General Education and ePortfolios: Syllabi and the Role of Faculty

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A study of faculty views about General Education requirements, paired with a review of faculty syllabi, revealed concerns about communication of General Education goals to students. Syllabi reviewed were those for courses meeting the Natural Sciences General Education requirement. At our institution, students demonstrate Natural Science competency with work from various science courses that is deposited in an electronic portfolio. Electronic portfolios are evaluated systematically as part of the university General Education assessment plan. We explore possible reasons for gaps in faculty communication about the Natural Science competency requirement, including issues such as institution type and faculty desire for autonomy. Factors that contribute to the creation of successful syllabi are also reviewed, and we discuss how these factors could be employed to better communicate General Education requirements to students.

Syllabi are essential tools in the classroom, providing important sources of information for students about the course in general, assignment dates, instructor contact information, and much more. Our research team has been studying course syllabi as the mechanism for communicating institutional policies concerning General Education (Gen Ed). We reviewed syllabi from our particular emphasis area of Gen Ed, Natural Science (e.g., physical science, chemistry, biology, geology, physics, astronomy) to determine if they had components relevant to Gen Ed and its electronic portfolio (ePortfolio) reporting requirement. A major focus was to determine whether syllabi clearly mentioned the ePortfolio requirement and whether they described how assignments completed for the course might be used by students as effective ePortfolio artifacts. Results have shed light on the complexity of student and faculty perspectives with regard to Gen Ed and on syllabi in general.

Our institution is the state's public land grant university, with an undergraduate student population of approximately 17,000. The research mission is carried out not only by the approximately 4,000 graduate students, but also by a large number of undergraduates who participate in faculty-directed research as part of the Creative Inquiry Program. Creative Inquiry is team-based and offers class credit. Several Creative Inquiry students interested in the ePortfolio program performed the project reported here.

Our goal was to follow up on previous research that had been reported on by this research team in this journal, that concerned syllabi and how effectively students believed that they communicate class requirements (Appling, Gancar, Hughes, & Saad, 2012). The current study was initiated to investigate the topic of syllabi use from the point of view of the course instructor. Other researchers have observed that different disciplines vary widely on how much meaning and importance are attached to Gen Ed classes and that faculty members who teach Gen Ed courses emphasize deeper approaches to learning more than those who teach major-specific classes (Laird & Garver, 2010). Our institution's Gen Ed program is augmented by the addition of an electronic portfolio-reporting requirement for students, in which students demonstrate specific Gen Ed competencies using examples of their work from Gen Ed classes.

In its broadest context, our study was initiated as a cross-check on faculty activity relative to syllabus production for Gen Ed courses. Every semester, the Dean of Undergraduate Studies sends a "class regulations" letter to all instructors that contains information about what should be included in effective class syllabi. There are no other posted campus resources on the topic, and the elimination of a campus-wide new faculty orientation several years ago has left the task of support to word-of-mouth within departments. Faculty members have access to exemplars in the Syllabus Repository.

The Dean's letter does reference expectations for syllabus content in Gen Ed classes. In particular, it stresses that each Gen Ed syllabus must indicate relevant Gen Ed competencies and course assignments appropriate for students to use as artifacts in their ePortfolio. The ePortfolio Program maintains an office staffed with a director, associate director, and a cadre of graduate assistants available to help both students and instructors with issues associated with the ePortfolio requirement. Faculty are invited periodically to attend workshops dealing with Gen Ed learning outcomes and with how to align class assignments to them. The director of the program is available to meet individually with instructors to help them with these tasks, and she has several longstanding associations with faculty in

various disciplines that have engaged more deeply in the use of portfolios for their students. Our aim was to evaluate how well instructors were using their syllabi for communication with students about Gen Ed and the ePortfolio requirement, given that expectations are disseminated and resources are available. Preliminary observations from our student-based study indicated that there might be an issue with faculty follow-through.

Various studies of undergraduate class syllabi have been performed to identify syllabi functions, which are typically grouped into three categories: (a) as a contract between instructors and students; (b) as a permanent record; and (c) as a potential learning tool for students (Doolittle & Lusk, 2007). One can imagine an extensive list of items to be included in a syllabus to make it effective and fulfill these functions (for examples, see Berschback, 2010). Syllabi not only affect students, but also influence institutional aspects such as accreditation and faculty tenure review (Matthew, Bentz, & Fynewever, 2011). It is in an instructor's best interest to identify expectations and outcomes for their courses, as well as how students should attain them (Habenek, 2005). However, faculty and students seem to neither strongly embrace nor value the pedagogical function of learning objectives presented in syllabi (McDonald, Siddall, Mandell, & Hughes, 2010). Students read syllabi to determine how the course satisfies departmental and/or institutional requirements (Appleby, 1994), but this process is dependent on the clarity of how a syllabus communicates these goals.

Syllabus composition communicates the specifics of course learning as well as conveying an instructor's attitude toward students. A poorly composed syllabus can act as a barrier and elevate frustration between instructors and students (Appleby, 1994). A complete syllabus should make the students aware of how a course satisfies institutional requirements and should define course learning to improve student focus and develop student interest in learning (Appleby, 1994; Matthew et al., 2011). Communication through the syllabus about how the course is structured helps to reinforce learning expectations (O'Brien, Millis, & Cohen, 2008). Syllabi can also reveal how assignments may help students meet content and process goals. A "student-centered" syllabus can help students be more independent and encourage them to become self-regulated learners (Doolittle & Lusk, 2007). Additionally, the tone of a syllabus can affect how students approach a class. A "warmly-toned" syllabus tends to be more encouraging and generally results in positive student outcomes (Slattery & Carlson, 2005).

Despite recognition of the utility of the syllabus, there are differences in opinion among faculty about the perceived purpose of the document (Matthew et al., 2011). Research on syllabus design by faculty often

focuses on included components, faculty and student perceptions, and content-specific effectiveness (Doolittle & Lusk, 2007). Our intent is to focus on the connection faculty make between their course and Gen Ed requirements by analyzing Natural Science syllabi. We are specifically interested in how well faculty communicate the ePortfolio requirement for documenting the Natural Sciences competency, which has been in place at our institution since 2005.

Methodology

Our research team consisted of several undergraduate researchers from various majors, all interested in communication and science education, especially as it pertains to the ePortfolio requirement of Gen Ed. Each student participated for several semesters, contributing to research design and data collection, including performing interviews with faculty members who taught Gen Ed science courses. These students were also responsible for formative assessment of artifacts submitted by students to meet the Natural Science competency, so they had intimate knowledge of the variety and quality of student work in this area. The faculty leader of the team serves as Associate Dean in the university unit responsible for implementing and managing the ePortfolio program and has taken a leadership role for the Gen Ed competency in Natural Science. The team's previous study of students' experiences with class syllabi and electronic portfolios (Appling et al., 2012) was survey-based. To learn more about the syllabi themselves and the construction of syllabi by faculty, the present investigation was designed as a mixed methods study (Clark & Creswell, 2007; Creswell, 2009). The research team gathered data on syllabi for Natural Science courses found in the university Syllabus Repository system. Analysis of that data led to subsequent interviews with several faculty members responsible for the creation of syllabi chosen from the results.

Natural Science courses were identified using the Gen Ed requirements available in the university undergraduate catalog (Clemson University, 2014). Sixty separate courses, including laboratory courses, were evaluated. Syllabi were acquired for sections from the most recent semester in which the course was taught. A total of 74 section syllabi were analyzed using a rubric devised by the research team. This rubric was tested on a random sample of ten syllabi before it was refined and applied to all 74 section syllabi.

The evaluation rubric has five categories that reflect the important aspects of syllabi relevant to communication of course attributes associated with Gen Ed and the use of electronic portfolios by students to document their competencies. These five categories and rubric values are as follows:

- Gen Ed: 0 (*not mentioned*), 1 (*mentioned*)
- Natural Science Competency: 0 (*not mentioned*), 1 (*mentioned*), 2 (*statement given*)
- ePortfolio: 0 (*not mentioned*), 1 (*mentioned*), 2 (*specific directions given*)
- Artifacts: 0 (*not mentioned*), 1 (*mentioned*), 2 (*specific assignment given*)
- Artifactibility: 0 (*none*), 1 (*ill-defined artifacts*), 2 (*well-defined artifacts*)

This last category, "artifactibility," was created to account for whether the syllabus described student activities that were appropriate for generating examples of work suitable for documentation in the students' ePortfolios. Course syllabi that scored poorly in other categories might still contain information indicating the potential for communication to students about generation of artifacts from coursework. All team members participated in a two-round rater comparison exercise using 15 randomly selected syllabi, resulting in rater agreement above 98% across the five categories. Course section syllabi were randomly assigned to team members for evaluation, and final values for any contentious items were determined by consensus of the team. Comments for each syllabus were also collected to provide additional insights.

Syllabi that had particularly high scores often had comments from evaluators about superior design and completeness. Four instructors responsible for these higher scoring syllabi were sought for interviews in an effort to learn more about faculty attitudes toward Gen Ed and its electronic portfolio requirement. Each faculty member was visited by two team members, and their answers to 12 standard questions (see Appendix) were audio recorded. Team members transcribed responses and subsequently coded them (Saldaña, 2009) into 20 categories for further analysis.

Results

The efficacies of Gen Ed syllabi were determined through qualitative analysis of a sample of 74 course syllabi that met the Natural Science (NS) and Natural Science with Lab Gen Ed requirements (Clemson University, 2014). A total of 57% of these syllabi came from courses in the College of Engineering and Science and the remaining 43% from the College of Agriculture, Forestry, and Life Science. Twenty-six of the 74 syllabi analyzed (35%) received a score of zero (the lowest possible score) in all five rubric categories, indicating that there was no mention of Gen Ed requirements, the NS competency, ePortfolio requirements, or artifacts. The majority (77%) of these deficient syllabi were from the College of Engineering

and Science. Only two of the sampled syllabi received maximum scores in all five rubric categories.

As a basic component, a Gen Ed syllabus should note that the course meets a Gen Ed competency and is considered a Gen Ed course. A minority (41%) of the syllabi analyzed mentioned this fact. All Natural Science courses are expected to provide students with an avenue to meet the Natural Science competency (Clemson University, 2014). It was found that only 27% of syllabi specifically mentioned the NS competency. Of those that did mention the NS competency, 15% provided the correct statement of competency found in the undergraduate catalog. Evaluator comments noted that several syllabi mention other competencies instead of NS, or had an outdated competency statement. This revealed that instructors may not be aware of how their course fits the Gen Ed competency requirements.

The ePortfolio requirement was implemented in tandem with the development of the Gen Ed competencies in 2005. Students submit work from their ePortfolio as evidence that they have met the competencies and to build a database of student work. Student work is selected and evaluated after graduation to provide assessment of the Gen Ed programs. Of the syllabi studied, 42% mentioned the ePortfolio requirement and its relevance to the Gen Ed Natural Science course. Furthermore, 12% linked specific assignments to ePortfolio, a metric dominated by courses in the Biological Sciences.

To quantify the potential for student assignments meeting the ePortfolio requirement, syllabi were inspected to identify whether listed assignments could be used as artifacts (the rubric category, artifactibility). The artifactibility category was added since it was observed that some syllabi often included assignments that would be typical Natural Science artifacts but were not labeled as such. Some syllabi that scored low using the other research rubrics could have a high artifactibility score. However, two-thirds of syllabi did not exhibit an activity or graded assignment suitable for inclusion in a student's ePortfolio. About 23% of the syllabi provide assignments that are described fully and could serve as quality artifacts for students. It was found that of artifacts submitted for the Natural Sciences Gen Ed requirement, lab reports generally served as the best demonstrators of competencies being measured.

To learn more about faculty opinions that influence creation of syllabi, we interviewed four Natural Science faculty members who were identified from the data as providing particularly effective syllabi. Twelve standard questions were posed (Appendix), and themes/positions were extracted from transcripts of the interviews. All

interviews were conducted by student members of the team. Because of the team's affiliation with the ePortfolio program, faculty tended to dwell on the ePortfolio aspect of the questions, although questions were crafted to elucidate responses about Gen Ed, the Natural Science competency, and syllabus construction strategies.

All four faculty members believed there were certain aspects of the ePortfolio requirement that were useful and appropriate. However, the respondents were split on the value of the ePortfolio requirement: one stated that he thought it "has some valuable aspects," and another stated that he was "uncertain of the value of doing it." Two interviewees said specifically that they would favor some type of departmental assessment of Gen Ed instead of using the ePortfolio method. It is unclear what that would look like and whether faculty would actually want to perform this assessment. Previous discussions with faculty during the formative years of the program indicated that they were not interested in evaluating student work in ePortfolios as either advisors or curriculum committee members. One interviewee commented, "The day ePortfolio dies is the day that faculty have to do the assessment."

Three of the interviewees believed that grades alone are a sufficient measure of student competency in the NS (and in all the other Gen Ed competencies as well). One commented, "Why don't grades mean anything in these courses? That mystifies a lot of people." This represents a specific disconnect from the purpose of using ePortfolios to gather direct evidence of student work and to use ePortfolio data as a Gen Ed program assessment tool. There appears to be faculty misunderstanding about the utility for assessment provided by the ePortfolio requirement. Despite the fact that the requirement was created by faculty on the university curriculum committee, there is still some distrust about its origins. One interviewee commented, "There's generally a lot of unhappiness about how it was implemented—that the administration basically made a deal with the Devil." We assumed that the "Devil" refers to the university accrediting agency.

Three of the four respondents recognized that all Gen Ed instructors should do more to relay information about the ePortfolio to their students. One interviewee said, "We just really need to know what the competencies actually are and some general information about the nature of the artifacts." The competencies are published in the undergraduate catalog, and they are also available on the ePortfolio Program website, which has additional information about what constitutes a good artifact. One interviewee suggested a list of "dos and "don'ts," which are also already available online. All four responded positively when asked if they would use a syllabus template provided by the program to help outline the competency

and defined the connection between a course artifact and the ePortfolio requirement. One interviewee commented, "Faculty need more than a template, they need more guidance about what constitutes an adequate artifact," even though this particular person had already shown that he was aware of the available resources either at the ePortfolio Program office or online. All four faculty members did seem to recognize that a lab report is the richest and most complete type of assignment appropriate for demonstrating the Natural Science competency. However, some also regarded homework assignments or exams as adequate artifacts. It appears that although resources already exist to address concerns of these respondents, they are not seeking them out (even when they know to send students to the same resources).

Discussion

Our university Gen Ed assessment depends on the acquisition of representative student work. Class instructors are crucial to this process—they should be providing students with directions to save their best work and add it to their ePortfolio. To help with ePortfolio artifact collection, the syllabus should contain goals that clearly articulate which assignments would be appropriate to fulfill any Gen Ed competency applicable to the class. Furthermore, these goals should have a rationale so that students have an understanding of why particular assignments are required and why they are important to their major or to Gen Ed (Slattery & Carlson, 2005). Strong course goals are helpful to students, but unfortunately syllabi are often variable in format and inconsistent in presenting learning objectives (Matthew et al., 2011). Based on the analysis presented here, this appears to be the case for Natural Science syllabi investigated in our study.

The condition of syllabi exposed by our study may jeopardize the university's program of assessment and accreditation. Accreditation guidelines indicate that curriculum evidence should appear on syllabi reflecting the institution's strategy to demonstrate student learning (Jacobson & Germain, 2004). Therefore, there is little reason for such information to be absent even if it is not felt that students need it (Habenek, 2005). The syllabus provides an opportunity to introduce assessment principles and how to use these principles to scaffold student learning (Matthew et al., 2011), which is an opportunity lost by our faculty. The perceived benefit of assessment to teaching and learning has been shown to be positively and significantly related to a faculty member's willingness to engage in assessment. The greater value that faculty see in the use of assessment to improve faculty teaching and student learning practices at the institution, the more likely they are willing to participate (Wang & Hurley, 2012). Our data suggest

that the connection to assessment is not strong in our faculty.

Instructors often seem to be motivated more by the desire to improve their own teaching, learning, and scholarship than by the desire to comply with institutional culture (Wang & Hurley, 2012). Higher education teaching is less supervised than other professions, and in part due to this freedom instructors must take the initiative to improve their own teaching skills (Berschback, 2010). Several respondents in our study expressed a strongly held sentiment that instructors should be able to do whatever they wanted in their classrooms. Autonomy is linked to not knowing—or caring—what others do and the conviction that there should be no mandates regarding teaching (Hora & Anderson, 2012). This mindset may manifest itself as reluctance by instructors to engage more fully in communicating institutional requirements.

Institutional type (i.e., research universities) can be a major influence on academic role performance (Milem, Berger, & Dey, 2000). Fairweather (1993) found that research activities are rewarded more than teaching and that teaching can be a negative predictor of rewards. Massy and Zemsky (1994) contended that faculty members have worked to increase their discretionary time by loosening their institutional ties and obligations. This causes more faculty time and energy to be focused on research and publication. Faculty members correspondingly decrease the amount of time spent teaching in the classroom, preparing for class, grading assignments, and meeting with students. The reward structure incentivizes faculty to make decisions that prohibit them from engaging in the types of contact with students that we know promote more positive outcomes (Milem et al., 2000). The so-called "academic ratchet" (Massy, 2004) produces a steady, irreversible shift of faculty allegiance away from the goals of a given institution and toward those of their personal academic specialty. Across all institutions, there has been an observed, statistically-significant decrease in the amount of time faculty spend advising and counseling students, with faculty at research universities spending the least amount of time advising students (Milem et al., 2000). This may account for some of the lack of engagement with our Gen Ed competencies, as Gen Ed tends to be of more interest to faculty with advising and curriculum assignments as part of their workload.

Using the syllabus to define learning objectives and feedback mechanisms clearly at the start of the course can reduce student confusion and promote student commitment to learning throughout the semester (Matthew et al., 2011). It is important that students know what is expected of them and how they will be assessed. Clarity and organization may motivate students to participate in assignments more willingly and with greater enthusiasm. With regard to Gen Ed, this may lead to a better understanding of the purpose of Gen Ed competencies and the need for assessment via the ePortfolio process. In the syllabus, the instructor can model enthusiasm for course content and convey a positive invitation to students to explore learning in the discipline (Habenek, 2005).

The relative scarcity of Gen Ed rationales in syllabi suggests that many of our faculty do not consider this their motivation for particular assignments, or at least fail to communicate this. We believe that providing an assignment's rationale on the syllabus is an opportunity to get students and faculty working together. This is an important piece that is missing from our current ePortfolio requirement. Students should be informed by their instructors about which assignments would be appropriate artifacts for a Gen Ed competency, and the instructor should work to create assignments for students that do just that.

Reaching the faculty to address these issues has been a challenge. Although resources are available and advertised, the faculty engaged with them are those that already have expressed interest in Gen Ed assessment. Results from the present study were forwarded to the ePortfolio Program director, which stimulated initiation of a similar investigation applied more broadly to other Gen Ed competencies. That data, which closely paralleled what is presented here, was subsequently provided to the faculty assessors who perform the summer summative assessment of ePortfolio artifacts. This faculty group expressed concern about the status of syllabi in Gen Ed courses and recommended to the University Undergraduate Curriculum Committee that actions be taken to communicate more concretely to departments about managing their syllabi. In time, this first step may lead to the oversight needed to correct the problem.

Conclusion

The present study helps to complete a picture of our university Gen Ed culture. Student frustrations with Gen Ed requirements, including the ePortfolio, were revealed in our first study and appear to be related in part to spotty communication from faculty teaching Gen Ed courses. In the Natural Sciences, syllabi tend to lack the information necessary to clearly show students the value of the course as it applies to both the development of student competency and how the course fits within the framework of the Gen Ed program. While students might not fully appreciate the value of a good syllabus for accreditation or for program integrity, they do expect a syllabus to provide the level of detail they need to navigate the course and any ancillary requirements. Instructors have yet to realize this goal within their own syllabi.

A student mechanism for feedback to faculty about this issue does not exist. Students are usually several semesters out of their Natural Science class when they complete their ePortfolios in preparation for graduation. It is unfortunate that for many students this simple task is not explained and encouraged at the time that they actually generate the artifact they will use to demonstrate their competency. With few exceptions the syllabi available to students seem to contribute significantly to the problem. However, students do not experience the effects until too late and are not in a position to let faculty know the extent of the problem. Thus, faculty are not aware that a simple addition to their syllabi could go far to clarify Gen Ed competencies for their students.

The problem is further exacerbated by the decentralization of the Gen Ed program itself. There is no coordinated supervision of Gen Ed; each department monitors separately any Gen Ed courses that it offers. Perhaps if departmental curriculum committees were more hands-on with their Gen Ed courses and monitored the syllabi, standards of communication might be established. Our results indicate that faculty can do this; they just need to be guided in a meaningful way.

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Acknowledgements

Appendix
Survey Items

1. What are your perspectives on the ePortfolio requirement?

2. How should the Gen Ed competencies be relayed to students?

3. Have you had questions from or dialogue with students concerning the ePortfolio?

4. Have you discussed ePortfolio with your faculty colleagues?

5. Should there be a template for the description of Gen Ed/ePortfolio available for faculty to put into their syllabi?

     a.   If so, how should that template be made available?

6. What resources should be available to help faculty design their syllabi?

     a.   If such resources existed, would you use them?

     b.   Would your departmental colleagues?

7. In what ways does your syllabus cover the issue of Gen Ed competency in Natural Science?

8. Can you describe the work required in your course that could fit the Natural Science competency?

9. In your opinion, what does a satisfactory artifact for the Natural Science competency look like?