Evolution and Current Use of the Outdoor Recreation Adoption Model

Robert Byrne
Bob Byrne Consulting
Amissville, Virginia

Matt Dunfee
Wildlife Management Institute
Fort Collins, Colorado

Purpose

Prior to 2009, efforts to recruit, retain, or reactivate (R3) hunters, anglers, and recreational shooters were generally designed and implemented with very little consideration given to: a) identifying the audiences most in need of an R3 effort, b) the specific type of content or experiences a target audience needed before adopting the activity being promoted, or c) an evaluation system capable of documenting the effectiveness of the R3 effort being delivered (Wildlife Management Institute (WMI) 2009).

As a result, numerous R3 programs arose and were replicated without the guidance of needs assessments, target audience identification, or effectiveness measures. Consequently, these efforts were designed and implemented according to ubiquitously accepted and, at that time, unchallenged assumptions of the practitioners responsible for R3 within their organizations and agencies. Some of the more prominent assumptions included: a) youth should be the primary focus of R3 efforts, b) it was acceptable to conduct and repeat R3 efforts without quantitatively assessing their effectiveness, and c) providing an initial trial experience to new participants was sufficient to prompt their permanent adoption of the activity. Without program evaluation data to challenge these assumptions, R3 efforts were primarily developed according to the beliefs and opinions of the individuals or organizations implementing them. As a result, these efforts were judged as being "successful" using only simple outputs such as the number of program participants, amount of game harvested or targets hit, and the overall satisfaction of program implementers.

Third party assessments of R3 efforts demonstrated that this lack of data-driven program development resulted in efforts that largely selected for youth audiences who were likely already participants and lived within a social system that encouraged participation in outdoor activities (WMI 2009; Responsive Management and National Wild Turkey Federation 2011; RBFF 2016). Additionally, these assessments indicated that interested, nontraditional R3 audiences—adults, minorities, females, and urban populations who had the greatest need for skills training, first trials, and mentorship or coaching—were largely ignored by those administering R3 efforts.

Perhaps, most importantly, a working group coordinated by Wildlife Management Institute (WMI) in 2012 discovered that missing from the development process of nearly all R3 efforts, prior to 2009, was a basic understating of the processes that govern how individuals and communities adopt new ideas or activities. This working group recognized that designing R3 efforts to address the needs of an audience as a function of their specific stage in this "adoption process" was critical to the development and delivery of effective R3 programs. The absence of this philosophical approach to R3, in combination with the omission of predetermined outcomes that were used to verify program effectiveness, was recognized by the working group as the primary barrier to effective R3 implementation at local and national scales.

This paper presents the Outdoor Recreation Adoption Model (ORAM) as a theoretical framework with the purpose of helping the R3 community better understand the theory of how individuals might adopt new outdoor recreation activities. The ORAM represents an adaptation and evolution of multiple existing conceptual models created to aid practitioners in identifying, or influencing, the processes involved in the adoption of new ideas or activities by individuals and communities.

The idea that individuals progress through several discrete attitudinal stages as they adopt a new innovation or behavior—and that these stages can be identified (and even predicted)—has been documented for more than 60 years (Rogers 1962; Rogers and Shoemaker 1971). During the 1940s and '50s, numerous researchers from multiple disciplines began studying how ideas and new technologies were transferred and adopted among groups of people (Rogers 1962). These ideas coalesced into what became known as the "diffusion of innovations" theory (Rogers 1962). This theory describes the process by which members of a social system make a progression of decisions that lead to the adoption of an innovation—i.e., a new idea, technology, or practice.

In this paper, we provide a historical overview of the theory's application to hunting, fishing, and shooting sports and how these concepts evolved into the ORAM. In doing so, we hope to illustrate the particular utility of the model for planning and evaluating efforts to recruit, retain, and reactivate outdoor recreationists.

Background

According to Dr. Everett Rogers, author of the 1962 book *Diffusion of Innovations*, diffusion is a process by which an innovation is communicated over time among the members of a social system. An innovation is an idea, practice, or object that is perceived as new by an individual, organization, or other unit of adoption (Rogers 1962).

The origins of the diffusion of innovations paradigm can be traced to research conducted by Bryce Ryan and Neal Gross, two rural sociologists at Iowa State University (Ryan and Gross 1950). Ryan and Gross (1950) found that rural farmers were very reluctant to adopt new agricultural innovations (in this case, hybrid seed corn), even if those innovations promised to be economically profitable. They noted that the diffusion of new innovations appeared to be primarily dependent on a social process of adoption rather than the rational decision-making of individuals.

In 1962, Rogers formalized Ryan and Gross's ideas and argued that the diffusion of innovations was not unique to the adoption of agricultural practices; rather, it was the general process applicable to any social group and/or new innovation.

By the time Rogers had completed the 5th edition of his book in 2003, more than 5,200 papers related to the diffusion of innovations had been published from authors representing numerous academic disciplines.

In his book, Rogers (1962) proposed that the "innovation-decision process" consisted of five stages:

- Knowledge stage—during which an individual (or other decision-making unit) is exposed to the innovation's existence;
- Persuasion state—occurs when an individual (or other decision-making unit) forms a favorable attitude towards the innovation;
- Decision stage—takes place when an individual (or other decision-making unit) engages in activities that lead to a choice to adopt or reject the innovation;
- Implementation stage—occurs when an individual (or other decision-making unit) puts the new idea to use; and
- Confirmation stage—occurs when an individual (or other decision-making unit) seeks reinforcement of the innovation decision already made.

In 1971, Rogers and F. Floyd Shoemaker modified these stages to:

- Awareness stage—during which an individual learns about the existence of a new idea but lacks information about it;

- Interest stage—during which an individual develops interest in the new idea and seeks additional information about it;
- Evaluation stage—during which an individual mentally reviews the information obtained, applies it to an anticipated future personal situation, and decides whether to try it;
- Trial stage—during which an individual applies the new innovation or behavior on a small scale to determine its utility; and
- Adoption stage—during which an individual uses the new innovation or behavior continuously on a large scale.

These modifications were based on three perceived deficiencies within the earlier innovation-decision process: 1) the end of the process is not always adoption—in fact, rejection is a more likely outcome; 2) the five steps do not always occur in order—evaluation is an ongoing process at all stages; and 3) individuals often skip steps. In addition, the authors observed that other alternative outcomes also exist, such as seeking additional information or additional trials.

It is worth noting that, in their 1971 publication, Rogers and Shoemaker emphasized two important attributes of behavior adoption previously described by Rogers: 1) the decision-making takes place within the *mind* of an individual and 2) the decision about adopting an innovation is not instantaneous but rather a *process* of making decisions over time.

Over time, the diffusion of innovations theory was modified and renamed numerous times in published literature as new disciplines applied the theory to their specific line of inquiry (Rogers and Shoemaker 1971; Brandenburg et al. 1982; Decker, Provencher, and Brown 1984; Matthews 1996; Enck et al. 1997; Wentz and Seng 2000). Brandenburg et al. (1982) first applied the theory to recreational activities, but it wasn't until two years later that the theory was applied specifically to hunting when Decker, Provencher, and Brown (1984) employed the diffusion of innovations theory to describe the general process of how individuals accept and participate in *hunting* behavior. More than a decade later, Bruce Matthews (1996) described a similar theory to the recruitment of anglers.

Following Decker, Provencher, and Brown's first introduction of the "adoption process" as a function of the diffusion of innovations theory, other researchers embraced it and used it to explain the process *individuals* undergo when becoming a hunter (Matthews 1996; Enck et al. 1997; Wentz and Seng 2000; National Shooting Sports Foundation 2009). Wentz and Seng (2000) further adapted the "adoption model" theory to develop their Hunting/Shooting Participation Classification System, a key element in the National Shooting Sports Foundation's (NSSF) *Best Practices Workbook for Hunting and Shooting Recruitment and Retention* (NSSF 2009).

In general, this early research into the process of adoption (or adoption models) focused on applying the diffusion of innovations theory to model the stages, or process, an *individual, rather than a social group*, undergoes to become a long-term or avid hunter. Additionally, elements of these early adoption models were specifically applied to hunter education (HE) programs by Decker, Provencher, and Brown (1984); Purdy, Decker, and Brown (1985); Decker and Purdy (1986); Purdy and Decker (1986); Purdy, Decker, and Brown (1989); and Wentz and Seng (2000) as a means to improve the design and delivery of hunter education.

During the 1980s, when most of the research on modeling the process of hunting adoption was being published, the only programs considered to be hunter recruitment programs were state sponsored HE classes. Decker and Purdy (1986); Purdy, Decker, and Brown (1985); and others recommended that program offerings be expanded beyond basic HE, but only by inference did they suggest that strategies be *specifically designed* to meet the needs of participants in different stages of the hunting adoption process. The major focus of these recommendations remained on HE until 2009 when the NSSF expanded the application of the hunting adoption process to encourage the implementation of programs *specifically designed* to recruit or retain hunters and recreational shooters (NSSF 2009).

The authors of the NSSF's *Best Practices Workbook for Hunting and Shooting Recruitment and Retention* cautioned that, "While this Hunting/Shooting Participation Classification System may seem to

be academic, it is critical to understand the complex process that becoming a hunter or shooter entails." They further emphasized that, "Developing programs without a complete understanding of this process is a serious mistake!" (2009).

It is also important to note that within the wildlife-dependent recreation research community, the diffusion of innovations theory has largely been applied to hunting, with some application to angling (Matthews 1996). However, the theory's principles describe the adoption of *any new innovation* and, therefore, can likely be applied in some degree to *any* recreational activity (Rogers and Shoemaker 1971; Brandenburg et al. 1982).

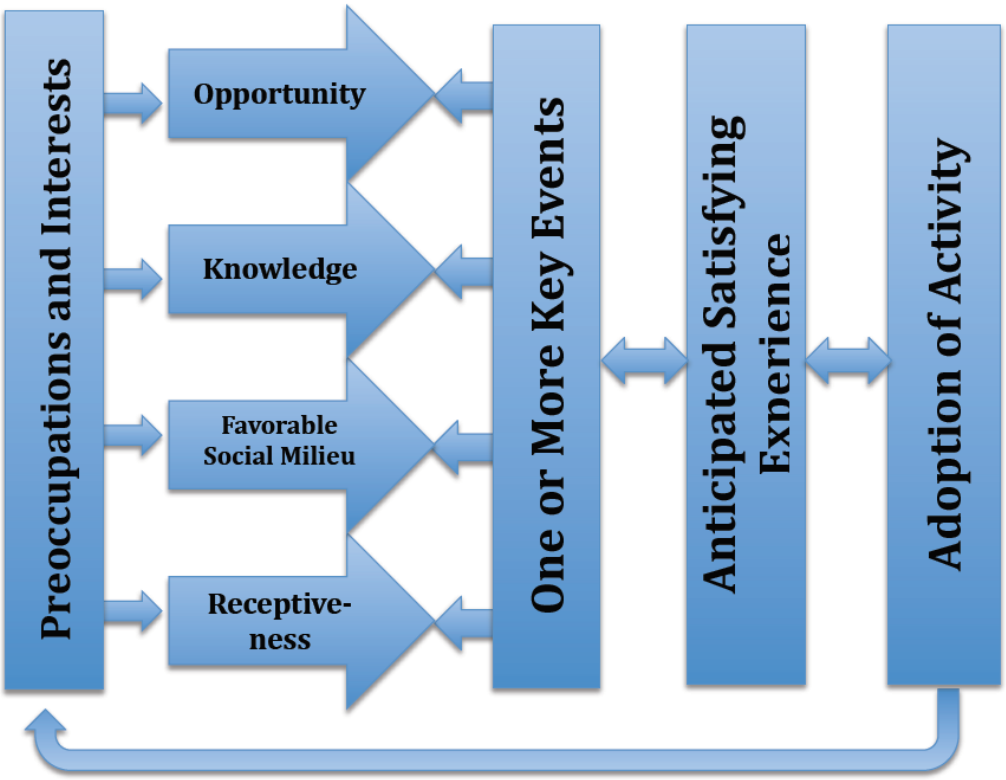
Evolution of the Current Outdoor Recreation Adoption Model

The revisions to the original stages of the innovation-decision process recommended by Rogers and Shoemaker (1971) include adding: a) the individual's antecedents or prior experience, b) the role that knowledge plays, c) the role of persuasion (especially by peers or authority figures), d) and an element of continual confirmation of all elements.

Rogers and Shoemaker's (1971) proposal that antecedents or prior experience influence a person's selection of activities was independently supported by Brandenburg et al. (1982); however, Brandenburg et al. termed these antecedents as "preoccupations and interests." Using case studies, the authors proposed four additional conditions that were necessary of adoption of a recreational activity: 1) opportunity, 2) knowledge, 3) favorable social milieu, and 4) receptiveness (Brandenburg et al. 1982; Figure 1). These researchers also noted that a "key event" often acted as a catalyst on one of these conditions, which encouraged a person to take action and adopt an activity. The authors noted that these key events often occur by chance or are seemingly "accidental events" that have a "disconcerting impact on the predictability" of the proposed model or on life itself (Brandenburg et al. 1982).

Brandenburg et al. (1982) was among the first to identify the need for a "favorable social milieu" as an important component of the adoption process. This idea was also supported by Matthews (1996) who emphasized, "This sociocultural context is the glue that holds the entire process together." However, Brandenburg et al. (1982) used favorable social milieu in a manner that is more closely aligned with the "nested levels of social structures" proposed by Larson et al. (2013; see Figure 5) than by the more limited context implied by the currently used term "social support." Matthews (1996) proposed sociocultural context is generally more aligned with the current understanding of social support.

Figure 1. Conceptual model of the recreational activity adoption process proposed by Brandenburg et al, (1982).

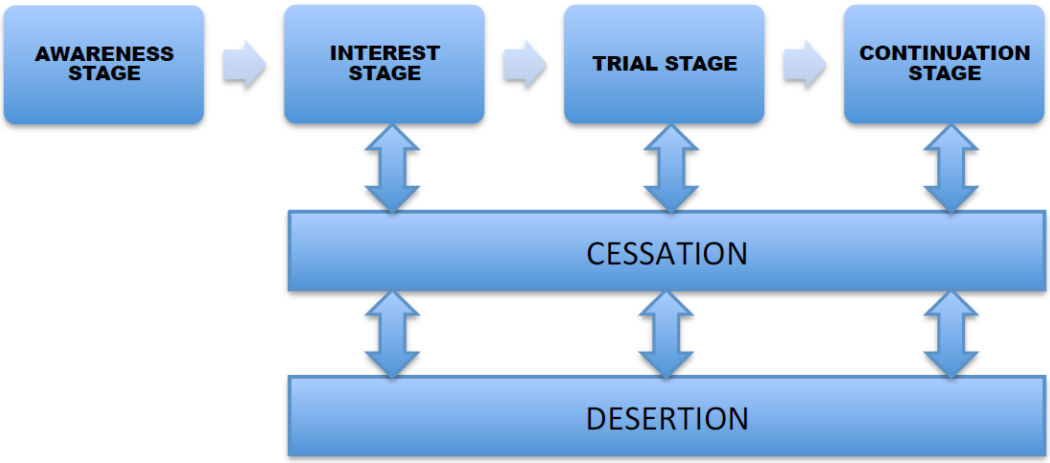


In addition, Brandenburg et al. (1982) acknowledged that the *opportunity* to adopt a new activity needed to fit within the favorable social milieu and noted that a person's preoccupations (i.e., a person's cultural upbringing and/or motivations) had a strong influence on whether or not a person even considers adopting an activity. It is interesting to note that Brandenburg et al. (1982) suggested limitations to the adoption model's applicability by cautioning, "The model is not intended to suggest a simple sequential series of incidents, but rather that its various elements inter-relate in a dynamic and complex way."

Decker, Provencher, and Brown (1984); Purdy, Decker, and Brown (1985); Decker and Purdy (1986); Purdy and Decker (1986); and Purdy, Decker, and Brown (1989) all used "adoption process" as a shortened version of the diffusion of innovations theory's moniker and simplified it to include only four stages (Decker, Provencher, and Brown 1984):

- Awareness stage
- Interest stage
- Trial stage
- Continuation stage

Figure 2. Stages in the development of an individual's interest and involvement in hunting as proposed by Purdy, Decker, and Brown (1989).



The Cornell researchers did not define these four stages, but they recognized that cessation or desertion could take place at any stage of the process (Decker, Provencher, and Brown 1984; Purdy, Decker, and Brown 1985; Decker and Purdy 1986; Purdy and Decker 1986; Purdy, Decker, and Brown 1989). They all also recognized the importance that previous hunting experiences—and the resulting self-perceptions an individual developed as a result—influence an individual's continuance as a hunter. They suggested that a person's self-perception or identity of "being a hunter" became stronger with each stage of the process.

This line of research also urged administrators of state HE programs to use the stages of the adoption process as a diagnostic technique or screening tool to identify the stage prospective students were in at the time of their enrollment into a HE program. Thus, "course offerings (and 'extended opportunities') would be more suitable for the participant's specific informational and experiential needs" (Decker, Provencher, and Brown 1984; Purdy, Decker, and Brown 1985; Decker and Purdy 1986; Purdy and Decker 1986; Purdy, Decker, and Brown 1989).

In addition, the Cornell team recommended that post-HE training programs be developed to enhance hunter opportunities beyond the interest stage of hunting adoption. These authors also documented the importance of early apprenticeship experiences and social support (mostly from family members) for new hunters. In addition, Decker, Provencher, and Brown (1984) identified a suite of participant self-identified "hunter motivation" typologies—achievement, affiliative, and appreciative—and used them in subsequent studies. Though this research applied the adoption process to understand new hunter behavior, the authors did not revise the Purdy, Decker, and Brown (1989) model itself (Figure 2).

Matthews (1996) referred to the adoption process as the "recruitment-training-retention process" and suggested that agencies use this model to "develop more effective strategies targeted to specific stages" that a hunter or angler may be in. In addition, Matthews (1996) suggested that, using this model, agencies could "identify gaps in their efforts to develop comprehensive programs," and doing so "would enable agencies to overcome the paradigm paralysis that sometimes occurs when what is needed most is a fresh approach."

While Matthews (1996) did not modify the model and maintained the four-stage process proposed by Decker, Provencher, and Brown (1984), he did propose numerous sociocultural intervention strategies for agencies to implement that are linked to the four stages. The Recreational Boating and Fishing Foundation (2003) followed Matthews' terminology for the four-stage model and brought it to the fishing community in its *Best Practices Workbook: For Boating, Fishing, and Aquatic Resources Stewardship Education.*

The authors of the *Best Practices Workbook for Hunting and Shooting Recruitment and Retention* also identified the three overarching hunter motivation typologies (achievement, affiliative, and appreciative) proposed by Decker, Provencher, and Brown (1984) and stressed the importance of identifying and striving to satisfy multiple hunter motivations as an additional goal of hunter recruitment or retention programs (NSSF 2009).

As documented above, the early research on the hunting adoption process focused primarily on the process *individuals* undergo in order to become hunters, the discrete stage those individuals believe themselves to be in, and how an understanding of this process can help administrators improve HE courses. As the hunting adoption process became more widely understood, researchers explored the concept that the degree to which an individual hunter's motivations are satisfied, as tempered by their expectations, impacted that individual's decision to continue along the adoption process pathway. In other words, a hunter's internal self-evaluation of their hunting experiences influences their decision to continue, or desert, the adoption process.

The hunting adoption model underwent further refinement as the result of a 10-person think tank that resulted in the publication *Meeting the Challenge to Increase Participation in Hunting and Shooting* (Wentz and Seng 2000). Members of this think tank renamed the hunting adoption model, or process, the "Hunting/Shooting Participation Classification System" and expanded the number of stages to eight (Figure 3):

1) Awareness stage;
2) Interest stage;
3) Trial stage;
4) Continuation with support (apprentice) stage;
5) Continuation without focused support (no longer apprentice) stage;
6) Continuation as a hunting proponent stage;
7) Temporary cessation stage; and
8) Permanent desertion stage.

The think tank members defined each stage; developed definitions; identified facilitating factors (i.e., factors that facilitate movement from one stage to another); recommended strategies for moving people toward one of the continuation stages; and identified research and evaluation needs to provide greater understanding of individuals within each stage and to help move them toward one of the continuation stages.

Figure 3. Depiction of the Hunting/Shooting Participation Classification System proposed by Wentz and Seng (2000). This same classification system was presented in the *Best Practices Workbook for Hunting and Shooting Recruitment and Retention* (NSSF 2009).

I.	**Awareness Stage**
II.	**Interest Stage**
III.	**Trial Stage**
IV.	**Continuation with Support (Apprentice) Stage**

V.	**Continuation without Focused Support (no longer apprentice) Stage**
VI.	**Continuation as a Hunting/Shooting Proponent Stage**
VII.	**Temporary Cessation Stage**
VIII.	**Permanent Desertion Stage**

In addition, the think tank reiterated and emphasized three other important elements vital to hunter recruitment efforts that were previously advocated by Enck et al. (1997):

- First, programs should provide and enhance social support for hunters (or shooters). The lack of

social support was by far the most important issue for future hunting and shooting participation. Efforts to increase participation should focus on the process of "becoming a hunter" and not on "going hunting (or shooting)." The authors emphasized this conclusion by stating: "Think tank participants agreed that by far the biggest obstacle facing hunter participation today is the lack of social infrastructure and social support mechanisms for hunters and shooters."

- Second, programs should increase the emphasis on the development of "social competence" (social skills) and not just "technical competence" (technical skills).
- Third, programs should consider hunter motivations (achievement, affiliation, and appreciation) in their design and implementation. Programs that provide opportunities for hunters to develop and satisfy multiple motivations will likely be more successful in creating long-term participation.

The idea that hunting initiation is a cultural process that involves the development of a self-identity as a hunter was explored by Brown, Decker, and Enck (1995). However, the think tank solidified this idea with two important definitions:

- Recruitment—attainment of a self-perception that one is a hunter and is a member of a broader hunting and shooting culture.
- Retention—continued perception of oneself as a hunter/shooter and a member of a broader hunting and shooting culture.

Though earlier research began to draw a distinction between the terms recruitment and retention, the think tank further emphasized that distinction (Decker, Brown, and Enck 1992; Enck, Decker, and Brown 2000). The Recreational Boating and Fishing Foundation (2003) also emphasized to the fishing community that recruitment and retention were separate processes that require separate strategies.

It is important to note that these definitions were based on a person's self-perception rather than behavior. The authors stressed that being a hunter includes a broad array of behaviors associated with not only harvesting game but also developing technical and social skills, mentorship, and providing social support.

Subsequently, the authors of the *Best Practices Workbook for Hunting and Shooting Recruitment and Retention* closely follow the eight-step Hunting/Shooting Participation Classification System model proposed by Wentz and Seng (2000) (NSSF 2009). The application of the eight-step classification system was presented in the first chapter of this workbook and was intended to be an overarching best practice that could be applied to an array of recruitment and retention programs, not just HE programs.

Like Wentz and Seng (2000), the authors of the *Best Practices Workbook for Hunting and Shooting Recruitment and Retention* defined each stage of the hunting adoption process as (NSSF 2009):

1) Recruitment—becoming a member of something.
2) Retention—continuing long-term behavior.
3) Recruited—when they develop a self-perception as a hunter/shooter.
4) Retained—as long as they continue to hold that self-perception.

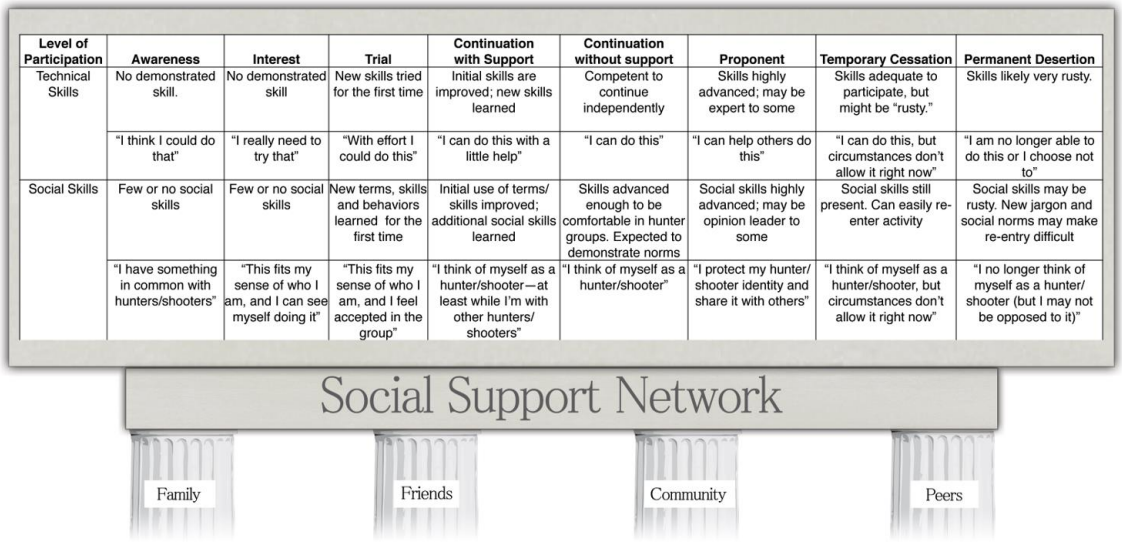
Again, it is important to note that these definitions largely pertain to the *individual* and can only be inferentially applied to *programs.* The commonality between the definitions proposed by Wentz and Seng (2000) in their think tank report and by the authors of the NSSF (2009) workbook is the focus on an individual's development of self-image as a hunter or recreational shooter. A strong emphasis on social support for this development of self-image is reflected within both of these documents and is supported by previous research (Decker, Brown, and Enck 1992; Brown, Decker, and Enck 1995; Enck et al. 1997; Enck, Decker, and Brown 2000).

In addition, the NSSF (2009) workbook:

- identified "facilitating factors" that encouraged potential participants to become a member of a particular stage;
- recommended strategies to assist individuals in each stage to move to the next stage; and
- identified research and evaluation needs to help the hunting and shooting community to understand the needs and motivations of individuals in a particular stage of the participation classification system.

A graphical representation (Figure 4) of the Hunting/Shooting Participation Classification System published in the NSSF (2009) workbook clearly identifies the need for social support, as well as the development of both technical and social skills as part of the development of the prerequisite self-identification needed to become a hunter or recreational shooter.

Figure 4. Depiction of the Hunting/Shooting Participation Classification System (NSSF 2009).



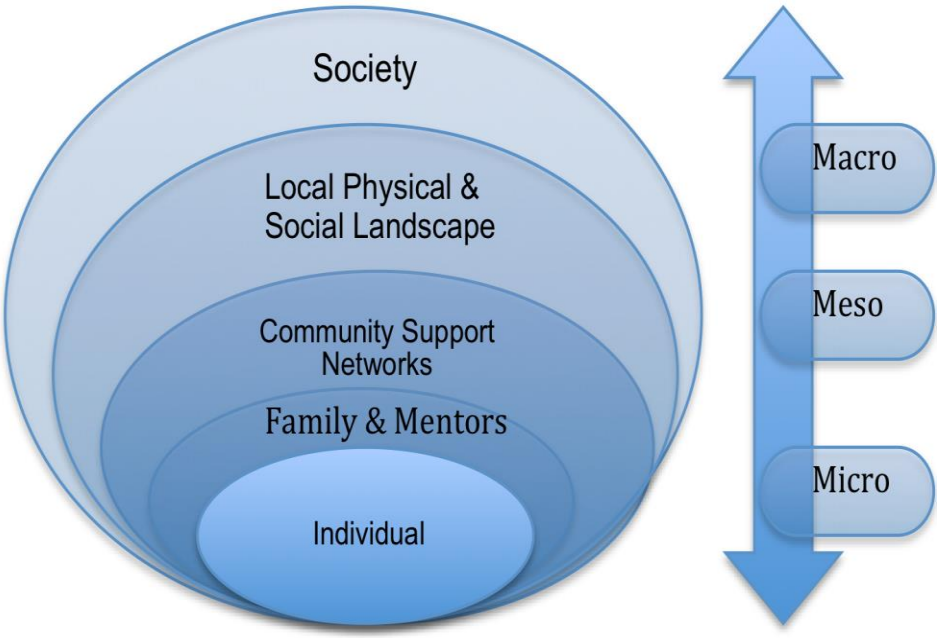
Level of Participation	Awareness	Interest	Trial	Continuation with Support	Continuation without support	Proponent	Temporary Cessation	Permanent Desertion
Technical Skills	No demonstrated skill.	No demonstrated skill	New skills tried for the first time	Initial skills are improved; new skills learned	Competent to continue independently	Skills highly advanced; may be expert to some	Skills adequate to participate, but might be "rusty."	Skills likely very rusty.
	"I think I could do that"	"I really need to try that"	"With effort I could do this"	"I can do this with a little help"	"I can do this"	"I can help others do this"	"I can do this, but circumstances don't allow it right now"	"I am no longer able to do this or I choose not to"
Social Skills	Few or no social skills	Few or no social skills	New terms, skills and behaviors learned for the first time	Initial use of terms/ skills improved; additional social skills learned	Skills advanced enough to be comfortable in hunter groups. Expected to demonstrate norms	Social skills highly advanced; may be opinion leader to some	Social skills still present. Can easily re-enter activity	Social skills may be rusty. New jargon and social norms may make re-entry difficult
	"I have something in common with hunters/shooters"	"This fits my sense of who I am, and I can see myself doing it"	"This fits my sense of who I am, and I feel accepted in the group"	"I think of myself as a hunter/shooter—at least while I'm with other hunters/ shooters"	"I think of myself as a hunter/shooter"	"I protect my hunter/ shooter identity and share it with others"	"I think of myself as a hunter/shooter, but circumstances don't allow it right now"	"I no longer think of myself as a hunter/ shooter (but I may not be opposed to it)"

In Figure 4, the authors highlight four sources of social support needed for hunting adoption to occur: 1) family, 2) friends, 3) community, and 4) peers (NSSF 2009).

This distinction of social support elements was expanded by Larson et al. in 2013 with the identification of five "nested levels of social structures" that influence the adoption of hunting and recreational shooting behaviors (Figure 5):

1) Individual
2) Family and mentors
3) Community support networks
4) Local physical and social landscape
5) Society

Figure 5. Visual depiction of the "nested levels of social structures" proposed by Larson et al. (2013).



Larson et al. (2013) defined each of the proposed social structures and suggested that each of these social structures must exist as elements of a "social habitat" that is required to support and sustain a hunter. This social habitat is created by a host of individuals and social structures that extends well beyond a prospective hunter's family and friends. Larson et al. (2013) further postulated that forming a self-identity as a hunter is an important step that occurs within the "micro social structures" created by close ties with family members and hunting companions (Figure 5).

Current Application of the Model

In 2009, Wildlife Management Institute began a multiphase project to develop a Hunting Heritage Action Plan (WMI 2009). This plan incorporated literature reviews of hunter recruitment, retention, or reactivation (R3) research; surveys of state and national R3 efforts; the development of evaluation tools for R3 programs; and multiday training and information workshops for state and federal wildlife agency staff and administrators on R3 strategies, program development, evaluation, and best practices. Much of this work was used to frame and draft the National Hunting and Shooting Sports Action Plan (Council to Advance Hunting and the Shooting Sports 2016).

The Recreational Boating and Fishing Foundation (2016), in conjunction with the Aquatic Resources Education Association, incorporated a similar approach in identifying strategic R3 efforts in their work product, "Recommendations and Strategic Tools for Effective Angler Recruitment, Retention and Reactivation (R3) Efforts."

Very early in the multiphase project, WMI project leaders noted that R3 and HE program staff and fish and wildlife agency leadership used the terms "recruitment" and "retention" interchangeably, as if they were redundant and did not warrant distinction. The barriers to understanding and applying the hunting adoption process created by this lack of distinction between recruitment and retention became readily apparent at a hunter R3 program evaluation workshop hosted by WMI at Max McGraw Wildlife Foundation in 2010.

As leaders of that 2010 workshop, the authors of this paper (Byrne and Dunfee) proposed that the terms "recruitment" and "retention" were not synonymous and should be used as terms to define

programs or efforts that were specifically designed to move individuals through or between certain stages of the hunting adoption process. Additionally, we suggested that the individual stages proposed in the Wentz and Seng (2000) Hunting/Shooting Participation Classification System could be generally grouped into phases of recruitment, retention, and reactivation. This was the first time the term "reactivation" was formally used to describe elements of the hunting adoption process.

Building upon research previously discussed in this paper, we presented the attendees of the 2010 workshop with an adaptation of the Hunting/Shooting Participation Classification System (Figure 6) that delineated recruitment versus retention based upon the hunting adoption process and, more specifically, an individual's self-identification as a hunter within that process.

Reasoning that an individual's decision to continue hunting after their initial trial (or trials) was largely the result of an emerging self-identity and the existence of some level of a social support system, we proposed that this decision delineated recruitment from retention. Individuals who had yet to make the decision to continue hunting were in the recruitment phase. Programs or efforts designed to address barriers that culminated in a hunting trial should be considered recruitment programs. Conversely, those who had already experienced a hunting trial and subsequently made the decision to continue hunting had become "recruited"—i.e., had begun forming a self-identity as a hunter and were therefore in the retention phase. Logically, those programs or efforts designed to address the unique barriers to continued hunting participation could be considered retention programs. We proposed that retention efforts likely need to supply different levels and types of support and resources than efforts targeting individuals in the initial recruitment phase. It is important to note that while the barriers to hunting participation may be different within the recruitment and retention phases, there may be some overlap.

Finally, we proposed an additional phase of hunting adoption: reactivation. Though less defined than recruitment or retention, this stage describes an individual who has self-identified as a hunter but has lapsed in their hunting participation for a period of time. In order for this individual to resume hunting, we suggested that a targeted suite of support and resources may be required and that these resources were likely different, or at least more specific, than those used in recruitment or retention strategies.

The importance of the distinction between recruitment, retention, and reactivation lies in the ultimate outcome of the programs or efforts designed to increase hunting participants. Prior to the 2010 R3 evaluation workshop, WMI (2009) documented more than 400 hunter recruitment or retention programs that were being conducted annually by state fish and wildlife agencies and conservation or sportsmen and women's nongovernmental organizations. Due to an institutional lack of understanding of the hunting adoption process and the specific (or shared) needs of individuals at various stages of that process, the bulk of the hunter R3 programs being implemented at that time had been developed without a consideration of the barriers facing potential, new, or lapsed hunters based on their stage of hunting adoption. Consequently, the majority of these efforts addressed only the early hunting adoption stages of recruitment. Programs designed to address stages within retention and reactivation phases were largely nonexistent.

The participants of the 2010 R3 evaluation workshop concluded that, while many of the tools or tactics used to achieve either recruitment, retention, or reactivation might be similar, the *desired outcomes* of those tools or tactics are very different. Thus, agencies or organizations wishing to develop and implement hunter R3 programs and efforts should first consider the stage (or stages) of the hunting adoption process they wish to affect and specifically design their efforts to address the needs of the individuals in that specific stage (or stages). Purdy, Decker, and Brown (1985); Decker and Purdy (1986); Purdy and Decker (1986); Purdy, Decker, and Brown (1989); Matthews (1996); and Wentz and Seng (2000) also suggested designing specific program offerings for participants in different stages of the hunter adoption process.

In recognition that this new iteration of the hunting adoption model might be applied to numerous outdoor recreation activities (fishing, recreational shooting, etc.), it was titled the "Outdoor Recreation Adoption Model" (ORAM) (Figure 6). The ORAM delineates stages similar to those proposed by Wentz and Seng (2000) but includes a "decision to continue" step following the trial stage. Using this framework, efforts that address any of the first three stages are classified as recruitment efforts. Those that address

individuals in either the continuation with support stage or continuation without support stage are retention efforts. Finally, efforts that address the reactivation of lapsed hunters are reactivation efforts. In summary:

Recruitment Programs

- Awareness stage
- Interest stage
- Trial stage

Decision to Continue

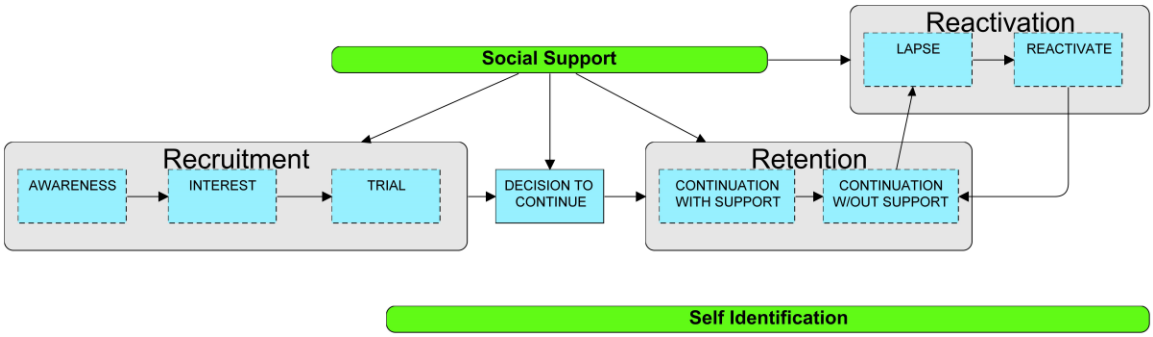
Retention Programs

- Continuation with support stage
- Continuation without support stage

Reactivation Programs

- Lapse stage (temporary lapse or permanent lapse)
- Reactivate stage

Figure 6. Modified Outdoor Recreation Adoption Model as proposed by Byrne and Dunfee (2016).



We fully recognize that the "decision to continue" step actually occurs, in some degree, at all stages of the adoption model and may occur multiple times between stages. This is consistent with what Rogers and Shoemaker (1971) suggested in their discussion of the adoption process. However, the decision to continue following the personal experience of a first trial (or trials) is likely heavily influenced by the formation of an individual's self-perception or identification as a hunter (Purdy, Decker, and Brown 1985; Decker and Purdy 1986; Purdy and Decker 1986; Purdy, Decker, and Brown 1989; Wentz and Seng 2000; Larson et al. 2013). From the perspective of R3 effort design, this decision to continue likely marks a significant change in an individual's motivations and needs related to their continuance of hunting and, thus, delineates the potential need for different efforts or interventions.

The segmentation of the adoption process into three distinct phases increases the utility of the ORAM for R3 strategy development, effort design, and program implementation. By delineating recruitment from retention from reactivation, while at the same time illustrating reliance on the progression of stages within the adoption process, the ORAM can be extremely helpful to R3 practitioners in identifying gaps between R3 efforts. For example, if the majority of an organization's R3 efforts only provide hunting knowledge, skills, and a first trial, it can reasonably be assumed that the

participants of those efforts are likely in need of next steps and additional resources if they are to be retained. Similarly, if an organization has no efforts targeting individuals who may have lapsed, the long-term effectiveness of their recruitment efforts may be limited as recruited or retained hunters continue to lapse. In these and other strategic applications, the ORAM can assist R3 practitioners in identifying gaps in their R3 efforts, strategically linking individual R3 efforts (i.e., linking a recruitment program to a retention program), and prioritizing needs for new R3 efforts and resources.

An important element of using the ORAM to strategically design R3 programs or efforts is its implication that efforts, programs, or interventions generally occur *between* stages of the adoption process and, thus, act as bridges to move individuals from one stage to the next. From a strategic perspective, it is important to recognize that *all* bridges need to be in place to advance a participant to the continuation without support stage. These R3-effort-bridges can be established through various means including the implementation of an extended program(s) that provides multiple contacts and trial opportunities, the linking of multiple efforts inter- or intraorganizationally that allow participants to advance further in the adoption process, or the delivery of targeted messages and resources to audiences who require continued encouragement or reminders to continue participating. However, it is important to note that, with any of the above strategies or other applications of the ORAM, the needs of each participant—and the strategy used to address them—are dependent upon their stage within the adoption process.

Finally, as with previous versions of the adoption process, the ORAM emphasizes that self-identification and social support are critical to an individual's progression from one stage to the next. As shown in Figure 6, we propose that social support influences all stages of the ORAM, while self-identification begins at the trial stage and continues (or increases) as a participant progresses through the later stages.

Future Application of the Model

Within the scope of implementing the National Hunting and Shooting Sports Action Plan or organizational-level R3 plans, the ORAM has great utility at several levels (Council to Advance Hunting and the Shooting Sports 2016). At the strategic level, the ORAM allows agencies and organizations, which previously may have been replicating R3 efforts, to unify their efforts and visualize the need for improved cooperation and coordination among R3 programs, efforts, or marketing strategies. Given that organizations vested in R3 efforts share the same overarching goals—i.e., creating more recreationists or creating more avid recreationists—the ORAM can provide guidance on where individual efforts can become more effective by linking to efforts of partner organizations with the goal of facilitating an extended series of adoption process stages participants can move through. Thus, participants can access the resources and training needed for them to adopt the activity, and R3 practitioners can more easily achieve their ultimate R3 goals.

From an internal agency or organization perspective, the ORAM allows managers to visualize the strengths and weaknesses of the R3 efforts they are engaged in and take steps to improve the types of resources, messaging, and programs being offered to maximize impact on their participants' adoption process.

Finally, at the event or individual program level, R3 implementers can use the ORAM to consider the content offered at a particular event within a larger context of each participant's stage in the adoption process and potentially customize the content, information, and experiences presented and/or develop additional events that provide bridges for participants to enter the next stage (or stages) of the adoption process.

It is important to note that many of the iterations (including the current ORAM) of the diffusion of innovations theory are just that—theory. While we believe it is critically important to develop R3 strategic and implementation plans using this theoretical construct, we readily admit that this model was largely developed without empirical testing of its accuracy in predicting how individuals adopt an outdoor activity. The evolution of the ORAM as described in this paper was developed as the result of numerous

independent groups of outdoor recreation professionals using the best available research to strategically design their R3 efforts to more effectively increase outdoor participation.

Special Thanks

This manuscript could not have been written without the assistance of numerous organizations and individuals. The authors would like to express a special thanks to the Association of Fish & Wildlife Agencies for providing initial funding for our work on recruitment and retention (and later, reactivation) of hunters through the Multistate Conservation Grant Program. This initial funding allowed the authors and the conservation community to rethink how to approach the problem of dwindling outdoor participation and develop frameworks of thinking that could improve program delivery and achieve R3 goals. In addition, we would like to thank the numerous manuscript reviewers whose thoughtful comments, gentle criticisms, and prudent suggestions greatly improved the final draft of this paper. Lastly, and most importantly, we owe our sincerest thanks to all of the agency and organizational staff for their time and participation in the dozens of planning meetings, working group sessions, conference calls, and discussion groups that cleared the path for the current direction and thinking of the ORAM and the future of R3 efforts.

References

Brandenburg, J., W. Greiner, E. Hamilton-Smith, H. Scholten, R. Senior, and J. Webb. "A Conceptual Model of How People Adopt Recreation Activities." *Leisure Studies* 1 (1982): 263-276.

Brown, T. L., D. J. Decker, and J. W. Enck. "Preliminary Insights About the Sociocultural Importance of Hunting and Trapping." *Human Dimensions Research Unit Publication 95-2* Ithaca, NY: Cornell University, 1995. 58.

Council to Advance Hunting and the Shooting Sports. "National Hunting and Shooting Sports Action Plan." 2016. Web.

Decker, D. J., R. W. Provencher, and T. L. Brown. "Antecedents to Hunting Participation: An Exploratory Study of the Social-Psychological Determinants of Initiation, Continuation, and Desertion in Hunting." *Outdoor Recreation Research Unit Publication 84-6* Ithaca, NY: Cornell University, 1984. 175.

Decker, D. J., and K. G. Purdy. "Becoming a Hunter: Identifying Stages of Hunting Involvement for Improving Hunter Education Programs." *Wildlife Society Bulletin* 14 (1986): 474-479.

Decker, D. J., T. L. Brown, and J. W. Enck. "Factors Affecting the Recruitment and Retention of Hunters: Insights from New York." *Transactions of the 20th Congress of the International Union of Game Biologists*. Eds. S. Csanyi and J. Ernhaft. Gödöllö, Hungary: University of Agricultural Sciences, 1991. 670-677.

Enck, J. W., D. J. Decker, and T. L. Brown. "Status of Hunter Recruitment and Retention in the U.S." *Wildlife Society Bulletin* 28.4 (2000): 817-824.

Enck, J. W., G. F. Mattfeld, H. J. Christoffel, and D. J. Decker. "Overcoming Impediments to Youths Participating in Hunting: Program Implementation and Outcome Evaluations." *Human Dimensions Research Unit Publication 96-7* Ithaca, NY: Cornell University, 1997. 135.

Larson, L. R., D. J. Decker, R. C. Stedman, W. F. Siemer, M. S. Baumer, and J. W. Enck. "Hunter Recruitment and Retention in New York: A Framework for Research and Action." *Human Dimensions Research Unit Series Publication 13-04* Ithaca, NY: Cornell University, 2013. 72.

Matthews, B. "Recruiting, Training and Retaining Hunters and Anglers: Challenging the Natural Resources Community." *Transactions of the Sixty-First North American Wildlife and Natural Resources Conference* 61 (1996): 401.

National Shooting Sports Foundation. *Best Practices Workbook for Hunting and Shooting Recruitment and Retention*. Newtown, CT: 2009. 221.

Purdy, K. G., D. J. Decker, and T. L. Brown. "New York's 1978 Hunter Training Course Participants: The Importance of Social-Psychological Influences on Participation in Hunting from 1978–1984." *Human Dimensions Research Unit Publication 85-7* Ithaca, NY: Cornell University, 1985. 127.

Purdy, K. G., and D. J. Decker. "A Longitudinal Investigation of the Social-Psychological Influences on Hunting Participation in New York: Study 1 (1983–85)." *Human Dimensions Research Unit Publication 86-7* Ithaca, NY: Cornell University, 1986. 126.

Purdy, K. G., D. J. Decker, and T. L. Brown. "New York's New Hunters: Influences on Hunting Involvement from Beginning to End." *Human Dimensions Research Unit Publication 89-3* Ithaca, NY: Cornell University, 1989. 29.

Recreational Boating and Fishing Foundation (RBFF). *Best Practices Workbook: For Boating, Fishing, and Aquatic Resources Stewardship Education*. Alexandria, VA: Recreational Boating and Fishing Foundation, 2003 (revised 2010).

Recreational Boating and Fishing Foundation. "Recommendations and Strategic Tools for Effective Angler Recruitment, Retention and Reactivation (R3) Efforts." 2016. Web.

Responsive Management and National Wild Turkey Federation. "Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: Final Report." 2011.

Rogers, E. M. *Diffusion of Innovations*. New York: free press, 1962. 367.

Rogers, M., and F. F. Shoemaker. *Communication of Innovation a Cross-Cultural Approach*. 2nd ed. New York: free press, 1971. 476.

Ryan, B., and N. Gross. "Acceptance and Diffusion of Hybrid Corn Seed in Two Iowa Communities." *Research Bulletin* 372 (1950).

Wentz, J., and P. Seng. "Meeting the Challenge to Increase Participation in Hunting and Shooting." Newtown, CT: National Shooting Sports Foundation, 2000.

Wildlife Management Institute. "Hunting Heritage Action Plan." 2009. Web.