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# **Practical Application of Theory-Driven Intervention to Extension Programming**

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**Abstract:** For education to be effective, educators need to understand pertinent theories concerning behavior change and to apply them in programming. The study reported here sought to determine if the Theory of Planned Behavior (TPB) could be used to design, implement, and evaluate a brief educational session. Results show a significant increase in participants' intentions in six areas and should be encouraging to educators who need to show impact but do not always have the advantage of delivering and evaluating a series of programming. The study serves as a model for educators to show impact despite a low intervention dose.

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## **Introduction**

For education to be most successful, programming efforts should be theory-driven. Educators need to understand pertinent theories and to apply these theories skillfully in developing programming. Systematic use of theory elements as the basis for design, implementation, and evaluation of educational programming is critical if one is to be effective and to show impact (Contento, 2001). However, many times educators are called upon to give brief presentations to a preformed audience. With brief presentations there is not much time for evaluation, nor is there the inclination to evaluate because the prevailing opinion is that these "one shot" events do not lead to behavior change.

The authors were accepted to present a 50-minute session, "Building Skills for Caregiving Brings More Time," at the 2008 Caring for the Caregiver Conference in Chattanooga, Tennessee. Being accepted to present this topic gave the authors the opportunity to test their hypothesis that, even with brief presentations, educators can show impact if they plan, conduct, and evaluate their efforts following an appropriate theory. In this article we describe the methodology we followed in developing and implementing a program based on an appropriate theory and in determining the impact.

The topic chosen and developed was appropriate because of the focus of the conference. Although we did not know who would be in our audience, as happens to many educators, we did know that at least some of the

conference participants would be interested. Studies show that many who give care do not plan for it, and even individuals who know they will be caregivers may discover they are unprepared for the multiple dimensions of how caregiving may affect their day-to-day living and planning for their own future (Bedini & Gladwell, 2006). Therefore, finding time for self is an important topic for caregivers and would be one we could address in our 50-minute allotted time frame.

## Methods

Steps taken in designing our theory-based education program (intervention) example include the following.

### Step 1: We Assessed Needs/Interests/Assets Of The Projected Audience

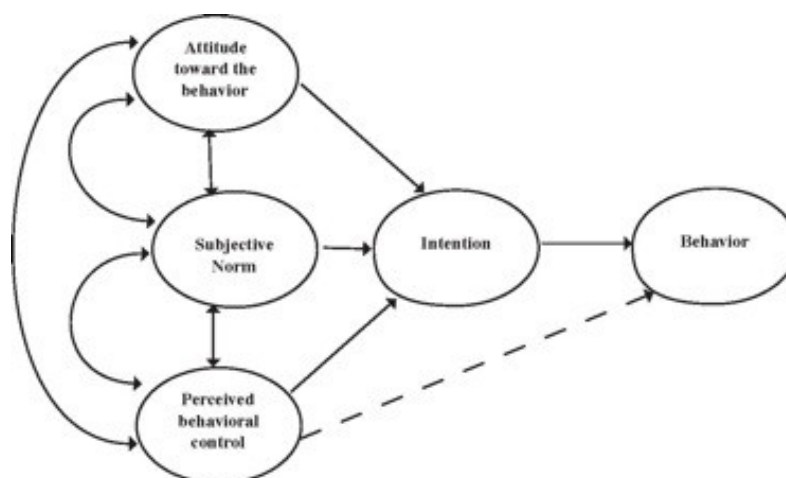
The audience was projected to be professionals and nonprofessional caregivers interested in increasing leisure time for caregivers. With no sign-up prior to attending our session, no information was available concerning participants prior to the session (intervention). However, the literature shows that caregivers are under much stress (Koenig, 2004), do not take time to care for themselves (Burton, Newsom, Schulz, Hirsch, & German, 1997), do not think they have enough money to take some leisure time (Bedini & Gladwell, 2006), do not think that others approve of their taking time off from caregiving, and may not have help if they do decide to take time off (Koenig, 2004)

Therefore, we addressed three of the identified barriers to leisure for caregivers: perception about ability to engage in leisure, understanding of subjective norms, and perception that leisure activities are too expensive when budgets may be stressed by costs associated with caregiving.

### Step 2: We Selected The Theory To Use And The Delivery Channel

The researchers selected the Theory of Planned Behavior (TPB), which postulates that behavior is predicted by intention to do the behavior (behavioral intention), which, in turn, is predicted by attitudes, perceived behavioral control, and subjective norms (Ajzen, 1991). A desired behavior is predicted by a person's value of what she or he expects to be the outcome of the behavior. The three constructs that explain intention to perform health behaviors are shown in Figure 1 (Ajzen, 1991). For the study reported here the desired behavior was the participants' intention to build skills to bring them more leisure time.

**Figure 1.**  
Theory of Planned Behavior



TPB has been applied in numerous educational programs (Brickell, Chatzisarantis, & Pretty, 2006; Kyungwon, Reicks, Sjoberg, 2003; Jayaratne, Hanula, & Crawley, 2005; Patch, Tapsell, & Williams, 2005; Townsend et al., 2003) and has been shown to be comparable to the predictive ability of other theories (Baranowski, Cullen, & Baranowski 1999). Because of the brevity of the educational contact and the fact that the intended behaviors could not be observed or elicited later, the evaluation focused on behavioral intention as the targeted outcome. While intention is not the same as behavior change, it has been demonstrated that intention can be a proxy for action (Lohse, 2006).

The environment and audience were determined by the conference. Our audience was unknown until it was formed from the larger group of conference attendees. Therefore our delivery channel was delivering an interactive session to a group of professionals and nonprofessionals for one brief session.

Many times educators present only once to a preformed audience. Educators need to make these opportunities count. TPB, with a small amount of planning and follow-through, is one theory that is very applicable to this type situation.

### **Step 3: We Determined the Goal and Objectives**

The goals and objectives we determined were as follows.

**Goal:** As a result of the session, participants will intend to devise methods to reclaim and engage in one or more forms of leisure activities.

**Objectives** (paralleling TPB variables): as a result of the session participants will:

1. Demonstrate understanding that leisure is an important human need that provides mental and physical benefits (attitudes/motivations).
2. Demonstrate understanding that leisure can be accomplished in non-commercial ways (attitudes/motivations).
3. Appreciate the role of peer pressure and culture in influencing a choice about asking for help and establishing regular time for themselves as individuals (social norm).
4. Discuss that leisure is accessible in terms of expense and time (perceived behavioral control).
5. Demonstrate ability to set behavioral goal(s) (behavioral intention).

### **Step 4: We Designed the Theory-Based Program (Intervention) to Involve an Activity to Match Each Objective from the Theory Variable**

Program activities included: discussions of the definitions of leisure to dispel it as a luxury, stories from caregivers who managed to accomplish self-satisfying leisure and its overall impact, case studies on ways caregivers elicited from or gave assistance to another caregiver, and audience brainstorming activities concerning ways to meet leisure needs across physical, intellectual, emotional, social, and spiritual leisure dimensions (Decker, 1997).

## Step 5: We Implemented the Program (Intervention)

Implementation characteristics included focusing on active, participatory, age-appropriate materials and activities. Questions were encouraged, and the session ended with a wrap-up and post-test.

## Step 6: We Evaluated Program Outcomes

Participants (26) completed color-coded pre-and post-surveys (identical in content and format) at the beginning and the end of the session. Twelve survey questions were aligned with the TPB to form scales to measure and document changes in participants' attitude, behavioral control, social norms, and behavioral intention. Each of the four dimensions was measured by three questions, using a Likert-type measure scaled as 1=do not agree, 2=somewhat agree, 3=no opinion, 4=agree, and 5=strongly agree.

Pre- and post-surveys were later matched using participants' favorite ice cream flavor and first name entries on the pre- and post-surveys, assigned a case identification code to insure anonymity and entered into SPSS, statistical software for the social sciences. The null hypothesis postulates no difference ( $H_0: = 0$ ) from pre- to post-test. The alternative hypothesis advances the difference is greater than zero ( $H_1: > 0$ ) indicating the session had a treatment effect.

### **Data Preparation**

While most of the items are worded so that a higher score indicates greater ability to access leisure, the one reverse-scored item, worded so that a higher score indicates less ability to access leisure, was recoded, so a higher score represents greater ability to engage in leisure. The relationship between pre-test and post-test variable correlations was positive and satisfied the initial assumption. One case was missing a response on one question and was adjusted by pairwise deletion to maximize sample information.

### **Data Analysis**

A t-test for matched samples (paired t-test) examined the null hypothesis that the pre-test and post-test score populations are the same. This hypothesis was rejected ( $p = .01$ ). The alternate hypothesis that the score populations are different was accepted. The increase in the mean score from 23.0 to 31.7 is statistically significant.

The matched samples or paired t-test compared pre- and post-tests for evidence of significant change in sample means concerning perceived behavioral control, social norm, and behavioral intention. The paired samples or correlated t-test is appropriate where the same individuals are measured before and after treatment (the session). The t-test examines the null hypothesis that pre-test and posttest score populations are the same. We expect the participant scores to evidence a significant difference from pre- to post-test on perceptions and intentions as evidence of the session effectiveness.

Results: As shown in Table 1, six of the 12 question pairs evidenced statistically significant pretest to post-test score changes at the .05 level or better. A seventh question addressing intent to regularly schedule leisure time ( $p = .058$ ) was slightly over the .05 threshold. The significant changes are highlighted following Table 1. Attitudes toward leisure concepts did not evidence statistically significant change.

**Table 1.**

Paired T-Test for Pre- and Post-Test Results for Theory of Planned Behavior Concept Variables

Concept/Variable	Pretest Mean/SD	Posttest Mean/SD	P-value	t-score, df
<b>Attitudes/Motivations</b>				
Enjoying leisure increases caregiver's personal well-being.	4.77 (sd = .514)	4.85 (sd = .368)	.161	t = 1.443, df = 25
Having leisure time helps caregivers.	4.85 (sd = .368)	4.88 (sd = .326)	.327	t = 1.000, df = 25
Leisure time is important and caregivers deserve it.	4.77 (sd = .652)	4.81 (sd = .402)	.664	t = .440, df = 25
<b>Social or Subjective Norm</b>				
Care recipients wants caregivers to refresh themselves	3.77 (sd = 1.451)	3.96 (sd = .384)	.380	t = .895, df = 25
Family member recognition of caregiver's need for leisure	3.04 (sd=1.311)	3.65 (sd=1.384)	.047+	t= 2.094, df = 25
Friends and neighbors recognition that caregivers' need leisure time	3.08 (sd = 1.262)	3.73 (sd = 1.251)	.035+	t = 2.230, df = 25
<b>Perceived Behavioral Control</b>				
Caregivers possess resources of time and money to engage in leisure	2.154 (sd = 1.223)	2.923 (sd = 1.647)	.048+	t = 2.083, df = 25
I am confident I have ability to create leisure even though caregiving	-0.69 (sd = 20.103)	4.38 (sd = .852)	.199	t = 1.320, df = 25
I am confident I can develop a range of activities which may or may not cost a lot of money	3.77 (sd = 1.210)	4.62 (sd = .496)	.000+++	t = 4.282, df = 25
<b>Behavioral Intention</b>				
I intend to enjoy leisure time for myself	4.19 (sd = .939)	4.65 (sd = .689)	.043+	t = 2.132, df = 25
I intend to regularly schedule some type of leisure for myself.	4.12 (sd = .909)	4.42 (sd = .857)	.058	t = 1.990, df = 25
			.029+	

I am attending this workshop to learn new ways to "find" leisure time for self or those I know are caregivers.	4.38 (sd = .185)	4.69 (sd = .108)	t = 2.309, df = 25
Mean difference is statistically significant at +p < .05 (one-tailed), ++p < .01 (one-tailed), +++p < .001 (one-tailed)			

**Social or Subjective Norm**

The mean subjective norm score for family member recognition of caregivers' need for leisure increased from 3.04 (sd=1.311) to 3.65 (sd=1.384). The difference is significant (p = .047) at the .05 level (t=2.094, df = 25). The mean subjective norm score for friends and neighbors recognition that caregivers' need leisure time increased from 3.08 (sd = 1.262) to 3.73 (sd = 1.251). The difference is statistically significant (p = .035) at the .05 level (t = 2.230, df = 25).

**Perceived Behavioral Control**

The mean perceived behavioral control score concerning caregiver resources of time and money to engage in leisure increased from 2.154 (sd = 1.223) to 2.923 (sd = 1.647). The difference is significant (p = .048) at the .05 level (t = 2.083, df = 25). The perceived behavioral control score for developing a range of activities that may or may not cost a lot of money increased from 3.77 (sd = 1.210) to 4.62 (sd = .496). The difference is significant (p = .000) at the .001 level (t = 4.282, df = 25).

**Behavioral Intention**

The behavioral intention score for intent to enjoy leisure time for self increased from 4.19 (sd = .939) to 4.65 (sd = .689). The difference is significant (p = .043) at the .05 level (t = 2.132, df = 25). The behavioral intention score for attending the workshop to learn of new ways to engage in leisure for self and other caregivers increased from 4.38 (sd = .185) to 4.69 (sd = .108). The difference is significant (p = .029) at the .05 level (t = 2.309, df = 25). The behavioral intention score for intent to regularly schedule some type of leisure time for self evidenced a statistically non-significant (p = .058) change at the .05 level (t = 1.990, df = 25).

**Limitations**

One limitation was the lack of a randomized controlled trial. Instead, we had a small convenience sample without a control group. However, our primary purpose was not to provide evidence for effectiveness of the session per se but to describe how an appropriate theory can be applied to make and determine impact.

Other limitations included the lack of participant demographic data and the lack of a follow-up survey at a later date. Therefore we measured only behavioral intention and not actual behavior change. Recognizing that the two are not synonymous, it was not feasible for us to monitor behavior change due to lack of funding for follow-up and the fact that participant anonymity was a requirement of our Institutional Review Board. We also did not collect demographic data given the lack of time and given that the goal did not require it. Given those constraints, we showed that the TPB can be used successfully for "one shot" brief sessions.

## Discussion and Conclusions

The training expanded perceptions concerning leisure and stimulated plans to implement self-care through planned leisure. That caregivers newly perceived an ability to engage in a range of no- or low-cost leisure activities is an important result because caregivers frequently experience limited financial resources. Study results show that the success of an educational contact can be ascertained by employing theory as the basis on which to plan the "intervention," using teaching methods to illustrate pertinent concepts, and providing the participants with appropriate tools for change, and, finally, measuring the learning and changes with pre- and post-tests.

That none of the variables measuring the attitude dimension evidenced significant change motivated the authors to conduct a secondary analysis. The authors hypothesized that prior to attending the session, participants overwhelmingly held positive attitudes toward the role of leisure in relation to their personal well-being, the idea that leisure time helps caregivers, and that leisure time is important and caregivers deserve leisure. To confirm or dispel our hypothesis, a variable was created to count pre-test responses of "agree" or "strongly agree" for the three attitude variables.

The results indicated only one participant answered other than "agree" or "strongly agree" on the first and third questions (Table 1); all responses on the second question reflected agreement or strong agreement. Therefore, participants arrived at the session with an appreciation for leisure and, thus, experienced no change.

At the same time, they perceived barriers to their attainment of leisure. The session's primary positive outcome was in addressing perceived barriers and engendering intention to engage in leisure. The behavioral intention variable measuring intent to regularly engage in leisure activities fell just outside the boundary for statistical significance. This may be due to a small pool of participants. It is also possible that the meaning of "regular" was not clear to participants or had different meanings across participants, thus contributing to the variable's statistical non-significance. Establishing a clear and common meaning for the term "regular" among all session participants may contribute to more positive findings. With these findings we remain confident in the broad applicability of this evaluation approach.

To improve future efforts to measure session effects ideally, surveys should be checked for completeness and clarity of item selection at the time of collection so that any omissions or confusion can be corrected immediately. The constricted time precluded that step, but the authors highly recommend this approach where possible. The availability of a program assistant to collect and verify survey completeness would facilitate data quality even within a constricted time frame.

Depending on the needs of the research, other information such as demographic data could be collected either at the beginning or end of the program or as a follow-up piece. A follow-up questionnaire for capturing behavior change could be accomplished by distributing envelopes to the participants and having them address them to themselves and insert a small card with their favorite ice cream flavor. The envelopes could be collected, and, at a later date, the ice-cream-flavor annotated follow-up questionnaires could be mailed. Having a drawing for a prize for all those who return this survey would help ensure a good response rate. We suggest that others, following this model, could have the participants fill out brief demographic surveys along with the pre-test before the presenter begins and could use the aforementioned method of follow-up survey months later to determine if participants' intentions eventually led to behavior change.

Study results are encouraging for a broad range of disciplines. The implications are that theory, specifically the TPB, can be used by educators to make an impact and determine the impact when addressing relatively unknown audiences for brief educational sessions. This model is effective for sessions, presentations, and

workshops. More specifically, the example shows that the TPB can be used to develop programming to show participant attitudes and perspectives about the expectations of others and that participants' ability to evoke desired changes in their life can be effectively influenced and measured through a short, well-planned educational presentation.

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