Adult Education in Extension: Developing a Web-based Learning Module Based upon Expressed Needs

Nick T. Place¹, Tracy Irani², Chris Mott³

¹Assistant Professor
Department of Agricultural Education and Communication
Institute of Food and Agricultural Sciences / University of Florida
219 Rolfs Hall / P.O. Box 110540
Gainesville, FL 32611-0540 USA
Telephone: (352) 392-0502, ext. 227
Fax: (352) 392-9585
E-mail: nplace@ufl.edu

²Assistant Professor
Department of Agricultural Education and Communication
E-mail: irani@ufl.edu

³Graduate Student
Department of Agricultural Education and Communication
E-mail: chrismot@ufl.edu

Abstract

Numerous people assume that Extensionists have all the requisite skills needed to conduct effective educational programs. Realistically, in many situations, Extensionists have been hired because of their education, skills and abilities related to a particular program area, and very few have education, training or skills related to adult education. Successful extension educational programs not only depend upon quality content, but, in many cases, an ability to facilitate adult learning may be more critical to truly achieve clientele impact.

An ex post facto study was conducted to determine critical professional development needs of University of Florida County Extension faculty in the area of adult education to guide the development of a web-based learning module. On average, faculty felt that they spend about 50% of their time on adult education, and the majority perceived themselves as effective adult educators. However, the majority also believed that they have a substantial need for additional training in adult education. Across all constructs measured, faculty rated perceived importance higher than possession, creating an educational needs gap. This gap served as the foundation upon which an adult education web module was created. The web module focused upon the most critical needs, and examples related to current Extension issues and program areas were integrated where appropriate. It was concluded that the Extension system could significantly benefit from active integration of adult education into formal training and professional development opportunities.
Introduction/Theoretical Framework

As the world's largest nonformal adult education organization (Boone, 1985), it could be reasonably assumed that Extensionists possess the knowledge and skills needed to anticipate and recognize adult needs and to direct learning activities that adequately address those needs. However, in many situations, extension professionals have been hired to work in extension primarily because of efficacy in a particular subject area rather than experience or skills as educators (Seevers, 1995). Further, although extension agents are often well grounded in their respective subject areas, they may not have had much training in educating adults (Cornell, 1999).

Previous research in this area has shown that the success of an extension program depends, not only on the quality of content offered, but also on the ability of the extension educator to effectively facilitate adult learning (Cornell, 1999; Birkenholz, 1999; Rogers, 1996). For example, findings from a study that included a historical review of the hiring practices, pre-professional training requirements and the nature of the Ohio Cooperative Extension Service (OCES), demonstrated the importance of providing professional development in the area of adult education (OCES, 1989). A look at pre-professional educational requirements as well as on-the-job staff development opportunities indicated that most extension professionals were not trained to assume the role of an adult educator, but rather to serve as experts in a particular science-based field (Seevers, 1995).

Adult learners and extension professional development

One of the ways in which to insure that Extensionists have the skills they need to educate adults is through extension professional development activities and programs. Skills and competencies designed for extension educators are enhanced by the process of staff development (Seevers, Graham, Gamon & Conklin, 1997). Professional staff development can take the form of in-service training, professional organizations, personal reading, computer networks, and mentoring programs (1997).

For the past ten years, there has been an increase in research outlining the best procedures in professional development (Galbo, 1998). According to Galbo, there has also been an attempt to connect adult learning theory to the design of professional development training (1998). She contends that educators have made an effort to link the best practices in professional development with information on adult learning because they believe that the most effective professional development results from connecting the two fields (1998). Galbo denotes that Knowles’ research has important implications for staff development providers (1998). “While andragogy teaches us that there is not one best way to design staff development programs, applying adult learning theory can help those responsible for planning staff development training to meet the individual requirements of adult learners” (p. 1). Galbo indicates that professional staff development is much more likely to be effective in facilitating reform if the implementation of staff development practice is also based on the key findings of adult learning theory (1998).
Purpose/Objectives

Based on the concept that youth and adult audiences respond to education differently, and in fact learn differently (Birkenholz, 1999), it can be argued that county extension faculty need to understand how to tailor their extension education programs for these disparate audiences. Given the focus on educating adults, it could be assumed that knowledge, understanding and capability in applying adult education concepts and skills would be important assets for county extension faculty. From an organizational perspective, demonstrating that competency in adult education is an important and valued skills set that could be useful in terms of identifying a new and potentially important area for professional development and in-service training opportunities.

The purpose of this study, therefore, was to conduct a needs assessment to determine perceived levels of importance, competency and need for training in adult learning theories and practices among a sample population of county extension faculty. Consequently, the objectives of the study were as follows:

1. Describe county extension faculty respondents’ overall perceptions of the importance of adult education theories, concepts and practices;
2. Describe county extension faculty respondents’ overall perceptions of the degree to which they felt they possessed these adult education skills/competencies;
3. To develop a web-based learning adult education module based upon the expressed needs of county Extension faculty.

Methods/Procedures

The research design for this study, a one shot case study in which observations were made in the form of a questionnaire, was causal comparative in nature (Ary, Jacobs & Razavieh, 1996). The population for the study (N=70) was comprised of county extension faculty in one of five state extension districts. The survey was developed and administered to a convenience sample of faculty (n=60) attending a district meeting of all county extension faculty.

The survey consisted of three sections of five-point Likert-type statements adapted from instruments developed by Hiemstra & Sisco (1990), Bata (1999), and Place (2001). The constructs measured embedded perceptions as to the importance and degree of possession of adult learning concepts and practices expressed as skills/competencies, as well as perceptions of the need for training in this area. The first section of the instrument measured the perceptions of importance and degree of possession of a set of 15 adult education skills/competencies that were based on accepted adult education concepts and practices. The second part of the instrument measured the perceived need for training in the field of adult learning, and included two questions focusing on the estimated percent of time a faculty member spends with adult education, as well as his/her perceptions of need for additional training in adult education. The third section of the instrument collected demographic information, including age, gender, academic rank, educational background, years of service, position appointment and time in that position.
All items were reviewed for face and content validity via a panel of experts comprised of faculty and graduate students with expertise and training in adult education (Ary et al., 1996). Resulting changes and suggestions were incorporated into the instrument prior to use with the targeted population. Cronbach’s alpha reliability coefficient for the resulting scale was .86.

Results/Finding

Demographic characteristic results indicated that 60.2% of the faculty in the sample were female. The majority of respondents held a master’s degree (65%), followed by a doctorate (18.3%) while a smaller percentage had only a bachelor’s degree (15%). The average length of time county extension faculty had been employed was 8.4 years ($SD=9.48$). Furthermore, 75.8% of the faculty had a length of service in their current position in the category of between 1-10 years. The average age of respondents was 44 years. Among this group of faculty, 45.6% possessed a background in the field of education, and of those who did have a background in education, 65% had an adult education background. Nearly 71% of total respondents had no formal background in the specific field of adult education.

A five-point Likert scale was utilized to measure self-perceived levels of importance and possession attributes across fifteen adult education constructs. Mean ratings were categorized according to the following standard: means ranging from 1.00 – 1.49, low; 1.50 – 2.49, below average; 2.50 – 3.49, average; 3.50 – 4.49, above average, and; 4.50 – 5.00, high. Overall, the faculty perceived importance of the set of adult learning attributes as above average ($M=4.22$, $SD=0.79$). Six items in this construct were categorized as ‘high.’ Similarly, the overall average to which respondents felt they possessed the set of attributes was rated to be above average ($M=3.55$, $SD=0.87$). Nine of the fifteen individual items in this construct were in the above average range. In addition to the skills/competencies items, two items in the survey assessed respondents’ perceptions of need for training in the field of adult learning. Overall, respondents felt that they spent nearly 50% of their time with adult education. Not surprisingly, county faculty also perceived their need for additional training in adult education to be substantial ($M=3.53$, $SD=1.14$). (Table 1).

Differences between perceived importance and perceived possession for each attribute were calculated to determine areas with the greatest need. Five attributes had a difference of 0.70 or greater, and these were deemed as most important. In rank order these include (difference noted in parentheses): “Web-based Learning for Adults” (1.13), “Youth vs. Adult Instruction” (0.73), “Defining the Field of Adult Education” (0.71), “Adult Learning Theoretical Basis” (0.70), and “Adult Learner Attributes” (0.70) (Table 1).
Table 1

Attribute Importance (Imp) and Possession (Poss): Field of Adult Learning Construct (n=60)

<table>
<thead>
<tr>
<th>Field Construct of Adult Education</th>
<th>Imp</th>
<th>SD</th>
<th>Poss</th>
<th>SD</th>
<th>Difference:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defining the Field of Adult Education</td>
<td>4.37</td>
<td>0.91</td>
<td>3.66</td>
<td>0.86</td>
<td>0.71</td>
</tr>
<tr>
<td>Philosophical roots of the field</td>
<td>3.73</td>
<td>0.95</td>
<td>3.28</td>
<td>0.92</td>
<td>0.45</td>
</tr>
<tr>
<td>Historical Roots of Adult Learning</td>
<td>3.22</td>
<td>1.08</td>
<td>2.80</td>
<td>1.05</td>
<td>0.42</td>
</tr>
<tr>
<td>Adult Learning Theoretical Basis</td>
<td>3.75</td>
<td>1.01</td>
<td>3.05</td>
<td>1.02</td>
<td>0.70</td>
</tr>
<tr>
<td>Program Planning for Adults</td>
<td>4.75</td>
<td>0.57</td>
<td>4.08</td>
<td>0.72</td>
<td>0.67</td>
</tr>
<tr>
<td>Recognizing Diversity among Adults</td>
<td>4.70</td>
<td>0.56</td>
<td>4.08</td>
<td>0.70</td>
<td>0.62</td>
</tr>
<tr>
<td>Pedagogy vs. Andragogy</td>
<td>3.09</td>
<td>1.11</td>
<td>2.52</td>
<td>1.16</td>
<td>0.57</td>
</tr>
<tr>
<td>Adult Learner Attributes</td>
<td>3.68</td>
<td>1.04</td>
<td>2.98</td>
<td>1.03</td>
<td>0.70</td>
</tr>
<tr>
<td>Motivation of Adult Learners</td>
<td>4.72</td>
<td>0.56</td>
<td>4.03</td>
<td>0.80</td>
<td>0.69</td>
</tr>
<tr>
<td>Instructional Materials for Adults</td>
<td>4.82</td>
<td>0.47</td>
<td>4.17</td>
<td>0.69</td>
<td>0.65</td>
</tr>
<tr>
<td>Approaches to Adult Instruction</td>
<td>4.47</td>
<td>0.68</td>
<td>3.80</td>
<td>0.78</td>
<td>0.67</td>
</tr>
<tr>
<td>Becoming an Adult Education</td>
<td>4.10</td>
<td>1.02</td>
<td>3.63</td>
<td>0.88</td>
<td>0.47</td>
</tr>
<tr>
<td>Professional Understanding Adult Learner Needs</td>
<td>4.73</td>
<td>0.58</td>
<td>4.05</td>
<td>0.79</td>
<td>0.68</td>
</tr>
<tr>
<td>Youth vs. Adult Instruction</td>
<td>4.70</td>
<td>0.50</td>
<td>3.97</td>
<td>0.71</td>
<td>0.73</td>
</tr>
<tr>
<td>Web-based Learning for Adults</td>
<td>4.40</td>
<td>0.76</td>
<td>3.27</td>
<td>1.01</td>
<td>1.13</td>
</tr>
<tr>
<td><strong>Overall Totals</strong></td>
<td>4.22</td>
<td>.79</td>
<td>3.55</td>
<td>.87</td>
<td></td>
</tr>
</tbody>
</table>

* Difference = Importance Mean – Possession Mean.

Designing a Web-based learning module (Objective 3)

The third objective was to develop a series of Web-based, needs-centered adult learning modules to be included on the FLCES (Florida Cooperative Extension Service) Professional Development Web site to be accessed by new and existing Extension agents and for in-service training activities. The modules developed as a result of the needs assessment for this study consisted of self-run/viewer-controlled narrated Microsoft® PowerPoint®, RealPlayer® presentations, which contained content materials based on the needs expressed by the faculty. The software used to develop the presentations was used to create audio narrated slide shows that synchronized the movement of PowerPoint slides automatically to the recorded audio. This was done to enhance the quality of the presentations, and to allow users to experience richer interaction through hearing the nuances of vocal tone and
inflection as the narration proceeded. Other elements included:

- printable slide notes pages,
- the ability to interact with the module author and the Extension expert via e-mail correspondence,
- Internet links to download appropriate software in order to view contents if the user does not have on his or her personal computer,
- links to relevant adult education Web sites outside of the module.

A total of seven modules were developed for this website. The first module was based upon the adult learning attributes that provided an overview of adult education focusing on the ability to define the field of adult learning along with understanding its historical development. The second module outlined the characteristics of adult learners to better understand youth vs. adult instruction and distinguish how this relates to instruction, along with defining the terms “pedagogy” and “andragogy.” The contents of this module included the definitions of an adult, concepts of adulthood, characteristics of adult learners, needs of adult learners, and essential tools of adult education. The last set of five modules focused on the primary adult learning orientations including: Humanist, Behaviorist, Social Learning, Cognitive Learning, and Critical Reflection. These five orientations provide a framework that encapsulates all of the major theories and principles of adult education.

An underlying goal of this project was to make each learning module as informative, interesting, user-friendly and accessible as possible for the participants. Based on the findings of the survey research, the purpose was to accommodate the expressed learning needs of county extension faculty while developing an effective training program that faculty could utilize individually and efficiently. With that in mind, entry to the modules was designed so as to only require the user to have basic Internet browsing and email skills. For counties that have Internet connection firewalls, or slower Internet connections unable to support downloadable software and/or RealPlayer® presentations, a CD-ROM version of the modules was mastered and duplicated for their use.

The main focus of these modules concentrated on content attributes related to adult education that would serve to establish a stronger foundation in this area, and these arose from the attributes that came out of the research as showing the greatest difference between perceived importance and possession of the attributes. Based on the literature, the researchers concluded that although a contextual attribute, “Web-based Learning for Adults” was the attribute that showed the greatest difference between perceived importance and possession, it was of utmost importance to first build a solid foundation of content upon which to build delivery or context. Since the main focus of this set of modules was therefore determined to be content, modules focused on contextual attributes are scheduled to be developed in the near future, along with other related areas.

Conclusions and Recommendations

Results of this study revealed that county extension faculty respondents do feel that they spend a significant amount of time on adult education, and that they generally perceive themselves as effective adult educators. However, the majority of faculty surveyed also felt that they have a substantial need for additional training in this area. Moreover, although
respondents perceived both importance and degree of possession of adult education skills/competencies as above average, perceived importance was rated at a higher level than degree of possession.

The major outcome of this research was the development of a Web-based, needs-centered adult learning module to be included on the FLCES Professional Development Web site to be accessed by Extension faculty. It was apparent that FLCES agents in this district felt they were deficient when it comes to possessing some of the adult learning concepts presented in the needs-assessment. Therefore, learning concepts identified as critical needs were used to determine module content, and these primary needs were in adult education content areas focused on foundational knowledge.

The modules were designed specifically for the adult learner, taking into account characteristics of adult learners, the founding theories of adult education, current research on the subject and present capabilities of FLCES’s technology. The modules were made accessible on the Web for individual convenience, since it is known that extension agents, as do most adults, have many competing interests. As Knowles (1990) points out, adults need to control their learning, and they need to feel that learning has immediate utility that focuses on issues that directly concern them.

Adult learning is greatest when it maximizes available resources (Knowles, 1990). Also, research contends that the more senses involved in the learning process, the better the presented information will be understood and learned by the adult student. Using current available FLCES technologies, the reasoning behind the incorporation of video, text, and audio was an attempt to capture and maintain the users’ attention and interest and understanding.

In addition, the RealPlayer® presentations were chosen as the medium in which to produce the presentations, so that the modules could be operated solely by the adult learner, allowing the user to start, stop, pause, rewind and fast forward to any point in the modules’ video presentation or audio narration at any time. The content was also selected from their expressed needs and written in a format beneficial to the adult learner. Basic, applicable information, with relevant examples of how the agent can immediately utilize the information presented was incorporated.

According to Cornell University’s Cooperative Extension Service (1999), to be effective, an adult education Web-based learning module needs to address both theory-based principles of adult education and how to effectively deliver instruction or education to clientele. Because most of the agents in this study had minimal to no prior exposure to the philosophical roots of adult learning and their application to Extension, a mix of andragogy and pedagogy and deductive and inductive teaching approaches were used to present the module content. Inductive and deductive teaching strategies were also utilized in content construction of the modules. Deductive approaches included introducing the adult learning orientations in general idea or concept format and then subsequently showing how it could be applied. Inductive approaches included using realistic situations, case studies, and real life situations to guide critical thinking, which lead to the learned concept. These approaches were also described to inform and help agents with their educational delivery to adult clientele.

Pedagogy embodies more of a teacher-directed instruction as opposed to andragogy,
which includes more student-directed learning (Knowles, 1990). The five adult learning orientations included in these modules were presented in a pedagogical manner in that they listed and described the basic foundational concepts of each orientation. The information presented also related to the andragogy approach in that the modules created conditions and provided the tools and procedures for helping learners discover their specific educational needs (1990). They were also organized around life-application categories and sequenced according to the learners’ perception of their readiness to learn (Cornell, 1999).

Educational Importance and Implications

Although this study examined faculty in just one extension district in Florida, there is a strong possibility, based upon demographics, educational background and employment, that these respondents mirror faculty in other districts as well. Consequently, it can be inferred that a need for professional development in adult education exists, and that extension faculty could benefit from such training in that it would help them to be more effective at program planning and evaluation.

Results from this study indicate that respondents perceive adult learning attributes to be more important than they actually possess them. These and other results imply there is a need for additional training in adult education for those FLCES agents surveyed. Such training has been found to be important, and with wider use the number of those who could benefit from this Web-based, need-centered, professional development module is increased. In the end, agents will be advantaged, because it was designed specifically for the adult learner/educator. The fact that the modules were planned according to their expressed needs and the potential learner had an integral role in the content development process, it should draw upon the agents’ interest as they pursue this learning. This acquired knowledge will enhance the agents’ effectiveness in program planning, evaluation, and communication with their largest clientele, adults.

Future studies are planned to examine broader populations and the actual effectiveness of specific adult learning modules and professional development offerings in the area of adult education and distance delivery of such learning content.

Example web pages from the FLCES Extension Adult Education Module

Figure 1 below illustrates a slide that introduces the Inductive and Deductive approaches to teaching.
Inductive and Deductive Teaching Styles

DEDUCTIVE
(mostly youth)
Presenting a general idea, concept, followed by presentation of multiple applications.

Babbelo, 1999
Figure 2. Adult Learning Theories.

References


