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Fundamentals of an Extension Education Doctoral Specialization: The University of Florida Framework

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Abstract. Academic departments need to periodically assess their programs to ensure that students are developing the competencies needed for successful careers. Consistent with this goal, a new framework for guiding the doctoral specialization in extension education was developed by the Department of Agricultural Education and Communication at the University of Florida. A modified Delphi method was used to guide the project with a goal of achieving consensus regarding fundamentally important theories, knowledge, literature, and experiences for graduate students pursuing doctoral degrees specialized in extension education. The resulting framework can be used as a guide for recruiting, advising, and communicating job qualifications.

INTRODUCTION

Cooperative Extension is an agency of change, providing nonformal education targeted toward community citizens (National Institute of Food and Agriculture, 2020). As Extension continues to adapt to societal changes and needs, so too do the academic programs that train and develop Extension agents, state specialists, and administrators (Stripling & Ricketts, 2016). Scheer et al. (2006) explained that “academic departments that prepare future Extension professionals can meet changing needs by consistently reviewing the literature and evaluating the evolving needs of Extension professionals” (Implications and Conclusions, para. 2).

As of 2017, 19 land-grant universities offered an academic program in extension education: five offered a minor, seven offered a major, 12 offered a master’s, and five offered a doctoral degree with a specialization in extension education (Harder et al., 2018). The extension education specialization within the Department of Agricultural Education and Communication at the University of Florida is primarily designed to prepare doctoral students to move into Extension specialist roles in program and staff development and comparable program and staff development roles in international agricultural development. Evaluating our extension education specialization periodically is critical to developing qualified and competitive graduates, providing direction for advising students, and strengthening our ability to recruit high-quality students.

CONCEPTUAL FRAMEWORK

The use of a competency-focused approach provides faculty members with a shared, synergistic vision through which they can evaluate the extension education specialization and collaboratively prepare future Extension professionals. Competencies are specific standards, skills, characteristics, or knowledge that predict or cause outstanding performance (Boyd, 2003; Mulder, 2012; Stone, 1997). Delivering education in alignment with pre-identified competencies is an effective way to develop graduates to meet stakeholders’ needs, as well as reduce turnover and increase job satisfaction among Extension professionals (Brodeur et al., 2011; Lurie & Garrett, 2017). Although in relatively early stages of adoption by academic institutions in the United States (Lurie & Garrett, 2017), the “identification of competencies needed by Extension professionals is particularly relevant for academic Extension education programs to ensure their curricula adequately prepare students to enter the profession following graduation” (Harder et al., 2010, p. 44).

LITERATURE REVIEW

Past competency researchers in Extension have examined volunteer management competencies (Boyd, 2004), current competency levels for specific Extension systems (Lakai et al., 2014), preparing future Extension agents (Argabright et al., 2019; Harder et al., 2010; Scheer et al., 2006), and professional development of current agents (Cummings et

al., 2015). Competencies addressed in these studies can be summed up by Harder (2015), who grouped competencies into (a) program planning and development, (b) teaching tools and methods, (c) program evaluation, (d) subject matter expertise, (e) Extension organization and administration, (f) information and communication technologies, (g) external linkages and collaborations, (h) interpersonal leadership, (i) volunteer development, and (j) professionalism and professional development. More broadly, Shinn et al. (2008) conducted a study to find the core knowledge domains doctoral candidates in agricultural education should possess, including candidates studying agricultural education, agricultural communication, extension education, and agricultural leadership. Shinn et al. identified 7 knowledge domains: (a) planning and needs assessment, (b) curriculum development, (c) learning theory, (d) instructional design, (e) delivery strategies, (f) evaluation, and (g) research methods and tools. However, neither Shinn et al. nor the authors of the previously mentioned competency studies specifically examined the needs of doctoral students specializing in extension education.

PURPOSE

The purpose of our project was to build consensus on what elements – theories, literature, abilities, and experiences – are fundamentally important for the development of doctoral students specializing in extension education. Competencies were included in, but not the sole focus of, the framework we sought to create.

METHODS

The development of a competency framework within a specific field and context often includes participatory steps to achieve consensus among those working in the domain of interest (Boyd, 2003; Brodeur et al., 2011; Harder et al., 2010; Stone, 1997). We used a modified Delphi method (Linstone & Turoff, 2002) consisting of three rounds. Faculty ($N = 11$) in our department who used to advise or were currently advising doctoral students in the extension education specialization were invited to participate on the panel. Our lead author directed the methods for the project and was also an active participant.

Every panelist but one had a formal Extension appointment. Five panelists were former county agents who moved into Extension specialist positions following successful completion of their doctoral programs. One panelist was serving as the Director of the Program Development and Evaluation Center. Several panelists held leadership positions within UF/IFAS Extension's priority work groups and/or elected roles in Extension professional associations. Panelists were recognized with prominent

awards for their expertise, including the Epsilon Sigma Phi's Distinguished Early Career Service award, the American Evaluation Association's Sustained Excellence in Evaluation award, the National Association of Extension Program and Staff Development Professionals' Past Presidents Early Career award and Excellence in Staff Development award, and the American Association of Agricultural Education's Distinguished Extension Educator award.

Approval from the Institutional Review Board as an exempt project was provided in 2017. We used Qualtrics (<https://www.qualtrics.com>) to collect data for the first two rounds and completed the third round in person to allow consensus building via interactive discussion. Round 1 of the Delphi process started in December 2017 and ended in January 2018. Panelists were invited to submit responses to four open-ended questions about what constituted fundamentally important theories, critical readings, abilities, and critical experiences for a doctoral graduate of our extension education specialization. We also asked panelists a fifth question to consider any other items they thought were critical for the Department of Agricultural Education and Communication to consider when planning our extension education specialization for doctoral students. We received responses from 7 of the 11 invited panelists.

Responses from Round 1 were compared and distilled into individual items to provide the content for Round 2, which started in February 2018 and ended in March 2018. Panelists were asked to evaluate 23 theory items, 18 reading items, 29 ability items, and 17 experience items. A four-point scale was used to evaluate each item, with response options coded as: 1 = *not important*, 2 = *slightly important*, 3 = *somewhat important*, and 4 = *very important*. Participation stayed constant with seven responses.

In May 2019, we established a time for the 11 panelists to meet for a group discussion. Seven panelists were able to attend while an eighth panelist provided feedback via email. The Round 2 data were emailed to the Extension faculty in advance of the discussion and were presented by frequency and individual item means. Means are not ideal for individual items, but inconsistent response rates for each item made this a practical choice for ease of comparison.

As a group, we used the Round 2 results to make determinations in Round 3 about what to keep in the framework, identified and added a few new items, combined similar items, and eliminated the rest with the recognition that advisors will still need to customize each student's experience according to that student's end goal. The results from Round 2 and finalized framework from Round 3 are presented in the Findings section.

The study is limited by the small sample size, which is less than ideal for the Delphi method but a practical constraint given the size of the faculty population. However, the validity of a Delphi panel may be more dependent upon

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the expertise of its members rather than the size of the panel (Ludwig & Starr, 2005). Departments like ours are encouraged to evaluate the appropriateness of this approach for their own planning purposes and should exercise caution when considering the relevance of the findings to their own academic programs.

FINDINGS

Round 2 provided the faculty with the opportunity to evaluate each item that had been suggested in Round 1. Table 1 presents the frequencies and means of fundamentally important theories or concepts as worded in the final framework. Instances when one or more items were revised or combined to form the final statement are presented using italics. Items not retained in any way after three rounds were (a) social exchange theory, (b) theories of agricultural knowledge and information/innovation systems, (c) constructivism, (d) self-directed learning, (e) cognitive dissonance, (f) two-way symmetrical model of communication, and (g) principles of life skill development.

Table 2 presents the frequencies and means of fundamentally important literature. Four new items were added as a result of the Round 3 discussion. Items not retained in any way after three rounds were (a) *Extension Science* by Roling, (b) *Leading Change* by Kotter, (c) *Taking the University to the People* by Rasmussen, (d) *Experience and Education* by Dewey, (e) *Strengthening Agricultural and Advisory Systems* by Swanson and Rajalahti, (f) *Improving Agricultural Extension: A Reference Manual* by Swanson et al., (g) various writings by Dr. Kristin Davis, and (h) *Agricultural Innovation Systems – An Investment Sourcebook* by the World Bank.

Table 3 presents the frequencies and means of fundamentally important abilities as worded in the final framework. Instances when one or more items were revised or combined to form the final statement are presented using italics. Two new items were added as a result of the Round 3 discussion. Items not retained in any way after three rounds are presented as follows using the original text provided by panelists. Those items were (a) create a TOP model, (b) instructional design, (c) develop studies with mixed

Table 1. Fundamentally Important Theories or Concepts

Theory or concept	N	SL	SO	V	M
	f	f	f	f	
Diffusion of innovations	0	0	0	7	4.00
<i>Opinion leadership</i>	1	0	2	4	3.29
<i>Theories of social change</i>	0	0	3	4	3.57
Theory of planned behavior	0	0	1	6	3.86
Transtheoretical model of change	—	—	—	—	—
<i>Theories of change</i>	0	0	1	6	3.86
Burke-Litwin model of organizational change	—	—	—	—	—
<i>Organizational change</i>	0	0	1	6	3.86
Social marketing	—	—	—	—	—
<i>Community-based social marketing</i>	0	1	4	2	3.14
Audience segmentation	0	1	3	3	3.29
Adult education	—	—	—	—	—
<i>Adult learning</i>	0	1	0	5	3.67
<i>Teaching and learning theories</i>	0	1	1	5	3.57
Social cognitive theory	0	0	2	4	3.67
<i>Self-efficacy theory</i>	0	1	3	3	3.29
Experiential learning	0	1	1	4	3.50
Logic models	—	—	—	—	—
<i>Program planning and evaluation theories and models</i>	0	1	1	5	3.57
Targeting outcomes of programs (TOP) model	0	1	2	3	3.33
CIPP model	0	2	2	2	3.00

Note. Dashes are used when items lack frequencies because they emerged during Round 3 discussion. Instances when one or more items were revised or combined to form the final statement are presented using italics. N = not important = 1, SL = slightly important = 2, SO = somewhat important = 3, and V = very important = 4. M possible scores range from 1 to 4.

Table 2. Fundamentally Important Literature

Source	N <i>f</i>	SL <i>f</i>	SO <i>f</i>	V <i>f</i>	<i>M</i>
<i>Students must read all the following works:</i>					
Rogers, E. M. (2003). <i>Diffusion of innovations</i> (5th ed.). New York, NY: Free Press	0	0	0	7	4.00
Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). <i>Internet, phone, mail, and mixed-mode surveys: The Tailored Design Method</i> (4th ed.). Hoboken, NJ: John Wiley & Sons, Inc.	0	0	2	5	3.71
Kolb, D. A. (1984). <i>Experiential learning: Experience as the source of learning and development</i> . Englewood Cliffs, NJ: Prentice-Hall.	0	1	1	4	3.50
Witkin, B. R., & Altschuld, J. W. (1995). <i>Planning and conducting needs assessments: A practical guide</i> . Thousand Oaks, CA: Sage.	0	0	1	4	3.40
Knowles, M. S., Holton, III, E. F., & Swanson, R. A. (2015). <i>The adult learner: The definitive class in adult education and human resource development</i> (8th ed.). New York, NY: Routledge.	0	1	2	3	3.33
Merriam, S. B., Caffarella, R. S., & Baumgartner, L. M. (2007). <i>Learning in adulthood: A comprehensive guide</i> . San Francisco, CA: John Wiley & Sons.	0	1	4	1	3.00
American Psychological Association. (2010). <i>Publication manual of the American Psychological Association</i> (6th ed.). Washington, DC: Author.	—	—	—	—	—
<i>Students must read at least one of the following works:</i>					
Boone, E. J., Safrit, R. D., & Jones, J. (2002). <i>Developing programs in adult education: A conceptual programming model</i> (2nd ed.). Long Grove, IL: Waveland Press, Inc.	0	1	2	3	3.33
Boyle, P. G. (1981). <i>Planning better programs</i> . New York, NY: McGraw-Hill, Inc.	0	0	3	2	3.40
Caffarella, R. S., & Ratcliff Daffron, S. (2013). <i>Planning programs for adult learners: A practical guide</i> (3rd ed.). San Francisco, CA: Jossey-Bass.	0	0	0	5	4.00
<i>Students must choose at least one of the following:</i>					
Newcomer, K. E., Hatry, H. P., & Wholey, J. S. (Eds.) (2015). <i>Handbook of practical program evaluation</i> (4th ed.). San Francisco, CA: Jossey-Bass.	—	—	—	—	—
Patton, M. Q. (2011). <i>Developmental evaluation: Applying complexity concepts to enhance innovation and use</i> . New York, NY: The Guilford Press.	—	—	—	—	—
Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2004). <i>Evaluation: A systematic approach</i> (7th ed.). Newberry Park, CA: Sage Publications.	—	—	—	—	—

Note. Dashes are used when items lack frequencies because they emerged during Round 3 discussion. Instances when one or more items were revised or combined to form the final statement are presented using italics. N = *not important* = 1, SL = *slightly important* = 2, SO = *somewhat important* = 3, and V = *very important* = 4. *M* possible scores range from 1 to 4.

methodologies, (d) audience analysis, (e) conduct participant observation, (f) able to develop an Extension fact sheet, and (g) able to describe non-U.S. Extension systems.

Table 4 presents the frequencies and means of fundamentally important experiences as worded in the final framework. Instances when one or more items were revised or combined to form the final statement are presented in the table using italics. One new item was added as a result of the Round 3 discussion. Items not retained in any way after three rounds were (a) co-author an Extension fact sheet, (b) planning ISTs, (c) evaluating ISTs, and (d) IST delivery via distance technologies.

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The developed framework for doctoral students in extension education emphasized program planning and evaluation, change management, learning theory, and teaching tools and methods. Faculty can provide better course recommendations for students by guiding them to courses which include coverage of agreed upon concepts, theories, and assigned readings. There is a connection to almost all the competency areas outlined by Harder (2015) and Shinn et al. (2008) except for subject matter expertise and volunteer

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Table 3. Fundamentally Important Abilities

Abilities	N <i>f</i>	SL <i>f</i>	SO <i>f</i>	V <i>f</i>	<i>M</i>
Implement Extension programs	0	0	0	6	4.00
Create a logic model	0	0	1	5	3.83
Design a program evaluation	0	0	1	5	3.83
Plan and conduct a needs assessment	0	0	1	5	3.83
Develop a program plan	0	0	2	4	3.67
Teach others how to develop logic models	0	1	1	4	3.50
Teach group audiences	0	0	1	5	3.83
Teach adult learners	0	1	0	5	3.67
Tailor presentations for different types of audiences	0	1	1	4	3.50
Facilitate groups	0	1	1	4	3.50
Conduct quantitative applied research	—	—	—	—	—
Conduct quantitative and qualitative applied research	0	0	1	5	3.83
Develop methodologically sound surveys	0	0	1	5	3.83
Analyze quantitative data	0	0	1	5	3.83
Conduct qualitative applied research	—	—	—	—	—
Develop interview and focus group moderator guides	0	0	2	3	3.60
<i>Conduct focus groups</i>	0	0	2	4	3.67
Analyze qualitative data	0	0	2	4	3.67
Write according to the standards of the profession	0	0	1	5	3.83
Translate complex scientific concepts and data for consumption by various external audiences (e.g. general public, legislators, funding agencies)	0	0	1	5	3.83
Identify strengths and weaknesses of the U.S. Extension system	0	0	1	5	3.83
Integrate fundamental theories into Extension practice	0	0	1	5	3.83
Describe the role of Extension agents and how they relate to Extension specialists and the greater land-grant university	0	1	0	5	3.67
Describe foundations of the U.S. Extension system	0	1	2	3	3.33

Note. Dashes are used when items lack frequencies because they emerged during Round 3 discussion. Instances when one or more items were revised or combined to form the final statement are presented using italics. N = *not important* = 1, SL = *slightly important* = 2, SO = *somewhat important* = 3, and V = *very important* = 4. *M* possible scores range from 1 to 4.

development, which may be due to the types of positions our graduates have tended to seek in recent years, such as program evaluation and staff development positions rather than positions involving engagement with volunteers.

The integrative approach of the framework allows us to connect our students with experiences that mirror the key functions of state-level Extension professionals, such as teaching, grant writing, and academic writing and publishing. Faculty may also use this framework to track students' growth over their academic programs, as we require individual development plans and programs of study to be developed by doctoral students and their respective advisors. Additionally, we will use the framework as a recruiting tool to better represent our specialization to prospective students.

Graduates can use the framework to articulate their skills and experience to potential employers.

We recommend that other doctoral programs with Extension education specializations determine the applicability of the results of our study as a framework to their own local contexts and/or recreate the Delphi method locally to create a framework more customized to their unique interests and needs. Smaller departments should consider seeking expertise outside of their local units to prevent narrowly biased viewpoints that could come from very small sample sizes. Critical consideration of students' needs is important to ensure that doctoral programs remain relevant and Extension education faculty utilize formative assessments to stay aligned with the changing needs of the

Table 4. Fundamentally Important Experiences

Experiences	N	SL	SO	V	M
	<i>f</i>	<i>f</i>	<i>f</i>	<i>f</i>	
Present at a research conference	0	0	1	5	3.83
Teach in a nonformal Extension setting					
Experience teaching in formal or nonformal settings	0	0	1	5	3.83
IST delivery, face to face	0	0	2	4	3.67
Extension presentation	0	0	2	4	3.67
Teach in a formal education setting (including guest lectures)	0	0	2	4	3.67
Academic presentation	0	0	1	5	3.83
Submit at least one refereed journal publication	0	0	2	4	3.67
Write an applied article for JOE	0	0	4	2	3.33
First-hand county experience, either through prior experience or through an internship/shadowing experience	0	0	2	4	3.67
Assist with conducting a needs assessment	0	0	2	4	3.67
Assist with conducting a program evaluation					
Evaluation of an Extension program or presentation	0	1	2	3	3.33
Participate in at least one professional Extension conference or meeting	0	0	2	4	3.67
Attend at least one grantsmanship workshop/short course and/or assist with developing a grant proposal	—	—	—	—	—
Collaborate on a grant that includes an Extension component	0	2	3	1	2.83

Note. Dashes are used when items lack frequencies because they emerged during Round 3 discussion. Instances when one or more items were revised or combined to form the final statement are presented using italics. N = *not important* = 1, SL = *slightly important* = 2, SO = *somewhat important* = 3, and V = *very important* = 4. M possible scores range from 1 to 4.

profession (Scheer et al., 2006). Finally, we believe there is an opportunity to research how adoption of the framework affects the advisors' and students' experiences to identify best practices learned.

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