Principles of Effective Behavior Change: Application to Extension Family Educational Programming

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Abstract
Principles of effective behavior change are described in terms of their implications for Extension educational programming. These principles are drawn from evidence-based models for child, youth, and family programs. Examples include: build specific behavioral skills; increase environmental conditions that support desired behaviors; modify behavior sequentially; train in naturalistic conditions; teach specific cognitive principles to guide behavior; practice the desired behavior; higher dosage leads to greater response; facilitate supports for behavior; and attribute success to the individual. Implications include offering more multi-session classes, maintaining model fidelity, and utilizing evaluations to assess readiness for behavior change.

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Introduction

Extension programs are increasingly being challenged by the land-grant system and grant funding agencies to produce measurable outcomes and behavior change in learners or clients. Best practice or evidence-based programs are those that have been shown through rigorous evaluation to reliably result in desired behavior change. As evidence-based programs become available, Extension educators can profitably use these program models. It is important to commit to model fidelity by implementing the program in the precise manner that has been proven to be effective. For example, Powerful Tools for Caregivers or The Incredible Years are programs that have demonstrated positive behavior change when replicated with rigorous adherence to standardized curriculums. If the programs are truncated or undergo extensive modification, the benefits to participants are untested.

When no evidence-based program exists that fits a particular need, however, then it is useful to understand and apply the principles that underlie successful behavior change. To this end, we examined nationally available best practice models for child, youth, and family programs and distilled a number of principles of individual behavior change. Our sources included materials from Child Trends; the Office of Juvenile Justice and Delinquency Prevention; the Pew Partnership; and the Promising Practices Network. We also reviewed the relevant literature on health behavior change. In this article, we describe these principles of behavior change and discuss how they relate to effective Extension programming.

Principles of Effective Behavior Change

Although most Extension educational programs seek to increase knowledge, a more compelling goal is to create and sustain a desired set of health and personal behaviors, such as physical

activity, healthy eating, effective parenting practices, or positive family communication patterns. Actual behavior change in these areas is likely to include cognitive, social, psychomotor, and affective/emotional dimensions (Boone & Boone, 2005). Nevertheless, Extension programs typically target and measure only cognitive behaviors--knowledge and information.

Thus the first step toward more powerful behavior change education is to acknowledge the importance of social, psychomotor, and affective/emotional dimensions of change. An example of an Extension program that addresses psychomotor skills is Strong Women (Nelson, 2000) a free weight exercise program designed to improve bone health and reduce the risk of fractures. Used by the Extension Service in several states, this program introduces participants to the concept (knowledge) of building strength through the use of weights and then teaches specific (psychomotor) skills associated with lifting small weights correctly.

A second step is designing educational programs based on solid principles of behavior change. Psychological and educational research has shown that behavioral change occurs and is maintained when interventions incorporate particular principles of behavior change. Although some of these principles are frequent elements of Extension education programs, others will be newer ideas for Extension educators.

Target and Build Specific Knowledge and Specific Skills

New knowledge creates the foundation for new behaviors. To increase the likelihood of actual incorporation of knowledge into participants' lives, however, it is important to identify and support the specific knowledge and skills needed to support new behaviors.

For example, nutrition education typically presents facts about more healthful diets, food buying/preparation, food security, and food safety. "Eat more fruits and vegetables" becomes more specific when participants are asked (and aided) to identify the exact fruits and vegetables they eat and specific ways that the consumption could be increased or preparation made healthier. Specificity can be further increased by introducing participants to new choices through tasting and actual meal planning: "Now let's put together a lunch bag with two servings of fruits and vegetables." or "Let's adapt your favorite dinner meal or recipe using more healthful ingredients and methods."

This last example was highly successful in a food stamp nutrition education program for low-income Latino audiences (Hernandez, Bowman, & Pratt, 2007). Similarly, *Queso fresco* (raw milk cheese) is a common and popular food in Mexico, where it is frequently made with unpasteurized milk. In 1997 an eastern Washington community traced 90 cases of *Salmonella* contamination to this practice. In response, the Washington State University Extension Service developed a safer cheese-making method using pasteurized milk. To get Latino residents to change their behavior and actually adopt this new method, Latina paraprofessionals demonstrated it and had learners practice the specific steps involved (Bell, Hillers, & Thomas, 1999).

Reduce the Environmental Conditions That Support Negative Behaviors, and Increase the Conditions That Support Positive or Desired Behaviors

It is well established that physical and social environments affect learning and behavior (Gordon, 2002). In fact, the basic premise of behavior modification is operant conditioning, which maintains that behavior can be changed by altering both the antecedents (cues) that precede behavior and the consequences that follow a behavior (Sarafino, 1996).

Thus, for many people, the antecedent of poor eating is the availability of high-fat, high-sugar foods both at home and away from home. Recognition of this has led to recent efforts to reduce the availability of "junk food" in school vending machines. Similarly, smoking is reduced when cigarettes are unavailable or consumption is forbidden in environments such as schools, workplaces, and public buildings. Conversely, environmental conditions can also elicit positive behavior. For example, the "built environment" can be modified to increase physical activity by providing sidewalks and by designating "mall walking" circuits. Circular paths in nursing homes have been demonstrated to help manage the "wandering" behavior of residents who have Alzheimer's disease.

Extension educators may apply this principle through activities that encourage participants to identify the specific environmental situations or cues that lead them to behave in unhealthy ways and then to plan how these situations can be modified. One advantage of this approach is that it moves discussions of health behavior away from "will power" to environmentally focused strategies that support more healthful behavior. Participants are empowered to act as experts who can share ideas and help others problem-solve challenges, such as chewing gum to avoid eating during meal preparation or shopping only on the outside aisles (the predominant location of produce, meat, baked goods, and dairy foods) in grocery stores.

Similarly, best practice parenting education programs encourage parents to plan ahead to avert problems by altering children's environments. For example, knowing that young children often misbehave in boring or unfamiliar situations, parents are taught to encourage positive behavior by providing small toys and books or familiar objects to entertain and comfort young children during these situations.

Modify Behavior Sequentially and Reward Progress

Effective behavior change must be realistic; educators should help participants set small very specific targets that can be achieved over a realistic time frame (e.g., hug your child once a day; add one fruit a day to your diet; park and walk from the far side of your work parking lot) rather than focus on bigger longer-term results (practice good parenting skills; eat 5 to 9 servings of fruits and vegetables a day; walk 30 minutes daily).

In multi-session programming, Extension educators can create many opportunities to acknowledge and reward small, successive steps forward. Appropriate reinforcements include recognition of progress by the educator and the group and overt rewards such as books or reduced fees for additional classes or events. It is particularly useful to have participants commit to one doable positive action for the coming week. When participants successfully make progressive small positive changes, they learn they are capable of behavior change (Lorig & Holman, 2003).

Each of these techniques increases the probability that new behaviors will be repeated (Zimmerman, Olson, & Bosworth, 2006). Even discussions of relapses or "failures" can be framed in positive, rewarding terms by focusing on the success. ("You succeeded in walking more on two days last week; what made that work?") This positive orientation shifts the focus from failure to success, promotes problem solving, and offers encouragement for every small success. Given that behavior change is difficult and periodic relapse to old ways is likely, it is realistic to acknowledge that change will only occur over time with support and encouragement.

Train in Naturalistic Conditions and Settings

When an individual learns new behaviors outside of his or her normal milieu, it can be difficult to transfer those new behaviors to everyday life. That is why best practice programs emphasize application in naturalistic settings. "Homework" is a powerful strategy that incorporates naturalistic conditions. Homework requires that participants try out new behaviors at home or at work outside of class. Homework successes and challenges should be discussed in a subsequent class session. Participants who did the assignment should be praised ("reward progress") and encouraged to share their experience. Those who did not do the assignment successfully should be encouraged to "try again" next week; the emphasis should always be on opportunities and success.

Most effective parenting education or family communication programs use homework, asking participants to try out new techniques with their children at home and then discussing their experiences at later sessions. In nutrition education, visits to grocery stores offer participants the opportunity to generalize to the real world, by practicing a newly learned skill (reading nutrition labels) in that setting. Another "naturalistic" strategy is asking participants to bring cereal bowls or other personal dishware to a nutrition workshop where they learn to estimate portion size in their own dishware.

Teach Specific Cognitive Rules or Principles That Can Guide Behavior in New Settings

The idea that cognitions guide behavior is the basis of many counseling and therapy approaches, including cognitive restructuring and cognitive-behavioral therapy (Sarafino, 1996). Applied to behavior change, simple cognitive rules can help learners remember and apply important concepts.

For example, in the best practice Incredible Years parenting program, parents are taught to use the "when, then" rule to guide children. For example, assume a young boy wants to play and his mother wants him to finish lunch. Using the "when, then" rule, the mother would say, "When your lunch is finished, then you can go play." The simple "when, then" rule averts the need to remember complicated "parenting scripts" or multiple-step guidance procedures. The value of the "when, then" rule and other cognitive rules is that they are easy to remember and can guide responses in many diverse situations.

In nutrition education, portion sizes can be more easily recalled with a few cognitive rules--a serving of meat is the size of a deck of cards or a cup is the size of a fist. These simple cognitive rules are useful guides for behavior. Refrigerator magnets or other environmental messages can be used to provide visual reminders of cognitive rules.

Model and Offer Many Opportunities for Participants to Practice the Desired Behavior

Instructors who are excellent role models are inspirational. Moreover, providing many opportunities to observe and practice new behaviors within the educational setting increases the likelihood of behavior change. Role-playing is one way to practice behaviors; however, some participants may feel uncomfortable in role-playing. In such situations, an instructor may model the new behavior alone or with a volunteer. Many best practice parenting educational programs use videotaped modeling of skills as an instructional strategy. Modeling and role-playing are particularly effective when participants critique the observed behavior relative to the desired skill (Reid, Patterson, & Snyder, 2002).

A Higher Dosage Leads to a Greater Response (Dosage-Response Ratio Principle)

Behavioral change is more likely to occur when skills are taught, practiced, and rewarded over time. Compared to a one-time educational session, a series of classes is more likely to result in positive change because multiple sessions increase dosage by offering greater opportunities for instruction and practice in class. Dosage can be further increased with the use of homework, written materials, and "buddy" discussions. For example, The Incredible Years parenting program assigns buddies to each participant; buddies call each other each week to discuss "how it is going using the new skills." This not only creates supportive social connections, it also increases program dosage.

Facilitate Social and Other Supports Over Time to Support and Sustain Behavior Change

Social support improves the health behaviors of both the receiver and giver of support (Cameron & Pierce, 2002; Donatelle, Hudson, Dobie, Goodall, Hunsberger, & Oswald, 2004; Jensen, 1989). Best practice parenting programs, including the Incredible Years, engage the power of peer support both in classes and through out-of-class buddy contacts.

With the assistance of the Brookdale Foundation, Relatives as Parents Program funding, several state Extension programs have begun grandparent support groups. These groups seek to assist grandparents and other relatives who are parenting to deal with the associated social, legal, and financial issues (Bjelde, 2004). Through these support groups, participants gain emotional support, social connections, and practical ideas on how to successfully manage the demands of parenting a grandchild.

Emphasize the Individual as the Key to Behavior Change

Three self-perceptions are critical to behavior change. First, does the person perceive that a specific change is personally important? Second, is the person "ready" to change a specific behavior? Third, does the person have a "sense of self-efficacy" or the personal belief that he or she can actually make a specific change (Rollnick, Mason, & Butler, 2005)? In other words, for behavior change to occur, a program participant must recognize that a particular change is essential to his or her well-being; be physically and emotionally ready to institute a change; and perhaps, most important, really believe he or she is capable of changing.

It is very important to acknowledge that people are at various points of readiness in regard to any behavior change. The Stages of Change model of health behavior (Prochaska, DiClemente, & Norcross, 1992) maintains that behavior change occurs gradually, with the person moving from being uninterested in change (pre-contemplation), to considering change (contemplation), to deciding and preparing (preparation) to make a change, and then to genuine, determined action (action) to change and to maintain the new behavior (maintenance). A useful compendium of questions appropriate to the stages of change has been developed for physicians and can be adapted to educational interventions (Zimmerman, Olson, & Bosworth, 2000).

Empathy, validation, praise, and encouragement are necessary at all stages of change, especially when people struggle with ambivalence and doubt their ability to accomplish the change. A useful statement is: "Change is difficult. What difficult things have you accomplished in the past?" This question focuses on participants' successes and makes a discussion of possible strategies to overcome barriers to change more personally relevant. It may also be productive to ask participants to think about their previous attempts to change behavior. Barriers and gaps in knowledge surface for further discussion. When participants are actively engaged as experts on their own lives, they are more likely to believe that they are responsible for their successes. This is self-efficacy in practice.

Chronic Disease Self Management and Powerful Tools of Caregiving are two examples of multi-session educational programs used by Extension educators in some states. Both of these programs are based on a self-efficacy model developed by Kate Lorig and her colleagues at the Stanford University Patient Education Research Center (2001). Self-efficacy is an underlying mechanism for self-management of chronic diseases. Repeated evaluations have shown positive behavior change results from both of these self-efficacy building programs (Boise, Congleton, & Shannon, 2005; Lorig et al., 2001; Schmall, Cleland, & Sturdevant, 2002).

This model maintains that self-efficacy is enhanced through four processes, some of which are directly related to earlier principles discussed in this article. These processes include performance or skills mastery ("target and build specific knowledge and skills" and "modify behavior sequentially and reward progress"), modeling ("model and offer opportunities to practice the desired behavior"), and social support or social persuasion ("facilitate social and other supports to sustain behavioral change") (Lorig & Holman, 2003). Lorig and Holman also stress the importance of helping participants to recognize that behavior has multiple causes and thus understand there are numerous options for resolving a problem and changing behavior.

Conclusion

No best practice program in health or interpersonal behavior is formatted as a single-shot, 2-hour information-focused session. If behavior change is the goal of Extension education, then knowledge-focused programming must be expanded to include personally relevant, problem-focused, experiential, active learning practices focused on skill building. This will demand that Extension programs move from single session offerings to multi-session series that offer enhanced opportunities for practice, homework, and real-life application.

The principles of behavior change can not only improve Extension programs, but should also inform evaluation of program outcomes. Evaluation of programs that target behavior change must recognize that change is a process that is directly related to where a person starts. When adoption of new behaviors is the only measured outcome, the important first steps of change are not acknowledged. It is important to assess where participants are and to provide measures of progress. For example, outcome measures should recognize that participants make progress toward change when they become aware of the personal need to change or take the first overt steps toward desired behaviors, or gain in self-efficacy or the belief that they can affect change. Finally, commitment to behavior change is highly predictive of actual change (Rollnick, Mason, & Butler, 2005). Thus, increased commitment to change should be considered a meaningful program outcome.

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