

## ARE OFF-CAMPUS COURSES AS ACADEMICALLY RIGOROUS AS ON-CAMPUS COURSES?

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### Abstract

*The purpose of this study was to describe and compare perceptions of academic rigor in on-campus and off-campus courses held by off-campus students ( $N = 173$ ) and college of agriculture teaching faculty ( $N = 262$ ) at Iowa State University. Students and faculty agreed that on-campus courses are rigorous and that they require students to be active in the learning process, expend effort, and achieve high-level cognitive outcomes. The same can be said for rigor and factors underlying rigor in the off-campus context. In addition, students and faculty were consistent in indicating that off-campus students contribute less to class discussion than on-campus students. Off-campus students perceived that on- and off-campus courses are near parity in terms of academic rigor. Faculty, on the other hand, perceived on-campus courses as superior to off-campus courses. Whose perceptions are more accurate? Because of the disparity between student and faculty perceptions, agricultural educators should conduct research that more directly measures the extent to which on- and off-campus courses actually require active learning, effort, and high cognitive levels. This line of research will provide a basis for developing new teaching and learning strategies that contribute toward the realization of truly equivalent outcomes for on- and off-campus courses.*

### Introduction

Rigor is often listed as a consideration by evaluators of educational programs. The Distance and Education Training Council (1994) and the Virginia State Department of Community Colleges (1989) listed rigor as a consideration when comparing on- and off-campus courses, but neither study clearly defined the term. Academic rigor has also been used as a factor in comparing on-campus courses (American Association of Colleges for Teacher Education, 1989). These studies demonstrate the frequent use of the term rigor without a clear and standardized meaning. What is rigor? It was characterized by Unks (1979) as a "careful, continual self-motivated action towards excellence in thinking, feeling, choosing, evaluating, relating to others, learning to learn and becoming one's own best teacher" (p. 158). Braxton (1993) described rigor as the demands of the course, placed on students, to achieve higher cognitive skills. Miller and Shih (1997) conducted

a study to clearly define and measure the factors underlying faculty perceptions of academic rigor. They concluded that rigorous courses require students to actively participate in the learning process, exert effort, and achieve high levels of cognitive learning. The factors identified by Miller and Shih provide the framework for this study and are conceptually defined in the following paragraphs.

Students achieve deeper understandings when they are actively participating in the learning process (Falk, 1996; Newcomb, McCracken, & Warmbrod, 1993; Purkiss, 1995). Active participation is a key component of constructivist learning theory as students actively explore, inquire, discover, and experiment (Falk, 1996). During this active participation, students are challenged to examine various perspectives and evaluate diverse points of view. In addition, students are challenged to create their own ideas when confronted with intellectual problems

(Gruender, 1996). These elements of constructivism constitute an important element of academic rigor.

Webster (1988) defines effort as “a serious attempt or try”(p. 398). When examining effort in the educational realm, it is important to understand how students assess their own level of effort (Natriello & Dornbusch, 1984). Pace (1982, 1990) conducted studies on over 24,000 college students and examined 14 quality of effort scales to develop a comprehensive account of effort in the college experience. Since effort is such a diverse dimension of the educational process, it is useful to focus on effort expended in specific areas of the educational experience, especially course activities. Miller and Shih (1997) operationally defined effort at the course level by measuring items such as: working hard to succeed, taking challenging exams, studying outside of class, and completing high quality assignments.

What constitutes high cognitive levels of learning? Bloom, Englehart, Furst, Hill, and Krathwohl (1956) developed a taxonomy of cognitive learning that includes the following levels: (a) knowledge, (b) comprehension, (c) application, (d) analysis, (e) synthesis, and (f) evaluation. Each level of the taxonomy is structured so the objectives in one level are mastered by building on the behaviors found in the preceding level (Bloom et al., 1956). Mastery of the higher levels of cognitive learning (analysis, synthesis, and evaluation) are associated with critical thinking (Whittington, 1995; Whittington, Stup, Bish, & Allen, 1997). In addition, teaching to these higher cognitive levels challenges students to the extreme of their own unique abilities (Unks, 1979). Thus, teaching and learning at these higher cognitive levels constitutes an important component of academic rigor.

Are off-campus courses equivalent to on-campus courses with regard to academic rigor? Miller and Shih (1997) examined the perceptions of faculty and discovered that faculty perceived

on-campus courses as more rigorous than off-campus courses in terms of active learning, effort, and high cognitive levels. However, their study did not examine the perceptions of students. An examination of performance measures, such as rigor, should include the perspectives of the customer, or student. It is important to examine the perceptions of students in an attempt to meet their needs, expectations, and requirements (Lembcke, 1994). Furthermore, a comparison of the perceptions of faculty and students can truly address organizational performance, especially with regards to academic rigor.

### **Purpose and Objectives**

The purpose of this study was to describe and compare perceptions of academic rigor in on-campus and off-campus courses held by off-campus students and college of agriculture teaching faculty. The objectives of the study were as follows:

1. To compare off-campus agriculture students' perceptions of the academic rigor of on- and off-campus courses.
2. To compare off-campus agriculture students' perceptions of academic rigor in on- and off-campus courses with those of college of agriculture teaching faculty.

### **Procedures**

The populations for this study included students enrolled in courses offered through the College of Agriculture Off-Campus Professional Agriculture Degree Program at Iowa State University during spring and fall semesters of 1997 and faculty members with teaching responsibilities or with teaching experience in the same college of agriculture during spring semester 1997. The coordinator of the Off-Campus Professional Agriculture Degree Program provided the list of students. Individual class lists were used to confirm that each student had truly taken their

course(s) off-campus. The Dean's office provided the list of teaching faculty members, and departmental secretaries checked the list for accuracy. The target populations were composed of 173 students and 262 faculty members. A census of both populations was conducted.

One might reasonably question whether these students and faculty had an appropriate frame of reference for assessing the academic rigor of both on- and off-campus courses. In other words, had the off-campus students ever taken an on-campus course and were faculty perceptions influenced by whether they had any experience teaching off-campus? It was assumed that all off-campus students had taken on-campus college level courses. Considering requirements for entry into the Off-Campus Professional Agriculture Degree Program, it would be very unlikely that any of the off-campus students surveyed would not have completed an on-campus college-level course. To do so, students would have completed all freshman and sophomore level general education requirements through distance education. Doing so is not currently possible at this university. With regard to faculty perceptions, Miller and Shih's (1999) analysis of this population of faculty resulted in the conclusion that "faculty perceptions of the academic rigor of on- and off-campus courses were independent of their participation in faculty development programs related to distance education and their experience with distance teaching" (p. 64).

The questionnaire included two Likert-type scales, one open-ended question, and selected demographic questions. Twenty-two statements were used to represent the academic rigor construct. The faculty and students were asked to indicate the extent to which they agreed with each statement for on-campus courses and for off-campus courses using a five-point Likert-type scale with response options ranging from (1) strongly disagree to (5) strongly agree. Miller and Shih (1997) developed and validated the academic rigor scales. They reported Cronbach's alpha

reliability coefficients of .93 and .90 for the on-campus and off-campus academic rigor scales, respectively. Faculty and students were also asked the following open-ended question. In your opinion, what are the most significant differences between on-campus and off-campus courses?

Off-campus courses in agriculture are offered through a variety of delivery modes at Iowa State University. Most involve a communications medium such as world wide web, videotape, and/or the ICN (a state-wide fiber optics telecommunications system that connects students and teachers who are separated by distance and allows them to share in real-time video, data, and voice instruction). A much less common arrangement involves teaching off-campus courses in a more traditional setting at a site far removed from the university campus. For this study, neither faculty nor students were instructed to focus their thoughts about off-campus courses on a specific delivery method.

Data were collected from off-campus students in November 1997 and from faculty in February 1997. The questionnaire and cover letter describing the purpose of the study were sent by U.S. mail to off-campus students and by campus mail to teaching faculty. Two complete follow-ups of nonrespondents were conducted. A postcard was sent to nonrespondents 10 days after the initial mailing encouraging them to respond, and a second mailing that included the questionnaire and cover letter was sent after 11 more days had past. Fifteen days after the last mailing to students and ten days after the last mailing to faculty, all subjects who had not completed and returned the questionnaire were considered nonrespondents. Nonresponse error was controlled by randomly sampling 10% of the nonrespondents from each population and gathering data from them. Telephone interviews were used to gather data from the sample of nonrespondent off-campus students. Telephone contacts followed by face-to-face interviews were used to gather data from the sample of

nonrespondent teaching faculty. The chi-square statistic was used to compare respondent and nonrespondent data for the off-campus student population on six randomly selected items used to measure perceptions of academic rigor. A t-test was used to determine if respondents and nonrespondents from the teaching faculty population differed significantly in their overall perception of academic rigor in on-campus and off-campus courses. No significant differences ( $p < .05$ ) were found between the respondents and nonrespondents in either the off-campus student or teaching faculty populations. Off-campus students completed and returned 111 questionnaires for a response rate of 64.2%, and faculty completed and returned 142 questionnaires for a response rate of 54.2%.

All data were analyzed using SPSS for Windows personal computer program. Factors underlying perceptions of academic rigor were identified by Miller and Shih (1997) from data provided by teaching faculty. These three factors were used to summarize the findings reported in this paper. Appropriate statistics for description were used including frequencies, percentages, means, and standard deviations. Responses to the open-ended question were analyzed for common themes related to the concept of academic rigor.

## Results

Participating off-campus students and teaching faculty members were predominately male (71.6% and 93.6%, respectively). Off-campus students were on average 38 years of age, while faculty members were on average 50 years of age. Student respondents listed their primary occupations as: 28.2% in agribusiness, 24.5% in farming, 9.1% in agricultural education, 3.6% in agricultural extension, 3.6% as full-time students, and 26.4% as other. Most (67.6%) of the students were master's candidates. A majority (60.3%) of faculty members were professors. In terms of off-campus course exposure, students had taken an average of 3.5 courses off-campus during the last

3 years, while faculty members taught an average of 0.6 course sections off-campus in the last 3 years.

Table 1 shows the means and standard deviations for off-campus student perceptions of academic rigor for on-campus and off-campus courses. Overall, students provided a slightly higher mean score on the academic rigor scale for on-campus courses. Students also provided higher mean scores to on-campus courses for two of the three factors underlying academic rigor. The greatest advantage for on-campus courses was indicated on the active learning factor. Regarding active learning, students agreed that students contribute to class discussions in on-campus courses but were undecided about off-campus courses. As for effort, students perceived that slightly more was required in off-campus courses. Students agreed that students study outside of class for on-campus courses, but strongly agreed with this statement for off-campus courses. On the high cognitive levels factor, students provided only slightly higher means for on-campus courses. Faculty provided a higher overall mean score for rigor in on-campus courses than did students. Faculty also provided higher mean scores for 14 of 16 items on the rigor scale for on-campus courses than did students. Even though faculty provided higher mean scores, their means were all in the same scale category (agree) as those provided by students (Table 1).

Students provided a higher overall mean score for rigor in off-campus courses than did faculty. In addition, students provided higher mean scores than faculty on 14 of 16 items from the rigor scale. Faculty provided a slightly higher mean than did students on the active learning factor. Faculty agreed that students contribute to class discussions, while students were undecided. In addition, students provided a higher mean score on the effort factor than did faculty. Students strongly agreed that students study outside of class while faculty agreed with the statement. Students agreed that courses were rigorous and that

Table 1. Means and standard deviations for perceptions of academic rigor

Factors and abbreviated items	Students				Faculty			
	On-Campus <u>M<sup>a</sup></u>	<u>SD</u>	Off-Campus <u>M<sup>a</sup></u>	<u>SD</u>	On-Campus <u>M<sup>a</sup></u>	<u>SD</u>	Off -Campus <u>M<sup>a</sup></u>	<u>SD</u>
<b><u>Factor one = Active learning</u></b>	<b>3.86</b>	<b>.48</b>	<b>3.68</b>	<b>.61</b>	<b>4.01</b>	<b>.64</b>	<b>3.70</b>	<b>.71</b>
Students explore course related resources	3.89	.67	3.92	.79	3.98	.82	3.54	.92
Students examine various perspectives	3.85	.63	3.82	.74	3.88	.88	3.80	.88
Students contribute to class discussion	3.91	.81	3.21	1.20	4.26	.80	3.71	1.11
Students evaluate diverse points of view	3.71	.78	3.66	.88	3.74	.92	3.61	.93
Students are active in the learning process	3.92	.69	3.80	1.03	4.22	.69	3.86	.99
<b><u>Factor two=Effort</u></b>	<b>4.18</b>	<b>.43</b>	<b>4.21</b>	<b>.48</b>	<b>4.20</b>	<b>.53</b>	<b>3.81</b>	<b>.69</b>
Students work hard to succeed	4.32	.60	4.46	.60	4.48	.60	4.06	.89
Students take challenging exams	4.31	.53	4.18	.71	4.16	.65	3.71	.90
Students study outside of class	4.39	.56	4.63	.54	4.50	.56	4.26	.79
Grades based on high academic standards	4.17	.62	4.13	.69	4.26	.69	3.87	.92
Courses are rigorous	3.99	.62	4.09	.72	4.08	.79	3.44	1.03
Students complete high quality assignments	4.16	.62	4.16	.66	4.23	.67	3.85	.90
Students achieve academic excellence	4.00	.72	3.90	.82	4.36	.70	3.87	.91
Students complete substantial readings	4.12	.70	4.13	.78	3.80	.95	3.39	.96
<b><u>Factor three – High cognitive levels</u></b>	<b>4.13</b>	<b>.52</b>	<b>4.11</b>	<b>.59</b>		<b>.71</b>	<b>3.91</b>	
Students synthesize course concepts	4.09	.70	4.06	.75	4.23	.78	3.87	.97
Students evaluate course concepts	4.08	.64	4.07	.63	4.14	.92	3.86	1.01
Students analyze course concepts	4.23	.56	4.21	.68	4.33	.67	4.00	.96
Overall Mean	4.07	.38	4.03	.43	4.21	.47	3.87	.63

a1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree

students complete substantial readings while faculty were undecided. Students also agreed to a greater extent than faculty that students reach high cognitive levels in off-campus courses (Table 1).

Students were asked what were the most significant differences between on-campus and off-campus courses. Responses were analyzed for themes, especially related to the concept of rigor.

Although unrelated to the concept of rigor, students continued to comment on the importance of off-campus courses when given the opportunity. They emphasized the flexibility that such programs provide for nontraditional learners and they explained that such programs allow adults to maintain careers and continue living in communities located far from campus. While students were generally positive about off-campus courses, they recognized an important weakness related to the active learning factor. They recognized that off-campus courses result in much less interaction with the instructor and virtually no interaction with other students. In regards to effort, students often commented on how hard they worked in their off-campus courses. Many discussed the difficulty of balancing responsibilities. One student wrote "I'm currently taking four off-campus courses and in one of them, I feel that the off-campus class is a burden to the instructor. The other classes are going well, even though I work 50-55 hours a week." One might ask how much effort students can devote to individual classes under such circumstances, and whether off-campus students might confuse effort in general with the cognitive effort required of specific classes. One student directly addressed the issue of rigor by writing "Sometimes I get the feeling that peoples' perception of off-campus programs is that it is less stringent in requirements and efforts where I believe that is not true at all."

### **Conclusions and Recommendations**

Students and faculty agreed that on-campus

courses are rigorous and that they require students to be active in the learning process, expend effort, and achieve high-level cognitive outcomes. The same can be said for rigor and factors underlying rigor in the off-campus context. The students and faculty were not in as close agreement on the effort factor, however. Students indicated that off-campus courses required more learner effort than did faculty. Why? Do off-campus courses really require as much cognitive effort as on-campus courses? Might students inflate their accounting of effort as a result of the difficulties experienced in balancing various responsibilities? Are faculty influenced to provide lower ratings on the effort because of variables unrelated to rigor? Variables like time needed by off-campus learners to complete assignments and logistical difficulties related to testing might influence faculty perceptions. Miller and Shih (1997) summarized faculty comments related to academic rigor in off-campus courses. Faculty comments suggested that off-campus students are not expected to do as much or achieve as high a level of competence for a given grade as on-campus students. Faculty who teach off-campus courses should examine the outcomes expected for their courses and evaluate whether accommodations made for off-campus learners are legitimate. Accommodations are often necessary, but should not result in lower academic expectations for off-campus students.

Off-campus students contribute less to class discussion than on-campus students. Students and faculty were consistent in their rating of this active learning item. This really has a great deal to do with interaction, and data from this study indicate a general agreement among students and faculty that interaction in the off-campus setting is greatly limited. Several effective strategies exist to enhance interaction and to actively involve distant learners in class discussions. Strategies exist for all forms of distance delivery. Even a highly asynchronous delivery medium such as videotape can be made significantly more interactive. Innovative agriculture faculty have required videotaped and

audiotaped assignments from students that were integrated into future videotaped lessons. One instructor developed a database of student pictures and interests and addressed these interests in specific videotaped lessons. Instructors have also planned telephone calls to a distant learner during the taping of a lesson. E-mail and regular mail can also be used to enhance interaction in videotaped courses. Strategies to facilitate interaction should be a part of faculty development programs for distance learning. These programs should address student-instructor, student-student, as well as student-content interaction. Faculty who teach off-campus courses could also benefit from regular idea exchange forums. Faculty in agricultural education should provide the stimulus for and expertise needed to facilitate the enhancement of teaching strategies for distance learning.

The comparison between on- and off-campus courses on academic rigor is an important one. Generally speaking, the off-campus course offerings are not created specifically for an off-campus student audience. Instead, the College of Agriculture at Iowa State University seeks to offer its on-campus courses to off-campus students in such a way that off-campus students can earn a degree. For all practical purposes the desired outcomes are the same.

Simonson and Schlosser (1995) proposed a very simple theory of distance education. Their theory asserts that successful distance education requires the distant learner to have similar educational experiences as the local student. According to Simonson (as cited in Hanson, 1997), the methods used to link students with teachers and information should not be allowed to result in inferior educational experiences. Off-campus students perceive that on- and off-campus courses are near parity in terms of academic rigor. Faculty, on the other hand, perceive on-campus courses as superior to off-campus courses in terms of rigor. Whose perceptions are more accurate? Because of the disparity between student and faculty perceptions, agricultural educators should

conduct research that goes beyond perceptions. An effort should be made to measure and compare the extent to which on- and off-campus courses actually require active learning, effort, and high cognitive levels. This line of research will provide a basis for developing new teaching and learning strategies that contribute toward the realization of truly equivalent outcomes for on- and off-campus courses.

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