

The Influence of Selected Personological and Organizational Characteristics Upon Professional Development Needs of State Extension Specialists in Florida

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This current study completes a three-phase process to determine critical professional development needs of the University of Florida Extension (UFE) state specialists. Phase I data were collected from county directors, Phase II from county faculty, while this phase involved data collected from state extension specialists themselves. In addition to identifying critical professional development needs using the matrix analysis method, the researchers also examined differences in those needs based upon age, percentage of extension appointment, years of professional experience, academic rank, and program typology. This study revealed three critical professional development needs (“knowledge of current research findings”, “ability to identify funding sources for program development”, and “ability to incorporate appropriate instructional techniques in my own presentations”). UFE specialists differed based upon professional development needs on only one of the personological characteristics (gender) and on none of the organizational variables. Individuals planning professional development programs should keep in mind that these critical professional development needs cut across most of the personological and all of the organizational characteristics included in this study.

Introduction and Theoretical Framework

Professional development is a planned experience designed to change behavior and result in professional and/or personal growth and improved organizational effectiveness (Bryan & Schwartz, 1998). Professional development can take the form of in-service training, professional organizations, personal reading, computer networks, and mentoring programs.

The process of professional development encompasses informal, non-formal and formal approaches to improve the effectiveness of personnel. First, the informal approach to professional development is a learning process that includes observing and mentoring activities that are associated with the organization. Second, the non-formal approach is any organized, systematic, and educational activity carried outside the framework of the formal setting to provide selected types of learning to a particular subject. Third, the formal approach to professional development is an active, intentional training or education in a defined period (Bryan & Schwartz, 1998).

In 1999, Baron and Kreps proposed a theoretical model of both internal and external factors affecting professional development. They suggested that the external factors can be divided into four categories: (1) social, pertaining to the society norms about employment; (2) political, in terms of impediments imposed by the political system; (3) legal, concerning the rights of the employee, and (4) economic, concerning budgets and labor market. The organizational setting, employees, trainers, and managers are classified as internal factors that

influence employee development. This current study will focus upon organizational and employee-related factors influencing the professional development needs of state extension specialists.

According to Castetter (1992), the organizational structure is a design that identifies type of positions, functions to be performed, reporting relationships, administrative authority, power and responsibilities. The organizational structure determines the effectiveness of personnel.

Financial resources are needed for pre-planning and professional development program delivery. During the pre-program phase, costs related to problem analysis, process analysis to identify the what's and how's of the program as well as learning objectives are considered. Resources must also be available for developing and approving the professional development conceptual plan (Stillwagon, 1996). Program development costs are related to developing the program presentation as it relates to administrative labor and support material, costs of delivery, facilities, and costs associated with follow-ups (Stillwagon, 1996; Noe, 1999).

Organizational policies and practices to maintain or upgrade professional competencies should: (1) enhance access to new information by increasing opportunities for professionals to communicate among them on new developments, such as new technical information; (2) provide opportunities and encouragement for continuing education and career development to stimulate professional competence; (3) expand the professionals' responsibilities and autonomy by increasing their influence in the decision making process; and (4) use a meaningful rewards system to motivate professionals to maintain up-to-date knowledge and skills (Kaufman, 1990).

Knowles (1996) suggested that in any learning process the adults as learners have a need to know why they should learn something. Adults also have a deep need to be self-directed as well as being in-charge of their own life. Adults also are responsible for decision-making and are capable of living with the consequences of their actions. He argued that adults have a greater volume and different quality of experiences than youth. He also posited that adults become ready to learn when they experience a need to know or be able to do in order to perform more effectively and satisfyingly. Adults enter into a learning experience with a problem-centered orientation to learning, and are motivated to learn by both extrinsic motivators in the form of salary raises, promotion, satisfaction, and intrinsic motivators as a need of self-esteem, power and achievement (Knowles, 1996; Webb, Montello, & Norton, 1994).

Additionally, employee learning styles, that is the way a person behaves, feels, and processes information in learning situations, are important elements to consider in professional development. Stephen (1987) indicated the need to assess learner's strengths and weakness to match learning strategies and resources to better accomplish educational goals.

Baker, Hoover, and Rudd (1998) used the Group Embedded Figure Test (GEFT) to assess the learning styles of extension professionals in Florida. The GEFT divides learners into two distinct learning styles. First, field dependent learners have global perceptions, are sensitive to their social environments, have highly developed social skills, favor a spectator approach to learning, and need a structured learning environment. Second, field independent learners are relatively uninfluenced by their surroundings, are perceptive of discrete parts, have good analytical capabilities, and often provide their own structure to facilitate learning. In this regard Baker et al. (1998) suggested that it is essential that professional development programs for extension professionals be highly structured and allow for social interaction.

SeEVERS, Graham, Gamon, & Conklin (1997) pointed out that professionals in extension organizations obtain skills and satisfy needs of the profession by acquiring pre-service training

through bachelor's and graduate programs, conferred by an accredited institution. State extension specialists in the U.S. land grant system provide leadership to national, regional and statewide programming initiatives and support county faculty as they implement these initiatives. They typically hold dual appointments in extension, and either in academic programs through a College of Agriculture or research through an agricultural experiment station. Thus state specialists are extension professionals with expertise in a particular subject area, who have the responsibility to translate and disseminate research-based material (Waddill & Woeste, 1996).

Generally state specialists are educated within a technical discipline and are employed only after obtaining a Ph.D. After they are employed they have professional development opportunities through UFE and through their involvement in technical professional associations and often special interest groups in extension.

As a response to the trends in extension programming, UFE created a Task Force with specific goals regarding the organization and function of a professional development program (PDP). The purpose of the professional development program is to provide initial and advanced professional development experiences for county and state faculty, and administrators, based upon their position, programmatic responsibilities, tenure and individual needs as determined through self-assessment and administrative guidance (App, Grace, Hoover, Jacob, Osborne, Torres, Vergot & Williams, 1998). The goals were to: (1) assess the professional development needs of new and existing county and state faculty, (2) provide orientation and training for new county and state faculty, including delivery methods, (3) monitor ongoing professional development for county and state faculty, and (4) examine and change as needed the current procedures of professional development offerings. The PDP will assess and address the professional development needs for extension personnel involved at various levels of the organization: (1) county faculty, (2) state specialists, (3) department chairs, (4) center directors, and (5) extension administrators.

Since few studies have been conducted in relation to the competencies and professional development needs of specialists in the extension system, this study will increase the broad knowledge of the field. This additional information will provide a foundation for adjusting the roles of these professionals consistent with mission, goals, and objectives of UFE.

This study serves as the final phase of a triangular process. In Phase I, Baker and Villalobos (1997) surveyed county directors to appraise the professional development needs of state specialists. In Phase II by Allen (1999), the professional development needs of specialists were assessed based upon the perception of county faculty (excluding county directors). The current research identifies the professional development needs of state specialists based upon their own perceptions.

The results of the study will provide important information as UFE positions itself as an integral component of the University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS) strategic planning process known as *Florida First*. Furthermore, the results can provide the organization with tools to improve the evaluation and accountability of extension programs and the overall performance of its professionals, taking into consideration their incumbent duties as teachers, facilitators, researchers, negotiators, and extension professionals.

Purpose and Objectives

The purpose of the study was to determine the professional development needs of state specialists within UFE. The objectives of the study were to: (1) identify the critical professional development needs of state specialists; (2) determine the amount of variance in the perceived importance and possession of the attributes of: (a) general knowledge; (b) program development and evaluation; and (c) communication and presentation as explained by a linear combination of the state specialists' age, percentage of extension appointment and years of UFE service; and (3) determine if significant differences existed between the attributes in: (a) general knowledge; (b) program development and evaluation; and (c) communication and presentation based upon gender, specialist academic rank, and program typology.

Methodology

The population (N=220) of the study consisted of extension specialists in UFE holding a Ph.D. degree. A stratified random sample size of 140 was selected for data collection purposes (Krejcie & Morgan, 1970). This sample size provided a margin of error of plus and/or minus 5%. The sample stratification was made using the department in which the specialist was affiliated as strata.

Baker and Villalobos (1997) initially developed the instrument after an extensive literature review and utilizing feedback from a panel of experts that assessed content validity. The instrument consisted of 28 Likert-type statements. Cronbach's alpha reliability coefficient reported for the constructs ranged from $r=0.80$ to $r=0.82$, based upon a field test of the instrument prior to data collection.

Allen (1999) went through the instrumentation process of establishing content validity and reliability. After a review by a panel of experts, one item was added to the program development and evaluation construct (Ability to Provide Design Team Leadership), and one item was omitted from the communication and presentation construct (Ability to Travel at State Expense). The field test for reliability yielded Cronbach's alpha reliability coefficient from $r=0.60$ to $r=0.92$.

In an effort to control for measurement error for the current study, the instrument was submitted to a panel of experts comprised of extension administrators, extension specialists and district directors, which re-established its content and face validity. In order to determine the internal consistency of the instrument, sixteen specialists who were not selected in the sample were randomly chosen to field test the instrument. Reliability coefficients ranged from $r=.73$ to $r=.91$.

The second part of the instrument collected demographic information. Questions of age, gender, academic rank, years of service at the University of Florida, and program typology were included in this section. The first mailing was on March 29th, 1999 to the 140 specialists that composed the sample resulting in 66 questionnaires completed and returned (47.1% return rate).

A second mailing was sent to the non-respondents on April 19th, 1999. From the second mailing, 31 additional completed questionnaires were received while seven potential respondents did not categorize themselves as specialists and asked to be removed from the study. A final attempt was made by the researcher to complete the data collection process. Between May 10th to 15th, the researcher personally delivered the instrument to fifteen specialists and received twelve

completed questionnaires. A total of 102 questionnaires were completed and returned (72.8% return rate).

One of the errors associated with survey research is non-response error (Ary, Jacob, & Razavieh, 1996). Research has shown that non-respondents are often similar to late respondents. As recommended by Goldhor (1974), to control for non-response error, respondents were categorized into early and late groups. Subsequently their responses were compared to check for any significant differences, and if no significant differences are found between early and late respondents, late respondents are believed to be typical of non-respondents, allowing the researcher to assume that respondents are an unbiased sample, thus generalizable to the population. Results of the t-tests showed no significant differences between the early and late respondents based upon the demographic variables.

To maximize the representation of the population, sixteen questionnaires from the field test were added to the sample resulting in 118 usable questionnaires. The procedure was implemented after the results of another round of t-tests showed no significant differences between the two groups based upon the demographic variables.

Data were analyzed using the SPSS/PC for Windows (Version 9.0). Critical needs were determined based upon the use of a matrix analysis as recommended by Witkin (1984) for assessing needs in education and social programs. This analysis produces graphic displays, which are helpful to individuals and groups making recommendations about priorities. Additionally, the matrix analysis method can be used not only for abilities rating and subsequently identification of critical needs, but also for organizations making decision about allocation of resources (Witkin, 1984).

Means of attribute importance, and the degree to which they possess the ability, were calculated for each construct separately. The attribute means were then used to construct a XY graph plotting the degree of possession of each attribute on the "X" axis and the overall importance of each attribute on the "Y" axis. After plotting both grand means (GM) for each (attribute importance and attribute process) construct, four quadrants emerged. For example, if an item score mean for overall importance is greater than the construct grand mean, and the mean for possession is less than the construct grand mean, the item would be placed in the critical need quadrant.

For the second objective, simultaneous entry linear regression analysis was performed to determine the amount of variance in the perceived overall importance and degree of possession of the attributes in general knowledge, program development and evaluation, and communication and presentation as explained by linear combination of specialists' age, length of service and appointment time. Grand means for both overall importance and possession of the abilities were used as dependent variables, and specialists' age, length of service at UF and appointment time were used as independent variables (predictors). An alpha level of 0.05 was established a priori.

The final objective was to determine if there were differences between the attributes of overall importance and the possession of general knowledge, program development and evaluation, and communication and presentation based upon the specialists' gender, academic rank, and program typology. Program typology was established by dividing departmental affiliation into two groups (applied behavioral sciences and natural sciences). Specialists in the Departments of Agricultural Education and Communication, Food and Resource and Economics, and Family, Youth and Community Sciences were assigned into the applied behavioral sciences

group. The second group consisted of specialists in the Departments of Agricultural and Biological Engineering, Agronomy, Animal Science, Dairy and Poultry Sciences, Entomology and Nematology, Food Science and Human Nutrition, Environmental Horticulture, Fisheries and Aquatic Sciences, Horticultural Sciences, Large Animal, Plant Pathology, Wildlife Ecology and Conservation, Soil and Water Sciences, and the School of Forest Resources and Conservation. One-way analysis of variance was performed using the grand means of both importance and possession as dependent variables, and gender, academic rank and program typology as independent variables. An alpha level of 0.05 was established a priori. When significant differences were found a subsequent analysis of variance was performed for each singular item of the construct to identify which items in the construct were generating the differences.

Results

Using the matrix analysis recommended by Witkin (1984), the researcher classified each item in the construct as being a critical need, low-level need, high-level successful ability or low-level successful ability. In the general knowledge area the only critical need was "knowledge of current research findings." Low-level needs included: (1) "ability to incorporate research into my extension program plan", (2) "ability to collaborate with county faculty in conducting result demonstrations", and (3) "ability to view problems from a systems perspective."

In the area of program development and evaluation, only one critical need was identified. The critical need was in regard to their "ability to identify funding sources for program development". The following low-level needs were identified by specialists: (1) "ability to assist county faculty to plan programs"; (2) "ability to assist county faculty in obtaining funding"; (3) "ability to interact with international industry groups/agencies or organizations"; (4) "ability to evaluate state major programs"; (5) "ability to provide design team leadership"; and (6) "ability to develop and follow an annual and long range plan for my extension program."

One critical professional development need surfaced in the communication and presentation construct. The critical need was the "ability to incorporate appropriate instructional techniques in my own presentation". The following six items were identified as low-level professional development needs: (1) "ability to assist county faculty to incorporate instructional techniques into programs (more than simply lecturing)"; (2) "ability to provide research summaries for county newsletters"; (3) "ability to develop products on electronic data bases for county faculty"; (4) "ability to work with news media"; and (5) "ability to resolve/manage conflicts between client groups and issues".

The second research objective was to determine the amount of variance in the perceived importance and possession of the attributes of: (a) general knowledge; (b) program development and evaluation; and (c) communication and presentation, as explained by a linear combination of the state specialists' age, percentage of extension appointment, and years of UFE service.

The average state specialist has been employed at the University of Florida for 16.36 years (SD= 8.92). Furthermore, 49% of the state specialists had a length of service ranging from 11 to 20 years. The average age of state specialists was 50 years (SD=8.29). On average the state specialists had 55% extension appointments (SD=9.0). The appointments ranged from 10 % to 100%. None of the six regression models were statistically significant which reveals that these demographic and organizational factors had little influence upon the professional development needs of the state specialists.

The final research objective was to determine if significant differences existed between the attributes in: (a) general knowledge; (b) program development and evaluation; and (c) communication and presentation based upon gender, specialist academic rank, and program typology. About 87% of the specialists in the sample were males.

No statistically significant differences ($F=1.440$, $p=0.233$) were found between males ($M=4.36$, $SD=0.45$) and females ($M=4.5$, $SD=0.29$) in overall perceived attribute importance of general knowledge. In addition, no gender differences were found based upon current abilities of general knowledge possessed by specialists ($F=0.987$, $p=0.323$).

Females ($M=4.41$, $SD=0.29$) perceived program development and evaluation as being more important ($F=9.49$, $p=0.003$) than males ($M=4.01$, $SD=0.49$). Females ($M=4.07$, $SD=0.54$) perceived themselves as possessing significantly ($F=4.77$, $p=0.031$) greater program development and evaluation abilities than did males ($M=3.69$, $SD=0.62$).

Significant differences were found between male specialists ($M=4.23$, $SD=0.49$) and female specialists ($M=4.5$, $SD=0.33$), on the perceived importance of communication and presentation abilities ($F=5.098$, $p=0.026$). However, there were no significant differences between male specialists ($M=3.96$, $SD=0.51$) and female specialists ($M=4.15$, $SD=0.42$) on communication and presentation abilities possessed by state specialists ($F=1.714$, $p=0.193$).

On three of the six analyses of variance, a significant gender effect was found. The three analyses were in: (1) overall importance of program development and evaluation; (2) current abilities of program development and evaluation; and (3) overall importance of communication and presentation. In an effort to better understand the nature of these differences, an item-by-item construct analyses was conducted with gender as the independent variable. In terms of overall importance of program development and evaluation significant differences were found on five items. The five items were: (1) "ability to assist county faculty to plan programs"; (2) "ability to produce educational programming materials"; (3) "ability to evaluate state major programs"; (4) "ability to develop and follow an annual and long range plan for my extension program"; and (5) "ability to collaborate with other state specialists in planning and delivering programs". It should be noted that for all five items, females perceived them to be more important than males.

In terms of current abilities of program development and evaluation, significant differences were found in two items: (1) "ability to produce educational programming materials"; and (2) "ability to develop and follow an annual and long range plan for my extension plan". Females perceived themselves as possessing greater abilities than males.

In the communication and presentation construct, five items showed significant differences. The five items were: (1) "ability to communicate in writing"; (2) "ability to respond clearly to technical subject matter questions in a timely manner"; (3) "ability to assist county faculty to incorporate instructional techniques into programs, more than simply lecture"; (4) "ability to exhibit enthusiasm when delivering programs"; and (5) "ability to incorporate appropriate instructional techniques in my own presentation". Likewise, females perceived the items more important than males.

Most of the state specialists held the rank of professor (57.6%), followed by associate professor (28%) and assistant professor (14.4%). Twenty two percent of the specialists could be classified as applied behavioral scientists, while the majority were classified as natural scientists (77.6%). None of the analyses, which examined the influence of academic rank and program typology upon professional development needs, were statistically significant.

Conclusions and Recommendations

One critical need was identified in the general knowledge construct: "knowledge of current research findings." This need is related to problems of time management. Finding the time to remain up-to-date with new research findings is a challenge of all academics. This finding is clearly contrasted with the perceptions of county directors (Baker & Villalobos, 1997) and county faculty (Allen, 1999). These two groups perceived that state specialists had a critical need in their "ability to collaborate with county faculty in conducting result demonstrations." In addition, county faculty identified a critical professional development need related to "communicating client problems to researchers."

In terms of program development and evaluation, specialists identified a critical need to be the "ability to identify funding sources for program development." Baker and Villalobos (1997) and Allen (1999) results agreed upon the following critical needs in this same construct: (1) "produce educational programming material"; (2) "deliver appropriate in-service training to county faculty"; and (3) "evaluate state major programs." In addition, county directors identified one more critical need: "understand needs of clients" (Baker & Villalobos, 1997).

The only critical professional development need in the communication and presentation construct was the "ability to incorporate appropriate instructional techniques in my presentation." County directors identified the critical need of "travel of specialists to county offices at state expense." County faculty indicated that specialists had a critical need regarding their ability to "listen to and respond to technical questions in a timely manner." It is important to note that in communication and presentation, the perception of critical needs differed in all three studies.

Generally, the results revealed that critical needs identified by specialists differed in all three construct areas, when compared to those identified by county faculty and county directors. It is also interesting to note that county faculty and county directors were relatively consistent regarding their expectations of specialists.

None of the six regression models were statistically significant which reveals that the demographic (specialists' age) and organizational factors (percentage of extension appointment, and years of UFE service) have little or no influence upon the perceived importance and current abilities of specialists in general knowledge, program development and evaluation, and communication and presentation. Specialists' academic rank and program typology did not generate significant differences between the attributes of general knowledge, program development and evaluation, and communication and presentation. These critical professional development needs cut across these demographic and organizational factors. In terms of planning professional development programs, the ability to generalize beyond age, appointment percentage, years of UFE service, academic rank, and program typology is considered a positive.

There were significant differences between male and female specialists for attributes of importance and possession of program development and evaluation, and attribute importance of communication. Generally, females gave more importance to certain items than males did. There are a number of plausible explanations for this finding. First, the female specialists in the sample may have had more exposure to social science course work, and/or practical experience in the field in working with extension audiences. An inspection of the sample of females resulted in no gender differences based upon program typology. However, there are specialists in the natural sciences that were educated as social scientists, and this may explain the gender

difference. Second, female specialists may be more qualified than males. Certainly as a whole, state specialists are a male-dominated group. Finally, another explanation may be a result of gendered communication styles (Wahlstrom, 1989; Lee, 1997; Baker & Wilson, 1998). Valenti (1996) stated: "empirical studies in communications have repeatedly confirmed gender-based differences in ways of knowing and conversing, audience responses, leadership and consumer behaviors, decision making processes, and more (p. 42)."

Based upon these findings, there are a number of logical recommendations. First, the UFE professional development specialists should collect focus group data in an effort to verify these results and provide deeper insight into the critical needs that surfaced. These same individuals should then develop and beta test a positional analysis tool for specialists to use to identify personal strengths and deficiencies. In addition, the information that surfaces can be used in establishing program curricula in the three critical professional development need areas.

Second, the professional development specialists should examine organizational rewards associated with employee participation in professional development programs. Finally, there is a need for extension administrators, unit leaders, specialists, and county faculty to develop clear parameters as per the responsibility of state specialists.

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The Influence of Selected Personological and Organizational Characteristics Upon Professional Development Needs of State Extension Specialists in Florida

A Critique

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This paper focused on the third phase of a project focused on professional development needs of Extension Specialists. The authors established a clear basis for the study. They thoroughly explained their procedures and provided a framework for conducting the study. The authors are to be commended for focusing their study on this important topic in adult education. Professional development programs help sustain quality programming and it is an important component of Extension. However, the title of the paper seems a bit misleading as well as overpowering.

In reviewing this paper it seemed as if the Clemson study and the Florida study were cut from the same cloth. It was as if the researchers collaborated in conducting their individual studies, although there was no reference to this approach nor were the results the same. I am not sure what this means regarding Extension specialists at Florida and Clemson.

While the study did not reveal much new information, using matrix analysis the authors did find three critical need areas:

- knowledge of current research findings
- ability to identify funding sources
- ability to use appropriate instructional techniques

These findings seem to show needs that counter the needs in South Carolina, especially the one on funding.

Additionally, apart from a few differences between males and females regarding importance of various components in program development, little else was found to be significant in this study. The authors state that many studies have confirmed the gender differences they found. This was more of a confirming study than a study revealing new information.

Given the above observations, there remain some questions that need to be answered regarding this study:

- How much faith can we have in self-reported data on professional development needs? No cautionary notes were made in the paper indicating this weakness in such studies.
- What makes the recommendations “logical” as you state in the paper? Wouldn’t it be more logical to compare this data with data gathered in the earlier phases of the project. No mention was made of this possibility or your plan to do so.
- How does the second recommendation relate to the findings? Does it really emanate from the data? If so, how and in what way?
- How could the data have been presented in the paper so it would have been more easily understood?

Professional development programming is a critical area of need. Researchers in this area of adult education need to be encouraged to pursue a greater understanding of the process of professional development.