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Abstract
The graduate faculty of the College of Human Resources and Family Sciences, University of Nebraska, distance deliver a Master of Science degree. Twenty-four graduates participated in the Assessment of Student Outcomes (89% participation rate) wherein students rated their self-efficacy (Bandura, 1986) in meeting course objectives. The goal was that 80% of graduates would rate the master's program as adequately preparing them for their post-master's professional role; and they would rate themselves as being able to locate, analyze and use resources, to interpret data in research reports and to use these research findings in professional roles. All 12 courses reached this goal, except for selected objectives for courses in statistics, research methods, and consumer economics. Self-analysis of attainment of learner objectives should be a helpful application for others conducting program assessment.

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The graduate faculty of the College of Human Resources and Family Sciences, University of Nebraska, distance deliver a Master of Science degree. Twenty-four graduates participated in the Assessment of Student Outcomes (89% participation rate) wherein students rated their self-efficacy (Bandura, 1986) in meeting course objectives. The goal was that 80% of graduates would rate the master's program as adequately preparing them for their post-master's professional role; and they would rate themselves as being able to locate, analyze and use resources, to interpret data in research reports and to use these research findings in professional roles. All 12 courses reached this goal, except for selected objectives for courses in statistics, research methods, and consumer economics. Self-analysis of attainment of learner objectives should be a helpful application for others conducting program assessment.

Teachers and administrators of distance education, as well as those who use "traditional" classroom settings, seek reliable and innovative ways to evaluate learner outcomes. Recent emphasis on assessment of learner outcomes has as its goal the determination of whether learners meet program-wide objectives. This differs from

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using evaluative devices, such as quizzes, examinations, class discussions, term papers and projects to measure individual student's progress in attaining course objectives. These latter evaluative devices often are used to determine a grade for the course.

Instead, assessment of learner outcomes for a program of studies is undertaken to determine the progress of groups of students in attaining program objectives. Assessment of learner outcomes serves as an indicator of success of the program and to identify ways to strengthen the program. When done from this perspective, assessment of learner outcomes can be used as a guide to strengths of the program and to pinpoint areas needing improvement.

At the University of Nebraska, the Graduate Faculty of the College of Human Resources and Family Sciences is offering, via distance education, a program of study (12 courses) leading to the M.S. degree. A goal of these offerings is to provide access to graduate education for family and consumer sciences professionals who may be unable to come to campus to pursue the master's degree. Place-bound, geographically-dispersed students can complete this degree without moving or traveling to campus. This study was undertaken as a summative evaluation of the program, through an assessment of learner outcomes from the perspective of students' self-efficacy (self confidence) that they had met each course's student-centered learning objectives.

Instructional Design for Distance Education

Teaching nontraditional students in a nontraditional setting has presented both opportunities and challenges for faculty. Our experience has been that faculty find that technology-assisted instruction is more effective when they switch roles to move away from functioning solely as transmitters of information to becoming designers of learning environments and experiences (Angelo, 1997). In traditional, on-campus classrooms, faculty may teach the way they have been taught, using the lecture format to deliver volumes of information, with students taking notes. "In the average lecture, the instructor delivers about 5,000 spoken words, of which students record only about 500" (Oblinger & Rush, 1997, p. 10). While faculty may teach the way they were taught as students, the lecture method seems to have reversed roles, with faculty responsible for "covering the content" rather than students assuming responsibility for learning.

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"How many times do you hear faculty fret, 'I have so much content to cover'?....why do we assume that it is the faculty member's responsibility to cover it? Why not set objectives for the students and let them explore and drive their own learning? The technology exists that will enable them to do so" (Hooker, 1997, p. 27).

On-campus instruction is frequently designed as lecture or lecture-discussion pedagogy. "Research on the effectiveness of lecture does not support it as the best method of developing learner competencies of critical thinking, problem solving, and lifelong learning" (Oblinger & Rush, 1997, p. 9). When students are engaged in experiential learning, they learn more and retain that learning. In most traditional classrooms, interactions between faculty and students are limited to a few individuals. "In classes under 40 students, four or five students dominate the interactions" (Oblinger & Rush, 1997, p. 10); however, "experience decisively shapes individual understanding" (Ewell, 1997, p. 4). The shift in pedagogy to experiential learning requires that faculty design instruction so students actively participate in learning. "Instead of being passive recipients of knowledge, students are capable of constructing their own knowledge with guidance from the teacher" (Berge & Collins, 1995, http://sunsite....). For students, knowing how to learn is the important task. Faculty function as coaches and guides, and as master learners to improve learner productivity (Hooker, 1997).

Active learning works best when learners are presented with a compelling problem that requires reflection, and have opportunities for interaction and support (Ewell, 1997). The overarching goal of involving the learner is to focus the responsibility on the learner. Learners should reach meta-cognition; that is, achieve awareness of objectives, develop the ability to plan and evaluate learning strategies, monitor their own progress and adjust self-learning behaviors (Reeves & Reeves, 1997, p. 62) to accomplish learning.

The distance education classes in the Interdepartmental Human Resources and Family Sciences Program at the University of Nebraska are taught live with conference telephone calls, and real-time or asynchronous discussions on the Web. Study materials include video-taped segments. Faculty select media for delivery that best fit course content and faculty teaching style. For instance, faculty choose video-taped lecturettes, case studies, and trigger videos

along with class discussion and team work. All courses include provisions for using materials to support instruction, with library resources accessible via Internet connectivity to library special support services and databases.

The students complete a 36-hour program of studies that includes 18 hours in Family and Consumer Sciences, 6 hours in Nutritional Science and Dietetics, 6 hours in Textiles, Clothing and Design, 3 hours in research methods and 3 hours in statistics. In addition to the course work, students take written comprehensive examinations and complete an Option III project which requires them to demonstrate critical thinking and problem solving skills as well as the ability to use "new knowledge" as consumers of research. The 12 courses in the program of studies were: NUTR 800 Contemporary Nutrition; FACS 987 Family Strengths; HRFS 875 Research Methods; FACS 906 Consumer and Family Economics; BIOM 896 Statistical Decision Making; NUTR 855 Life-Cycle Nutrition; FACS 815 Advanced Instructional Theory; TXCD 907 Textile Economics; FACS 980 Family in Cross-Cultural Perspective; FACS 907 Family Financial Management; and TXCD 811 Textile Developments. The full set of 12 courses was delivered to a cohort of students 1994-1997 (August `94 - August `97) and a second cohort of students 1995-98. In addition to degree-seeking students, others have enrolled in courses to meet personal objectives, such as teacher certification renewal, Registered Dietitian renewal, continuing education units, or professional development units for renewal of Certification in Family and Consumer Sciences.

Methods and Procedures

Earlier, the Interdepartmental Graduate Committee conducted annual formative evaluations in 1995, 1996 and 1997. The formative[1] evaluations addressed learner satisfactions and dissatisfactions with instructors, content, student interactions, technology, and student support services (Laughlin, 1997). These evaluations helped faculty to better understand students' needs as distant learners and to profile these students to increase faculty understanding of students whom they had yet to meet.

[1] Formulatinve evaluation is the collection of data during the program for the purpose of improving instruction, and summative evaluation is the collection of data to summarize the outcomes of completed efforts.

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A second component of the evaluation plan was a summative[1] evaluation, the Assessment of Student Outcomes. An assessment plan had been developed in 1995 using the objectives for the degree program. Two components were included in the assessment plan: students' self-assessment and assessment by faculty. Bandura's theory of self-efficacy (1977, 1986) was used as the underpinning for the students' self-assessment. Bandura (1986) theorized that "what people think, believe, and feel affect how they behave" (p. 25). Bandura called this self-efficacy, defined as the degree to which individuals consider themselves capable of performing a particular activity. Individuals have self-regulatory mechanisms that provide the potential for self-directed change and the ability to influence behavior. Thus, for the purposes of this study, self-efficacy is defined as one's cognitive assessment of his/her own capacities in dealing with specific situations (Crosbie-Burnett & Lewis, 1993). Perceived self-efficacy is concerned with judgments of how well one can execute the actions that are necessary to deal with situations that might arise (Bandura, 1986; Bandura, Barbaranelli, Caprara & Pastorelli, 1996).

Although it is important to determine student satisfaction with courses, instructors and delivery, the summative[1] evaluation for the 12 courses for the M.S. degree required graduates to assess their self-efficacy in attaining the objectives of each course (Bong, 1997). The goal in the Assessment Plan was that 80% of graduates would agree or strongly agree that they perceived they had attained the objectives of each course; and they would rate themselves as being able to locate, analyze and use resources, to interpret data in research reports and to use these research findings to structure curriculum, or programming or policy statements.

Self-efficacy has attracted enormous attention across diverse domains (Bong, 1997) but it has yet to be used in concert with course objectives for student outcomes, particularly in a summative evaluation of a program. These components, learner outcomes rated for perceived self-efficacy were the basis of one component of the summative evaluation. Other components of the assessment of outcomes were the evaluators' ratings of attainment of learner outcomes demonstrated in the written comprehensive examinations and Option III project, and graduates ratings of the program.

For the summative evaluation, learner objectives were obtained from each instructor's course syllabus, and a Likert-type rating scale (5 = strongly agree, 1= strongly disagree) was constructed asking graduates to rate how strongly they agreed that the objective was met (Maurer & Pierce, 1998). Additional items used in the annual formative evaluations were included, seeking the graduates' rating of the program and students' feelings of success and support during the distance education program. The instrument was reviewed for construct and content validity by a panel of experts in assessment of student outcomes. Chronbach's alpha was used to assess reliability (r = .87).

Questionnaires and self-addressed, stamped return envelopes were mailed to the 27 graduates within two weeks of graduation (students in the first cohort who graduated August 1997, December 1997, or May 1998), and a follow-up postcard was sent if the questionnaire was not returned within three weeks. A majority of graduates participated in the summative evaluation (89% participation rate; n=24). Data were coded, entered and analyzed using SPSSx, to obtain central tendency and variability of response patterns.

Findings

Most learner objectives (Table 1) reached the goal of receiving 80% self-efficacy rating from graduates, except for isolated objectives from courses in statistics, research methods and consumer and family economics (Table 2). The assessment of student outcomes for these three courses showed that students reported 80% self-efficacy for certain objectives and between 60% and 80% self-efficacy for other objectives. The objectives with the highest level of self-efficacy shared a common element of concrete learnings while the objectives with the lowest levels of self-efficacy shared a common element of abstract learnings.

Several items were included in the survey to determine the success of the total program. Graduates' ratings of selected items (Table 3) reflected positive evaluation of the program of studies as useful in future professional roles. The students at-a-distance provided assessment that they perceived they had learned as much as on-campus students (on-campus students were enrolled in most of the 12 classes, although registration of on-campus students ranged from 2 to seventeen students, and on-campus students did not par-

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ticipate in the summative evaluation as they were enrolled in other Masters' programs).

Graduates were asked to evaluate how the total program contributed to their development, using items with the lead statement: In your opinion, how well did the program assist you in achieving each of these objectives? The highest rated responses are presented in Table 4. All graduates but one reported self-efficacy in ability to locate, analyze and use research resources, and all graduates but one reported they were able to interpret data in research reports so that these research findings could be used to develop curriculum or plan programming or develop policy. They agreed (all except one graduate) that the master's (Option III) project helped them understand how to be a consumer of research.

Graduates rated the complete program, using two items to increase inter-rater reliability. The first item, Considering all factors, I am satisfied with the M.S. degree program through Distance Education, elicited a strongly positive rating: $M = 6.41 \pm .62$ (7 = Strongly Agree; 1 = Strongly Disagree). The second item, Now, thinking about the best possible graduate education that you could get, where does the distance education program stand overall on a scale of one to seven, where a 7 represents the "best" education you could possibly have had and 1 represents the "worst" possible education, elicited a positive, though somewhat lower rating: $M = 5.94 \pm .66$.

In addition to the summative evaluation, another facet of the assessment of learner outcomes was through the evaluation of each student's written comprehensive examination and Option III project. The assessment plan stated that each student's supervisory committee will rate the student as good to excellent in theoretical and applied understanding of the practical, perennial problems faced by individuals, families and communities; that students will be rated by their supervisory committee as able to demonstrate skills to locate, analyze and use resources; and that the supervisory committee will rate all students as demonstrating good to exceptional oral, written and graphic communication skills on written comprehensive examinations and papers/theses.

Table 1 *Course Objectives Receiving Highest Levels of Self-efficacy (n=24)*

Course	Objective	% of respondents
NUTR 800	Contemporary Nutrition: List required nutrients, name their food sources and describe their functions, deficiency diseases, and toxicities when in high amounts	100
TXCD 811	Textile Developments: Describe recent textile developments and their impact on consumers, retailers and the textile and apparel industry	100
NUTR 800	Contemporary Nutrition: Explain the principles underlying U.S. nutrition recommendations and dietary guidelines	100
NUTR 855	Life-Cycle Nutrition: Describe nutrient needs during specific times of the life span	100
TXCD 811	Textile Developments: Examine and analyze fabrics as a basis for predicting the performance properties of apparel and home furnishings	100
NUTR 855	Life-Cycle Nutrition: Plan, deliver and evaluate a nutrition education lesson	100
FACS 907	Family Financial Management: Trace the evolution of the mutual fund industry and explain the factors that contributed to this evolution	100
TXCD 907	Textile Economics: Provide a multidimensional perspective of the U.S. textile and apparel complex, including the evolution of the industry within the contemporary, highly competitive international setting	100

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Table 1 continued

Course	Objective	% of respondents
TXCD 811	Textile Developments: Evaluate and interpret data from strength, color performance, pilling and wrinkle recovery tests and draw conclusions about textile product performance	100
FACS 872	Adolescence: Recognize the course of physical, social, cognitive and emotional development during adolescence	100
FACS 872	Adolescence: Gain an understanding of the role of the family in adolescent development	100
NUTR 855	Life-Cycle Nutrition: Describe specific influences which affect dietary patterns	100
NUTR 800	Contemporary Nutrition: Explain the impact of diet on chronic disease development	96
FACS 907	Family Financial Management: Apply selected time value of money concepts to common long term investment goals	95
TXCD 907	Textile Economics: Enhance research, writing and oral communication skills through position papers including analysis of components of the textile and apparel industry, history and future trends, economic impact and evaluations of policy	91
FACS 906	Consumer and Family Economics: Describe, in general, nature of the changing workforce, problems created for families in meeting their work and family obligations	91
FACS 980	Family in Cross-Cultural Perspective: Develop a personal philosophy about families in a cross-cultural perspective	90

Table 2 *Course Objectives Receiving Lowest Levels of Self-efficacy (n = 24)*

Course	Objective	% of respondents
FACS 906	Consumer and Family Economics: Identify concepts, content and frameworks within the discipline of consumer and family economics	59
FACS 906	Consumer and Family Economics: Evaluate social policies in Western Europe and Canada for similarities/differences from those in the United States; and whether approaches might be worth considering for U.S. policy	59
HRFS 875	Research Methods: Understand the usefulness of theoretical frameworks to research design and methodology	63
HRFS 875	Research Methods: Analyze research protocols to determine if findings are useful given the research design and method used	67
FACS 815	Advanced Instructional Theory: Become aware of hypermedia technology and its use to develop thinking	71
FACS 906	Consumer and Family Economics: Identify how theories, concepts, facts, perspectives contained within the course might be applied within one's life, family, friends, profession or aspired profession	72
FACS 906	Consumer and Family Economics: Use the neo-classical economic model (with its concepts of specialization and exchange, comparative and absolute advantage) to explain the division of labor between wife and husband	72
FACS 906	Consumer and Family Economics: Compare individual and group experiences with theory and empirical findings from research	73
HRFS 875	Research Methods: Understand the dominant modes of inquiry, identify which used, and evaluate appropriateness to the research	76
FACS 987	Family Strengths: Learn how these ideas can be applied in my professional and personal life	78
HRFS 875	Research Methods: Synthesize research methods through critical thinking regarding issues of "good" research	79

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Table 3 *Ratings of the Distance Education Program (n = 24)*

Item	mean	s.d.
The learning objectives were explained for each class	4.29	.85
During the program of studies, I acquired skills that will be useful in my profession	4.12	.78
Students learn as much in distance education classes as they do in traditional classes	4.06	1.02
Students at the distance sites learned as much as on-campus students	4.05	.90

(5 = Strongly Agree; 1 = Strongly Disagree)

Table 4 *Ways in Which the Distance Education Program Contributed to Learning (n = 24)*

Objective	mean	s.d.
Encouraging me to take responsibility for my own learning	4.59	.62
Making courses available at times and places that were "do-able" for me	4.59	.62
Encouraging meaningful (technology-assisted) communication between faculty and me as well as among students	4.31	.79
Helping me develop the ability to locate, analyze and use research resources in my professional position	4.29	.77
Building confidence in my ability to learn new subject matter	4.24	.83
Enabling me to interpret data in research reports so these research findings can be used to develop curriculum, plan programming or develop policy	4.00	.79
Providing me with content I will need for my professional position	4.00	1.06

(5 = Strongly Agree; 1 = Strongly Disagree)

The evaluators of the Option III projects and written comprehensive examinations prepared summary statements relative to the experiences in evaluating 27 sets of these two parts of all M.S. students' programs. The summary statements included:

Almost all (96%) of the distance education M.S. students passed the written comprehensives on the first attempt. Four percent needed to rewrite the examination. (Since this program is used exclusively for distance education, there are no comparable data for on-campus students in this program.)

Most (82%) of the distance education students received a pass on the first submission of the Option III project (Since this program is used exclusively for distance education, there are no comparable data for on-campus students who predominantly complete the Option I thesis program). The rest of the distance education students received a pass on the re-write. Evaluators identified problems with the Option III projects to be in two categories: analysis skills and communication skills. The shortcomings in analysis skills included use of sweeping generalizations; statements reflecting unrecognized biases (such as those in support or in opposition to issues, unsupported statements that "everybody knows" such-and-such, issues of lack of sensitivity to diversity or gender); failure to resolve conflicting arguments or evidences; fuzzy thinking; or faulty development of logic. The areas needing improvement in communication skills included use of introductory paragraphs; inclusion of concluding paragraphs; or style issues (inappropriate citations, missing citations, incomplete or inaccurate references).

Discussion

One unanticipated outcome of using course objectives as the basis for assessment of learner outcomes was the discovery that the faculty varied greatly in their approach to preparation of learner objectives for the courses. Some faculty prepared two or three very general learner outcomes; others used multiple (more than 50) learner outcomes. Some faculty set learner outcomes at the discovery and awareness level; other faculty sought much higher-order learner outcomes. Thus, the range of self-efficacy or perceived success in meeting course objectives might be attributable, in part, to the expectations established through the learner objectives. For example, among the learner outcomes with the lower ratings of self-efficacy were those that included: "use the neo-classical economic model to explain the division of labor between wife and husband" and "analyze research protocols." Another set of learner objectives with lower ratings were those that were less specific, making it more difficult

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to determine whether the learner objective had been attained, such as: "identify how theories, concepts, facts, perspectives contained within the course might be applied within one's life, family, friends, profession or aspired profession." In the future, faculty should work to come to an agreement about the specificity of the objectives they write for these courses. The impact of additional faculty attention to increasing the specificity of learner objectives will, in part, enhance future use of enhanced learner objectives for the summative evaluation for the third cohort of students in the 1998-2002 program.

Evaluation of the masters' projects and written comprehensive examinations will assist the faculty who will teach the third cohort of distance education students. Faculty plan to require more written exercises and to require more analysis, compare, contrast, and synthesis as written assignments and papers.

Conclusions

The Interdepartmental Graduate Committee, which has responsibility for the supervision of the degree program, reviewed the outcomes of the assessment, and the faculty who teach the 12 courses met to review the outcomes of the assessment. A copy of the first draft of this report was distributed to faculty via listserv. The extended education faculty met and discussed the learner outcomes. Outcomes of that group session were understanding the need to more adequately frame objectives to improve ability to measure and to assess desired student learning outcomes. Faculty understand that students need more direction in developing critical analysis and writing skills. Faculty now better understand their student audience and will be positioned to prepare more specific objectives. Faculty have participated in faculty development experiences in 1995 (two video conferences), 1996 (two-day intensive workshop), 1997 (one-week workshop) and 1998 (two-and-one-half day workshop) that should assist the faculty in increasing the use of technology and pedagogy in distance education classes. Faculty have had opportunity to increase their understanding of the role of support staff in making distance education programs work. The librarians have been especially supportive of the distance education venture.

Assessment of outcomes should inform curriculum development. The curriculum for the distance education program will be modified as a result of this assessment. Faculty comments included focus on

learners acquiring knowledge, rather than evaluating information. Changes will include more exercises requiring analytical thinking, additional written work from learners, more documentation required on class papers and projects (using style manual, learning to do citations), and requirements for additional work in evaluating different positions and formulating one's own, and in considering several theses articulated by different writers to identify strengths and weaknesses of their arguments.

Although this assessment of learner outcomes was limited to distance education students, there may be usefulness in using self-efficacy in attainment of learner objectives for other settings. This study was done with mature (nontraditional) graduate students. Self-efficacy may be workable with in-residence graduate students. There may be limitations relative to using this model with traditional undergraduate students, contingent on the life experiences of the undergraduate students.

Self-efficacy in perceived attainment of course objectives may be a helpful model for others who must complete assessment of student outcomes, especially for purposes of accreditation. The graduate faculty gained insight about the success of their course design as well as ways to enhance course design and delivery in future offerings (1998-2002) of the 12 courses leading to the M.S. in the Interdepartmental Human Resources and Family Sciences area program.

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