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ABSTRACT

This study extends the investigation of professionals' reasons for participation in continuing education beyond personal and practice-based factors into the arena of organizational structure and culture. The Participation Reasons Scale (PRS) and the Respondent Information Form (RIF) were used to examine the motives influencing Army Engineers (N=400) participation in voluntary, civilian continuing professional education (CPE). The study examined three questions: the subjects reasons for participating in voluntary continuing education; the extent to which these reasons differ according to selected personal and practice-based factors that have been the focus of previous research; and the influence of organizational factors on these reasons. Factor analysis identified five general reasons for participation similar to those in other professions: professional improvement and development, personal development and job security, improvement of service to customers, professional identity/perspective, and competence and collegial interaction. However, contrary to previous research, variables measuring educational preparation, roles, occupational specialization, and extraneous variables were not related to the engineers' reasons for participation. Subsequent interviews with 14 Army Engineers provided evidence that their reasons for participation were influenced by the effects of organizational and professional culture and changing workplace dynamics. General themes that emerged include: the influence of the military and Army Engineer culture; job competitiveness/career stability; and role diffusion. Further attention to internal and external organizational factors is recommended in future study of participation in CPE. (Contains 51 references.) (JT)

Running head: EFFECTS OF ORGANIZATIONAL ROLE AND CULTURE

Effects of Organizational Role and Culture on Participation in Continuing Professional Education

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Abstract

The purpose of this study was to extend the investigation of professionals' reasons for participation in continuing education beyond personal and practice-based factors into the arena of organizational structure and culture. The Participation Reasons Scale was used to study the effects of Army Engineers' educational preparation, role, occupational specialization, and a number of extraneous demographic variables on reasons for participation. Factor analysis identified five general reasons for participation similar to those in other professions such as professional improvement, job security, competence and collegial interaction. However, contrary to previous research, variables measuring educational preparation, roles, occupational specialization, and extraneous variables were not related to the engineers' reasons for participation. Subsequent interviews with subjects provided evidence that their reasons for participation were consistent among the different groups because of the effects of organizational and professional culture and changing workplace dynamics. Further attention to internal and external organizational factors is recommended in future study of participation in continuing professional education.

Effects of Organizational Role and Culture on Participation in Continuing Professional Education

The role organizational context plays in professional practice and learning has become an increasingly important area of research. This growing interest comes from the recognition that performance is not an individual affair (Nowlen, 1988; Cervero, 1988). Instead, learning takes multiple forms within organizations (Watkins & Marsick, 1993) and is influenced by the context, the organizational setting and one's personal motivation, and activity. (Lave, Murtaugh, & de la Rocha, 1984; Wilson, 1993; Brown & Duguid, 1991).

We have also recognized that the social dynamics of bureaucratization and professionalization of occupations are interwoven. Larson (1977) noted, for example, that contemporary professions are not always at odds with bureaucracies. Often they depend on them as a means of maintaining market legitimacy and furthering their professionalization. Even professions traditionally considered free and autonomous have aligned themselves increasingly to the bureaucratization and corporatization of practice. As one example, medicine, one of the most independent professions, has changed through its connections with hospitals owned by large corporations, with Health Maintenance Organizations, and more recently with the managed care environment (Light & Levine, 1989; Pew, 1993, 1995).

These trends have raised questions about our stereotypical view of professionals as free and autonomous decision-makers (McGuire, 1993). These changing conditions reinforce Larson's (1977) recommendation for us to attend more to the "organizational professions," such as engineering, to gain deeper understanding of the professionalization process and the impact that bureaucratization, corporatization, and organizational dynamics have on the professions.

Likewise, it is prudent for educators to address these trends and determine how they affect learning within the professions.

The dynamics of today's workplace also affect professionals in many other ways. Work can no longer be seen as lifetime employment with one organization (Harris, 1993). The number of individuals displaced from their organizations, as well as from their professions, has been on the rise in recent years, as organizations "downsize" and as the pattern of employment changes (Rifkin, 1995, 1996). The boundaries of many professions are also blurring. Organizations are seeking to build redundancy of function into their workforce through the establishment of interdisciplinary, self-directed work teams (Morgan, 1986; Kanter, 1989; Katzenbach & Smith, 1993; Nonaka & Takeuchi, 1995). Other professions are experiencing "cross-skilling," as organizations use "generalists" to carry out functions where traditionally specialists have been employed (Pew, 1993, 1995; McGuire, 1993; Shaw, 1987).

Furthermore, professional participation in CPE can vary significantly according to profession-related characteristics, organizational roles, and preparatory education (Grotelueschen, 1985; Cervero, 1988; Houle, 1980). Yet, despite the speculation about different motives for involvement in CPE, previous research has not fully examined the extent of the relationships among factors such as organizational roles, formal education, and career stage. Research focusing on particular professional characteristics, such as types of formal education (professional or not) and organizational roles, may identify different clusters of reasons for participation among professionals which have not been clearly articulated.

Therefore, although personal and practice setting factors have been used to explore professionals' reasons and motivations for participation in continuing education, these have not

been addressed as completely as possible. In addition, organizational context and dynamics, with minor exceptions (e.g., Stalker, 1993), have not been of central concern either in studies of educational participation or in relation to other personal and practice-based factors that may influence professionals' reasons for participation. Therefore, the purpose of this study was to explore an "organizational profession's" reasons for participating in continuing education, with focus on personal and practice-based factors, as well as on organizational ones. To accomplish this, we examined the motives influencing Army Engineers' participation in voluntary, civilian continuing professional education (CPE). The focus on this profession also permitted us to examine a single organization, the U.S. Army, where similar role hierarchy and practice conditions exist, providing a unique setting to extend research on participation into the organizational domain. The study examined three questions: (a) What are Army Engineers' reasons for participating in voluntary continuing education; (b) To what extent do these reasons differ according to selected personal and practice-based factors that have been the focus of previous research; and, (c) What influence do organizational factors have on these reasons?

Related Literature

Research into professionals' reasons for participation in continuing education is drawn from the conceptual perspective that continuing professional education is distinct from general adult education (Groteluеschen, Kenny, & Harnisch, 1979). This rationale approaches the study of reasons for participation among professions based on three special considerations -- (a) the nature of the referent population, (b) the nature of the participation, and (c) the beneficiaries of the participation (Groteluеschen, Kenny, & Harnisch, 1980).

Groteluesehen et al. (1980) focused on the profession as the individual's primary referent population. However, for the "organizational professions" such as engineering, the referent population includes both one's profession as well as the employing organization. The nature of participation is also quite distinct for members of a profession. That is, the decision to participate is often based on state- or profession-determined policies (e.g., mandated participation) or work-place considerations, and perhaps, as Stalker (1993) has noted, more subtle organizational factors that mandate participation in seemingly voluntary contexts. Finally, the educational beneficiary in general adult education is primarily the learner. Among professions, there are multiple beneficiaries including the individual, consumers of services, professional associations, regulatory agencies, employing organizations, and society. From these perspectives, participation in continuing professional education is affected its the occupational, sociological, political, and organizational contexts and it in turn influences these same contexts.

The Participation Reasons Scale (PRS) (Groteluesehen, et al., 1979) was developed on these notions and has been the major instrument employed to study professionals' reasons for continuing education participation. It has been used to study physicians (Cervero, 1981), nurses (Groteluesehen, Kenny, Harnisch, & Cervero, 1981), judges (Catlin, 1982), veterinarians (Harnisch, 1980), health care educators (Macrina, 1982), business professionals (Groteluesehen, Kenny, Harnisch, & Cervero, 1981), educational technologists (Waldon, 1985), employment and training professionals (Childers, 1993), and engineers (Tait, 1990).

Several themes emerged from these studies. First, the general reasons for professionals' participation appear to be (a) professional improvement, development, and competence; (b) collegial interaction; (c) professional service, (d) personal benefits, (e) clarification of professional

role, and (f) professional reflection. Second, reasons for participation vary (especially with respect to the rank order the reasons are given) across the professions, underscoring the influence of the professions on their members. Third, reasons for participation vary within professions according to personal and practice-based factors, including the length of time in the profession, age, role, and career stage (Grotelueschen, 1985; Tait, 1990).

Cervero (1988) noted that participation in CPE is frequently linked to age, career stage and practice settings. Researchers have suggested that organizational roles (Smutz & Queeney, 1990) and career stages within professions (Cervero, 1988; Dalton, Thompson, & Price, 1977) may also influence participation. Numerous studies have attempted to connect career stages, developmental tasks, job satisfaction, job motivation, professional attitudes, professional development and training needs to involvement in CPE (Armato, 1990; Owolabi, 1988; Steinberg, 1988; Duke, 1987). As individuals move through career stages, various factors can influence an individual's decision to participate in continuing education activities. Personal, social and vocational factors such as intelligence, family support, type of profession and organizational roles may also affect participation. These theories about professional stages of practice offer ways to think about the variety of learning needs practitioners may confront at different points in their careers.

Tait (1990) compared reasons for participation for industry-based engineers, scientists and technologists in three career stages and suggested there is developmental progression through the career stages. However, she also noted that this progression may be due to change in job functions and responsibilities of the professionals in the company culture, rather than to the longitudinal development of individuals. As a result, she recommended further research in this

area. This developmental view of professional careers suggests that career choice can be viewed as a process and that career stages, work roles, and career development are interrelated.

Smutz and Queeney (1990) suggested that professional development requires an understanding of the structural features of a profession and the role it has on participation in continuing education activities. This involves understanding the profession's knowledge and skills, responsibilities and tasks, the division of labor (e.g., management versus practice), and various career stages. Desilets' (1990) study suggested that differences in organizational roles may influence reasons for participation in CPE activities. She recommended that further research be conducted about the relationship between educational preparation, variables associated with stages of career development, and motivational reasons for participation. In summary, the professional's decision to participate in continuing education is a complex one connected to career stages, organizational roles and educational preparation.

In this study, we investigated the motivational reasons for participation among members within the engineering profession, as well as compared the relative importance of reasons for participation with a variety of personal and practice-based factors that have been the focus of previous research. Our primary focus on personal and practice-based factors centered around subjects' academic preparation (engineering degreed or non-engineering degreed), leadership role (administrator/manager, journeyman or apprentice), functional role (line or staff), and occupational specialization (combat engineer or non-combat engineer). However, we also included several other variables that have been addressed in previous research. These variables, which we treated as extraneous variables, included educational level, age, years performing duty, rank, and years as an Army Engineer (the latter three of which could be considered surrogate

measures of career stage). However, we went beyond personal and practice-based factors and explored the influence of organizational ones. This additional focus was made possible by considering only one profession in one employing organization.

Method

Subjects

We randomly sampled 400 Army Engineers from the continental U.S. We only included subjects with the rank of lieutenant, captain and major because we assumed that many of those at the rank of lieutenant colonel, colonel and general officer would be nearing retirement and would not be appropriate candidates for this study. A total of 302 (75.5%) usable surveys were returned and used in the analyses.

Measures

The data collection instruments used in this study were Grotelueschen's (1985) Participation Reasons Scale (PRS) and the Respondent Information Form (RIF). The PRS is a 30-item, self-report instrument that directs respondents to indicate on a seven-point Likert-type scale the relative importance of the reasons for participation in continuing education (1 = not important, 7 = extremely important).

The PRS has been used in a number of previous studies and has been found to be both reliable and valid in assessing the reasons for participation among professional groups (Catlin, 1982; DeSilets, 1990; Grotelueschen, et al., 1981; Cervero, 1981; Grotelueschen, et al., 1979; Harnisch, 1980; Macrina; 1982; Tait, 1990). Grotelueschen (1985) stated that administration of the PRS to various professions confirms that the PRS factor scales exhibit satisfactory levels of reliability with alpha coefficients ranging from a low of .78 to a high of .92.

The PRS was designed to be administered with the Respondent Information Form (RIF). The RIF is a 14 item instrument that gathers demographic data common to all professionals (e.g., age, sex, years in the occupation, educational level) and data that are profession specific (e.g., type of practice, or specialty setting). The RIF was modified to collect the following additional data: type of formal preparatory education (engineering degree or other type of degree), leadership role (administrator/manager, journeyman, apprentice), functional role (line or staff), military specialty (combat engineer or noncombat engineer), and military rank (lieutenant, major, etc.). Some of these background categories were used as independent variables in the analyses; others were treated as extraneous variables.

Analysis

An item analysis was conducted on the responses to the PRS to determine factors that could be used to assess differences in reasons for participation. An item total correlation was computed to identify any items with total correlations of less than .30 which would warrant elimination (Nunnally, 1978). All the 30 items met the criteria and were retained for the factor analysis.

A principal component factor analysis with promax (oblique) rotation was performed on the 30-item PRS to identify general participation themes. The factor analysis for the total group was expected to identify common factors underlying Army Engineers' reasons for participation in continuing professional education. Five factors attained the statistical criterion, i.e. an eigenvalue greater than 1.0 (Gorsuch, 1983), and were used for further analyses. Each of the five factors was treated as a separate dependent variable in the subsequent analyses.

Once we identified the motivational factors we examined differences within and between the dependent variables (weighted average PRS factor scores) and independent variables using two-way analysis of variance with repeated measures on one factor. We used Tukey's honestly significant difference method to investigate the significant difference within subject effects for the participation reasons factors. We employed correlational analysis to examine associations between the dependent variables and extraneous variables (educational level, age, rank, years in performing current duties, and years as an Army Engineer). For the variables measuring educational level and rank we used point bi-serial correlation analysis. For age, years in current duties, and years as an Army Engineer we used Pearson correlation coefficients.

To foster a more complete understanding of findings and the influence of organizational and employment context on the findings, we conducted follow-up interviews. The follow-up interviews were conducted with 14 Army Engineers after the quantitative data had been gathered and analyzed. The interview subjects were selected based on a stratified random sample of Army Engineers representing several of the demographic and role variables examined in the study. Interviewees were asked to respond to open-ended questions asking them to address this study's results, issues that may have influenced the results, and their participation in CPE. In keeping with the canons of qualitative research, inductive data analysis strategies were employed, with themes emerging form the interview data rather than being decided upon by the researchers prior to data collection.

Results

Demographic characteristics

The respondents ranged in age from 22 to 46 and the mean age was 31 years of age. The majority (210) held bachelor's degrees while 89 held master's degrees and three held doctoral degrees; almost equally divided by degree with 149 holding bachelor's degrees in engineering fields and 153 holding bachelor's degrees in other fields. Furthermore, 42 held master's degrees in engineering fields while 50 held master's degrees in fields outside engineering. Respondents had served in the Army Engineer occupation from less than one year to 20 years and almost two-thirds (65%), had been in the Army Engineer occupation for 10 years or less. Nearly all (84%) had been performing their current duties for 5 years or less. Among 302 respondents, 87 were lieutenants, 121 were captains and the remaining 94 were majors. In addition, the majority of respondents (218) were in the combat engineer area of concentration while the remaining were in other areas (i.e. general, topographical, or facilities).

Factor Analysis

The factor analysis of the PRS identified the five factors of: (a) *professional improvement and development*, (b) *personal benefit and job security*, (c) *improvement of service to customers*, (d) *professional identity/perspective*, and (e) *Army Engineer competence and collegial interaction.* An examination of the reference vectors of the five factors indicated that two items did not have factor loadings that met the statistical criterion of .40 (Gorsuch, 1983). These items were eliminated from further analysis. Complex items (i.e. six items with factor loadings on more than one factor) were also eliminated from further analysis.

The first factor, *professional improvement and development*, focused on reasons for CPE which foster professional skills necessary to be successful in the future and included items such as insuring future productivity in one's professional role, developing new professional knowledge and skills, and developing proficiencies necessary to maintain quality performance. The second factor, *personal benefit and job security*, addressed reasons for enrolling in education that promote career security and personal growth and included the items of increasing the likelihood of benefits for family and friends, increasing the likelihood of personal financial gain, and professional advancement.

Factor three, *improvement of service to customers*, consisted of four items that dealt with meeting client expectations, accommodating client needs, increasing proficiency with clients, and increasing the likelihood that clients are better served. Factor four, *professional identity/perspective*, included six reasons associated with a "general" professional identity perspective or maintenance of professional identity. These items referred to relating ideas to professional peers, assessing the direction of the profession, changing the emphasis of present job responsibilities and enhancing the image of the profession.

Factor five, *Army Engineer competence and collegial interaction*, included six items associated with relating to improving professional competence as an Army Engineer. For example, competence items included "to further match my knowledge or skills with the demands of my Army Engineer activities" and "to help me be more competent in my Army Engineer work." In addition, two items related to interaction with colleagues. Collegial interaction items included "to mutually exchange thoughts with Army Engineer colleagues" and "to learn from the

interaction with other Army Engineers." See Table 1 for a complete listing of items in each factor.

Insert Table 1 about here

The Coefficient Alpha for the PRS was .938. We also computed Coefficient Alphas for each factor and found Factor 1 had a reliability coefficient of .709; Factor 2, .610; Factor 3, .940; Factor 4, .850 and, Factor 5, .830. Therefore, the reliability coefficients for the factors were found to have sufficient internal consistency to warrant further analysis (Aiken, 1979).

We calculated adjusted mean scores for the five different factors and found the highest mean score was for the *professional improvement and development* factor (5.88), followed by the *personal benefit and job security factor* (5.32), *the improvement of service to customers factor* (5.05), *the professional identity/perspective factor* (4.64), and the *Army Engineer competence and collegial interaction* factor (4.64).

Using ANOVA we found a statistically significant difference among the adjusted mean scores for the five factors. A Tukey's post-hoc method examined the significant difference for the within subjects effects comparison for the five factors and found that the adjusted means for the five reason factors were not simultaneously equal. Factors one, two, and three (*professional improvement and development, personal benefit and job security*, and *improvement of services to customers*, respectively), were significantly different from each other and all three were significantly different from factors four and five, (*professional identity/perspective* and *Army Engineer competence and collegial interaction*, respectively). Factors four and five were not significantly different from each other (see Table 2).

Insert Table 2 about here

Independent and Extraneous Variables and Reasons for Continuing Professional Education

When examining the statistical comparisons for the independent variables (i.e. educational preparation, leadership roles, functional roles, and occupational specialty), we did not find statistically significant differences in adjusted mean scores or in the interaction effects. (See Table 3.) Likewise, we found no significant correlations between adjusted mean scores and the extraneous variables of age, years performing duties, rank, and years serving as an Army Engineer. (See Table 4.) These findings mean that though subjects did attribute different importance to the different reasons for the educational involvement, other characteristics such as leadership and functional roles, educational level and preparation, occupational specialty, rank, and years performing duties, were not related to their reasons for participating.

Insert Tables 3 and 4 about here

Interview Findings

Having found that the personal and practice-based variables did not help distinguish among the various reasons Army Engineers gave for participating in civilian continuing professional education, we conducted interviews with Army Engineers to gain insight into the influence of work and organizational environment on these findings. From the data gathered in the interviews several general themes emerged including (a) the influence of the military and Army Engineer culture; (b) job competitiveness/career instability; and (c) role diffusion.

Military and Army Engineer culture. The Army and the Army Engineer profession were perceived as two different cultures having many of the same characteristics. Interviews suggested that the Army Engineer culture built upon or extended the larger Army culture resulting in a significant influence on officer participation in CPE activities. Yet, while both the Army and the Army Engineer culture combined to significantly influence participation in CPE activities, elements of the Army Engineer culture were viewed as having a greater impact than the general Army culture.

The military culture includes a variety of elements that essentially influence the officer's professional and personal development and growth. Of significance is the uniformity associated with a hierarchical organizational structure, entry training, career stage progression, rules, social environment, dress, reward programs, and elaborate ceremonies. Interviewees suggested that these shared cultural elements influence the development of common attitudes and motivations toward CPE participation. Army leaders and mentors repeatedly emphasize the importance of voluntary participation in civilian CPE both verbally and in writing and communicate the importance of CPE by role modeling behaviors that include actively seeking advanced degrees themselves. There is a sophisticated communication network set up to share common goals and objectives with officers, including involvement in CPE activities. In addition, the Army system rewards the officer for CPE participation through advancement as well as leader and peer recognition. The interviewees unanimously concluded that the shared experiences early in their military careers influenced the consistency of this study's overall findings.

The Army Engineer culture is viewed as a technically-oriented professional one, distinct from the culture of other branches of the Army. Several interviewees suggested the technical

expertise needed to perform the duties of the profession places the Army Engineer in a higher professional status than members of other branches of the service. Army Engineer officers are guided by an unwritten "engineering" standard. This standard, that was described as implicit in the Army Engineer profession, dates back to the beginning of the Army Corps of Engineers which was originally composed of only engineering degreed officers. Interviewees emphasized that civilian CPE improved their technical knowledge thus reinforcing the notion of "Army Engineer uniqueness." Several interviewees (12 of 14) specifically referenced the Army Engineer symbol, "The Army Engineer Castle" (symbolizing engineering skills), as they emphasized their pride in the technical expertise required of all Army Engineer officers. Maintaining the traditional value of the Army Engineer's "technical expertise" was cited as a significant motivator for CPE participation.

Peer pressure to participate in voluntary CPE activities was mentioned by 11 of 14 interviewees as significant in the Army Engineer profession and was associated with professional pride. Increasing one's skills and knowledge was viewed as a means of improving the image of the Army Engineer profession with other Army branches and private sectors. Several interviewees suggested that the Army Engineer technical knowledge requirements have always linked the Army Engineer with the private sector engineer and participation in CPE activities is essential. There is an unwritten expectation that Army Engineers will develop their skills in concert with private sector professionals. Army Engineers suggested that, like private sector counterparts, they progress through the profession from engineer-in-training to journeyman and finally to manager. Competition is significant at each career stage and participation in CPE is essential. The Army Engineer culture resonates with the notion of "technical excellence" fostered

by Army Engineer leaders, mentors and peers. In addition, Army Engineer symbols, ceremonies, history and organizational values emphasize the importance of technical and leadership competence.

The following quotations from interviews provide evidence of the Army Engineer culture's distinct elements that influence participation in CPE activities.

- *The "green suit" or the sharing of experiences and camaraderie is the glue that brings officers together and influenced the consistency in the rank order of reasons given for CPE.*
- *It doesn't take an Army Engineer officer very long to figure out that CPE participation is mandatory if you want to survive and advance in the profession.*
- *Peer pressure, coupled with the technical requirements of the job, make CPE participation essentially mandatory in order to work with other Army Engineers and to be promoted.*
- *Army Engineers are expected to mirror their civilian engineer counterpart: an engineer-in-training. If the Army Engineer follows this path, admiration is received from peers and leaders.*
- *The Army Engineer's "ethos" or beliefs and customs related to technical proficiency, as established by the Army Engineer profession, influenced CPE participation.*

Job competitiveness/career instability. Interviewees suggested that job competition has always been significant among members of the Army Engineer profession. However, the Army's downsizing initiative during the last five years has dramatically increased the Army Engineer's focus on job competition. All interviewees stated that job security was paramount to them because fewer jobs are available and there is the possibility of being forced out of military service. Therefore, interviewees suggested that two complementary needs existed that required civilian CPE participation: maintaining/advancing in the Army Engineer profession and preparing for private sector jobs.

The interviewees suggested that the emphasis on civilian CPE by Army leaders and promotion boards has placed participation in CPE as one of the most important job selection discriminators. At the same time, 13 of the 14 interviewees suggested that civilian CPE is equally essential to prepare for the inevitable (may be sooner than planned) move to a private sector job. In addition, interviewees suggested that competition among officers of the same rank is very prominent. At each career stage or rank, officers are expected to obtain some form of civilian CPE. The amount of CPE is not as important as the subject, and the subject should be related to the Army Engineer's work to have value in the job selection process. Interviewees identified engineering, quasi-engineering or leadership development skills courses as appropriate CPE subjects for Army Engineers. The officers' career stages or ranks are essential in determining the nature of the CPE needed. Generally, interviewees suggested that higher career stages emphasize leadership skill development rather than engineering related skills.

Interviewees unanimously agreed that the Army downsizing and the real possibility of being forced out of the service prior to retirement had an impact on the reasons given for participation. Of the interviewees, 13 of 14 stated that if not for the Army downsizing, the Personal Benefit and Job Security factor would not have been a significant reason. All interviewees expressed concern regarding the right balance of engineering-oriented and leadership development civilian CPE in order to compete with other Army Engineers. Generally an optimal officer portfolio would include current CPE in both areas because career instability and preparation for private sector jobs were identified as reasons to participate in civilian CPE activities.

The Army Engineer's job competitiveness/career instability is reflected in the following interviewee comments:

- *To be a career officer in the Army Engineer profession officers must constantly strive to gain more knowledge and skills that will set them off separate from other officers.*
- *Junior officers will likely not reach the rank of lieutenant colonel or higher; therefore, they must develop marketable skills for competition in the private sector.*
- *The Army downsizing effort is significant and no Army Engineer can depend on staying in the military for 20 years; therefore, taking courses to help obtain a private sector job is essential.*
- *The Army Engineer is a highly competitive professional and the current downsizing environment has increased the competition.*
- *There is a constant fear among officers that they will not have the same or higher level of CPE as other officers when considered for promotion.*

Role diffusion. This theme emerged as interviewees suggested that Army Engineer job assignments frequently involve mixing different roles. Typically Army Engineers are assigned to a position for 2-3 years and the work requires them to perform several jobs during each assignment. In turn, roles associated with the various jobs become less distinguishable for officers because they perform all of them on a fairly frequent basis. The interviewees suggested that perhaps a hybrid role composed of the different traditional roles is emerging for Army Engineers.

Role diffusion was also influenced by the fact that job assignments for lieutenant, captain and major officers are not significantly different. It is not uncommon for officers at different ranks to perform the same or very similar job tasks. In addition, leadership responsibility is a common denominator among the various jobs held by the Army Engineer and gains more significance through the career stages. The diffusion of roles was seen by interviewees as one of the primary reasons that no significant difference was found in the overall study's results among the various

roles and attributes examined. The following quotations illustrate the impact of role diffusion within job assignments and across career levels (rank) for reasons given for CPE participation:

-- *I have found that as a lieutenant I am asked to perform duties normally assigned to a captain or major.*

-- *The Army's downsizing has forced the consolidation of jobs to the point that administrator, journeyman and apprentice roles mix together with line and staff roles.*

-- *I don't think it is possible to identify the roles in this study because we do some of all of them, all of the time. I am not surprised that no differences were found among the reasons.*

-- *There are fewer jobs; therefore in order to get the mission accomplished you must perform all roles. We do different jobs but the roles are very similar.*

-- *There is no difference in reasons factors among the role groups because there's no difference in roles assigned to Army Engineers.*

Discussion

An important finding of this study was that the personal and practice-based variables that were examined were not related to the Army Engineers' reasons for participating in civilian continuing education. These findings are inconsistent with previous studies that have demonstrated relationships between personal and practice-based factors and reasons for continuing professional education in other professions (Armstrong, 1983; Armato, 1990; Duke, 1987; Grotelueschen, et al., 1979; Owolabi, 1988; Steinberg, 1988; Waldon, 1985;). Therefore, these results suggest there may be something distinctive about the Army Engineering culture and professional setting that affects the traditional characteristics that influence participation in continuing professional education.

Grotelueschen (1985) and later Cervero (1988) suggested that factors such as career stage and practice setting may interact and influence a professional's reasons for participating in

CPE activities. However, Grotelueschen (1985) suggested that differences in factor clusters and their rank order among professions make greater sense if one understands the work environment, job roles and other within-profession variables. Perhaps Grotelueschen's notion is especially true in an environment like the military where the culture is very prominent, integrative, and hierarchical in nature and exerts extraordinary influence on the workers' day-to-day lives. Evidence drawn from the interviews with Army Engineers suggests that both internally related organizational factors (organizational context/culture) and externally related organizational factors (military downsizing, role diffusion) have significantly influenced members' attitudes including their reasons for participation in CPE activities.

Contemporary researchers have suggested that the organizational culture and its shared values and beliefs interact with the organization's people, its organization structures, and its control systems to produce organizational behavioral norms (Schein, 1992; Bolman & Deal, 1991; Deal and Kennedy, 1982; Owens, 1987). Further, organizational and professional culture is a learned and socially constructed pattern of thought that provides stability, fosters certainty, solidifies order and predictability, and creates meaning (Bolman & Deal, 1991; LaDuca & Engel, 1994). Furthermore, it is not uncommon to have multiple cultures within an organization, each having a different level of influence on its members (Martin, 1992; Owens, 1987). In the case of the Army Engineer, two prominent cultures influence and, in concert, reinforce member attitudes: the military culture and the profession's culture.

The Army Engineers' large, bureaucratic and regimented system of rules, standardized indoctrination, hierarchical structure and explicit organizational norms contribute to a commonality of beliefs among its members. Specifically, Army Engineers are provided a

framework within which the careers of all officers are consistently managed. Well-defined criteria describe satisfactory performance, leadership and technical development expectations and acceptable professional traits (loyalty, exemplary leadership, etc.).

Larson (1977) suggested that certain professional groups such as engineers depend heavily upon the large hierarchical organization to attain their career aspirations. The socialization of professionals who practice in large hierarchical settings tends to be founded upon the organization rather than upon the profession itself because its organization creates the social and structural context of successful professionalization. For Army Engineers, the very base of power and social mobility of their profession is connected to the large organization. These findings are very consistent with ours as we found Army Engineers stating unequivocally that the military organization dictates their profession's development and direction.

In addition, Larson (1977) suggested that bureaucratic or large-scale organizations appear to be a prerequisite for engineering professionals and the profession is inherently subordinate to organizations that encourage particular attitudes. Baum (1990) and Wanous, Reichers, & Malik (1984) also have suggested that professionals who begin their careers in a bureaucratic context undergo a peculiar process of socialization; they learn the tactics and absorb the ideology by which they will perform as professionals. Finally, a professional's dependence upon the bureaucratic organization tends to homogenize the profession which in effect defines career patterns and acceptable methods of attaining career aspirations (Larson, 1977).

The Army Engineers' large, complex bureaucratic organization and elaborate socialization processes clearly could have contributed to the lack of variability among the different groups examined in this study. Army Engineers explained that the military and Army Engineer cultures

establish a "way of life" for them. Specifically, the military culture defines basic expectations such as dress, communication channels, organizational structures, and military values. Apparently, the Army Engineer culture also defines the leadership qualities and professional expectations for each officer regardless of rank (lieutenant, captain, major). These expectations include subjects' participation in civilian CPE, a finding that underscores Stalker's (1993) conclusion that the concept of voluntary participation is restricted, owing to our lack of focus on power, and control embedded in strong and bureaucratic organizational structures and cultures. The emphasis on standardization of knowledge, skills, attitude and behavior of officers is also related to the military leader's need to assign work on the battlefield to any officer without concern as to whether the officer has the skills, knowledge, and attitude necessary to perform the job. Perhaps these factors are responsible in part for this study's findings that there were no significant differences among participation reasons for the personal and practice-based factors that this study explored. Examination of these organizational factors is worthy of further detailed study in other professions.

As a result of the Army downsizing, it seems apparent that the boundaries of the Army Engineer organizational roles and rank overlap and are not clearly defined. The diffusion of work roles was identified by the officers interviewed as the reason why no significant relationship between the reasons for participation and organizational roles was found in this study. This finding is inconsistent with previous research by Desilets (1990) who found differences in reasons for participation in CPE activities and work roles.

The impact of Army downsizing and related career instability may have influenced Army Engineer attitudes toward participation in voluntary, CPE activities. Army Engineers stated that

participation in CPE activities was based to some extent upon getting a private sector job rather than staying in the Army Engineer profession. While organizational downsizing and career instability were not the initial focus of this study, these areas provide a focus for future research especially among other professions that are experiencing the influence of corporatization, downsizing, "cross-skilling" and blurred professional boundaries.

Conclusions and Recommendations

Based on the findings of this study some specific conclusions can be drawn. First, the organizational culture and context of the Army may have an homogenizing impact on organization members, reducing variability in behaviors including their reasons for participation in CPE. Therefore, organizational context has a very powerful influence on participation and reasons for it. Second, Army Engineers place the highest importance on the reasons for participation in civilian CPE activities that are associated with competence, technical skill/knowledge development and leadership. This aspect likely has considerable influence on their decisions to participate in continuing professional education. Lastly, in the case of the Army Engineer, organizational downsizing may have created career instability and role diffusion that affected organization members and their attitudes, including reasons for participation in CPE activities. Given these conclusions, the lack of association between personal and practice-based factors and reasons for participation in CPE can be placed in a more understandable light. Although there is ample evidence to suggest that personal and practice-based factors can and do exert influence on professionals' decisions to engage in education, this study suggests that, to fully understand the reasons professionals participate in CPE, more attention should be given to the organizations in

which professionals work and the dynamics surrounding their employment. This would seem especially prudent given the turbulent nature of today's organizations and workplace.

The results of this study also suggest three other major avenues of inquiry. Longitudinal studies of different professions could be conducted to determine if various factors influencing involvement in CPE vary over time as employment, organizational, professional, practice-based and personal variables undergo transformation. Second, examining cross-organizational differences or similarities regarding reasons for participation in CPE could address more fully the effects of organizational culture, practice setting, and socialization processes for professionals who practice in different organizations. Although not a finding of this study, various life/career experiences or transitions may still influence reasons for participation in CPE. Additional research examining career stage, career stagnation, role diffusion, conflict or ambiguity, formal university preparatory education, and demographic characteristics of participants would be useful in understanding reasons for participating in CPE. Combining personal, practice-based, organizational, and employment elements into a more comprehensive model that is examined in longitudinal and cross-organizational designs should help us better understand the nature of continuing professional education in today's complex organizations and increasingly dynamic professional work environment.

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Table 1

Factor Loadings and Structure Using Factor Analysis Employing Promax Rotation for Participation Reasons Scale (N=302)

Loading	Factors and Items
	FACTOR 1 . . . PROFESSIONAL IMPROVEMENT AND DEVELOPMENT
.64	To help me insure future productivity in my professional role.
.64	To develop new professional knowledge and skills.
.56	To develop proficiencies necessary to maintain quality performance.
	FACTOR 2 . . . PERSONAL BENEFIT AND JOB SECURITY
.62	To increase the likelihood of benefits for family and friends.
.48	To increase the likelihood of personal financial gain.
.73	To increase the likelihood of professional advancement.
	FACTOR 3 . . . IMPROVEMENT OF SERVICE TO CUSTOMERS
.77	To enable me to better meet customer/client expectations.
.78	To better accommodate the needs of my customers/clients.
.79	To increase my proficiency with customers/clients.
.81	To help me increase the likelihood that customers are better served.
	FACTOR 4 . . . PROFESSIONAL IDENTITY/PERSPECTIVE
.60	To relate my ideas to those of my professional peers.
.57	To maintain my identity with my profession.
.58	To review my commitment to my profession.
.42	To consider changing the emphasis of present job responsibilities.
.59	To assess the directions in which my profession is going.
.55	To enhance the image of my profession.
	FACTOR 5 . . . ARMY ENGINEER COMPETENCE AND COLLEGIAL INTERACTION
.52	To further match my knowledge or skills with the demands Army Engineer activities.
.55	To mutually exchange thoughts with Army Engineer Colleagues.
.62	To learn from the interaction with other Army Engineers.
.68	To help me keep abreast of new developments in the Army Engineer field.
.66	To help me be more competent in my Army Engineer work.
.68	To maintain the quality of my Army Engineer service.

Table 2

Tukey's Post-Hoc Comparisons of Within Subject Effects for Columns for Academic Preparation and Roles (N=302)

Tukey Grouping	Mean	Reason Factor
A	5.878	FACTOR 1
B	5.321	FACTOR 2
C	5.052	FACTOR 3
D	4.643	FACTOR 4
D	4.637	FACTOR 5

Note: Means with the same letter are not significantly different. Mean scores did not vary among the groups studied because no significance was found for rows.

Table 3

Two-way Analysis of Variance with Repeated Measurement on One Factor (Reasons) for Academic Preparation and Organizational Roles (N=302)

Source	Sum of Squares	df	Mean Square	F
Academic Prep				
ROWS (Between)	2.11	1	2.11	0.67
ERROR	939.03	300	3.13	
COLUMNS (Within)	327.05	4	81.76	122.68*
ROW X COLUMNS	3.28	4	0.82	1.23
ERROR	799.78	1200	0.67	
Occupational Speciality				
ROWS (Between)	3.27	1	3.27	1.04
ERROR	937.87	300	3.13	
COLUMNS (Within)	266.17	4	66.54	100.16*
ROW X COLUMNS	5.83	4	1.50	2.19
ERROR	797.24	1200	.67	
Leadership/Engineering				
ROWS (Between)	6.75	2	3.37	1.08
ERROR	934.39	299	3.13	
COLUMNS (Within)	303.41	4	75.85	114.10*
ROWS X COLUMNS	8.01	8	1.00	1.51
ERROR	795.05	1196	0.66	
Functional area				
ROWS (Between)	0.64	1	0.64	0.20
ERROR	940.50	300	3.14	
COLUMNS (Within)	327.38	4	81.85	122.52*
ROWS X COLUMNS	1.42	4	0.36	0.53
ERROR	801.64	1200	0.67	

Note: Within column significant differences indicate different rankings among participation reasons for subjects. Lack of significantly different F-values for rows indicates no significant differences in reasons by independent variables.

*$p < .05$.

Table 4

Correlations of Selected Variables (N=302)

Variable	[a]Educational Level	Age	Years Performing Duties	[a]Rank	Years as Army Engineer
Factor 1	- .019	- .096	.034	.017	- .078
Factor 2	- .024	- .097	.092	.051	- .065
Factor 3	.003	.002	.048	.071	- .044
Factor 4	- .011	- .063	.113	.072	- .082
Factor 5	- .035	- .009	.054	.058	- .072

Note. [a]Point bi-serial correlations used on these variables.
*p < .05.

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