

There is evidence that the apprenticeship experience has a greater influence on younger hunters than older ones (Table 3). Of those with an apprenticeship experience, 63% of HTC graduates 19 and younger were in the continuation stage of hunting adoption compared to 49% of those who were >20 years of age. The apprenticeship experience is still important for hunters >20 years of age. It is more valuable, however, in getting these older individuals to try the activity than in influencing their continuation with the sport.

McCarty (1985) found that female HTC participants had significantly fewer prehunt experiences than males. Lack of pre hunting experience may contribute to lower rates of female participation in recreational hunting. It appears that the effect of pre hunting experiences is in getting an individual to try the sport and encourage progression beyond the interest stage in hunting adoption.

The above evidence provides support for the first 2 hypotheses. People who have the socialization opportunities afforded by an apprenticeship experience are more likely to continue participation in hunting and the impact of the experience is greater on younger hunters than older ones.

Apprenticeship

Table 2. Percentage of HTC graduates with and without an apprenticeship experience by stage of hunting adoption.

Apprenticeship	Stage of Hunting Adoption				(n)
	Interest	Trial	Continuation	Cessation/ Desertion	
Did not have experience	56.1	23.2	10.5	10.1	(237)
Had experience	0.0	40.4	57.4	2.2	(2200)

Table 3. Percentage of HTC graduates by age with and without an apprenticeship experience in stages of hunting adoption.

Years of Age	Had Apprenticeship		(n)	Did Not Have Apprenticeship		(n)		
	Trial	Continuation/ Cessation/ Desertion		Trial	Continuation/ Cessation/ Desertion			
≤15	35.7	63.0	(384)	54.5	13.6	4.5	27.3	(22)
16	33.8	64.4	(503)	58.8	17.6	17.6	5.9	(17)
17-19	35.4	62.0	(387)	60.9	21.7	8.7	8.7	(23)
20-30	49.2	48.0	(510)	57.3	23.2	11.0	8.5	(82)
>30	46.6	50.9	(401)	52.9	28.7	9.2	9.2	(87)

Social Support: Companionship and Opinion Influences

Like apprenticeship experiences, the companionship of fellow hunters has a strong influence on initiation into hunting and is an important factor in continued participation as well (Heeringa 1984). A number of studies have indicated that approximately 90% of hunters hunt with companions (Lowe 1978, Purdy and Decker [in progress]). A survey of first-time deer hunters in New Jersey (Applegate and Otto 1982) found that 4 of 5 new hunters hunted with at least 1 companion during every hunt of their initial season.

Not only is companionship a strong motivator for participation in hunting, but lack of companions may also be responsible for decreased involvement in the activity (Purdy and Decker [in progress]). Lack of hunting companions was the reason cited most frequently by potential hunters in New York for not hunting (Decker and Brown 1982a). People who deserted hunting often claimed that lack of hunting companions strongly contributed to their decision (Decker and Brown 1982a, Fillion and Parker 1984, Klessig 1970, Lowe 1978). Nearly half of the deserters from the resurvey of 1978 HTC participants said that it was important for them to be in the company of family and friends when hunting (Purdy et al. 1985).

Integral to the socialization opportunities provided by an apprenticeship experience is the influence of the providers of those experiences on new hunters. Comparison of people who were influential in the formation of 1983 HTC graduates' hunting opinions with graduates' stage in the hunting adoption process reveals the following findings. A greater proportion of those who had some positive support for their hunting opinions were in the continuation stage of hunting adoption compared to those with neutral or negative influences (Table 4). A combination of positive family and positive nonfamily influences resulted in the greatest proportion of people in the continuation stage (Table

Table 4. Percentage of HTC graduates with positive, neutral, and negative influences on their hunting opinions by stages of hunting adoption.

Type of Influence	Stage of Hunting Adoption				(n)
	Interest	Trial	Continuation	Cessation/ Desertion	
Positive	4.8	39.1	54.1	2.0	(1866)
Neutral	11.9	42.6	41.6	4.0	(101)
Negative	14.6	29.3	43.9	12.2	(41)

5). Almost as many were in the continuation stage who had a positive family influence but did not have a positive nonfamily influence. Of those with positive nonfamily influences, a greater proportion were in the trial stage, but about an equal proportion of those with positive nonfamily influences and those with neutral or negative influences were in the continuation stage.

A comparison of the influence of family and nonfamily across different age groups shows that (Table 6):

- 1) A greater proportion of those age 15 and younger with positive family influences versus positive nonfamily influences were in the continuation stage;
- 2) Between 16 and 19 years of age, about an equal proportion of those with positive family or positive nonfamily influences were in the continuation stage (a slightly greater proportion of 17-19 year olds with positive nonfamily than with positive family influence were in the continuation stage);
- 3) A greater proportion of those >20 years of age with a positive family influence were in the continuation stage than those with a positive nonfamily influence. A higher percentage of those with a positive nonfamily influence than with a positive family influence were in the trial stage.

People who influence a person's hunting opinions provide the social environment that either encourages or discourages an individual to initiate hunting. The opinions of family and friends are only one type of social support, however. Another important aspect of a support system is the person or people who facilitate a new hunter's actual participation; those who accompany a new hunter afield.

HTC graduates 16 and under hunted primarily with family members (Table 7). At 17-19 years of age there was a more even split between those who hunted most

Table 5. Percentage of HTC graduates with family, nonfamily, and neutral/negative influences on their hunting opinions by stages of hunting adoption.

Type of Influence	Stage of Hunting Adoption				(n)
	Interest	Trial	Continuation	Cessation/ Desertion	
Positive family/ Positive nonfamily	3.0	33.3	63.2	0.4	(234)
Positive family	2.5	35.2	60.4	1.8	(1034)
Positive nonfamily	9.4	48.2	39.6	2.8	(598)
Neutral/Negative	12.7	38.7	42.3	6.3	(142)

Table 6. Percentage of HTC graduates by age with positive family and nonfamily influences on their hunting opinions in stages of hunting adoption.

Years of Age	Type of Influence									
	Positive Family			Positive Nonfamily						
	Interest	Trial	Continuation	Cessation/ Desertion	(n)	Interest	Trial	Continuation	Cessation/ Desertion	(n)
≤15	1.7	34.2	62.9	1.3	(240)	3.0	39.4	48.5	9.1	(33)
16	0.6	35.4	62.5	1.5	(328)	0.0	37.0	60.9	2.2	(46)
17-19	2.5	36.1	58.9	2.5	(202)	1.6	36.5	61.9	0.0	(63)
20-30	6.3	37.8	53.8	2.1	(143)	11.9	49.4	35.8	2.9	(243)
>30	4.6	32.1	60.6	2.8	(109)	11.3	54.2	31.6	2.8	(212)

Table 7. Percentage of HTC graduates by age who hunted most frequently with family and nonfamily companions.

Years of Age	Type of Hunting Companion		(n)
	Family	Nonfamily	
<15	68.6	31.4	(306)
16	67.3	32.7	(450)
17-19	54.2	45.8	(336)
20-30	19.8	80.2	(470)
>30	13.8	86.2	(369)

frequently with family versus nonfamily companions. Over 80% of HTC graduates 20 and older hunted most frequently with nonfamily companions.

Examination of the relationship of hunting companions and stage of hunting adoption shows similar proportions of people in the trial, continuation, and cessation-desertion stages, regardless of whom they hunted with most frequently. There are distinct differences, however, in the influence different companions seem to have at different ages (Table 8). HTC graduates 19 and younger who hunted most frequently with nonfamily companions were even more likely than those who hunted most frequently with family members to be in the continuation stage. This distinction did not exist for those 20 and older.

The findings that nonfamily companions have a greater influence than family members during adolescence is what one would predict based on moral development theory. These relationships, as well as those between family and nonfamily influences with stage of hunting adoption, lend support to hypotheses 3 and 4. Hunters 15 and younger appear to be most receptive to family initiation into the sport. The influence of nonfamily companions, however, predominates between 16 and 19 years of age. Nonfamily influence on hunters' continued participation is less after age 20, but seems to be an important factor influencing people's advancement to the trial stage of hunting adoption during this period of life.

The data from the study of HTC graduates support the ideas that both an apprenticeship experience and a social support system encourage progression in the hunting-adoption process. The question that remains to be answered is whether the apprenticeship experience alone is sufficient to get people to the continuation stage, or if a social support system is a vital ingredient necessary for continued hunting participation.

Those HTC graduates who had an apprenticeship experience showed little variation in the distribution of people in stages of hunting adoption between

Table 8. Percentage of HTC graduates by age with family and nonfamily hunting companions in stages of hunting adoption.

Years of Age	Most Frequent Hunting Companion					
	Family			Nonfamily		
	Trial	Continuation	Cessation/ Desertion (n)	Trial	Continuation	Cessation/ Desertion (n)
<15	35.8	63.7	0.0 (203)	24.2	72.6	3.2 (95)
16	35.4	62.5	2.1 (288)	22.5	77.5	0.0 (138)
17-19	40.2	59.2	0.6 (174)	30.4	65.5	4.1 (148)
20-30	47.0	50.5	2.4 (85)	47.6	49.6	2.8 (351)
>30	44.4	51.1	4.4 (45)	50.7	46.5	2.8 (286)

those with positive hunting influences and those with neutral/negative influences (Table 9). Closer examination of the types of social influences, family vs. nonfamily, for hunters with apprenticeship experiences showed that a greater proportion of those with positive family influences compared to those with positive nonfamily or neutral/negative influences were in the continuation stage (Table 10). Controlling for age and apprenticeship experience revealed similar patterns of the effects of family and nonfamily influence and companionship on stage of hunting adoption as were described earlier.

A logistic regression analysis was performed to determine the relative effect of an apprenticeship experience, type of social support, and age of an individual on stage of hunting adoption. Other variables believed relevant to one's stage in the hunting-adoption process were analyzed in the regression model also. These included a measurement of social influences regarding hunting, an individual's overall attitude toward hunting, the importance of successfully harvesting game, and types of satisfactions one can derive from hunting: achievement, affiliative, and appreciative.

The five variables that were significant ($p < 0.05$) in explaining the variation in stage of hunting adoption (listed in order of decreasing importance) were apprenticeship, harvest success, social norms, achievement satisfaction, and positive family influence. The R statistic for the model was 0.44. The fraction of concordant pairs of predicted probabilities and responses was 0.52.

Although this model does not enable us to explain all the factors that contribute to an individual's progression through the hunting-adoption process, it does permit us to see the relative effects of age, apprenticeship, and family influence. The fact that age does not enter the model indicates that age alone does not account for an individual's stage in the hunting adoption

Table 9. Percentage of HTC graduates **with an apprenticeship experience** by type of influence on their hunting opinions in stages of hunting adoption.

Type of Influence	Stage of Hunting Adoption			(n)
	Trial	Continuation	Cessation/ Desertion	
Positive	40.1	58.3	1.5	(1692)
Neutral/Negative	45.1	50.4	4.4	(113)

Table 10. Percentage of HTC graduates **with an apprenticeship experience** by type of influence on their hunting opinions in stages of hunting adoption.

Type of Influence	Stage of Hunting Adoption			(n)
	Trial	Continuation	Cessation/ Desertion	
Positive family/ positive nonfamily	33.0	66.5	0.5	(218)
Positive family	36.1	62.5	1.4	(987)
Positive nonfamily	51.5	46.2	2.3	(487)
Neutral/negative	45.1	50.4	4.4	(113)

process. The variable that explains the greatest amount of variation is apprenticeship.

The ability to test hypothesis 5 is somewhat limited. Although the data lend support to the hypothesis that an apprenticeship experience with a social support element is more effective in influencing greater hunting involvement than the experience without such support, the trends are weak. What must be recognized is that the study of HTC graduates was not designed to test these specific hypotheses. The variables measured by this study approximate the concepts of social support, but do not represent them comprehensively. They do not measure, for instance, logistical concerns such as transportation needs or the availability of hunting companions. The specific nature of what constitutes an effective support system needs to be explored further.

Logistical Considerations

The types of support for participation in hunting that have been discussed thus far have dealt primarily with the people and experiences that influence a hunter. We cannot ignore, however, factors such as residence and economic status in examining the impediments to participation in hunting. All the "right" ingredients may be present in terms of positive influencing factors, but logistical considerations may prevent an individual from participating.

It is well documented that the majority of hunters reside in rural areas (Applegate and Otto 1982, Langenau and Mellon 1980, Pomerantz 1977, Purdy et al. 1985, Schole 1973). Greater land accessibility in rural areas provides more hunting opportunities (Charbonneau and Lyons 1980, Heeringa 1984, Klessig 1970) and a greater likelihood of continuing participation in the activity (Klessig 1970). Applegate and Otto (1982) noted that 44% of hunters they surveyed lived within 15 minutes of their favorite hunting areas and that more new hunters hunted on private land owned by family or friends than on other

types of land. In addition to inaccessibility, the high cost of licenses and equipment was cited as a reason for not hunting by potential hunters, many nonhunters, and 1/3 of deserters (Decker and Brown 1982a).

Management programs cannot create hunting areas in urban locations. They can, however, provide opportunities to try to overcome some of the logistical impediments that prevent interested people from participating in the sport. The specific nature of these opportunities will be discussed under Management Implications.

Hunting Satisfaction

Many studies have examined the factors related to hunters' satisfaction with the sport. Various reasons are cited by hunters for participating in recreational hunting and their priorities often change with increasing age and years of participation (Jackson et al. 1979, Langenau and Mellon-Coyle 1977). Appreciative reasons, e.g., enjoyment of the out-of-doors, have been cited often as the most satisfying aspect of hunting, particularly among older hunters (Applegate and Otto 1982, Decker and Brown 1982a, Filion and Parker 1984, Klessig 1970, Lowe 1978, Purdy et al. 1985, Schole 1973). Purdy et al. (1985) found that hunters with more appreciative motivations for hunting began hunting at ≥ 15 years of age. Social reasons have also been identified as a major reason for participation (Klessig 1970, Lowe 1978, Schole 1973).

Obtaining meat was an important reason for hunting among female hunters (Decker et al. 1983). A successful hunt contributed significantly to hunting satisfaction for only 14% of the hunters in a Mississippi survey, yet 49% said they would be disappointed if they did not kill a deer (Lowe 1978). Purdy and Decker [in progress] found that the number of animals bagged and the number of days of hunting activity were important components of a satisfying hunting experience, and hunting success was especially important in maintaining the

interest of young hunters. Recall in the logistic regression model used to analyze the responses of HTC graduates that after apprenticeship experience, harvest success was the second most important variable explaining one's stage of hunting adoption.

Management Implications: Program Strategies

Encouragement in hunting activities is provided by individuals and satisfying experiences. The people who influence a new hunter's attitudes toward hunting include those who provide the initiation into the sport, the apprenticeship opportunities, and the companionship in the field. Importantly, hunting-related experiences should be recognized as key factors that facilitate participation in hunting.

Social
Support

The empirical evidence suggests that the relative impact of these factors varies with the age of the individual, and elements of a support system necessary for younger hunters differ from those that are most effective for older hunters. Examining the influence of support system elements in terms of a hunter's stage in the hunting-adoption process provides insight for the types of programs that could best promote an individual's progression to the continuation stage. Creation of innovative educational and management programs that are based on sound theoretical underpinnings and used to complement the regular hunter training course should help reduce some of the impediments to hunting faced by youth and promote the participation of hunters over time.

Pilot Hunter Education Programs

We propose using the model outlined in Figure 3 as a means of establishing and evaluating a pilot hunter education program that has as its goal an increase in the proportion of HTC graduates who progress to the continuation stage of hunting adoption. To test the hypotheses stated above, it will be

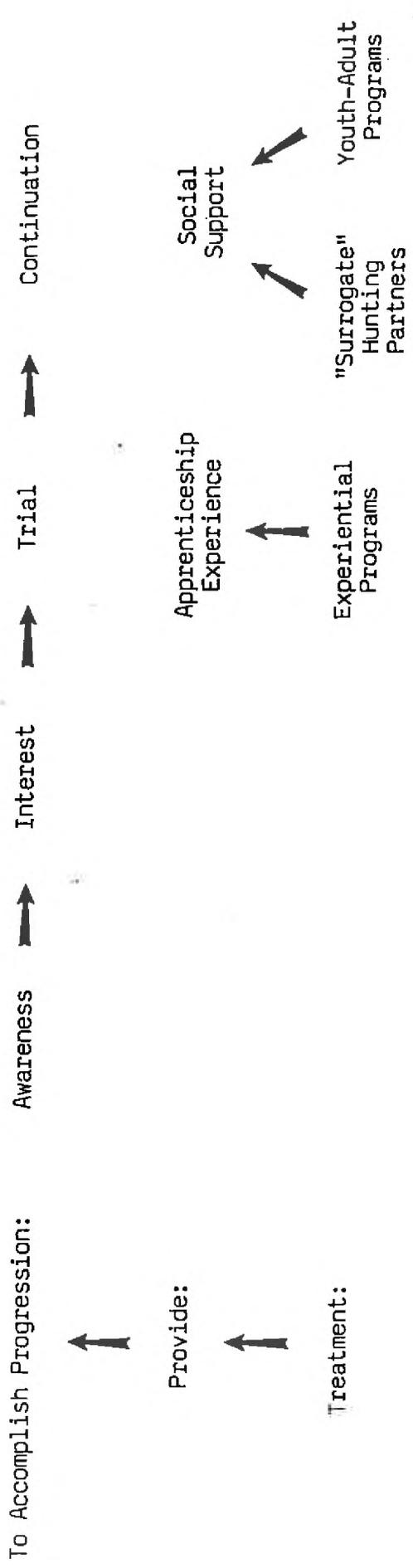


Figure 3. Model for pilot hunter education program.

necessary to have an experimental design that compares the effects of 2 treatments: (1) an apprenticeship experience, and (2) the combination of an apprenticeship experience with a form of social support. A group that has neither the experimental apprenticeship nor surrogate social support will be a control group. The types of experiential, surrogate hunting partner, and youth-adult programs that will be used in this pilot program will be geared to the age of the HTC participants.

Implications For Course Stratification

Successful application of such a pilot program has implications for broader statewide programming. The ability to stratify HTC students by age and experience has numerous advantages. Identification of particular student needs and characteristics would enable instructors to combine students with similar abilities and hunting-related experiences into homogeneous classes (Applegate and Otto 1982, Filion and Parker 1984, Kozicky 1977, Langenau and Mellon 1980, McCarty 1985). Important factors to identify prior to course participation are age, sex, residence, prior hunting experience, hunting opportunities, and stage of hunting involvement. All of these elements are important considerations in designing sportsmen's education programs for the reasons cited above (Table 11). The stratification of the HTC participants and application of specially tailored hunter education classes should reduce the impediments that young hunters face and ultimately increase their participation in hunting (Figure 4).

Separation of students by age and experience would permit instruction that is specifically tailored to the needs of the students. Different topic emphases, teaching aids, reading materials, and practical experiences appropriate for each age group could be specified (Applegate and Otto 1982). Hunters beginning at an early age might benefit from family/utilitarian-oriented programs and regulations (e.g., group deer management permits). For

the program should be created by the state.

Table 11. Audience segmentation and program development for hunter education.

<u>Screen HTC Participants</u>	<u>Program</u>	<u>Value</u>
<ul style="list-style-type: none"> . Younger . Older . Inexperienced . Experienced 	<ul style="list-style-type: none"> . different topic emphasis . teaching aids . reading materials . practical experiences 	<ul style="list-style-type: none"> . provide age- and experience-appropriate education
younger	<ul style="list-style-type: none"> . family/utilitarian-oriented programs (*). group permits 	<ul style="list-style-type: none"> . increase hunter satisfaction
older	<ul style="list-style-type: none"> . emphasize appreciative, aesthetic aspects of hunting (*). employ use regulations 	<ul style="list-style-type: none"> . improve quality of hunt
mixed age	<ul style="list-style-type: none"> . "Adult Hunting Partner" program 	<ul style="list-style-type: none"> . improve hunter behavior
women	<ul style="list-style-type: none"> . use female instructors . women-only classes . use teaching aids for women (e.g., lightweight firearms) . courses beyond HTC 	<ul style="list-style-type: none"> . encourage female participation . extend women's interest in hunting

*Requires Bureau's cooperation and participation.

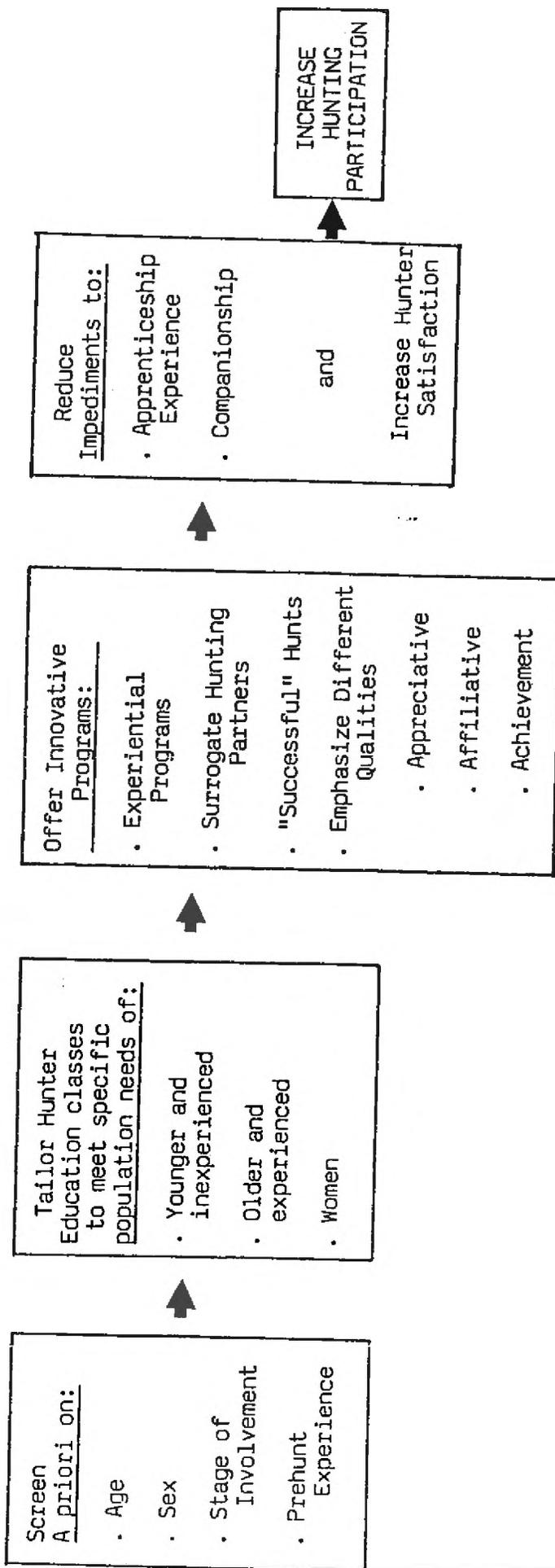


Figure 4. Model of reducing impediments to hunting participation through hunter education programs.

those returning to hunting or starting at an older age, emphasizing the nonconsumptive, aesthetic aspects of hunting and employing use regulations to improve the quality of the hunt would be appropriate (Langenau and Mellon 1980). Programs that promote peer companionship would be particularly valuable for adolescents.

Special programs to improve hunter ethics could combine the different levels of hunters. Older, more experienced hunters could encourage new hunters to adhere to hunting regulations and have a positive effect on hunter behavior (Applegate and Otto 1982).

A group of new hunters that stands to gain substantially from program specificity is women (McCarty 1985). McCarty (1985) found that women do not feel comfortable in hunter education classes that for the most part are made up of men and are almost always taught by men. Although many new male hunters are young, many new female hunters are older. Consequently, stratifying classes by hunting-related experience may put younger males together with older females. Such a make-up might make new adult female hunters feel even more uncomfortable about asking questions and seeking help. McCarty suggests that more female instructors be recruited, some classes be designated only for women, topics and teaching aids be tailored for women (e.g., use of lightweight and "youth model" firearms), and courses beyond the initial HTC be offered to extend women's interest in hunting.

Potential Program Activities

We have identified key factors that promote continued participation in hunting. They include: apprenticeship experiences, a support system, and harvest success. Recall that apprenticeship experiences provide the opportunity to go afield with or without a firearm. A support system has both social aspects and logistical considerations; social support providing

encouragement and actual hunting companions, logistical support providing transportation and access. Hunter satisfaction is tied to the ability to harvest game successfully. These major elements must be kept in mind when designing program activities to increase hunter participation.

Women often lack actual hunting experiences and opportunities to practice with firearms. Since apprenticeship experiences are so strongly related to hunting participation, women (and men) who lack such opportunities would greatly benefit from experiential programs (Decker and Brown 1982a, McCarty 1985) (Table 12). Trial field experiences could use a variety of approaches: "take a youngster hunting" program could provide surrogate role models for children in families where the parents do not hunt; special youth-adult hunting days at wildlife management areas would encourage the "apprenticeship" hunting experience; put-and-take hunts for upland game birds for HTC graduates could increase the probability of a successful experience; sponsoring a year's free membership in a local hunting or shooting club could provide a social support system (Decker and Purdy in press).

These field opportunities would not only provide actual hunting experiences deemed crucial to hunter participation but could serve a companionship function as well. An "Adult Hunting Partner" program, for instance, could promote hunting participation by giving the new hunter a hunting companion and also contribute to the development of ethical hunting behavior by ensuring the new hunters' first hunting experiences were with mature, ethical, adult supervisors (Applegate and Otto 1982).

The development of land cooperatives for hunting is another means of encouraging hunting participation. Establishment of land cooperatives and development of shooting ranges near urban areas may be particularly useful in encouraging nonrural constituents (Decker and Brown 1982a). Although it may

Table 12. Program strategies to overcome impediments to hunting.

<u>Impediments</u>	<u>Programming General Formats</u>	<u>Value</u>
. Apprenticeship experience	Experiential Programming	. Encourage initiation and continued participation
. Companionship	"Surrogate" hunting partners	. Progress from interest to trial stage of hunting process
	Group Hunting	
	<u>Potential Program Activities</u>	
	. Take a youngster hunting	. encourages
	(*) . Youth-adult hunting days at wildlife management areas	"apprenticeship" experience
	(*) . Put-and-take hunts for upland game birds for HTC graduates	. increase probability of successful hunt- ing experience
	. Sponsor a year's free member- ship in a local hunting or shooting club	. provides social support system
Urban residence	. land cooperatives for hunting	. keep hunting skills active
	. shooting ranges	. provide social support and more hunting opportunities
	. hunter cooperatives (groups of hunters that form a cooperative to provide carpools, exchange of equipment; informal education, etc.)	

(*) Require Bureau's cooperation and participation.

not be possible to provide actual hunting experiences close to home for urban residents, a nearby place to keep shooting skills sharp and interact with other hunters could increase the likelihood of participation by urban hunters.

Establishment of hunter cooperatives may be another means of encouraging participation in hunting. Youth and adults could form a cooperative that could provide carpools to hunting areas and shooting ranges, exchange of hunting equipment, and informal education and hunting-related experiences to members. A hunter cooperative could be particularly useful in urban areas, giving more opportunities to those people who have greater access problems and difficulty finding social support for their activity interests.

Heeringa (1984) said, "For young people, adult companionship, instruction and support are essential in developing and maintaining their interest in hunting." The hunter education programs and associated management strategies mentioned above would serve many of the companionship, instruction, and support functions. We do not mean to imply that programming can take the place of a young hunter's apprenticeship with a caring and knowledgeable parent. However, for those youth without such opportunities, innovative hunter educational programming could remove many impediments to their participation in the activity and encourage participation over time.

Projected Revenues From Experiential Programming

The following scenario is presented so that the effect of statewide experiential programs on license sales can be evaluated. Please note the assumptions made and recognize that if any of the parameters are changed (e.g., increase in program availability), the costs and revenues would change accordingly.

About 90% of the people who take a HTC have had an apprenticeship experience, leaving 10% of the population of approximately 50,000 HTC

participants statewide who could benefit from an experiential program. Of the potential population of 5,000 students without apprenticeship experiences, we will assume 20% (1,000) could be reached by experiential programming. To predict how many of these 1,000 students would progress in the hunting-adoption process, it is assumed that after the experiential program the proportions of students that will be in the trial and continuation stages will be similar to those who had the experience through associations with family and friends (Table 2). According to the survey of 1983 HTC graduates, 23% (230) of the students would be in the trial stage without an apprenticeship experience, compared to 40% (400) with the experience. Consequently, giving the experiential programming to the cohort of 1,000 students should result in an increase of 170 people in the trial stage of hunting-adoption. Likewise, 58% (580) of the students would be in the continuation stage with the apprenticeship experience compared to 11% (110) in this stage without exposure, resulting in a gain of 470 students in the continuation stage.

People in both the trial and continuation stages are likely to buy at least one type of hunting license. When the 1983 HTC graduates who had an apprenticeship experience were asked about their intentions to hunt in 1985-86, 86.9% of those in the trial stage and 94.5% of those in the continuation stage said they intended to hunt, and 9.0% and 2.8% of those in trial and continuation, respectively, were unsure. Assuming that 50% of those who are unsure go on to purchase a hunting license, we can predict that 91% of those in the trial stage, and 96% of those in the continuation stage will purchase a hunting license in the year following exposure to an experiential program. Table 13 illustrates the projected revenues over 10 years that can be expected by providing experiential programming to 1,000 HTC participants in each of the 10 years. A desertion rate of 2% is assumed in each year following the

Table 13. Projected revenues from experiential programming.

50,000	HTC Participants Statewide
<u>x 10%</u>	Without Apprenticeship Experience
5,000	Possible program participants
<u>x 20%</u>	Receive experiential program
1,000	Program participants

After Experiential Program:
An additional -

170	in Trial Stage
<u>91%</u>	buy hunting license
155	license buyers

470	in Continuation Stage
<u>96%</u>	buy hunting license
451	license buyers

Total	606	additional license buyers
	<u>x 8.50</u>	cost of a hunting license
	\$5150.00	Increased revenues after first year of experiential program

experiential program. Costs for the program are estimated at \$20,000 per year. Inflation is not considered, either in program costs or increased license costs.

By the 4th year, revenues should almost equal program costs. Within 7 years, the deficit incurred during the first 3 years will be recouped, and by the 8th year the program will run at a profit. After 10 years increased revenues will result in a net gain of \$66,968.

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