In this study, 230 licensed social workers participated in a cross-sectional survey to examine participants' self-perceived change in knowledge, attitude, and behavior (KAB) following formal and informal continuing professional education (CPE). Self-perceived change scores were significantly higher for informal than formal CPE. Higher motivational orientation toward professional knowledge was found to be a stronger predictor of self-perceived change in KAB following participation in formal and informal CPE. In addition, following formal CPE, greater age and increased expectation to apply learning predicted greater perceived change in KAB. Implications for social work education are discussed.
Even though there is little indication about the most effective types of CPE activities, licensing boards still sanction specific CPE activities over others (e.g., Maryland Board of Social Work Examiners, 2004).

**Continuing Professional Education**

CPE is intended to maintain and enhance professional skills and knowledge used in practice (Association of Social Work Boards, 2004). CPE is conceptualized as working on both individual and professional levels (Grol, 2002). On the individual level, CPE enables practitioners to maintain and improve their knowledge and competence and to adapt to changing roles and environments (Furze & Pearcey, 1999). On the professional level, CPE allows for the dissemination of current best practices and legitimizes the profession’s status and image in the public domain (Livneh & Livneh, 1999; McMichael, 2000). Salas and Cannon-Bowers (2001) stipulate that CPE is effective to the extent that knowledge, skills, and ability resulting from training is applied, generalized, and maintained subsequent to the conclusion of such activities.

Mandatory CPE is regulated in the majority of states as a means of obtaining continuing education unit (CEU) credits for maintaining licensure (Barton, Dietz, & Holloway, 2001). However, merely fulfilling CEU requirements is not a satisfactory outcome in itself if the goal is to improve practice (Daley, 2001). Researchers have commented that while CPE may result in learning (Davenport & Wodarski, 1989; Waddell, 1991) it does not necessarily mean that new knowledge is integrated into practice behavior (e.g., Clarke, 2001; Furze & Pearcey, 1999; Gregoire, Propp, & Poertner, 1998; Ottoson, 1997).

Furthermore, the predominantly formal learning activities that state licensing boards sanction for CEU’s (e.g., workshops, inservice trainings, conferences) are not always those which social workers cite as sources for practice behaviors (Howard, McMillen, & Pollio, 2003; Rosen, Proctor, Morrow-Howell, & Staudt, 1995). Similarly, physicians report informal sources of learning as having a more pronounced impact on change in practice behavior (Jette et al., 2003).

Cervero (2003), in a review of hundreds of continuing medical education studies, concludes that changes in practice behavior occur under some, but not all conditions. Personal factors, such as motivation, age, and years of work experience, have been identified as influencing the likelihood of change as a result of CPE. Furthermore, prior research indicates that those who are motivated to learn and grow professionally are more likely to change their practice behavior (e.g., Axtell & Maitlis, 1997; Barriball & While, 1996; Mathieu, Tannenbaum, & Salas, 1992).

While research from other fields provides a starting point and some insight into the CPE experience, motivations differ across disciplines for participation and the way in which professionals make knowledge meaningful (Daley, 2001; Gordon, Olson, & Hamsher, 1993). Research explicitly examining social workers’ application of CPE is warranted. To date, studies of CPE in social work have focused primarily on whether learning has occurred, typically measured immediately at the conclusion of or shortly after the training (Clarke, 2001; Furze & Pearcey, 1999). A more
critical question is whether continuing education manifests itself as a change in practice upon return to the work setting (Clarke, 2002; Daley, 2001; Hogston, 1995; McConnell, 2002).

In addition, personal characteristics such as age and work status have been associated with participation in CPE. As either age increases or amount of work experience decreases, participation in CPE activities decreases (Barriball & While, 1996; Urbano, Jahns, & Urbano, 1988). Boshier and Collins (1983) noted that motivational orientations toward CPE change as a function of age, with older individuals more likely to report learning for its own sake.

**Theoretical Considerations**

Cividin and Ottoson (1997) developed the application process framework (APF) model to illustrate the complex process linking participation in CPE with application of information learned to work-related settings. The APF model is consistent with transfer of training and adult learning theories (Cividin & Ottoson, 1997; Ottoson, 1997; Salas & Cannon-Bowers, 2001). The model stipulates that application involves multiple factors, including predisposing, enabling, and reinforcing factors.

Predisposing factors are conceptualized as individual characteristics of the CPE participant, with the foremost being motivational orientations (Ottoson, 1997). Consistent with the findings of Fox and Bennett (1998), the APF model suggests that high levels of motivation can overcome many environmental barriers toward application of material conveyed in CPE.

Enabling and reinforcing factors are associated with forces external to the individual, and represent both barriers and supports. Enabling factors are “characteristics of the context of application, e.g., resources, authority to act, and opportunity” (Ottoson, 1997). Prior studies have identified financial constraints, lack of time, and restrictions on subsequent implementation as significant perceived barriers (e.g., Furze & Pearsey, 1999; Parochka & Paprockas, 2001). Reinforcing factors represent positive or negative expectations and supports for post-training application. Lack of peer support for new innovations, and resistance from agencies have been cited as significant barriers in continuing education (Furze & Pearsey; Parochka & Paprockas). Such external factors have been cited as influencing both participation in CPE and application of information learned. Nolan, Owens, and Nolan (1995) concluded, “change is easier to implement when the practitioner is highly motivated, the environmental infrastructure is supportive and the change initiative is widely accepted as relevant” (p. 556).

**Purpose and Research Questions**

While a considerable amount of research related to continuing professional education exists in other professions, there is little known about whether social workers’ participation in continuing professional education actually results in a change in professional knowledge, attitude, or behavior. Given the cost of training and the potential negative impact failure to maintain one’s practice skills could have on clients, it is important to be aware of the most effective types of CPE activities and the circumstances that influence their effectiveness.

The purpose of this article is to examine what CPE activities result in perceived change
in professional knowledge, attitudes, and behaviors (KAB), and to explore the relationships among various individual and environmental factors affecting the application of learning to the work setting. The study seeks to contribute to knowledge development along several avenues. First, the study focuses on CPE among social workers, a population on which relatively little research has been done compared to other professionals. Second, it explores factors related to application of CPE learning. Third, it provides greater understanding of factors associated with application of CPE training in practice settings which can be used by educators and policymakers to guide several efforts, including: developing educational programs that increase the likelihood of integration of new knowledge into the profession, promoting and marketing CPE to appeal to practitioners, establishing meaningful CEU requirements that reflect the needs of individuals and the profession, and creating work environments that facilitate the application of new learning (Boshier & Collins, 1983; Fujita-Starck, 1996).

**Research Questions**

This study seeks to add to the understanding of factors associated with perceived change in knowledge, attitude, and behaviors (KAB) among licensed social workers participating in CPE. The APF model is used as a framework to examine the influence of predisposing factors (i.e., motivational orientations, age, licensure level), and environmental variables such as enabling (i.e., access, resources, opportunity) and reinforcing (i.e., expectations, support) factors on perceived change in KAB (see Figure 1 for the adapted APF model used in this study).

**Method**

**Study Design**

The study, which received an Institutional Review Board exemption prior to data collection, was a single cross-sectional survey using a mailed questionnaire. The survey instrument contained 67 closed-ended questions, with four items allowing for open-ended elaborations (i.e., “other, please specify”).

**Sample and Procedures**

The sampling frame consisted of 10,997 licensed social workers in Maryland with complete address information, as maintained by the state’s Board of Social Work Examiners, effective September 2003. A probability sample of 577 was drawn to produce the mailing list. Among individuals who were mailed surveys, 89.4% (n=516) resided in the state, with an additional 10.6% (n=61) listed as residing in other states and jurisdictions. Two hundred and thirty (230) completed surveys were returned, for a response rate was 41.9% (28 of the original 577 surveys were returned or were not eligible resulting in a maximum possible sample of 549).

**Measures and Predisposing Factors**

**Motivational factors.** Motivational orientation was operationalized using the Education Participation Scale—Modified (EPS-M) instrument (O’Connor, 1979, 1982). Boshier (1971) initially developed the EPS scale to evaluate different dimensions of motivation for participating in adult continuing education.
Ottoson (1997) cited Boshier's conceptual work with the EPS instrument in developing the APF model. Versions of the EPS instrument have continued to be used in studies examining CPE (e.g., Garst & Ried, 1999). The EPS-M is made up of 56 questions on a 10-point Likert-type scale with five anchors (0=no influence, 3=little influence, 5=moderate influence, 7=much influence, 9=very much influence). The scale does not yield an overall

FIGURE 1. Theoretical Model Showing the Relationships Among the Factors Related to Application of CPE to Practical Work Settings

Predisposing Factors
- Motivational orientations
- Age
- Licensure Level

Environmental Factors
- Access
- Resources
- Opportunity

Reinforcing Factors
- Expectations
- Support

Application
- Perceived change in KAB

Note. CPE=Continuing Professional Education. Model adapted from the Application Process Framework of Cividin & Ottoson (1997).
score, but provides a mean score on each of six subscales. The six subscales reported by O'Connor with Cronbach's alphas in parentheses are: improvement in social relations (.84), professional knowledge (.83), compliance with authority (.76), relief from routine (.82), professional advancement (.79), and improvement in social welfare skills (.80). Confirmatory factor analysis indicated evidence of construct validity of the EPS-M in a sample of social workers (Dia, Smith, Cohen-Callow, & Bliss, 2004). Dia et al. (2004) also indicated evidence for reliability in the EPS-M. Respondents were instructed to respond only to the EPS-M items if they had participated in one or more CPE activities in calendar year 2003.

**Demographic factors.** Individual-level variables conceptually related to the APF model included in this study were age and level of licensure. Licensure levels in the state examined were: Licensed social work associate (LSWA), licensed graduate social worker (LGSW), licensed certified social worker (LCSW), and licensed certified social worker-clinical (LCSW-C). LSWA requires a BSW degree, whereas all other licensure levels require at least an MSW degree. The LCSW and LCSW-C both require 2 years of supervised post-MSW experience; they were combined into a single category for the purpose of analysis because they represent practitioners with both advanced education and work experience.

**Environmental factors.** Environmental factors were operationalized on the basis of the APF model into two sub-factors: enabling and reinforcing factors (Cividin & Ottoson, 1997; Ottoson, 1997). Questions were developed to measure these constructs by the research team for this study. The survey asked respondents to provide "yes" or "no" answers to three questions pertaining to enabling factors (i.e., access to CPE, resources to attend CPE, and opportunity to apply CPE learning), and two questions regarding reinforcing factors (i.e., expectations to apply CPE learning and support to apply CPE learning). Content validation was used in determining inclusion of new items.

**Application of Learning**

Because of variability across states in what is included as CPE, this study used a broad definition encompassing six types of activities either approved by the Board of Social Work Examiners in the state in which the study was conducted or cited in recent research: workshops, in-service trainings, academic courses, supervision/mentoring, peer consultation, and reading books/journals (e.g., Bergmark & Lundstrom, 2002; Fox & Bennett, 1998). Inservice training, while often more narrow and specific in focus than other types of CPE, was included because it is an approved CPE activity in the state in which this study was conducted.

Application was operationalized as perceived change in knowledge, attitude, and behavior (KAB) as a result of participation in the CPE activity. KAB, as a set of related domains relevant to CPE, was used in prior studies of application of evidence in practice (Jette et al., 2003). In prior studies, knowledge and attitudes have been identified as important dimensions of practitioner learning.
(Marsh, 2002), while behavior has been conceptualized as a related but unique aspect of practice competence and effectiveness (Daley, 2001; Howard et al., 2003). Use of subjective appraisal of change as an outcome measurement of KAB, while sub-optimal, was consistent with the methodology employed by Gregoire et al. (1998).

The six questions relating to perceived change attributable to various types of CPE were collapsed into two groups: change following formal CPE activities and change following informal CPE activities (Marsick & Watkins, 2001). Formal change activities are those that are institutionally sponsored, classroom based, or highly structured (Marsick & Watkins). Hence, workshops, in-service training, and academic courses were collapsed into a single variable of formal CPE by computing the mean across questions related to these activities. Informal activities are those that are less structured, self-directed, and involve networking, coaching, and mentoring (Marsick & Watkins). Therefore, peer consultation, supervision, and the reading of books and journals were collapsed into a single variable of informal CPE by computing the mean across questions related to these activities.

**Data Analysis**

Means, standard deviations, and frequency counts were used to describe characteristics of the respondent population, and to explore the types of CPE social workers perceived as having the greatest impact on their social work practice. Multiple linear regression, using SPSS 12.0 for Windows®, was used to examine which factors are predictive of greatest perceived change. Percentages for all variables were computed as valid percentages with missing data excluded. Hence the denominator varies based on the pattern of missing data for each variable.

**Results**

**Characteristics of Respondents**

Respondents, on average, were 45 years old (SD=11.8), and had received their initial social work degree 17.7 years ago (SD=10.2). Demographically, 85.6% (n=197) were female, 83.0% (n=191) Caucasian/White, 13.9% (n=32) African American, 1.3% (n=3) Asian/Pacific Islander, and .9% (n=2) Hispanic/Latino.

By licensure level, 76.0% (n=174) of respondents were licensed certified social workers (LCSW or LCSW-C), 16.6% (n=38) were licensed graduate social workers (LGSW), and 7.4% (n=17) were licensed social work associates (LSWA). The most common area of social work practice identified by respondents was “mental health” with 54.6% (n=125) checking that option. The next highest practice areas were “administration” (24.9%, n=57), child welfare (20.5%, n=47), medical (20.5%, n=47), and aging (13.5%, n=31). In terms of employment status, 63.3% (n=145) indicated working full-time in social work, 25.8% (n=59) were working part-time in social work, and 10.9% (n=25) were not currently employed in the social work profession.

**Perceived Change in Knowledge, Attitude, and Behavior**

Consistent with mandatory continuing education requirements, 98.3% (n=226) of respondents indicated participating in one or more
types of CPE in the prior calendar year. The types of CPE that respondents most frequently indicated engaging in during the prior year were workshops, consultation with peers, reading journals or books, and in-service trainings (see Table 1 for participation rates and perceived change in KAB for each type of CPE). Paired-sample \( t \) tests, after Bonferroni correction to control the overall Type I error rate (Stevens, 2002), indicated that perceived change for in-service training was significantly lower than perceived change related to workshops \( (t=-4.77, p<.005) \), supervision/mentoring \( (t=-4.40, p<.005) \), and consultation with peers \( (t=4.14, p<.005) \). In-service was not significantly different from reading professional journals and books \( (t=1.94, p=.055) \). Statistically significant differences with academic courses could not be evaluated because of the small number of respondents who indicated engaging in that activity. All other CPE activities were not statistically different from each other.

For formal CPE activities, 215 of the respondents indicated perceived change in one or more of the three associated activities, with a mean of 5.11 \((SD=1.45)\) on a 10-point Likert-type scale. For informal CPE activities, 192 of the respondents indicated perceived change in one or more of the associated activities, with a mean of 5.38 \((SD=1.55)\). Paired-sample \( t \) test on the 191 respondents for whom both formal and informal perceived change scores were available indicated that perceived change following informal CPE was significantly higher than perceived change following formal CPE \( (t=-2.44, p=.016, 95\% CI=-.430 \text{ to } -.045) \).

### Environmental Influences on Application of Learning

Cividin and Ottoson (1997) identified enabling and reinforcing factors as influencing application of CPE information in the work setting. Valid percentages of respondents answering affirmatively to enabling factors were: access \( (81.9\%, \ n=177) \), resources \( (66.5\%, \ n=145) \), and opportunity for application \( (81.7\%, \ n=178) \). Overall, 91.9\% \( (n=205) \) indicated one or more enabling factors, and 59.2\% indicated one or more reinforcing factors. The three most mentioned enabling factors were: access \( (81.9\%) \), resources \( (66.5\%) \), and opportunity for application \( (81.7\%) \).

### Table 1. Mean Perceived Change in Knowledge, Attitude, and Behavior (KAB), Along With Participation Rates for Six Forms of CPE (\( N=230 \))

<table>
<thead>
<tr>
<th>Activity</th>
<th>Perceived Change in KAB</th>
<th>Participation Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( M )</td>
<td>( SD )</td>
</tr>
<tr>
<td>Workshops</td>
<td>5.35</td>
<td>1.54</td>
</tr>
<tr>
<td>Peer consultation</td>
<td>5.44</td>
<td>1.82</td>
</tr>
<tr>
<td>Reading books/journals</td>
<td>5.22</td>
<td>1.83</td>
</tr>
<tr>
<td>In-service training</td>
<td>4.72</td>
<td>1.92</td>
</tr>
<tr>
<td>Supervision/mentoring</td>
<td>5.86</td>
<td>1.92</td>
</tr>
<tr>
<td>Academic courses</td>
<td>5.39</td>
<td>2.73</td>
</tr>
</tbody>
</table>

*Note.* CPE=Continuing Professional Education.
(n=132) answered affirmatively to all enabling factors. Affirmative responses to reinforcing factors were: expectation to apply learning (52.4%, n=110), and support for applying learning (52.7%, n=109). Overall, 65.7% (n=134) indicated one or more reinforcing factors, and 37.7% (n=77) answered affirmatively to both reinforcing factors.

Motivational Influences on Application

The EPS-M instrument, which has six subscales, was used to operationalize predisposing factors that correspond to motivational influences related to continuing education (Boshier, 1971). EPS-M subscales used the same metric as the original questions, which was a 10-point Likert-type scale ranging from "0=no influence" to "9=very much influence." Internal consistency reliability using Cronbach's alpha was considered adequate at .70 or greater for all subscales (Schafer & Graham, 2002). Table 2 lists the means and standard deviations for each of the six subscales calculated using the scoring criteria in O'Connor (1982). Findings were consistent with prior utilization of the EPS-M (O'Connor, 1982; Thomas, 1986), in which "professional knowledge" was the primary motivation, and "relief from routine" was the lowest rated motivational factor.

Factors Influencing Application

Change resulting from formal CPE. Perceived change resulting from formal CPE activities was evaluated for the collapsed construct of formal CPE (Marsick & Watkins, 2001). Simultaneous multiple linear regression was used with six motivational factors, two demographic factors, and five environmental factors entered on a single step. Assumptions for multiple regression were met for all analyses. Results of the model are presented in Table 3.

The model examining the formal change construct was statistically significant, F(13, 172)=6.339, p<.0005, and accounted for 32.4% of the variance in perceived change. Greater age, increasing expectation to apply learning, and higher motivational orientations toward professional advancement and professional

<table>
<thead>
<tr>
<th>EPS-M Subscale</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional knowledge</td>
<td>6.45</td>
<td>1.59</td>
</tr>
<tr>
<td>Social welfare skills</td>
<td>3.55</td>
<td>2.21</td>
</tr>
<tr>
<td>Compliance with authority</td>
<td>2.63</td>
<td>1.74</td>
</tr>
<tr>
<td>Professional advancement</td>
<td>2.38</td>
<td>1.69</td>
</tr>
<tr>
<td>Social relations</td>
<td>1.37</td>
<td>1.29</td>
</tr>
<tr>
<td>Relief from routine</td>
<td>1.30</td>
<td>1.46</td>
</tr>
</tbody>
</table>

Note. EPS-M=Education Participation Scale—Modified. Subscales are on a 10-point scale, 0="no influence" to 9="very much influence."
knowledge were all related to greater perceived change in KAB.

Change resulting from informal CPE. Perceived change resulting from informal CPE activities was evaluated for the collapsed construct of informal CPE (Marsick & Watkins, 2001). Simultaneous multiple linear regression was used with six motivational factors, two demographic factors, and five environmental factors entered on a single step. Assumptions for multiple regression were met for all analyses. Results of the final model are presented in Table 4.

The model examining the informal change construct was statistically significant, $F(13, 150)=3.180, p<.0005$, and accounted for 21.6% of the variance. The only variable significant in the model was motivational orientation toward professional knowledge. Higher motivational orientation toward professional knowledge was associated with greater perceived change in KAB.

**Discussion**

The overall impact of any given form of CPE is a product of participation and application. The findings of this study suggest that the primary difference in impact among the forms of CPE examined was the result of participation rates and not self-perceived application. Whereas perceived change in KAB did not substantially differ between the different types of CPE, the rates of participation differed by more than a factor of 10 (e.g., 97.0%

### TABLE 3. Factors Associated With Perceived Change in KAB Following Formal CPE (N=186)

<table>
<thead>
<tr>
<th>Factor</th>
<th>$\beta$</th>
<th>$p$</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>2.135</td>
<td>0.0005</td>
<td>0.966, 3.304</td>
</tr>
<tr>
<td>Age</td>
<td>0.021</td>
<td>0.024</td>
<td>0.003, 0.039</td>
</tr>
<tr>
<td>Licensure level</td>
<td>0.124</td>
<td>0.598</td>
<td>-0.339, 0.587</td>
</tr>
<tr>
<td>Expectation</td>
<td>0.540</td>
<td>0.013</td>
<td>0.114, 0.967</td>
</tr>
<tr>
<td>Opportunity</td>
<td>-0.139</td>
<td>0.616</td>
<td>-0.686, 0.408</td>
</tr>
<tr>
<td>Support</td>
<td>0.113</td>
<td>0.618</td>
<td>-0.335, 0.561</td>
</tr>
<tr>
<td>Access</td>
<td>0.363</td>
<td>0.231</td>
<td>-0.234, 0.96</td>
</tr>
<tr>
<td>Resources</td>
<td>-0.369</td>
<td>0.134</td>
<td>-0.853, 0.115</td>
</tr>
<tr>
<td>Compliance with authority</td>
<td>-0.055</td>
<td>0.379</td>
<td>-0.180, 0.069</td>
</tr>
<tr>
<td>Professional advancement</td>
<td>0.332</td>
<td>0.0005</td>
<td>0.178, 0.486</td>
</tr>
<tr>
<td>Professional knowledge</td>
<td>0.143</td>
<td>0.040</td>
<td>0.007, 0.280</td>
</tr>
<tr>
<td>Relief from routine</td>
<td>-0.130</td>
<td>0.116</td>
<td>-0.293, 0.032</td>
</tr>
<tr>
<td>Social welfare skills</td>
<td>0.097</td>
<td>0.070</td>
<td>-0.008, 0.201</td>
</tr>
<tr>
<td>Social relations</td>
<td>-0.035</td>
<td>0.770</td>
<td>-0.270, 0.201</td>
</tr>
</tbody>
</table>

**Note.** KAB=Knowledge, Attitude, and Behavior. CPE=Continuing Professional Education. $F(13, 172)=6.339, p<.0005, R^2=.324.$
workshops versus 7.8% academic courses). Consequently, the impact of some forms of CPE, such as academic courses, is marginalized because of the relatively small minority of individuals engaging in those activities.

An intriguing finding was the lower perceived value accredited to in-service trainings. This low rating is consistent with prior studies that found that social workers viewed in-service training as focused on the needs of the organization and not their own personal learning needs (Furze & Pearcey, 1999). Given the high participation rate for in-service trainings and the cost to agencies, it would be beneficial for future studies to examine methods by which in-service trainings can be shaped to better address the needs of practitioners (Clarke, 2001).

The finding that perceived change resulting from informal CPE was significantly higher than formal CPE is notable given the context that informal CPE (i.e., supervision, peer consultation, reading books/journals) is largely unregulated or monitored by state licensing boards. Given the assumption that CPE is a tool to maintain and enhance professional knowledge (e.g., Grol, 2002), it is of concern that respondents in this survey reported more application of knowledge from sources that are unregulated, with no assurances that such knowledge is conveying accurate and up-to-date information.

An interesting finding is that 73.5% of respondents indicate having read journals or books in the prior year as part of continuing

**TABLE 4. Factors Associated With Perceived Change in KAB Following Informal CPE (N=164)**

<table>
<thead>
<tr>
<th>Factor</th>
<th>β</th>
<th>p</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.926</td>
<td>0.0005</td>
<td>2.462, 5.39</td>
</tr>
<tr>
<td>Age</td>
<td>-0.001</td>
<td>0.927</td>
<td>-0.022, 0.020</td>
</tr>
<tr>
<td>Licensure level</td>
<td>-0.419</td>
<td>0.146</td>
<td>-0.985, 0.147</td>
</tr>
<tr>
<td>Expectation</td>
<td>-0.208</td>
<td>0.429</td>
<td>-0.725, 0.309</td>
</tr>
<tr>
<td>Opportunity</td>
<td>0.242</td>
<td>0.482</td>
<td>-0.436, 0.919</td>
</tr>
<tr>
<td>Support</td>
<td>0.426</td>
<td>0.123</td>
<td>-0.116, 0.967</td>
</tr>
<tr>
<td>Access</td>
<td>-0.363</td>
<td>0.331</td>
<td>-1.098, 0.372</td>
</tr>
<tr>
<td>Resources</td>
<td>0.202</td>
<td>0.506</td>
<td>-0.397, 0.801</td>
</tr>
<tr>
<td>Compliance with authority</td>
<td>-0.098</td>
<td>0.188</td>
<td>-0.245, 0.049</td>
</tr>
<tr>
<td>Professional advancement</td>
<td>0.106</td>
<td>0.257</td>
<td>-0.078, 0.291</td>
</tr>
<tr>
<td>Professional knowledge</td>
<td>0.199</td>
<td>0.024</td>
<td>0.027, 0.372</td>
</tr>
<tr>
<td>Relief from routine</td>
<td>-0.121</td>
<td>0.247</td>
<td>-0.326, 0.085</td>
</tr>
<tr>
<td>Social welfare skills</td>
<td>0.081</td>
<td>0.194</td>
<td>-0.042, 0.205</td>
</tr>
<tr>
<td>Social relations</td>
<td>0.199</td>
<td>0.163</td>
<td>-0.082, 0.480</td>
</tr>
</tbody>
</table>

*Note. KAB=Knowledge, Attitude, and Behavior. CPE=Continuing Professional Education. F(13, 150)=3.180, p<.0005, R²=.216.*
education. This finding is consistent with Bergmark and Lundstrom's (2002) finding that 77% (N=318) of a sample of Swedish social workers read professional literature at least once in the prior year. These results are in apparent contrast to Rosen et al. (1995) who stated that social work practitioners are "found to read research literature minimally" (p. 502). While this study did not explore the issue in depth, Bergmark and Lundstrom's findings indicated that social work professionals concentrated on reading non-refereed books and a generic social work journal that was received as part of membership in Sweden's national social work organization.

Influences on Application of CPE Learning in Work Setting

The regression analysis findings are consistent with prior studies that have identified motivation to change as a principle factor in application of learning related to CPE (e.g., Ottoson, 1997). In particular, motivational orientations related to intrinsic motivations such as professional knowledge and professional advancement (Garst & Ried, 1999) were significant. This finding suggests that efforts to enhance application of new knowledge into practice would benefit most from direct appeals to these motivational orientations. Expectation to apply learning from formal CPE was also significant, suggesting that more explicit environmental influences should be emphasized, rather than implicit influences (e.g., support and opportunity).

Informal CPE activities have a different set of factors related to application, implying a different underlying mechanism influencing application. Factors, such as expectations, supports, licensure level, and resources were unrelated to application of informal CPE after controlling for motivational orientations. Even among motivational orientations, only the motivational orientation toward professional knowledge was significantly related to perceived change following informal CPE. The data suggest that informal CPE, which was not regulated or explicitly encouraged by the licensing board in the state examined, occurs as a manifestation of social workers' innate desire to advance their own practice.

Limitations

The modest response rate in this study may limit the ability to generalize findings to other social workers, although demographic characteristics of respondents are similar to those of social workers nationally. In addition, while the response rate was lower than two studies that used the same EPS-M instrument with populations of licensed nurses (e.g., O'Connor, 1982, 68% response rate, and Thomas, 1986, 54% response rate), it was comparable to the 44% response rate obtained by Barnette-Queen (2001). The lengthy recall period of the survey (i.e., calendar year 2003) might also have contributed to total survey error through recall error or telescoping (Aday, 1996; Sudman & Bradburn, 1982).

Another limitation is that this study examined perceived change due to CPE. Clarke (2001) and Furze and Pearcey (1999) have called for more objective outcome evaluations of whether change has occurred. Furze and Pearcey also caution that change alone is not necessarily an indicator of success.
Especially in the case of informal CPE, where there are no controls to ensure that information being exchanged is based on systematic evidence, change might involve application of a non-effective or even a harmful practice intervention.

**Strengths**

This study benefited from a theoretical orientation, and an established scale with good psychometric properties in relation to reliability and validity. Given the lack of prior research that has addressed the issue of application of learning as a result of social workers' participation in CPE activities, this study represents a meaningful step toward filling a gap in the literature. The study also addressed both formal and informal types of CPE, and was able to present findings that suggest a different pattern of factors associated with application of learning.

**Implications for Social Work Education**

Continuing professional education is a meaningful tool to ensure life-long learning, and to enhance the efficacy of social work interventions (Cervero, 2003; Clarke, 2001; McMichael, 2000). Identification of factors related to the application of CPE in professional practice is critical for focusing attention and resources to efficiently disseminate and encourage current and best-practices knowledge in social work (Garst & Ried, 1999; Grol, 2002; Fujita-Starck, 1996). The findings of this study build on prior research indicating that both formal and informal CPE play important roles in professional development, and that individual motivational orientations, particularly those toward professional knowledge and professional advancement, play a primary role in application.

Results of this study indicate that change in KAB related to formal CPE is influenced by internal motivational orientations, along with active expectations on the part of agencies, distinct from more passive approaches such as providing time and resources. In line with the goal of enhancing practitioners' capacity to provide the best available services and interventions, several recommendations are offered. First, CPE providers may want to re-examine how they market and promote educational offerings and gear them toward motivational factors that practitioners deem meaningful to change. Second, CPE providers need to recognize that continuing education is a natural career long extension of the BSW/MSW curriculum, and content matter should be examined to make sure it complies with the National Association of Social Workers code of ethics and has sound empirical foundations. Third, agencies may want to consider incorporating practice-relevant CPE expectations into annual job performance evaluations instead of leaving it entirely to licensing board requirements.

Informal CPE, such as reading books and journals and on-going consultation with peers, are activities that the majority of social workers engage in, but which are not counted as CEU's by state licensing boards. Prior research indicates that informal CPE, such as personal communications with peers, often has the greatest impact on application for practicing physicians (Jette et al., 2003). Findings from this study were consistent with prior research, indicating both a high level of
participation in informal CPE and high perception of its role in influencing KAB. Multivariate analysis indicates that informal CPE may represent learning for its own sake. Given the impact and prevalence of informal CPE, the knowledgebase of social work practitioners can be significantly enhanced through utilization of this avenue. The focus should be to ensure that informal CPE transmits systematic and credible practice strategies rather than unsystematic personal experiences and other non-empirical methods that may not produce outcomes that maximize benefits for recipients of social work interventions (Howard et al., 2003). The development of mechanisms to recognize and regulate informal CPE through licensing requirements such as granting CEUs for consumption or mastery of knowledge that is in accordance with evidence-based standards, could contribute positively to the profession.

In light of the growing influence of the outcomes-measurement movement, it is important to explore the extent to which CPE can be a vehicle to successfully disseminate practice knowledge to post-degree practitioners that can lead to more effective interventions (Martin & Kettner, 1996; Postle et al., 2002). An important finding in this study was that practitioners place equal or higher value on informal CPE compared to formal CPE. This finding has at least two policy implications for social work educators. First, given that dissemination of knowledge is significantly achieved via informal mechanisms, social work educators and licensing boards should be alerted to the importance of monitoring the nature and content of informal CPE. Second, given that research indicates that formal CPE is modified and altered by experiences in the practice setting, and by the influence of supervisors and peers (Gregoire et al., 1998; Macauley & Cree, 1999; Salas & Cannon-Bowers, 2001), it is critical that social work educators seek greater inclusion of supervisors and field instructors in the CPE process.

The findings of this study support the APF model in suggesting that both environmental and predisposing factors influence application of learning. This study noted that the most important environmental factor influencing perceived application of CPE was the expectation to apply the new learning. Given this finding it suggests that agencies, supervisors, and educators should consider incorporating explicit expectations to apply new learning as part of both job descriptions and CPE instruction.

Finally, motivational orientation (i.e., predisposing factor), particularly motivation toward professional knowledge and advancement, was significantly related to perceived change in KAB following formal and informal CPE. The marketing of CPE courses toward post-degree practitioners may benefit from direct appeals to their motivational orientations for knowledge and professional advancement. Addressing motivational factors as part of the CPE process could help engage participants more fully in the activity itself, which in turn could lead to both greater learning and enhanced application.

**Future Research**

To address the needs of practitioners and educators in a social environment that increasingly demands evidence of effectiveness, the following recommendations are offered as part of
a potential research agenda. Studies that narrowly focus on a specific CPE activity or type could provide more insight than a broad brush approach that examines a wide variety of CPE activities. In particular, research designs that incorporate a longitudinal element allowing for examination of actual application of learning (as opposed to perceived application) at intervals six months or more removed from the educational episode would be beneficial in several ways: (1) it is important to attempt to measure actual change in KAB, as opposed to perceived change; (2) as illustrated in the APF model, it is important to distinguish between learning, which may occur at the time of the CPE activity, and application of learning, which occurs after return to the practice setting; and (3) longitudinal studies would allow for an examination of whether change produced by CPE is transitory or persists after returning to the work setting.

References


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