

A FACTOR STRUCTURE OF PROFESSIONALS' ATTITUDE TOWARDS CONTINUING EDUCATION AND ITS RELATIONSHIP TO PARTICIPATION

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Abstract

This article investigates the structure of professionals' attitude towards a continuing education program. Data for the article was obtained from 323 veterinary practitioners in the province of Alberta. An exploratory factor analysis led to the identification of three dimensions of attitude towards a continuing professional education (CPE) program: relevance, benefit, and accessibility. The relationship between the professionals' attitude with their previous and future participation behaviors in CPE programs was also examined. The findings suggest that a multidimensional structure of attitude offers a more meaningful understanding of perceptions about the information provided by organizers of CPE programs than a unidimensional conceptualization of attitude. Implications for future research and continuing education practice are discussed.

Résumé

Cette étude examine la structure de l'attitude de professionnels à l'égard d'un programme de formation continue. Les données de l'étude ont été recueillies auprès de trois cents vingt-trois vétérinaires praticiens de l'Alberta. Une analyse factorielle exploratoire a mener à l'identification de trois dimensions de l'attitude des professionnels à l'égard du programme de formation continue (CPE): soit, la pertinence, les avantages et l'accessibilité. La relation entre l'attitude des professionnels envers leur comportement dans leur participation antérieure aux programmes CPE et leur attitude envers leur comportement dans leur participation future, a aussi été examinée. Les conclusions de l'étude semble indiquer que la conceptualisation d'une structure multidimensionnelle plutôt qu'une structure unidimensionnelle de l'attitude des professionnels envers ces programmes permet une meilleure compréhension des perceptions qu'ils ont de l'information fournie par les organisateurs des programmes CPE. Les implications pour la recherche et les pratiques en formation continue sont aussi abordées.

Introduction

Professionals account for an increasing proportion of the total work force and they are central to the functioning of today's society (Cervero, 1988). Because knowledge and skill requirements for competence are changing frequently there can be little argument about the importance of maintaining professional competence and expertise. Continuing education for professionals has received a steady increase in the attention of adult education researchers over the past decades. Houle (1980) writes:

[the] ultimate aim of every advanced, subtle, and mature form of continuing education is to convey a complex attitude made up of a readiness to use the best ideas and techniques of the moment but also to expect that they will be modified or replaced. (p. 75)

Accordingly, continuing educators have made systematic efforts to investigate professionals' learning activities, motivation to participate in learning and the requirements for effective learning methods. The requirements for mandatory CPE have increased steadily during the last decade. Today, many professional practitioners are required to participate in certain forms of organized CPE programs. One survey reports that mandatory continuing education for relicensure continues to expand and that "all professions seem to be feeling considerable pressures and are undergoing change of one form or another" (Phillips, 1992, p. 1). Understandably, higher education institutions are among the major providers of CPE activities (Cervero, 1988).

Continuing education institutions spend considerable resources developing and implementing programs and attracting professional practitioners to participate. Many program administrators and instructors are concerned about why some CPE programs attract participants and bring about desired changes in practice while others do not. The literature of adult and continuing education indicates that both personal and social factors influence professionals' participation (Escovitz & Augsburger, 1991; Knox, 1990; Martin & Mazmanian, 1991; Pryor, 1990; Yang, Blunt, & Butler, 1994). Recently two studies reported that participation in CPE can be largely determined by attitude toward CPE (Pryor, 1990; Yang, Blunt, & Butler, 1994). These findings are consonant with social psychology theory about the consistency between attitude and behavior, and provide useful information for CPE program planning and administration. The rationale underlying this type of research is that a positive attitude toward CPE encourages active participation in learning and eventually improves competence and performance within the respective fields. Nonetheless, few attempts have been made to assess professionals' attitude towards organized CPE programs. Since any organized CPE program may provide a variety of information to the potential participants, program planners and administrators will be helped if a parsimonious pattern of professionals' perceptions about programs can be developed. It is therefore important to determine how attitude towards CPE is constructed and the kinds of beliefs professionals hold in regard to CPE programs.

A Theoretical Framework of Attitude and Behavior

The theoretical foundation which guided this study was drawn from social psychology theory about the relationship between attitude and behavior. Fishbein and Ajzen's (1975) (see also Fishbein, 1980) behavioral intention theory is perhaps the most prominent and frequently cited conceptual framework for explaining deliberate human action (Eagly & Chaiken, 1993). Behavioral

intention theory proposes an underlying psychological process in which attitude serves as a cause of behavior. According to this theory, decisions to participate in a CPE program are determined by intentions to engage in the behavior, while intentions are influenced by attitude toward the CPE program. The relationships among beliefs, attitude, intention, and participation behavior can be formulated as follows. Suppose a group of professionals as potential participants have been provided certain information in regard to a future CPE program. Their related beliefs about the program are influenced by the information provided by the program planners. The information serves as a conditioning agent for the beliefs, and consequently attitude towards the program. The professionals' intention to participate is formed as a function of the interaction of beliefs and attitude. Intention causes the behavior of participation or nonparticipation. Situational factors and personal characteristics influence participation or nonparticipation indirectly through beliefs and attitude. Consequently, feedback information from participation behavior reinforces belief and attitude about the program in a continuous process of evaluation. Moreover, Fishbein and Ajzen's theory allows for the quantification of attitude with the information concerning the participation behavior in a so-called expectancy-value scale. This scale assumes that attitude is a function of the perceived consequences by the professionals associated with participation and the evaluation of these consequences. This conceptual framework is further illustrated by a schematic representation shown in Figure 1. Simply, this framework implies that attitude is formed by learning about the characteristics of a CPE program and the decision to participate, or not, is based on the attitude.

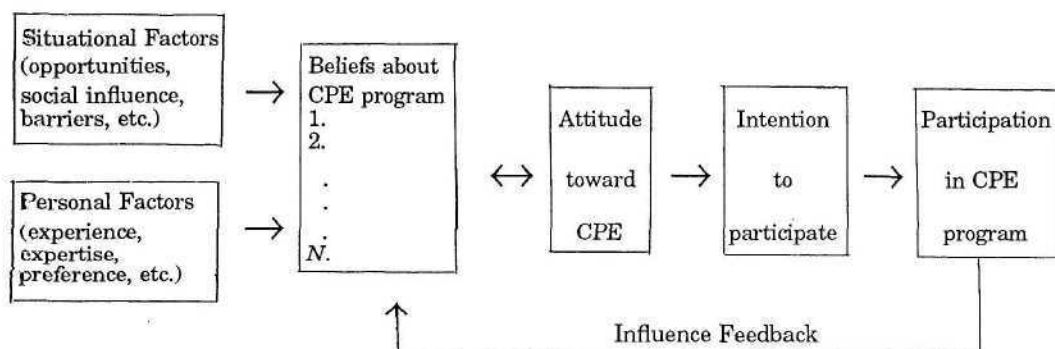


Figure 1. Conceptual framework of participation in CPE program. (Adapted from Fishbein & Ajzen, 1975, p. 15)

Attitude Towards Continuing Education

Fishbein and Ajzen's theoretical framework was first introduced to CPE by Grotelueschen and Caulley in 1977. Several empirical studies have been conducted since then (Pryor, 1990; Ray, 1981; Southern, 1980; Waldon, 1984;

Yang, Blunt, & Butler, 1994). Recent reports indicate that professionals' participation in CPE is explained by intention which is largely determined by attitude, confirming that attitude is central to understanding participation in CPE. However, all of the above studies treated attitude as a unidimensional concept. No attempt has been made to explore the nature of attitude structure toward CPE. In other words, the current research fails to address how the information on a CPE program influences perceptions of the program and the formation of attitude structure.

It has been well recognized that attitude is one of the most influential variables related to participation in adult and continuing education (Cookson, 1986; Cross, 1981; Darkenwald & Merriam, 1982). Empirical studies that examine the relationship between attitude and participation in continuing education can be traced back to early studies such as London (1963). Early studies treated attitude as a unidimensional construct and the findings on the strength of the relationship between attitude and educational participation were mixed (Adolph & Whaley, 1967; London, 1963; Seaman & Schroeder, 1970). These studies defined attitude towards continuing education as an individual's internal state along a continuum of favorable to unfavorable. More recent studies found that attitude toward continuing education was a multidimensional construct when adequate instruments and analysis techniques were employed (Blunt, 1983; Darkenwald, 1989; Darkenwald & Hayes, 1988; Hayes & Darkenwald, 1990). Hayes and Darkenwald (1990) reported a factor analysis investigation which identified three dimensions of attitude toward adult education: (a) enjoyment of learning, (b) importance of adult education, and (c) intrinsic value of adult education. Using a British sample with the same instrument, Darkenwald (1989) had previously found similar dimensions: (a) enjoyment of educational activity, (b) benefit of adult education, and (c) intrinsic value of adult education. It was therefore concluded that the unidimensional notion of attitude should be replaced by a more adequate multidimensional conceptualization.

As has been mentioned above, studies on CPE have treated attitude as a unidimensional construct while empirical findings from general adult and continuing education support a multidimensional conceptualization. Early findings of a weak relationship between attitude and participation might have been caused by an inadequate unidimensional conceptualization of attitude. Nevertheless, insufficient research has been conducted to determine whether a multidimensional structure of attitude toward continuing education is congruent with the structure of attitude towards an organized CPE program. It now appears to be urgent that a reliable and valid scale be developed to measure professionals' attitude towards CPE programs and that an adequate explanation of the participation decision process be confirmed.

Purpose of the Study

The purpose of this study was to delineate and describe the structure of professionals' attitude towards a CPE program. The primary objective was to explore the factor structure of attitude associated with an organized CPE program and secondarily, to investigate the relationship between identified attitude structure and participation in the CPE program. An exploratory factor analysis technique was used to probe the following research questions:

1. What are the principal beliefs held by professionals with regard to an organized CPE program?
2. How is attitude towards a CPE program constructed in terms of major beliefs concerning the program?
3. How is participation behavior in a CPE program influenced by attitude towards the program?

Method

Sample and Data Collection

The study population consisted of all registered members of the Alberta Veterinary Medical Association (AVMA) who were identified as practicing veterinarians. The study was designed to be a prospective investigation of veterinary practitioners' attitude towards an organized CPE program, the AVMA annual conference. There are no mandatory CPE requirements for veterinarians in Alberta and participation in the program is entirely voluntary. The conference is the most comprehensive organized CPE program provided by the association for its members and covers a wide range of topics. The major theme each year focuses on recent advances in selected topics and thus the program is a typical update model of CPE.

Mailed questionnaires were used to assess professionals' attitude towards the CPE program. Responses from 323 subjects (63%) were obtained between 2 weeks and 1 month prior to the 1992 AVMA annual conference. Bias estimation procedures indicated that the demographics of the sample provided a satisfactory match to the total population with the exception that females were slightly over represented among the respondents. Subjects' participation behaviors in 1992 and 1993 conferences were subsequently obtained by checking the conference registration lists. Sociodemographic information about the respondents was collected along with the scale data.

Instrument

Following Fishbein and Ajzen's (1975) conceptualization, attitude was defined as salient beliefs about the major outcomes of participating in the CPE program. A survey instrument was developed in several stages. First, a preliminary instrument was constructed based on a review of related empirical studies. Items in the instrument were constructed so as to include professionals' major beliefs

with regard to participation in organized education programs. Second, a panel evaluated the initial questionnaire, focusing on the factors affecting the participation. The panel consisted of two professors and one continuing education graduate student. Third, pilot testing of the instrument was conducted with 16 veterinarians. The subjects of the pilot test were also interviewed after they had completed the instrument. Data from the completed instruments and interviews were coded and reviewed. Revisions to the instrument were made to enhance clarity and validity.

The attitude scale was constructed using an expectancy-value scale suggested by Fishbein and Ajzen (1975). A total of 12 salient beliefs were included which reflected major information associated with the CPE program. The expectancy-value score of attitude was assessed as a product of the likelihood that specific consequences might occur if the professionals participated in the program and the subjective evaluation of these consequences was made on 7 point Likert type scales. The following example demonstrates how one of the beliefs concerning the CPE was assessed:

Participation in the AVMA annual conference will allow me to share ideas with peers:

How likely is it to happen?
 extremely unlikely 1 2 3 4 5 6 7 extremely likely

How important is it to you?
 unimportant 1 2 3 4 5 6 7 very important

Reliability of the attitude measure, as a reflection of the internal consistency of items in the scale, was assessed by Cronbach's coefficient alpha (α). An acceptable reliability coefficient of 0.85 was obtained for the 12 item scale. Internal validity of the attitude scale was estimated by content and criterion-related validity tests. A panel of three experts made up of a graduate student, a professor of continuing education, and a director and professor of a continuing veterinary education unit, evaluated the instrument for content validity. Evidence of criterion-related validity of the attitude measure was provided by the correlation between attitude scale and the number of times each respondent had participated in the AVMA annual conference during the past 5 years ($r = .14, p < .05$).

Data Analysis

Data from the survey was analyzed using several techniques. *First*, an exploratory factor analysis was performed to identify latent attitude constructs thought to underlie a set of manifest beliefs concerning the CPE program. Factor analysis is a technique used to discover a parsimonious pattern of underlying attitude structure associated with the CPE program. The second part of the analysis involved an assessment of the attitude scale. Correlation analysis was performed to assess the relationship between attitude constructs, intention to participate, and previous participation behavior. T-tests were used to examine the differences between participants and nonparticipants at the 1992 and 1993 annual CPE programs in terms of their attitude scores on multidimensional constructs.

Results

Attitude Structure

Exploratory factor analysis was conducted with a principal axis factoring method (Gorsuch, 1983) with factors being extracted on the basis of statistical properties and interpretation considerations. Both Kaiser criterion (eigenvalue greater than one) and the scree plot of eigenvalues suggested a three factor solution for the correlation matrix of the 12 items with multiple correlation coefficients on the diagonal as initial communality estimates. Two and four factor solutions yielded less meaningful factor structures. A final solution of three factors with varimax (orthogonal) rotation brought about the most meaningful and interpretable results (see Table 1). The cumulative variance accounted for by the three factor solution was 64%. Factor loadings indicate the strength of individual items in explaining the underlying factors. All items except item 12 loaded on one of the three factors at levels greater than 0.40. Item 12, "Participation in the CPE program will be easy for me because of its convenient location," failed to load significantly on any of the three factors extracted, although it approached the criterion level (the highest loading was 0.37). According to the meanings of the attitude scale items and the nature of the information provided by the CPE program, the three factors were labeled program relevance, benefit, and accessibility.

Factor 1: Program relevance. The first factor consisted of six items related to perception of the CPE program's relevance. All six items had high loadings on the factor, ranging from 0.77 to 0.86. Although the items differed from each other in terms of semantic meanings, they all reflect beliefs about the relevance of the program to professional practice. The factor of program relevance accounted for the largest proportion of the scale variance (36.2%).

Factor 2: Program benefit. The second factor consisted of three items reflecting a perceived benefit of participation in the CPE program and contributed 15.9% of the total variance. Two items, "Result in gaining more professional prestige" and "Allow me to share ideas with peers" appear to reflect an underlying belief about the personal prestige benefit provided by the program, and the item "Substantially improve my veterinary income" indicates an anticipated income benefit from the program. The item loadings were satisfactory, ranging from 0.66 to 0.80. The fact that these three items are related to one latent factor suggests that professionals' beliefs about CPE program direct benefit (income), indirect benefit (gain professional prestige), and their involvement in the program (share ideas with peers) are positively correlated.

Factor 3: Program accessibility. The third factor extracted from the analysis included two items representing information about the accessibility or lack of barriers to attending the program. Item 10 "Result in substantial expense" indicates the direct (registration fee and accommodation) and indirect (income loss in practice) costs of participation. Item 11 "Seriously conflict with my work schedule" reflects the appropriateness of the time when the program is offered.

Table 1

Attitude Scale Factor Loadings After Orthogonal Rotation

Items	Factor 1 Relevance	Factor 2 Benefit	Factor 3 Accessibility	Communalities H ²
1. Markedly improve quality of my professional service	.826	.200	-.067	.727
2. Learn a great deal of new professional knowledge	.837	.177	-.146	.753
3. Extremely relevant to my work	.833	.170	.053	.725
4. Provide me with practical information	.860	.151	-.003	.762
5. Meet my personal professional development priorities	.778	.265	-.084	.682
6. An opportunity to attend an excellent conference	.774	.303	-.066	.692
7. Result in me gaining more professional prestige	.160	.796	-.149	.681
8. Allow me to share ideas with peers	.277	.656	.093	.516
9. Substantially improve my professional income	.293	.714	-.129	.612
10. Result in substantial expense†	-.062	.034	.849	.725
11. Seriously conflict with my work schedule†	-.045	-.168	.787	.649
12. Easy for me to attend because of its convenient location	.372	.128	-.043	.156
Eigenvalue	4.35	1.90	1.43	—
Explained Variance	36.20%	15.90%	11.90%	64.00%

† Note. Items worded negatively were reverse coded prior to analysis, so that positive factor loadings for all items reflect a positive attitude.

These two beliefs were characterized as barriers to participation or the CPE program's perceived accessibility. Although the two items had satisfactory loadings of 0.79 and 0.85, the factor, which contributed 11.9% of the variance, is underdetermined as it consisted of only two items. Contrary to expectations, item 12 (belief about whether the program location is convenient or not) failed to load above 0.40 on factor of program accessibility. This item failed to load on either of the two other factors extracted and showed least communality (16%) among 12 items. This might be understood by noting that the CPE program's target population was distributed province-wide and the program was located in a central site, the largest city in the province. The program was relatively accessible in a desirable location and thus the factor of location was not important in this case. Clearly, more studies are needed to explore the effect of CPE program location on participation at the provincial level.

In view of the exploratory nature of this study, the factor analysis results provide a meaningful and parsimonious picture of the belief system associated with the CPE program. Three factors extracted in the study explain the items in the attitude scale. All items except one (i.e., item 12) have been accounted for reasonably well by three attitude constructs. Only 16% of the variance of item 12 was accounted for by the three factors extracted, while the remaining eleven items shared considerable communality that ranged from 0.52 to 0.76. The study found that beliefs related to a CPE program occurred as multidimensional dispositions. This finding is consistent with previous investigations of attitude toward continuing education (Blunt, 1983; Darkenwald & Hayes, 1988; Hayes & Darkenwald, 1990). A variety of information can be provided by program planners for their target participants, and professionals tend to hold a number of perceptions and beliefs based on such information. This study suggests that attitude towards a CPE program can be examined on the basis of three important dimensions:

1. How relevant is the program to my practice?
2. How much benefit can I obtain from the program?
3. Is the program readily accessible?

Nevertheless, care should be exercised in generalizing the attitude constructs revealed by this study. That there were too few items in factors two and three detracts from the generalizability of these two constructs at this time. Further research is needed to expand the number of items for factors two and three to the effect that benefit and accessibility become more reliable measures.

Attitude and Participation

To assess the validity of the attitude constructs, each of the three factors extracted and the total scale score were correlated with behavioral intention and previous participation. The correlation coefficients are reported in Table 2. Acceptable reliability coefficients were obtained for the attitude constructs (see Table 2). With only two items, the construct of program accessibility was least reliable (0.55) and had the lowest observed relationship with the criterion

variables. As previously stated, more reliable and valid items are needed to ensure a satisfactory measure of program accessibility.

Table 2

Reliability of Attitude Scales and Relation to Participation

	Reliability Coefficient (α)	Correlation Coefficient		
		Intention to Participate in '92	Intention to Participate in '93	Previous Participation
Program Relevance	.92	.48**	.34**	.12*
Program Benefit	.64	.25**	.20**	.12*
Program Accessibility	.55	.13*	.07	.05
Total Scale	.85	.53**	.36**	.14*

* $p < .05$, ** $p < .01$.

The validity of the attitude constructs was further assessed by examining differences in the characteristics of participants and nonparticipants. Table 3 presents the results of T-tests on attitude constructs in terms of the respondents' participation behavior in attending the AVMA 1992 and 1993 programs. A number of significant differences were observed between CPE participants and nonparticipants. Participants held more positive attitude scores than nonparticipants, indicating logical validity of the attitude constructs. Two constructs, program benefit and program accessibility, were found to be less durable in explaining participation and nonparticipation in the CPE program. This might have been due to the fact that substantive changes were made in terms of program organization and content for the 1993 program. Participants when compared to nonparticipants in the 1993 program even showed a negative (but not at the level of statistical significance) attitude on the scale of program accessibility as the conference site was changed. This was not a surprising finding because the 1993 program site and time had not been decided at the time when the attitudinal information was sought.

Table 3

Differences Between Participants and Non-participants on Attitude Scale Scores

Attitude Scale	1992 CPE Program			1993 CPE Program		
	Participants (n=105)	Non- Participants (n=210)	t	Participants (n=60)	Non- Participants (n=255)	t
Program Relevance						
M	180.42	128.45	8.36*	167.55	140.81	3.40**
SD	47.98	59.57		53.15	61.75	
Program Benefit						
M	58.39	44.55	4.92**	53.07	48.30	1.41
SD	23.50	24.43	23.49	25.25		
Program Accessibility						
M†	-40.72	-47.36	2.35*	-46.05	-44.92	-0.34
SD	23.17	25.16		22.62	25.18	
Total Scale						
M	230.72	149.34	9.73**	197.93	171.41	2.52*
SD	65.90	77.51		70.39	85.21	

† Note. Negative sign of means indicate negative items included in the scale.

* $p < .05$, ** $p < .01$, two-tailed.

Discussions and Implications

The above results indicate that the attitude scale developed in the study is a valid and reliable multidimensional measure of professionals' attitude towards the CPE program. The study confirms that the multidimensional structure of attitude offers a more meaningful understanding of professionals' perceptions about the information provided by CPE program planners than does a unidimensional conceptualization. The study findings suggest that professionals evaluate a CPE program along three relatively independent dimensions and their decisions regarding participation are significantly determined by their evaluations of information along those dimensions. Nevertheless, the study was limited by its exploratory nature and too few items being included in the attitude scale. Replication of the study is needed to investigate and verify the attitude structure, and studies are needed across professions and different types of CPE programs. A good attitude scale is essential if researchers are to assess attitude towards CPE programs and gain an understanding of the participation phenomena.

The study suggests several important dimensions for the organization of CPE programs. From the perspective of professionals as learners, participants and nonparticipants of an education program are significantly distinguishable in terms of their perceptions about the relevance, benefit, and accessibility of the program. Literature has emphasized the aspects of participant benefit and program relevance in planning and evaluating CPE programs (Grotelueschen, 1986). This study suggests program accessibility may be an important additional dimension that should be added into considerations on enhancing CPE program. Research has shown that deterrents influence participation (Darkenwald & Valentine, 1985; Scanlan & Darkenwald, 1984) and this study confirmed that program accessibility, or lack of barriers, tends to be one of the key factors to be taken into consideration by program planners.

The attitude structure identified in this study provides a simple and effective instrument for use in program planning, marketing, and evaluation. A significant difference was observed between participants and nonparticipants in terms of their attitude towards a CPE program with respect to the perceived relevance, benefit, and accessibility of the program. Several implications can be drawn from the results for continuing education practice. First, the study findings suggest that educational needs assessment should determine not only the direct learning outcomes, the knowledge and skills that are relevant to professional practice, but also the indirect benefits that CPE programs can bring about. Second, the study revealed that acquiring relevant professional information and obtaining potential benefits were the most important objectives identified by the professionals. Several beliefs associated with these two factors reflect professionals' concerns about CPE programs. Effective program objectives should incorporate the criteria of relevance and benefit. Third, the study findings have implications for formulating instructional plans. A high quality CPE program ought to clearly establish and communicate the *relevance* of the knowledge and skills to the learners during the instructional process. Fourth, the assessment of attitude towards CPE programs provides useful information for the development of strategies to provide target learners with messages that will encourage participation. One strategy is to design the program and promotional material to convince potential participants that the program content is highly relevant to their professional work. Conducting the program at an appropriate time and convenient site to facilitate access is another key point in the planning process, especially for those professionals who work in seasonal practices. Fifth, the study findings are valuable for providing a focus for program evaluation questions:

1. Are the program's intended outcomes highly related to practice priorities?
2. Is the program accessible for the majority of target participants?
3. Has the program resulted in beneficial outcomes for its participants and has their attitude towards CPE improved as a consequence of participation?

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