

## **Evaluation in STEM online graduate degree programs in agricultural sciences and engineering**

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### **ABSTRACT**

Demands for online graduate degrees have increased pressure on universities to launch web degrees quickly and, at times, without attending to their quality. Scarce research exists identifying what evaluation activities are being done by science, technology, engineering, and mathematics (STEM) online graduate degree programs that are accustomed to accreditation procedures for their undergraduate degrees. This case study investigated three established online, graduate degree programs in agriculture and engineering at a prominent, Midwestern university, and identified evaluation practices used in these programs. Findings suggested that even though they are fully accredited in the undergraduate programs, most of the evaluation of their online degree program is informal, with three key themes emerging, including the use of: (a) informal feedback from the students and faculty, (b) student satisfaction surveys, (c) student grades and performance information.

There were several issues reported in using these three strategies to evaluate quality, including lacking structured collection and reporting mechanisms, differing implementation levels in traditional and online courses, varying availability of data and student quality, and lacking fidelity of information delivery and access. The findings suggest that the use of these informal evaluative processes have implications for evaluating STEM graduate degree programs online.

Keywords: online graduate degrees, Science, Technology, Engineering, and Mathematics (STEM), higher education, evaluation, case study

## INTRODUCTION

Online learning practices have become ubiquitous in higher education, with 89 percent of public institutions using networked computing and communication technologies to serve the estimated 3 million U.S. higher education students who have taken at least one online course since 2007 (Allen & Seaman, 2012; Borgman et al., 2008; Parsad & Lewis, 2008; Sprague, Maddux, Ferdig, & Albion, 2007; U.S. Department of Education, Office of Innovation and Improvement, 2008). Demands to provide online learning have been further augmented by economic factors, such as the increase in gas prices and layoffs and the increased interest, promotion, and delivery of education on a global scale (Allen & Seaman, 2008; Allen & Seaman, 2012; Sprague, Maddux, & Ferdig, 2007). While online education has been present in nearly all public universities since 2000, the way to rigorously evaluate the question of, “How can a teaching/learning process that deviates so markedly from what has been practiced for hundreds of years embody quality education?” (Phipps & Merisotis, 2000, p.7) still remains unanswered, particularly for graduate degree programs offered entirely online and from fields in science, technology, engineering, and mathematics (STEM) which have a historical preference for program quality monitoring and accreditation (ABET, 2009).

Therefore, this study undertook a multiple case study approach using a holistic approach to probe just exactly how three prominent STEM programs with entirely online graduate degree programs are evaluating their programs (Yin, 2002). The study centered on the following research question:

How are the Midwestern University online graduate programs from the various STEM fields discerning the quality of their programs? How can a deeper analysis of these three established online programs inform the evaluation practices of other similar programs?

## REVIEW OF THE LITERATURE

Online learning is defined as classes with at least 80% of the content delivery done online (Allen & Seaman, 2012). Ideally, these online courses are characterized by distributed control, with the instructor sharing control with the students utilizing web-based, multiple media to facilitate knowledge building and interaction via synchronous and asynchronous communication tools (Collison, Tinker, Elbaum, & Haavind, 2000; Dabbagh & Bannan-Ritland, 2005). However, defining the quality of these ventures is harder to do. “Quality” is a conflict-ridden term because of its amorphous nature. Robert M. Pirsig in his book *Zen and the Art of Motorcycle Maintenance: An Inquiry into Values* describes this struggle: “I think that there is such a thing as Quality, but that as soon as you try to define it, something goes haywire... But even though Quality cannot be defined, you know what Quality is” (Pirsig, 2005). Nevertheless, definitions have been attributed to “quality,” and this becomes especially important in evaluation of online settings. Scholars on evaluation theory, Robert Stake and Thomas Schwandt, assert that “Quality is a broad term that encompasses notions of merit, worth, and significance” (Stake & Schwandt, 2006). Moreover, establishing common indicators of quality and ways to probe this is a necessity because “historically, quality holds the key to academic acceptance” (Larreamendy-Joerns & Leinhardt, 2006, p. 579). This acceptance is especially important to online learning environments because of the trepidation among some in higher education that online education is jeopardizing

the quality of higher education (Burbules & Callister, 2000; Larreamendy-Joerns & Leinhardt, 2006; Rovai, 2003).

While higher education quality assurance has received increased scrutiny after reports like *A Test of Leadership: Charting the Future of U.S. Higher Education* from the Commission on the Future of Higher Education (U.S. Department of Education, 2006) and the additions to the *Higher Education Opportunity Act* (US Department of Education, 2008), the assessment of undergraduate and graduate courses has consisted of results drawn primarily from surveys of student satisfaction and a self-assessment of learning via post-participation surveys administered immediately following course participation or upon degree completion (Aragon, 2003; Johnson & Aragon, 2003). Consequently, monitoring the quality and establishing quality indicators for STEM graduate programs falls squarely on the institutions and often the administrators of the traditional and online graduate programs. Therefore, it was important investigate the empirical reporting of traditional, online, and STEM quality monitoring sources in the literature before conducting this study in order to understand the larger context.

First, in traditional program quality monitoring, extensive literature was reviewed. In light of the desire for accountability standards for program quality monitoring, it was particularly important for this study to consider *what* universities use to assess themselves traditionally beyond reputational rankings used by popular media like the *U.S. News & World Report*. In an attempt to move away from the problems of the “soft” criterion from measures like these of scholarly quality, the National Research Council (NRC) completed their 2009 survey on assessing research-doctorate programs (Ostriker, Kuh, & Voytuk, 2003). The study included an all-faculty survey from which a random sample was drawn and rated to represent data from their particular fields, including STEM departments. The NRC study was particularly relevant to this research because the Midwest University participated in the 1995 and the 2009 NRC. While the NRC study was aimed at doctorate programs, the quality indicators used to generate data on reputation, faculty research, and student experiences are often used in studies of quality in graduate education regardless of the level of degree (Brooks, 2005; Perry, 1994). Some literature from agriculture and engineering suggests that reputational and quality rankings are more dependent on the highest degree offered by the institution (that being the Ph.D. at Midwest University) rather than rankings of undergraduate or Master’s degree programs (Perry, 1994; Zhang, 2005)

Next, for online program quality monitoring, the establishment of quality indicators for online programs is especially important for legitimacy and moving past the “no significance difference” debate (Phipps & Merisotis, 2000; Ruhe & Zumbo, 2008; Seok, 2007). Prior literature suggests that norms for online programs must be created before outcomes can be asserted, and this is commonly done by using quality indicators or benchmarks from an institution’s traditional learning programs or using established quality frameworks for online learning environments (Larreamendy-Joerns & Leinhardt, 2006; Rovai, 2003). Currently, there are no formal standards or quality indicators in the field of traditional or online learning in graduate studies, but a number of quality frameworks commonly referenced in the literature have been used to monitor quality of online learning. The most commonly referenced frameworks in the literature include: (a) *Quality on the Line* from Institute for Higher Education Policy (Phipps & Merisotis, 2000), (b) *Quality Matters* from the University of Maryland (MarylandOnline, 2008; Sener & Shattuck, 2006), and (c) *The Elements of Quality Online Education and the Five Pillars* from the Sloan-Consortium (Bourne & Moore, 2003, 2004; Moore, 2005). For this research, the Institute for Higher Education Policy (IHEP) *Quality on the Line* study was one of

the first documents of its kind that delineated common quality indicators specifically for online education and the Midwest University was one of the six institutions selected nationally for further investigation in this case study (Phipps & Merisotis, 2000).

Finally, quality monitoring within the STEM fields extends from the “quality management” traditions, which originated in manufacturing because of the desire and need to monitor product quality resulting from production increase and worker decrease during World War II (Bennett, 1996; Merna, 2008). Several engineering organizations formed an accreditation body known as the Engineers Council for Professional Development that became the Accreditation Board for Engineering and Technology (ABET) that is now known by the acronym (ABET, 2009; Prados et al., 2005). The ABET sought to revamp the accreditation criteria to emphasize nine criteria known as the Engineering Criteria 2000. Educational institutions and programs voluntarily undergo a review every six years to determine if these nine criteria are attained (ABET, 2009; Prados et al., 2005). Most postsecondary undergraduate programs, including the programs at Midwest University in agriculture and engineering, comply with the ABET requirements. While these nine criteria are equally important to the overall process, ABET’s criterion three (program outcomes and assessment) is often cited as the most challenging and important in program quality monitoring and subsequent accreditation (Dick & Deborah, 2003; Kwok-Bun, 2007) and is highlighted as important for graduate programs and online programs (Bourne et al., 2005).

While all or some of these quality monitoring systems are commonly understood and explored in the literature, the way to evaluate the attainment of these quality indicator categories has not been fully developed. Most scholars report a dire need for improved evaluation and assessment, particularly in online learning, because few higher education institutions have written guidelines or policies on online learning (Law, Hawkes, & Murphy, 2002; Rovai, 2003; Tallent-Runnels et al., 2006). Law and associates contend, “While many researchers describe similar outcomes for online classes and, by extension, entire online degree programs, their analyses often call for further investigation and development of a clearly articulated set of criteria for consistent evaluation across programs” (Law et al., 2002, p. 83). Further, this lack of attention to program evaluation and quality indicator development within higher education is one of the key factors which contributes to the failure of some online programs nationally and globally (Rovai & Downey, 2009). However, little study has been done about what programs like Midwestern University are really doing to discern the quality of their programs through evaluation, especially since Midwestern University was actively involved with the NRC study, IHEP study, and ABET accreditation.

## **METHODS**

This study employed a multiple case study design using a holistic approach (Yin, 2002). The case study approach seemed appropriate since the research team wanted to probe “how and why” questions (Stake, 1995; Yin, 2002). This case study included a combination of document review, surveys ( $n = 107$ ), and interviews ( $n = 27$ ) with program administrators, faculty, and students from the three established STEM online degree programs at Midwestern University. Data were collected and analyzed in sequence during the late fall of 2009 and the spring, summer, and fall semesters of 2010. First, a comprehensive document review with interviews with the program administrators were conducted and analyzed to investigate current evaluation practices. The second phase included administering a survey to online students and faculty to

gather information about the presence and importance of these practices and quality. Faculty and student interviews were then conducted. The administrator survey was given to probe current practices and to gauge administrators' feedback on the quality indicators.

## SAMPLED PROGRAMS

In order to be a part of this study, programs needed to meet six criteria, including being (a) an online degree program affiliated with the Midwestern University in the fall of 2009; (b) a complete Master's Degree Program; (c) an established program housed in a department for at least five years at the main campus at Midwestern University; (d) one of the nine STEM departments identified by the National Science Foundation; (e) an online program where all of the content is delivered online, exceeding the requirement as defined by the Sloan Consortium, which was that at least 80% of the content be delivered online, and (f) a program agreeing to participate in the study with the support of the department head. As a result of these criteria, three STEM online Master's degrees were included in the study: the Master of Science in Natural Resources and Environmental Sciences in Department of Natural Resources and Environmental Sciences (NRES), the Master of Crop Sciences in the Department of Crop Sciences (CRSC), and the Master of Mechanical Engineering in the Department of Mechanical Science and Engineering (MechSE).

All three of the programs require zero on-campus visits before or during the coursework to complete the degree. However, the degrees through the College of Agricultural, Consumer, and Environmental Sciences (ACES), including the NRES and the CRSC degrees, require a one-day onsite visit for a final oral exam at the completion of the program. The MechSE degree through the College of Engineering required no visits for any of the degree requirements. The fall and spring course terms last 15 weeks, which is the same time duration as the traditional courses delivered at the Midwestern University campus. Also, these courses occur simultaneously with the on-campus programs (beginning in late August for the fall semester and in January for the spring semester). The programs require 32 credit hours for completion of the Master's degree. Admission prerequisites include an earned bachelor's degree from an accredited institution, as well.

Both online departments present information in different ways to varying numbers of students each semester. In engineering, lectures are streamed online via a dedicated engineering and computer science online portal. In the previously taped video, the professor is at the front of the room at a podium lecturing to a live class. The information, curriculum pacing, and presentation are touted as being "identical" to what an on-campus student is receiving. In the online setting, the lecture screen with the lecturer is in the right- or left-hand margin, while the lecture slides can be viewed individually or all at once (see Figure 1 in Appendix). Each engineering class serves from two to sixteen online students during the fall, spring, and summer sessions. According to the program administrator, there were 74 to 75 students enrolled in the program. When asked about graduates, the program coordinator said they did not have this exact information available, but approximately eight had graduated from the program since 2007.

In ACES, the lectures are streamed live online, meaning the lecture material is produced one time per week each semester by the instructor of the course. This process is facilitated by a commercial company called *Illuminate Live*, which is a part of Blackboard, Incorporated. Lectures are synchronous, meaning that the instructor delivers a live lecture, and then students are allowed to pose questions via personal microphones and chat tools (depicted in the training

slide in Figure 2 in Appendix). Moreover, a synchronous section is available for posting questions as well, and these sessions are all archived and able to be retrieved within the system. Lecture notes and other course information are then posted and accessible to students via the Midwestern University course management system known as Midwestern University Compass (see Figure 3 in Appendix). The courses in ACES serve 5 to 15 students at one time. According to the program administrator, CRSC currently has 48 admitted students and NRES has 86 students. Over the last five years, 26 students have graduated from CRSC and approximately 15 have graduated from NRES.

## RESULTS

According to the administrators and faculty of the program, limited evaluation is occurring in the different programs. In fact, when the researcher requested any evaluation documents and information collected by the programs, one administrator emailed the following response, “We don't do any [formal] evaluation at this time of our online programs that you are looking at. The departments probably need to do one.” Moreover, and they were vaguely aware of the fact that the Midwestern University had participated in the NRC study and ABET accreditation process but the programs did not know about the IHEP online criteria and had not used any of the data from these studies. Suggesting that what is ideally stated in the literature, might not be filtering to the some programs. Three key themes related to current evaluation practice emerged as a result of analysis of the survey data, interviews, and document review process. These included the use of: (a) informal feedback from the students and faculty, (b) student satisfaction surveys (i.e., ICES student feedback and department-specific and created satisfaction surveys), (c) student grades and performance information.

### Informal Student and Faculty Feedback

A majority of evaluation occurring in both programs was identified as “informal feedback” (i.e., questions, praise, and/or suggestions by non-formal measures like email or in-class feedback) given by the students to the faculty and administrators and by the faculty to the administrators of the program. The two administrators were asked to rate the number of times they used certain information to evaluate their programs (depicted in Figure 4 in Appendix). Each bar represents the responses from each administrator (i.e., when the bar has two colors, the administrators indicated different levels of use of the particular evaluation source). The twofold purpose of this question is the fact that different program administrators reported some similar practices, but the practices were being implemented at varying levels. The most-often-cited categories were the informal feedback from instructors and students (both with means of 4.00 and SD of 1.41), with one administrator indicating that she used each of these “sometimes” (meaning three to five times per year, represented by the green bar half on the chart) and the other indicating that she used this “almost always” (meaning six or more times per semester, represented by the light blue).

Analysis of the open-ended survey item which asked administrators to identify the three most worthwhile evaluation activities they do to evaluate their programs revealed this same trend. The first two responses from both administrators included this notion of informal feedback from students and faculty. One administrator reported that two of the important evaluation activities were “speaking with students directly and speaking with faculty directly.” The other

reported that she “listen[s] to current students when they give unsolicited input,” and that she “listen[s] to current faculty members when they provide input.”

Interview data from administrators also supported this assertion about “informal feedback” being a primary source for evaluating the quality of the courses, instructors, and overall program. One reported, “We look at [the program], but very, very informally. It’s all very informal. At the end of the year, [the assistant director] and I will look at and talk about: ‘Is this faculty member happy? Does he need anything? Is he wanting to teach for us again? If not, should we talk to him about why not?’ It’s more of a time issue; we kind of deal with the issues that we see and hear about, but that’s all.”

### **Student Satisfaction Surveys**

It was also found that the program coordinators and faculty are looking at more formal evaluation data from student satisfaction surveys in order to discern quality of their online programs. The student satisfaction surveys referenced were divided into two primary categories: (a) surveys from the Instructor and Course Evaluation System (ICES) used by all courses (both traditional and online) at Midwestern University and (b) program-produced surveys that are reportedly more applicable to the particular program where the online degree is housed.

The ICES process is facilitated through the Center for Teaching Excellence (CTE) at the Midwestern University. The most widely used “Course Evaluation Questionnaire” consists of 21 general concept questions rated on a five-point scale (from “strongly agree” to “strongly disagree”) and four open-ended questions. Among the 21 multiple choice items, students are asked to rate: the instructor’s overall teaching effectiveness and their level of interest, engagement, presentation style, and material knowledge; the course’s overall quality, including the course content, degree of difficulty, and structure; and the student’s self-motivation and preferences on teaching method. The four open-ended items include questions asking the students to comment on the major strengths and weaknesses of the instructor, the course aspects that were the most beneficial, improvement suggestions, and the grading procedures and exams. Findings regarding student satisfaction surveys and, specifically, use of the ICES for evaluative purposes were reported by the administrators and faculty via their surveys and interviews, but it varied by program. First, for administrators, ICES use was variable primarily because ICES ratings are only available to program administrators if they are shared by the faculty. One administrator summarized this use by saying, “ICES has always been in existence; we have always used ICES when we can.”

Faculty also cited ICES surveys as a frequently-used tool that they used to generate evaluation information about the quality of the program. All interviewed faculty reported that survey data collected at the end of the semester was a mechanism that they use to evaluate their courses. A majority (n = 7) of the faculty reported in the interviews that the only survey their students completed for the online program was the ICES and they had no knowledge or recollection of the programs generating any other surveys.

Of the 16 faculty who submitted answers on the open-ended survey question regarding the three most worthwhile activities that they as faculty members do to evaluate the quality of their course and program, six mentioned ICES and/or student surveys. One reported that he looks at “feedback from students on ICES,” while another said, “use of a special course evaluation survey” was a worthwhile activity. The administrators from one program tried to share the program-generated survey findings with faculty, but this had been unsuccessful, and they had

since just generated this information for internal use. She said, “One time we shared one of those course evaluations, and he tore it into pieces, and we never gave it to them again.” Additionally, two faculty members recorded that they generate their own customized surveys to gather student feedback. One said, “The online surveys I create and distribute (via Google apps).” Therefore, it appears that although faculty and administrators are reporting use of this information for evaluative purposes, the data suggest that there is not a uniform approach, form, or reporting of this information within or between the departments.

### **Student Grades and Course Assessments**

The third category of current evaluation practice for discerning program quality reported by both program administrators and faculty was related to the monitoring of student grades and course assessments. While these stakeholder groups acknowledged using this information, interviewees revealed that online students’ achievement scores during the program on both the course assessments and course completion grades appeared to be a source of tension between the program and different stakeholders.

For administrators, contradictory reports were sometimes given about use of these data. First, evident from Figure 4 above, one administrator reported using each source—student grades and student performance on course assessments—“very few times” (meaning one to two times per year, represented by the red half of the bar on the chart), and the other administrator reported using this source “almost always” (meaning six or more times per semester, represented by the light blue half of the bar). According to interview data, contradictory statements were made regarding these data and the use of these data. For instance, one administrator reported, “Grades is another way [we evaluate quality]; we do look at the average GPA of our students when they graduate.” The other administrator stated:

So we don’t really look at grades. Our goal is not to transform education, which is a great goal, but it’s not our goal. Our goal is to make sure that online students get the exact same course they would get if they were here on campus. That’s really what we are doing [to evaluate quality], and that’s really what our students expect. Our courses are really, really hard, and they are also theoretical, and a lot of the working professionals want practical courses. We are a research university; our courses are going to be theoretical. [The professors] evaluate their students’ exams; that’s their realm that we don’t get into. So ours is on the students’ satisfaction.

However, later in the interview, the administrator contradicted herself and said that the program references grades more so for a check on a newer professor rather than the student. She said, “If we know there have been grading or communication issues, we emphasize those things again [with the new professors]—the things we would like for them to know about. In one case, we have had to go to the department and ask that this person not teach anymore for our program, and they honored that. That has only happened once.”

Related to course assessments, one program administrator talked about the thorough process they use to keep the integrity of the examination documents and process by ensuring that each student has a proctor. The consistency of this process was credited as an indicator of the quality of their program. She reported:

A lot of our operation here centers around exam administration. Because they are [department] courses, we ask the instructor to bring a copy of the exam over a week in advance of the date [on] which it is supposed to be given on campus...They are paper and



pencil exams, and they are typically timed, usually closed book, closed notes. You can only have a calculator; you can't really have your cell phone, and you can't have this other stuff. Because of that, that necessitates proctors. At the beginning of every semester, every student is required to submit that name of someone whom they are proposing as their proctor, and there is a list of criteria. They can't be a peer; they can't be someone related to them; it has to be a manager or somebody in the HR training department. If there is more than one student with a company, they have to take the exam at the same time. The integrity of the exam is important to the program to keep that integrity intact, so that's why we go to these lengths... The process is important to the course.

Faculty also cited student performance on the course assessments and overall as a tool that they frequently used to generate evaluation information about program quality. Ten of the eleven faculty interviewed reported using student performance as a mechanism to determine the quality of their courses. One said, "I use my teaching experience, since it takes experience to judge how successful [the course] is. I mainly look at the performance of the students as [to] whether they are successful. Generally, some have been successful, and others haven't, and it's about their performance." Another said, "If most of my students put in the time and do well, then it is fine." However, when the interviewer asked what happens if the students, and particularly online students, do not perform well, the professors generally encouraged students to "review the material." One reported, "The goal is to make this course as good as you can in the best possible way in teaching online. All the students get access to the material, and I send uniform emails to the students. So the [online] students are not at a disadvantage. Everyone has access to the web pages. The online course and on-campus lecture is exactly the same material. I tell them to check the material."

Of the 16 faculty who submitted survey responses to evaluation activities, six mentioned course performance; three referenced a specific time or assessment, while the other three were more comprehensive for the course as a whole. For instance, one reported, "I study the students' performance on the final exam and how well they are keeping up with the online assessments as [the course] is progressing." Another faculty member reported he does a "periodic review of the student learning outcomes and grades," while another said he looks at "the quality of the term papers and the assessments through the same on-campus offerings of the same material."

## **DISCUSSION**

This case study focused on developing a deeper understanding of how three online degree programs evaluated quality of their respective programs. Magjuka, Shi, and Bonk assert that there are ten major considerations for administrators who are designing programs that are associated with online education (Magjuka, Shi, & Bonk, 2005); however, overall assessment or evaluation of the program was not a topic that these researchers raised. Previous studies suggest that intuitional expectations of looking at formal student evaluations and feedback can influence both faculty and students' perceptions of judgments of quality and the use of this information for traditional programs (Stein et al., 2013). Conversely, there is limited literature that talks about the informal evaluative information in online education that was cited by the participants in this study. However, the current case study also uncovered several issues with the findings above and are outlined below consistent in regards to the use of: (a) informal feedback from the students and faculty, (b) student satisfaction surveys (i.e., ICES student feedback and

department-specific and created satisfaction surveys), (c) student grades and performance information.

### **Issues with Informal Feedback**

While both programs and administrators acknowledged the heavy use of informal feedback for evaluating the quality of their online programs, there were obviously issues with using this. Issues revealed from the data analysis showed that using informal student and faculty feedback: lacks structured collection and reporting mechanisms and it benefits the on-campus students more so than the online students in some cases.

Lacks structured collection and reporting mechanisms. While both administrators acknowledged that informal feedback is currently used as the primary source to evaluate the quality of the program, no structured mechanisms are in place to track the collection or resolutions involving “informal feedback” administrators get from either faculty or students. One administrator said they have a blog for questions, but this is primarily for overarching, general questions on topics like graduation and registration procedures and not as much for feedback on courses. Related to this topic she said:

We have a blog set up, for example, where students can blog and ask questions so that everybody can see the answer so...I don't have to repeat them 50 thousand times. We don't want the quality of service to diminish, so we are trying to figure out some ways [to document this].”

This trend of self-reported use of “informal feedback” for evaluation was found from the faculty of the program as well. Ten of the 11 faculty interviewed reported that they specifically use “informal student feedback” in order to inform their instruction and to monitor student understanding. After one interview, one faculty member shared an example of an email as a sample of this informal feedback. The instructor's email said, “Your study came to mind as I responded to the [online] student in the email exchange... While all of the details may not be apparent from the exchange, it's the kind of minor ‘success story’ that I look for as [informal student] feedback when I teach (online or on campus).”

Benefits the on-campus students more so than the online students. While faculty reported that they used the informal feedback from the students to influence their presentations and as their “gauge” for student understanding, further probing of this topic during interviews revealed that this was primarily true for their on-campus traditional classes, but not necessarily so for their online courses. This seemed especially true for those six faculty in the program where taped lectures were streamed online; this reported informal feedback came more directly from students in the on-campus program rather than the online program. Those instructors who had their lectures taped, sometimes three to five years prior to the streaming of the class, reported that they used the informal feedback to change the lectures, but when further probing was done, it turned out that these changes were made for students in the traditional environment and were not reflected in the lectures for the online students. Upon this admission, one faculty member stated, “I always said that I'm doing it, but it is evident for me [in] talking with you that I'm just doing this for the on-campus students. This is an ‘ah-ha!’ moment for me.” Another faculty member also stated:

I am not doing this nearly enough. I'm not retrospective about my lecture about what needs to be improved. I know my face-to-face time with my [on-campus] students is different because my office door is opened, and they're free to come in. On a phone, it's not quite the same. I ask about the 'muddiest' point and collect cards on this, but this does not work well with online courses.

While weekly student question sessions were held for both online programs, and the instructors reported that they would clarify any issues raised or questions posed by the online students during that time, changes made in the traditional class session were not made in online classes unless online students raised the same questions that the traditional class had in the face-to-face sessions. In other words, content changed or further explained in the face-to-face, traditional class setting might be different than the information shared with online students, and vice versa. This admission seemed to bother a few of the interviewed faculty as they came to the realization that they were not evaluating their on-campus programs in the same way. One said, "I have never thought about [these] changes in this way. I say it's the same, but I guess there are differences in the changes that happen. The on-campus students have full access to everything that I do with the online students to make sure that they are getting the same support from the lectures, but I don't know that I've done enough to make sure that the online students get the changes [made in the lectures]."

### **Issues with Using Student Satisfaction Surveys.**

Although ICES forms are administered each semester for almost all of the courses (including both traditional and online courses) in the Midwestern University system, administrators reported that ICES scores were used sporadically in the online programs in order to evaluate quality. Due to the fact that the ICES ratings are only available to college and program administrators if the faculty member chooses to have these released before or after student ICES ratings are calculated, the amount of use reported by the program administrator was variable. Evident from Figure 4 above, one administrator indicated that she used ICES scores "very few times" (meaning one to two times per year, is represented by the red half of the bar on the chart), and the other indicated she used this source "almost always" (meaning six or more times per semester, represented by the light blue half of the bar). One administrator reported that she directly tells faculty to share these with her every semester, while the other said that she was cautioned against doing this by the department head.

Neither of the administrators reported using ICES in the opened-ended survey items; however, both interview transcripts had instances of this being noted. One administrator acknowledged using the ICES when it's available, but reported that differences in their program had required them to create their own survey for one of their programs. This had caused some tension in the program, because not all of the online programs in the college or instructors wanted to do this different form. She said, "I only get [the ICES] scores if they give them to me. So we have those [program-produced] evaluation forms, and [another online program] has them do the ICES because they have that system set up in place. I think at some point, the whole university is going to have to do ICES, but online courses right now are all different." She also reported that their office had produced overviews of the student satisfaction data from the program-produced evaluation forms, and faculty were very apprehensive about the validity of the

findings. Additionally, the program coordinator had full access to these findings, thereby taking the faculty choice for disclosing the information out of their hands.

### **Issues with Using Student Grades and Course Performance**

While the administrators and some faculty reportedly considered the sources of student grades and assessment performance to be an indicator of quality, some professors in the program stressed that the quality of the students at times rendered these marks useless for assigning program quality. Three faculty recorded survey responses related to the quality of the students, and therefore these students' grades, as a major stumbling block to the quality of the program. One wrote, "It's unclear what admission standards online students have met and where they are in a given program. Some struggle." Another faculty member wrote, "Online program/courses need to be marketed better to attract higher quality applicants. Many online students have been away from school for many years, and it is a shock when they see math and physics and fail." "If the student quality is low, then their performance and reaction to the course cannot be used to evaluate it," said the other. Administrators also acknowledged this tension, but primarily deflected this as a problem that had been rectified by recruiting efforts. One reported:

The qualifications of our students—the level and the quality of the students—is increasing every year...we are getting more and more students in [the online] programs. [Department name] probably had a little lower of a benchmark for some of the students coming in in previous years, and that has been a complaint of the department faculty members. But the faculty members that have complained about that don't work in the department, and so they don't know the quality of the students, and the faculty members that do work in the program say, "Hands down, I would put those students against my on-campus students, and they would perform as good or better any day of the week," and that's what they'll tell me.

The other administrator also acknowledged this problem. She said:

We had a relationship with [Company Name], and what we did was kind of a marketing thing with them which if they sent in a certain number of students, then we would rebate them a certain percentage of tuition. That went horribly wrong. It did sound good, but it turns out that because their students knew we had this agreement with them, they thought they could do whatever they want, get whatever grades, and we still owed them a degree. I wasn't involved in the negotiations, but that had nothing to do with the negotiation agreements. So that was really tough, but that [agreement] is gone now."

Further, using grades as an evaluation is problematic from the students' standpoint as well. For instance, three faculty members said that a strength of the online program is that it offers additional curricular support for the on-campus students, who have full access to the online lectures and material. One faculty member said, "I have had [on-campus students] watch the online lecture if I had to travel out of town for a conference, so my schedule is not interrupted." Thus, in some cases, the addition of an online component enabled traditional students to not only have access to the traditional classroom information, but also to online support as well. These extend beyond the hybrid classes or blended-learning environments, where roughly 30% to 79% of the course is delivered online (Allen & Seaman, 2008). This allows on-campus students to have the "benefits" of both the traditional and online setting at the

same time, if the students choose to participate. This is especially problematic in courses where grades are assigned on a curve for the on-campus and online students. In the interviews, three students cited this as a problem they had with the program. One student reported, “You get an exam back, and you get an 86, and this may be a low A or B, but because the lectures are taped, we don’t know where we are. You don’t get a fair estimate of where you stand. The grades in these classes are more based on how well the class did. [The on-campus students] get our information and the on-campus information, and they can have a better idea about what their grade really is because they can talk to people in the class.”

## CONCLUSION

It is important to note that despite the administrators and faculty of these online graduate programs citing that informal feedback was their primary means of evaluation, their often admissions of the issues of this with further probing in the case study proved enlightening to this research. Therefore, it is important to note that continued discussion and study of this topic with well-established online programs like those at Midwestern University and other programs is just as important as offering frameworks and “advice” for evaluating newer programs.

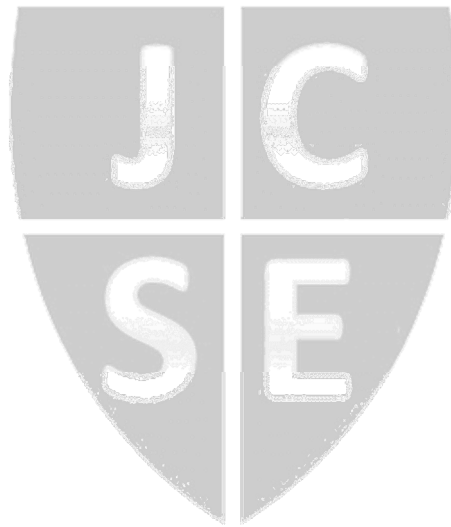
Further, it is essential to consider that evaluation and assessment is continuing to be elusive and essential in the ongoing success. As previously stated, establishing common indicators of quality between online and traditional environments and ways to probe this notion of quality is a necessity because of the trepidation among some in higher education that online education is jeopardizing the quality of higher education (Burbules & Callister, 2000; Larreamendy-Joerns & Leinhardt, 2006; Rovai, 2003). Based on the findings from this present case study, it is clear that there is an ongoing need to explore this as online learning programs might still be relying on informal feedback.

## REFERENCES

- ABET. (2009). History of ABET Retrieved August 15, 2008, from <http://www.abet.org/history.shtml>
- Allen, I., & Seaman, J. (2008). *Staying the Course: Online Education in the United States*. Needham, MA: Sloan Consortium.
- Allen, I., & Seaman, J. (2012). *Digital Faculty: Professors, Teaching and Technology, 2012*. Babson Survey Research Group.
- Aragon, S. R. e. (2003). Facilitating Learning in Online Environments. *New Directions for Adult and Continuing Education*(100), 5-101.
- Bourne, J. R., & Moore, J. C. (2003). *Elements of Quality Online Education: Practice and Direction* (Vol. 4): Olin College-Sloan-Consortium.
- Bourne, J. R., & Moore, J. C. (2004). *Elements of Quality Online Education: Into the Mainstream* (Vol. 5): Olin College-Sloan-Consortium.
- Brooks, R. (2005). Measuring University Quality. *Review of Higher Education*, 29(1), 1-21.
- Collison, G., Tinker, R., Elbaum, B., & Haavind, S. (2000). *Facilitating Online Learning: Effective Strategies for Moderators*: Atwood Publishing, LLC.
- Dabbagh, N., & Bannan-Ritland, B. (2005). *Online Learning: Concepts, Strategies, and Application*: Pearson/Merrill/Prentice Hall.

- Johnson, S. D., & Aragon, S. R. (2003). An instructional strategy framework for online learning environments. *New Directions for Adult & Continuing Education*(100), 31.
- Larreamendy-Joerns, J., & Leinhardt, G. (2006). Going the Distance With Online Education. *Review of Educational Research*, 76(4), 567.
- Law, J., Hawkes, L., & Murphy, C. (2002). Assessing the on-line degree program. *New Directions for Teaching and Learning*, 2002(91), 83-90.
- Magjuka, R. J., Shi, M., & Bonk, C. J. (2005). Critical design and administrative issues in online education. *Online Journal of Distance Learning Administration*, 8(4).
- MarylandOnline. (2008). Quality Matters Rubric Standards 2008-2010 edition with Assigned Point Values Retrieved August 12, 2008, from <http://www.qualitymatters.org/Rubric.htm>
- Moore, J. C. (2005). The Sloan Consortium Quality Framework And The Five Pillars, from <http://www.aln.org/publications/books/>
- Ostriker, J. P., Kuh, C. V., & Voytuk, J. A. (2003). *Assessing research-doctorate programs: A methodology study*: National Academies Press.
- Perry, G. M. (1994). Ranking M.S. and Ph.D. Graduate Programs in Agricultural Economics. *Review of Agricultural Economics*, 16(2), 333.
- Phipps, R., & Merisotis, J. (2000). *Quality on the Line: Benchmarks for Success in Internet-Based Distance Education*. Washington, DC: Institute for Higher Education Policy Retrieved from <http://www.ihep.org/Publications/publications-detail.cfm?id=69>.
- Pirsig, R. M. (2005). *Zen and the art of motorcycle maintenance: An Inquiry into Values*. New York: Harper Perennial Modern Classics.
- Rovai, A. P. (2003). A practical framework for evaluating online distance education programs. *The Internet and Higher Education*, 6(2), 109.
- Rovai, A. P., & Downey, J. R. (2009). Why some distance education programs fail while others succeed in a global environment. *The Internet and Higher Education, In Press, Corrected Proof*.
- Ruhe, V., & Zumbo, B. D. (2008). *Evaluation in Distance Education and E-Learning: The Unfolding Model*: The Guilford Press.
- Sener, J., & Shattuck, K. (2006). *Research Literature and Standards Sets Support for Quality Matters Review Standards*. MarylandOnline Retrieved from <http://www.qualitymatters.org/Rubric.htm>.
- Seok, S. (2007). Standards, accreditation, benchmarks, and guidelines in distance education. *Quarterly Review of Distance Education*, 8(4), 387.
- Sprague, D., Maddux, C., & Ferdig, R. (2007). Online Education: Issues and Research Questions. *Journal of Technology and Teacher Education*, 15(2), 157-166.
- Stake, R. E. (1995). *The Art of Case Study Research*. Thousand Oaks, CA: Sage.
- Stake, R. E., & Schwandt, T. (2006). On discerning quality in evaluation. In I. Shaw, M. M. Mark & J. C. Greene (Eds.), *Sage Handbook of Evaluation* (pp. 404-418). Thousand Oaks, CA: Sage.
- Stein, S. J., Spiller, D., Terry, S., Harris, T., Deaker, L., & Kennedy, J. (2013). Tertiary teachers and student evaluations: never the twain shall meet? *Assessment & Evaluation in Higher Education*, 1-13. doi: 10.1080/02602938.2013.767876
- Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., & Liu, X. (2006). Teaching Courses Online: A Review of the Research. *Review of Educational Research*, 76(1), 93-135. doi: 10.3102/00346543076001093

- U.S. Department of Education. (2006). *A Test of Leadership: Charting the Future of US Higher Education*. National Commission on the Future of Higher Education in America. Washington: US Department of Education.
- US Department of Education. (2008). Higher Education Opportunity Act Public Law 110–315. Retrieved November 28, 2008, from [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110\\_cong\\_public\\_laws&docid=f:publ315.110.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ315.110.pdf)
- Yin, R. K. (2002). *Case Study Research: Design and Methods* (3 ed. Vol. 5). Thousand Oaks, CA: Sage.
- Zhang, L. (2005). Advance to graduate education: The effect of college quality and undergraduate majors. *Review of Higher Education*, 28(3), 313-338.



APPENDIX

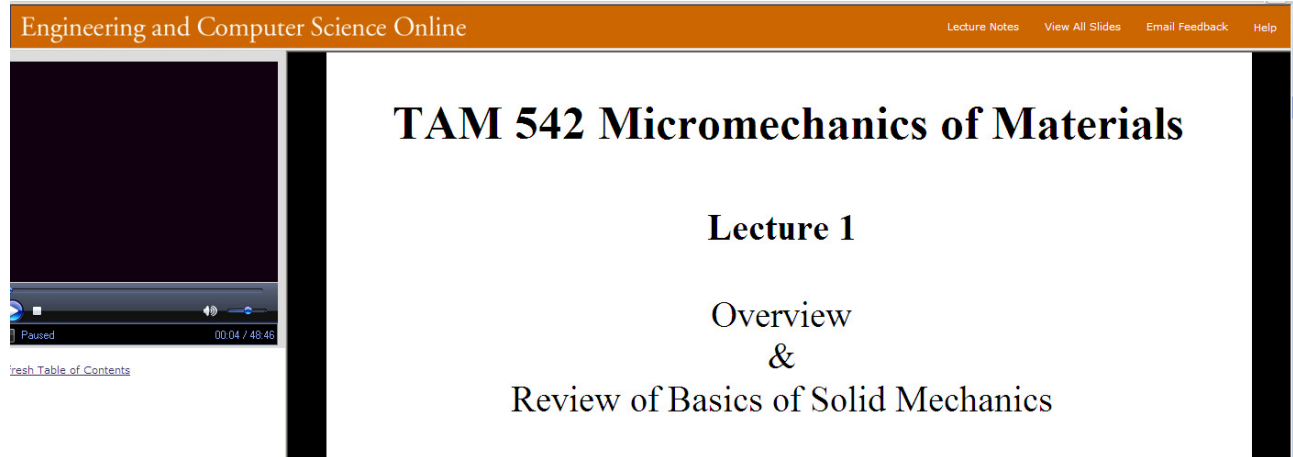


Figure 1. An example of an online lecture in engineering

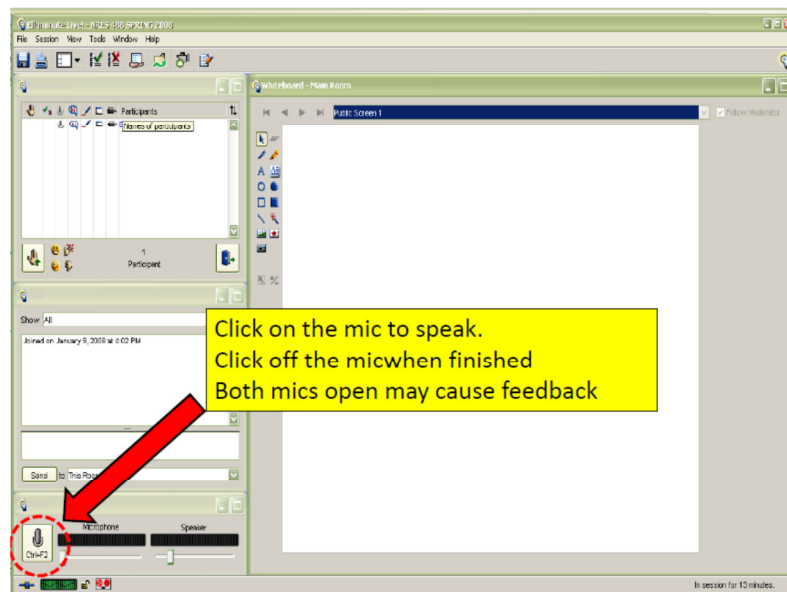


Figure 2. An example of an ACES online communication mechanism provided by the Elluminate program.



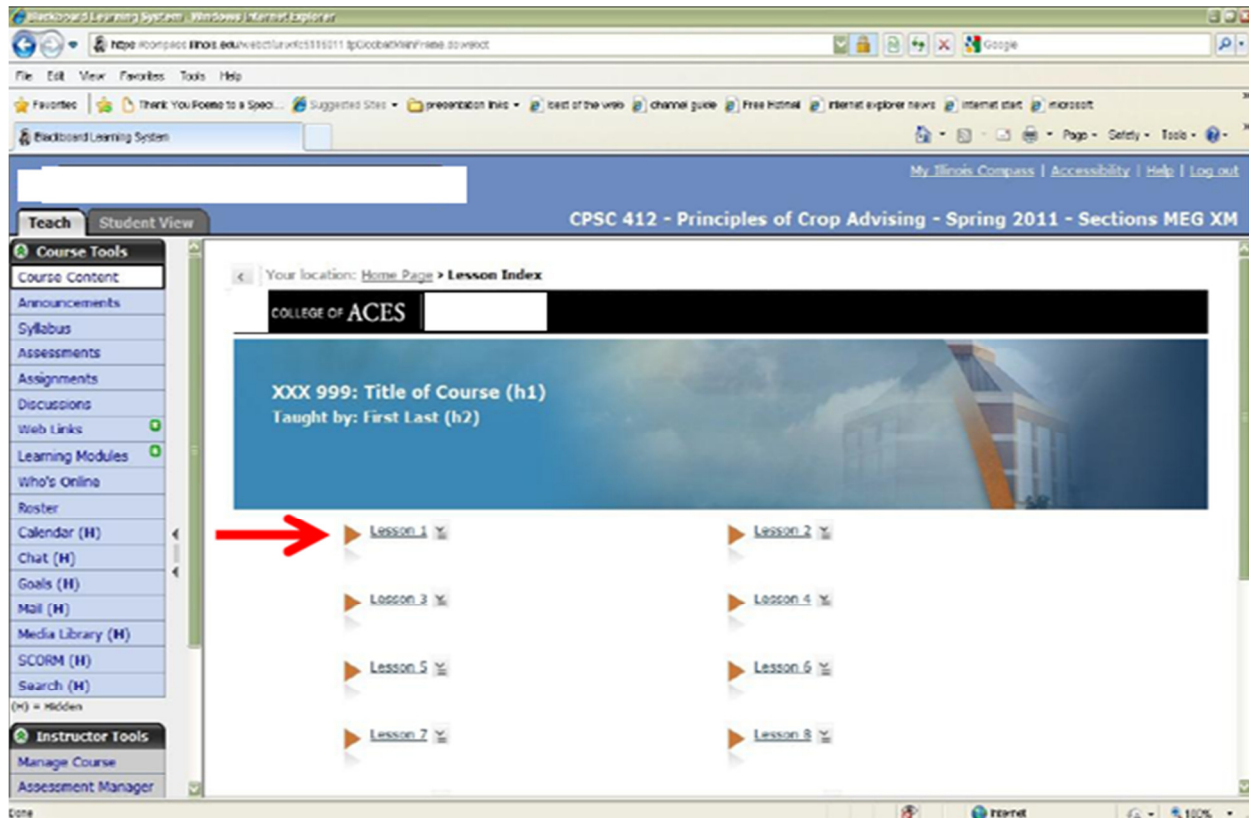


Figure 3. An example of an ACES course management system provided by the Midwestern University Compass program.



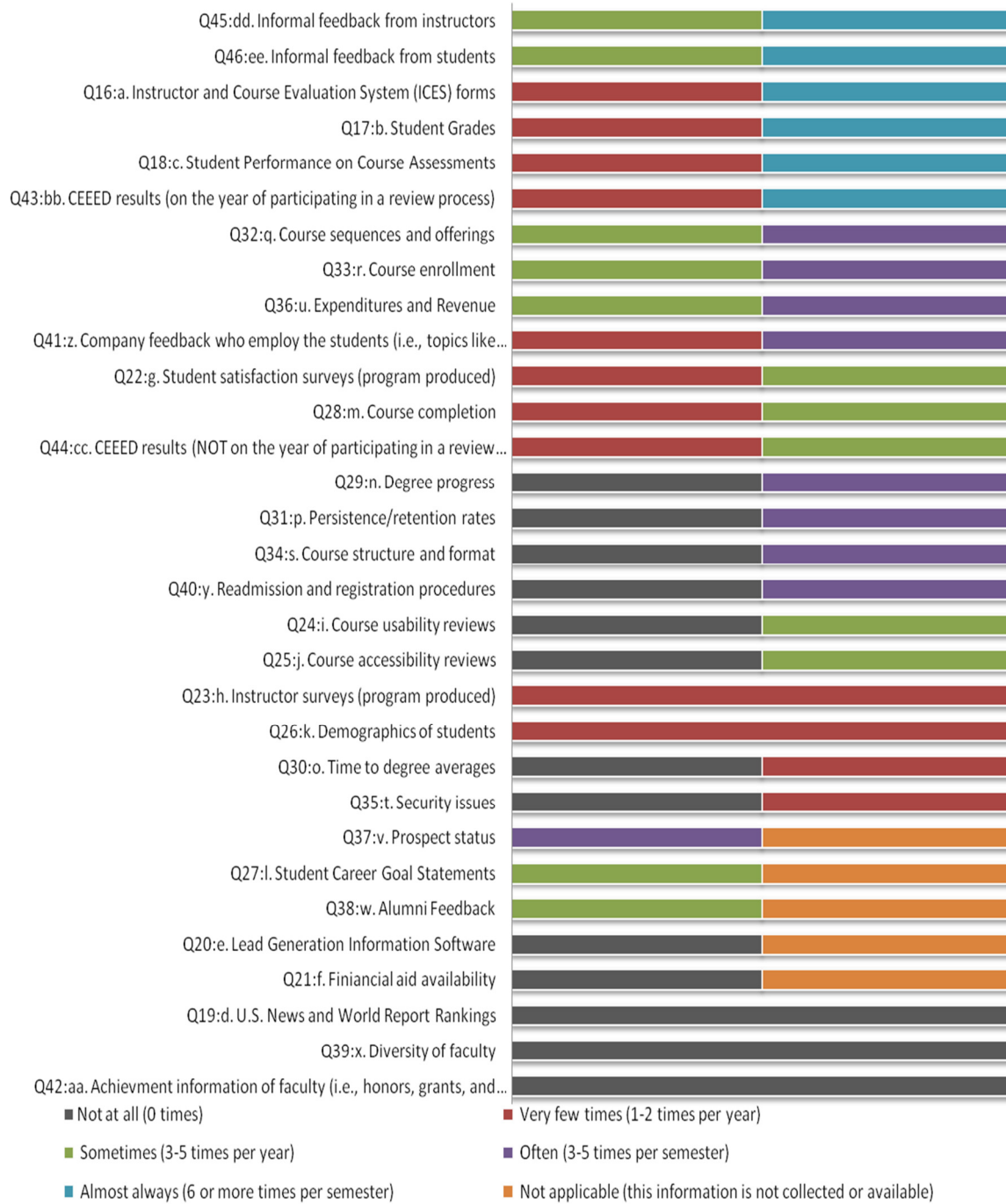


Figure 4. Administrator responses to survey item regarding the frequency that they use the listed data sources to evaluate their online program’s quality, sorted by averages. Each bar represents two responses.