

**Original Article**

## **Linking Reasons for Continuing Professional Education Participation with Postprogram Application**

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**Abstract:** *This study explores links between the reasons health professionals give for participation in continuing professional education (CPE) and postprogram application of learning. Data collected by pre-, post-, and 2-month follow-up questionnaires were analyzed for 247 health professionals, including nurses, physicians, mental health counselors, and rehabilitation specialists. Of the five reasons for participation studied, bivariate correlational analyses revealed a link between three reasons and postprogram application: "need to do your job differently," "confirm what you are already doing is okay," and "chance to network with others." These reasons have a voluntary nature, intrinsic motivation, and specificity, and are comparatively more active than passive in orientation. Two other reasons for participation, "required to attend" and "general interest," were not significantly associated with outcome measures. The results of this exploratory study provide discussion and suggestions for program planners and educators in influencing posteducational application.*

**Key Words:** Application, change, continuing allied health education, continuing medical education, continuing nursing education, reasons for participation

This study explores the link between the reasons health professionals give for participation in continuing professional education (CPE) and post-educational application of learning. The question of linkage emerges from an evaluation of the Center for Substance Abuse Prevention (CSAP) Training System (CTS). The overall intent of the CTS is to "assist national and local organizations, States, and communities in making sustained changes needed to prevent alcohol, tobacco, and other drug abuse."<sup>1</sup> Over 900 health professionals attended CPE programs targeted at nurses,

physicians, mental health counselors, and rehabilitation specialists in 29 separate events in 1994. "The intent of all CTS services is that people who participate in training and technical assistance will apply what they learn, on the job or in their community."<sup>1</sup>

To assess posteducational application of learning, several strategies were used. The conceptual framework guiding the survey research component of the evaluation posits that multiple factors link CPE programs with posteducational application.<sup>2,3</sup> While other evaluation studies have established the link between application and participant knowledge,<sup>4</sup> skills,<sup>5,6</sup> work context,<sup>7</sup> commitment to change,<sup>8</sup> and barriers,<sup>9</sup> only one study was found that directly explored the link between reasons health professionals give for participation in CPE and post-CPE application. The study of 15 dentists found that those who participated because they were considering a change or hoping to get more information were more likely to be "big changers"

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following continuing education than those who participated for other reasons.<sup>10</sup>

The insights gained from this study are explored here with a larger and more diverse group of health professionals. Do the reasons health professionals give for participation in continuing education influence postprogram application of learning? Do reasons for participation differ among health professions? An awareness of the link between participants' reasons for participation and subsequent job performance is integral to planning and evaluating continuing education. Much of the research on reasons for participation is concerned with access and increased participation in adult and continuing education. According to Houle, "The problem with measures of extent of participation is they carry no assurance that desired changes in competence or performance has occurred."<sup>11</sup> This is particularly problematic for programs like the CTS that intend postprogram application. Reasons for participation are a beginning point for research on application-oriented programs, not an end point.

## **Literature Review**

### **Reasons for Participation**

Motivational orientations that influence participation in adult education have been extensively investigated in the literature.<sup>12-14</sup> Houle<sup>15</sup> was one of the first and most influential contributors to this type of research. He identified three types of learner motivations: goal oriented, activity oriented, and learning oriented. In subsequent research, reasons that are related to the participant's job, personal development, and general interest were most commonly cited.<sup>16,17</sup> A large-scale empiric test of Houle's earlier typology identified six groups of motivational orientations: professional advancement, social stimulation, external expectations, social contact, cognitive interest, and community service.<sup>18</sup> This study concurred with Houle's findings about goal and learning orientations, but found activity orientations more complex.

Through further research, the understanding of reasons for participation in adult education has

been extended to participants in continuing education.<sup>19-22</sup> Cognitive interest, community service, and professional advancement were found most often to have the highest scores as reasons for CPE participation. It can be concluded that most professionals participate in CPE for reasons related to their professional practice or area of work. The motivational orientations represented by external expectations, social contact, and social stimulation play a lesser role in motivating professionals to participate in CPE.<sup>20-23</sup> According to Urbano et al., "While motivational orientations vary slightly from study to study, they show consistency across countries, samples, and time."<sup>22</sup>

### **Outcomes of Continuing Professional Education**

Exploring these outcomes of CPE provides a basis for deciding at which level reasons for participation will be linked to educational outcomes. Four general level of outcomes have been used to assess the effectiveness of continuing education: participant satisfaction, knowledge or skill changes, behavior changes, and patient outcomes.<sup>24-27</sup> Cervero<sup>28</sup> expands an understanding of CPE outcomes to seven categories that include (a) program design and implementation, (b) learner participation, (c) learner satisfaction, (d) learner knowledge, (e) skills and attitudes, (f) application of learning after the program, and (g) impact of application of learning.

Satisfaction measures are used increasingly less as sole outcome measures of CPE. In a review of the literature, one study found 20% (35 of 170) of the studies used only a "happiness index" as a measure of the effectiveness of continuing medical education.<sup>24</sup> In a review of the effectiveness of allied health CPE in the preceding 20 years, Turnbull and Holt<sup>27</sup> found only 5% of the studies (1 of 20) looked solely at satisfaction as a measure of CPE effectiveness. Changes in knowledge were found as sole measures in 35% (7 of 20) of evaluations of CPE effectiveness in allied health.<sup>27</sup> Knowledge change is most often measured at the beginning and immediate end of CPE programs. While these measures indicate change at some

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level, they are inadequate predictors of postprogram application. In most CPE evaluations, application equates with performance change. Increasingly, CPE evaluations have demonstrated that continuing education may result in positive changes in behavior in some situations.<sup>5,6,10,29</sup>

Because the CSAP Training System intends postprogram application, this study is interested in linking reasons for participation at this level. For the purposes of this study, application is defined as the process of putting learning from a continuing education program into practical contact in an intended, work-related context. Application is understood as a complex, multidimensional process that connects intent to ends, generates knowledge, concerns itself more with feasibility than precision, and often involves adaptation of both concept and context.<sup>30</sup>

### Establishing a Link between Participation and Application

The study of continuing dental education previously noted provided the most direct, empiric link between reasons for participation and posteducational application.<sup>10</sup> Because other research studies were not found that explored the participation/application link, this study relied on the Application Process Framework (APF) as a conceptual link between reasons for participation and application.<sup>3</sup> This framework, as shown in Figure 1, is adapted from the PRECEDE-PROCEED framework used in health education and health promotion.<sup>2</sup> It is also informed by the Cervero framework in adult education<sup>31</sup> and the innovation decision-making model of diffusion research.<sup>32</sup> Like the PRECEDE-PROCEED framework, the APF operates from right to left in a planning mode, that is, it begins with an understanding of application as an outcome and moves "backwards" toward influencing factors and from those to the CPE program. In an implementation mode, the APF moves from right to left, that is, from the educational program to influencing factors and application.

The APF posits that the educational program and the nature of the innovation to be applied together influence predisposing, enabling, and

reinforcing factors that influence postprogram application. The predisposing factor includes such characteristics as knowledge, attitudes, values, and reasons for participation that predispose the CPE participant toward application. The enabling factors include characteristics of the context of application such as resources, opportunity for action, access, organizational structure, and authority that enable the CPE participant to apply learning. The reinforcing factor includes personal and social support and reinforcement for the CPE participant to initiate or maintain application. The multiple factors suggested by the APF as influences on application are consistent with the understanding of application as a complex, multidimensional process. The APF provides a conceptual link between reasons for participation and application. It posits that, from a planning perspective, reasons for participation influence the educational program and, from an implementation perspective, reasons for participation can be influenced by the educational program. The multiple factors of the framework suggest that although reasons for participation have potential to influence application, they are unlikely to be a sole influence.

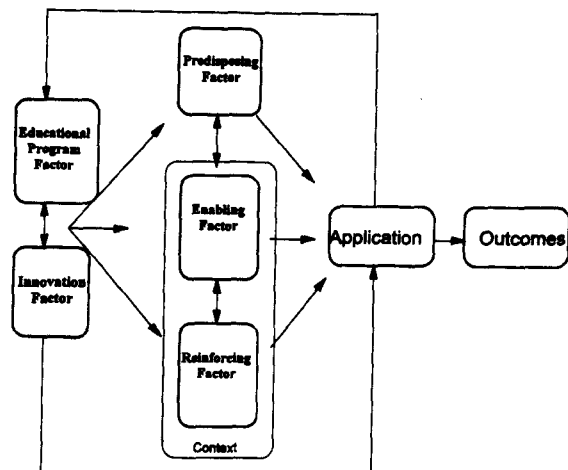


Figure 1 Application Process Framework.

## **Research Design**

### **Sample Selection**

As noted previously, this study was conducted as part of an evaluation of the CSAP Training System (CTS). Each of the four types of profession-specific trainings consisted of an approximately 8-hour workshop. Most training was completed in 1 day; some training was spread over 2 days. Many workshops were part of an extended learning experience that included preworkshop readings, assessments, and preparation, as well as post-workshop action plans and technical assistance. Although health professionals were trained separately, core intent across all health professional trainings included primary prevention, collaboration, cultural competence, and post-training application.

To answer the research questions posed by this study, data were drawn from pre-, post-, and follow-up questionnaires administered to four groups of health professionals at 29 training events between December 1993 and November 1994. The sample of 247 respondents included nurses (n = 99), physicians (n = 41), mental health counselors (n = 75), and rehabilitation specialists (n = 32). Of the 29 training events included in the study, 7 were targeted for physicians, 8 for mental health counselors, 11 for nurses, and 3 for rehabilitation specialists. The average pre- and postmatched response rate (participants who provided completed questionnaires for both pre and post) ranged from 71% for physicians to 89% for nurses; the average pre-, post-, and follow-up matched response rate (completed all three questionnaires) ranged from 24% for rehabilitation specialists and mental health counselors to 31% for physicians.

### **Instruments**

The questionnaires used in this study were grounded in the APF and developed collaboratively by CTS evaluators and contractors. Through the grounding of each questionnaire item in a factor of the conceptual framework, theory and construct validity were established. Content and face validity of the questionnaires were assessed and

determined to be representative of the construct being measured by examining the literature; consulting an expert community panel, a technical advisory panel, and CTS contractors and trainers; and through pilot tests with health professionals and community groups. A consensus regarding the appropriateness, accuracy, and representativeness of the measures of the application process was reached. Reliability measures, such as test-retest, stability, and equivalency, were not feasible as the subjects were only available for questionnaire administration at one time (during the CTS training). Questionnaires were administered before or at the beginning of CPE programs (pre), at the immediate end of programs (post), and 2 or more months following the program (follow-up).

### **Dependent and Independent Variables**

Five independent variables, reasons for participation, were measured on the prequestionnaire. Respondents were asked the following question: to what extent did each of the following influence you to come to this workshop? Responses included (a) general interest, (b) need to do your job or volunteer activities differently, (c) required by organization to participate, (d) confirm what you are already doing is okay, and (e) chance to network with others. These reasons represent participation categories found in the literature review, including cognitive interest, social stimulation, professional advancement, and external expectations.

Responses were measured on a 5-point scale where 1 = no influence and 5 = extremely influential. Two dependent variables were assessed at post and follow-up. At post, independent variables were assessed for their likely future action: to what extent are you likely to do the following as a result of this workshop: (a) make changes in how you do your work or volunteer activities and (b) increase substance abuse prevention activities? At follow-up, respondents were asked, To what extent did you do the following as a result of the workshop? Responses included (a) made changes in how you do your work or volunteer

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activities and (b) increased substance abuse prevention activities.

### **Analyses**

Several levels of data analyses were conducted, all setting  $\alpha$  at  $p < .01$ . In the first level of analysis, descriptive statistics were run for all independent and dependent variables. The second level of analysis focused on sample selection. Chi-square tests were used to analyze the association between each of the four health professional groups and the following demographic variables: sex, age, level of education, prevention focus, and previous training in substance abuse prevention. Further analysis was done to test the sampling bias by comparing respondents matched at pre-, post-, and follow-up with those who answered the preworkshop questionnaire only. Chi-square tests were used for comparisons on sex, age, education, focus, and previous training in substance abuse prevention. Student's t-tests were used to compare respondents on selected variables from the APF with potential to impact post-training application. These included end of workshop perceptions of workshop usefulness and methods, feeling able to apply learning, intent to change practice or to increase substance abuse prevention activities following training, and opportunity to apply learning. In the third level of analysis, one-way ANOVA was used to compare the four health professional groups on each of the independent and dependent variables. Last, bivariate correlations were run between each of the independent variables and the two dependent variables at post and follow-up for the entire sample and for each health professional group.

### **Design Limitations**

The limitations of this study relate to the matched response rate and self-reporting. Although extensive tests were run to compare respondents matched over time with those who only responded to the prequestionnaire, it is acknowledged that these groups undoubtedly differ. The self-reporting nature of application used in this study meant that the extent of post-CPE application could not be independently verified. Further, respondents

may have answered questions about either reasons for participation or application based upon their perception of social acceptability.

## **Results**

### **Respondent Characteristics**

Among the 247 matched respondents, 75% were female, 61% were between the ages of 36 and 55 years, 78% were Caucasian, and 84% held a college or graduate school degree. Chi-square tests revealed that demographic variables and health professional groups were not independent: the professions varied systematically on sex ( $p = .000$ ), age ( $p = .000$ ), education ( $p = .000$ ), prevention or treatment focus ( $p = .002$ ), and previous training in substance abuse prevention ( $p = .002$ ). In comparisons among the four groups, the dependence among the variables can be summarized as follows: there were more women in nursing; nurses were older and mental health counselors younger; physicians were more educated and mental health counselors less educated; mental health counselors were more involved in prevention-only activities and physicians in prevention and treatment activities; and mental health counselors had more previous training in substance abuse prevention and nurses less previous training.

Chi-square analysis between respondents with matched data over time ( $n = 247$ ) and respondents who answered prequestionnaires only ( $n = 721$ ) found the two groups independent on the following demographic variables: sex, age, prevention focus, and previous training in substance abuse prevention. Independence was also found on the end of training measures of the following variables: feeling able to apply learning, training methods, training usefulness, intent to make changes in practice, intent to increase substance abuse prevention activities, expectation that the workshop would make a difference, opportunity to apply training, and resources. The only variable on which association was found between matched and unmatched groups was on level of education,  $p =$

.001; the matched group had a higher level of education than the unmatched group.

**Description of Participation and Application**

Descriptive statistics for the independent variables are found in Table 1. The highest-rated reason for participation was general interest; 40% of respondents rated this reason as extremely influential to their participation. This variable also had the smallest variance. The lowest-rated reason for participation was being required by one's organization to attend; 59% of respondents indicated that the requirement to attend training had no influence on their attendance.

Descriptive statistics for the dependent variables at post and follow-up are found in Table 2. Respondents indicated above-average intent to apply learning following the training. Student's t-tests indicated that respondents were significantly more likely to increase substance abuse prevention activities following training than to make changes in how they did their jobs ( $t = -2.61, df = 189, p = .010$ ). Ratings of application 2 months after the training were average. T-tests revealed a significant drop in both measures of application from post to follow-up: from expected to make changes to reported changes in how they do their job ( $t = 11.42, df = 232, p = .000$ ), and from expected to reported increased substance abuse prevention activities ( $t = 10.41, df = 184, p = .000$ ).

**Differences among Health Professional Groups**

One-way ANOVA revealed no significant differences among health professional groups on two of the five reasons for participation analyzed: "chance

to network with others" and "confirm what you are already doing is okay." Further, no significant differences were found among health professional groups on either of the dependent variables at post or follow-up.

Significant differences were found on three reasons for participation. The first difference was found on "need to do your job differently" ( $F = 3.748, df = 3223, p = .012$ ); the physician mean rating (3.128) was significantly different from the mental health counselors' mean rating (3.864). The second difference was found on "general interest" ( $F = 5.892, df = 3233, p = .001$ ); the rehabilitation specialists' mean rating (3.714) was significantly different from the mean rating of nurses (4.213) and mental health counselors (4.375), and the physicians' mean rating (3.875) was significantly different from the mental health counselors' rating (4.375). The third difference was found on "required by organization to participate" ( $F = 5.17, df = 3224, p = .002$ ). The rehabilitation specialists' mean rating (2.862) was significantly different from the mean rating by physicians (1.846), nurses (1.753), and mental health counselors (2.000).

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Table 3 shows significant correlations among reasons for participation and application measures at post and follow-up for all respondents and for each health professional group. For all respondents, the "need to do your job differently" was significantly correlated at post and follow-up with "increase substance abuse prevention activities" ( $r = .232; r = .334$ ) and "made changes in how you do your job" ( $r = .308; r = .304$ ). The "chance to

**Table 1 Respondents' Pretraining Ratings of Reasons for Participation**

Reason for Participation	N	Mean	SD
Need to do your job differently	227	3.526	1.146
General interest	234	4.145	0.862
Chance to network with others	228	3.627	1.248
Confirm what you are already doing is okay	229	3.000	1.274
Required by organization	228	1.982	1.383

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**Table 2 Respondents' Post- and Follow-up Ratings of Application**

	Post			Follow-up		
	Likely to Do the Following as a Result of Training			Did Do the Following as a Result of Training		
	n	Mean	SD	n	Mean	SD
Make changes in how you do your job	242	3.806	0.911	238	3.013	1.145
Increase substance abuse prevention activities	191	4.005	0.949	232	3.039	1.263

network with others" was also significantly correlated at post and follow-up with "increase substance abuse prevention activities" ( $r = .400$ ;  $r = .312$ ) and "made changes in how you do your job" ( $r = .22$ ;  $r = .249$ ). "Confirm what you are already doing is okay" significantly correlated with "increase substance abuse prevention activities" at follow-up ( $r = .302$ ) and "made changes in how you do your job" ( $r = .324$ ). "Confirm what you are already doing is okay" did not significantly correlate with either of the two application measures at post. "General interest" and "required to attend" were not significantly correlated with either of the two application measures at post or follow-up and, therefore, were not included in Table 3. The overall correlations between "required to attend" and the application measures at post and follow-up are small and negative. These overall correlations confirm chi-square analyses for a comparable health professional population.<sup>33</sup>

The patterns of correlations between reasons for participation and application measures varied by health professional group. The pattern for nurses followed that of all respondents with eight significant correlations, mental health counselors had four significant correlations, physicians had two significant correlations, and rehabilitation specialists had no significant correlations between reasons for participation and application. The strongest correlation at follow-up was between "need to do your job differently" and "made changes in how you do your job" for nurses,  $r = .411$ . Most of the significant correlations were in the  $p = .300$  range, which can be considered evidence of moderate association.<sup>34</sup>

### Discussion

Our discussion begins with the obvious, that is, health professionals participate in CPE for a variety of reasons. Of the five reasons for participation analyzed in this study, "general interest" was the highest-rated reason and "required to attend" was the lowest. General interest, as a reason for participation, falls under the motivational orientation of cognitive interest.<sup>18</sup> The low rating of requirement supports earlier studies, such as that in the nursing literature, which found that extrinsic motivation was not acknowledged as a primary influence on CPE participation.<sup>20,23</sup> What is of particular interest to this study is that neither of these reasons for participation were linked with post-CPE application. While these reasons may be sufficient to get health professionals to attend CPE programs, they are not sufficient to influence postprogram application.

The three reasons for participation that did link with post-CPE application appear, at first glance, contradictory to each other, especially the "need to do your job differently" versus "confirm what you are already doing is okay." What is common to these two reasons for participation, as well as the "chance to network with others," is their more voluntary nature and specificity, and that they are comparatively more active than passive in orientation. This supports earlier studies in which participants were more likely to participate and achieve positive outcomes when there was an element of voluntary influence and intrinsic motivation on the decision to participate.<sup>35,36</sup> These three middle-ground reasons for participation are not sufficient in themselves to support application either, but their link to application suggests that

**Table 3** Correlations\* between Reasons for Participation and Measures of Application, Overall and by Health Professional Group

	Increase, Substance Abuse Prevention Activities				Make Changes in How You Do Your Job			
	Post		Follow-up		Post		Follow-up	
	n	r	n	r	n	r	n	r
<i>Need to do job differently</i>								
Overall	175	.232**	215	.334**	223	.308**	221	.304**
Nurses	88	.306**	89	.435**	89	.345**	89	.441**
Mental health counselors	66	.235	66	.361**	66	.201	65	.187
Physicians	0	NA	38	.212	39	.392**	38	.085
Rehabilitation specialists	21	.130	22	.173	29	.310	29	.359
<i>Network with others</i>								
Overall	177	.400**	215	.312**	224	.220**	221	.249**
Nurses	88	.344**	89	.431**	89	.127	89	.263**
Mental health counselors	68	.464**	67	.216	68	.391**	66	.211
Physicians	0	NA	38	.159	39	-.115	38	.047
Rehabilitation specialists	21	.329	21	.344	28	.327	28	.406
<i>Confirm what you are doing</i>								
Overall	178	.138	216	.302**	225	.101	223	.324**
Nurses	88	.134	89	.411**	89	.059	89	.374**
Mental health counselors	69	.166	68	.238	69	.191	68	.308**
Physicians	0	NA	38	.213	39	.036	38	.351**
Rehabilitation specialists	21	-.004	21	.371	28	-.106	28	.107

\* Two reasons for participation, "general interest" and "required by organization," were not significantly correlated with the measures of application.

\*\* $p < .01$ .

NA = data not available.

they—or similar kinds of more intrinsic, specific, and active reasons—may be necessary.

The similarities and differences found among health professional groups on reasons for participation both support and challenge previous research that found motivational orientation to vary slightly and show consistency across samples and time.<sup>22</sup> While no significant differences were found on mean ratings among health professional groups on the chance to network or confirm current practice, significant differences were found on the need to do one's job differently, general interest, and requirement to participate. These differences carried over into correlations between reasons for participation and application. For example, subgroup analyses revealed that significant correlations at the  $p < .01$  level were found

between three of the five reasons for participation and application for nurses; no significant correlations were found at this level between the five reasons for participation and application for rehabilitation specialists. For the latter group, other reasons for participation may be stronger links with application.

The moderate correlational links between the three reasons for participation and application are consistent with the APF that posits multiple influences on post-CPE application. It was not anticipated at the beginning of this study that reasons for participation would tell the whole story of the complex, multidimensional process of application. It was anticipated that reasons for participation would at least provide the opening line for the application story. The fairly consistent pattern of

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correlational links established in this study provide such evidence.

### Conclusion

If application is not the intent of a particular CPE program, then it may not matter why health professionals attend. Cervero<sup>28</sup> cautions about the appropriateness of attempting to measure the outcome of application for programs with insufficient effort to produce change. But if CPE programs, such as those sponsored by the CSAP Training System, plan for and evaluate postprogram application, then the interaction of the program with reasons for participation and post-CPE application deserves attention. To influence post-CPE application, program planners and implementers may tap into those active, intrinsic motivations of participants that link with application. Programs that move participants away from diffuse general interest and extrinsic motivation (e.g., compulsory attendance) and help them connect program content with practice concerns have potential to influence post-CPE application. CPE evaluation also needs to consider why participants attend. It may be more appropriate to measure program effectiveness on the extent to which participants are moved toward active reasons for participation than simply the level of application achieved. Future research needs to explore how other influences, such as opportunity to change, barriers, or incentives, link with reasons for participation to influence post-training application.

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