Using an Interdisciplinary Approach to Teach Undergraduates Communication and Information Literacy Skills

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ABSTRACT For successful and productive careers, undergraduate students need effective communication and critical thinking skills; information literacy is a substantial component in the development of these skills. Students often perceive communication courses as distinct and separate from their chosen discipline. Faculty from the Departments of English and Horticulture and the library at Iowa State University collaborated in a foundation communication course (English 250). The course incorporates five components—finding information sources; evaluating information sources; and preparing an annotated bibliography, a research paper, and a research poster—all within the context of horticulture. The objective of the collaboration was to integrate communication and information literacy concepts into English 250 and relate these concepts to the students' discipline of horticulture. Assessment data and focus group discussions strongly validate students' appreciation for an interdisciplinary approach to teaching communication and information literacy skills within the discipline.

To function effectively upon graduation, horticulture students must have the ability to communicate and think critically about their profession (Berle, 2007; Schlossberg et al., 2004), as well as apply the technical and scientific skills of a discipline. Often the acquisition of communication and critical thinking skills, such as the ability to present an effective oral report, write concisely and correctly, debate issues, define a problem, identify resources, and propose alternative solutions, is assumed to be taught in English communication courses and does not require discipline-specific instruction. Educators often assume that students make the connections between classes themselves, but students typically compartmentalize their coursework. Students often have difficulty understanding how English communication courses apply to their major. Contextualizing the content of an English communication course in terms of a specific academic discipline is an effective method of teaching the communication and critical thinking skills students need to succeed as professionals in their field.

This article describes how an Iowa State University (ISU) undergraduate foundation English communication course (English 250) is taught within the context of a student's major through a highly interdisciplinary approach. English 250 is the second of two 3-credit-hour English communication courses required of all students at ISU; the course is taken by freshman and sophomore students. The course section of interest is for horticulture majors and students from aligned disciplines in agriculture and the life sciences. Most of the horticulture majors also participate in the Horticulture Learning Community, an initiative for first-year students and faculty. Students work closely with English, library, and horticulture faculty to complete the course assignments. The course is not team-taught, but both library and horticulture faculty serve as guest lecturers and continue their involvement with student assignments throughout the course. The collaboration builds on two university-wide efforts at ISU. The first is a one-half-credit course, "Library 160: Finding, Evaluating & Using Information," a required course for all ISU undergraduates. The course includes topics such as: information organization and the publication cycle, differences between "free" web and scholarly web resources and how to evaluate information found using the web, library catalog searching, the use of periodical indexes and how to distinguish between the types of citations found in indexes, and the ethical use of information. The second effort is a communication initiative known as ISUComm. The core ideas of ISUComm include designing foundation and advanced communication courses for written, oral, visual, and electronic (WOVE) communication, sharing the responsibility for

Impact Statement

Students often perceive required English communication courses as irrelevant and consider the course outcomes to be distinct from their discipline. An interdisciplinary collaboration among faculty from the Iowa State University Library and Departments of English and Horticulture was established in an English communication course to teach communication and information literacy skills to horticulture majors. These skills are taught in the context of the discipline. Assessment data show that students value the interdisciplinary learning approach.

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Abbreviations: ACRL, Association of College and Research Libraries; ISU, Iowa State University; WOVE, written, oral, visual, and electronic.

the instruction and practice of effective communication skills by faculty across the university, and using effective communication to cultivate active learning and critical thinking skills (Iowa State University, 2001).

Background

The importance of communication and critical thinking skills for horticulture students is well established. In discussing changes that need to be implemented in undergraduate agricultural programs, the National Research Council (2009) observes that written and oral communication skills, as well as critical thinking and analysis skills are needed (and expected by employers) in college graduates. Basinger et al. (2009) conducted a Delphi study of 22 horticulture educators from 22 U.S. institutions that offer an undergraduate degree in horticulture. The purpose of the study was to identify competencies for inclusion in the undergraduate horticulture curriculum. The three broad categories of competencies included horticulture technical competencies, life science competencies, and professional competencies. Professional competencies that received high acceptance rates from horticultural educators included written/oral communication skills, problem-solving skills, and lifelong learning skills.

The Department of Horticulture (2002) at ISU developed student learning goals and expectations for the program that are consistent with the literature reported above. Furthermore, in addition to technical, scientific, and communication skills, several of the department's expectations (e.g. expectations related to oral and written communication skills, identifying resources to solve problems, the ability to use libraries and other information resources) pertain to the Association of College and Research Libraries (ACRL) "Information Literacy Competency Standards for Higher Education" (ACRL, 2000). These expectations are components of information literacy, which is defined as a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (American Library Association, 1989).

There has been much discussion in the library and information science literature about who is responsible for teaching information literacy skills to students. Librarian–faculty collaboration often occurs in first-year English composition courses (Barratt et al., 2009; Hearn, 2005; Peary and Ernick, 2004), and Grafstein (2002) believes that the teaching of information literacy skills should be shared by librarians and classroom faculty—specifically classroom faculty within the academic discipline. Grafstein notes that librarians have expertise in teaching students how to find and evaluate information, and classroom faculty within specific disciplines can further teach students how to apply these skills in the context of that discipline. Breivik (2005) asserts that the development of information literacy skills is a three-way partnership between the institution, academic programs, and the classroom. Breivik advocates the need for academic programs to determine discipline-specific information literacy skills and then integrate the teaching and practice of these skills into specific courses within the academic program or major. Detailed guidelines for integrating information literacy across the curriculum have been developed by the Middle States Commission on Higher Education (2003). Additional models and examples of discipline-specific collaborations are described by Brasley (2008) and Jacobson and Mackey (2007).

Teaching Communication: A Collaborative Approach

Building on these and other models from the literature, the English instructor, librarian, and horticulture faculty have developed a unique partnership to teach communication skills in the English 250 course. Because information literacy skills impact a student's ability to excel in completing college-level writing assignments and giving oral presentations, the deliberate inclusion of information literacy concepts into English 250 is a central component of the course. These skills, such as the ability to find and critically evaluate information sources, are a building block in the development of good communication skills in general, as well as in the students' chosen discipline. While the collaboration between the English instructor and librarian is not unique, the contributions of the horticulture faculty to the course have added a distinctive element to the course. The librarian and horticulture faculty have had an integral role in developing the assignments for the English course. The horticulture faculty have also served as guest lecturers on communication and information literacy topics in the course. Since this collaboration began, the librarian and English instructor frequently exchange ideas about course and assignment planning and how to incorporate information literacy skills into the course.

The ACRL "Information Literacy Competency Standards for Higher Education" are used as a tool to guide the development of classroom activities and assignments (Emmons, 2006; Mahaffy, 2006). These standards align with the Department of Horticulture student learning outcomes and the English course activities as shown in Table 1. Descriptions of the assignments and the role of the librarian and the horticulture faculty in the course are discussed in detail in the subsequent sections.

Description of Faculty Collaboration and English Writing Course Components

The English 250 course is organized around five components, each of which benefits from input and feedback from the librarian and horticulture faculty (Fig. 1). The following describes each of those components.

Component 1: Finding Sources. During the first 2 weeks of the course, the librarian gives two presentations in two classes, followed by a worksheet review in a third class. The first presentation provides a general introduction to the library's print and online resources. Specific resources that will be useful for upcoming assignments are highlighted and listed in an online research guide that was developed by the librarian. Searches are demonstrated for the library catalog and several of the online article indexes (e.g. Academic Search Elite, Turfgrass Information File). Search techniques, such as the use of Boolean operators and truncation, are discussed as well as how to select search terms. Because students often begin their research using a search engine, information about how to do more focused Google searches (e.g. enclosing specific phrases in quotation marks and limiting a

Table 1. Information literacy standards, departmental learning outcomes, and English 250 activities for undergraduate students (ACRL, 2000; Department of Horticulture, 2002).

Information Literacy Standards	Department of Horticulture Learning Outcomes	English 250 Activities that Support Information Literacy Standards and Learning Outcomes
The information literate student:	The horticulture graduate:	In this course, students will:
Determines the nature and extent of the information needed.	Defines a problem.	Analyze audience and determine expectations for content.
Accesses needed information effectively and efficiently.	Identifies the necessary resources.	Use library resources to locate information sources that fulfill audience expectations.
Evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.	Organizes and interprets information and uses that information to propose alternative solutions and/or communicate accurately.	Write formal source evaluation; create annotated bibliography; write researched stance paper with feedback from faculty member; present research to faculty in poster session.
Individually or as a member of a group, uses information effectively to accomplish a specific purpose.	Presents an effective oral report; writes a concise, grammatically correct report; and debates issues in a professional manner.	Write researched stance paper with feedback from horticulture faculty member; present research to faculty in poster session.
Understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.	Communicates correctly and professionally.	Accurately summarize or refer to source material; accurately document source material accurately and precisely.

search to a specific domain) is also presented. While some of this information is included in "Library 160," presenting the information in English 250 reviews the content and reinforces its importance in the discipline to the students.

Component 2: Evaluation of Sources. The second presentation addresses how to critically evaluate information quality. The evaluation criteria of authority, purpose, currency, and accuracy are described and several examples of each are discussed. Students are asked to use the criteria repeatedly throughout the semester. A particular point of emphasis to the students is that the above criteria can be used to help assess any type of information source (e.g. websites, books, articles from magazines, newspapers, and journals). When students locate and access information (e.g. website, newspaper article, or a scholarly article from a subscription database) using the web, the information all appears the same to the student—even though the types and quality of the information may be very different. Swanson (2004) asserts that "students must be able to recognize and choose from the various types of information (scholarly, news, opinion, etc.) to best meet their information needs regardless of format." After the librarian's presentations, students are given a worksheet (Table 2) adapted from Burkhardt et al. (2003) and Langhorne (2004) that states a research question and includes a list of six citations. Applying the evaluation criteria, they are asked to eliminate two citations immediately and assess the strengths and weaknesses of the remaining four sources and evaluate the quality. This activity gives students practice in learning how to find articles with known citations by utilizing the electronic journal's list on the library website; they also gain experience in applying the evaluation criteria to different types of information sources. At the beginning of the third class session, the librarian reviews the worksheet with the students and discusses the quality of each source and its appropriateness for inclusion in a college-level research paper.

Following the librarian's presentations and completion of the source evaluation worksheet, students are assigned to write a short paper. Students carefully evaluate an article, provided by the English instructor, using the evaluation criteria. The assignment requires students to directly and concisely argue for or against the appropriateness of the article for scientific or technological information in the discipline of horticul-

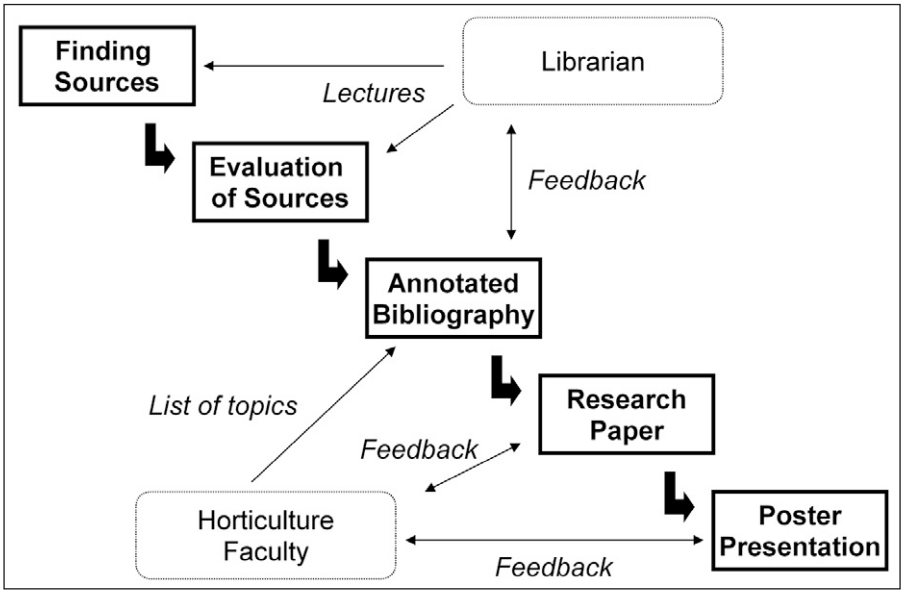

Fig. 1. English 250 collaborative model for teaching communication skills and the roles of the horticulture faculty and the librarian as related to assignment.

Table 2. Student worksheet assignment to evaluate quality of six information sources for use in an academic paper.

Imagine you are writing an essay for English 250 about the safety of genetically modified food. Your first step is to compile a list of reliable references about the topic. After an initial search, you have identified the following resources. Carefully consider and review them; choose two references that you would eliminate immediately for your essay and explain why.
1. Committee on Identifying and Assessing Unintended Effects of Genetically Engineered Foods on Human Health. 2004. Safety of Genetically Engineered Foods: Approaches to Assessing Unintended Health Effects. Available at http://www.nap.edu/catalog.php?record_id=10977 (verified 14 July 2010). National Academies Press, Washington, DC.
2. Jefferson, V. (July–August 2006) The ethical dilemma of genetically modified food. Journal of Environmental Health 69 (1):33-34. (Hint: Use the electronic journal's list on the library website.)
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5. Ronald, P.C. 2008. Tomorrow's table: Organic farming, genetics, and the future of food. Available at http://indica.ucdavis.edu/ronald_bio/pamcv (verified 14 July 2010). (Hint: Go to the author's website for more information.) Oxford University Press, Oxford; New York.
6. Forbes, S. 24 Nov. 2008. Nutritious impact. Forbes 182(11):24–24. (Hint: Use the electronic journal's list on the library website.)

ture and articulate this in a one-page paper. This assignment is designed to solidify students' understanding of the basic four criteria of source evaluation and the importance of high quality information sources to their chosen discipline.

Component 3: Annotated Bibliography. After writing a formal evaluation of an information source, students begin the first phase of a semester-long research project. For the annotated bibliography assignment, students select one topic from a list of questions (Table 3) related to critical issues in the field of horticulture. The questions do not have a right or wrong answer; therefore, students must read a variety of sources critically to develop their own answer. Students are required to prepare an annotated bibliography that includes 10 sources and a short essay on their chosen research topic. The essay includes: an introduction to the topic, the credentials of the source author(s), basic arguments being made about the topic, and notable similarities and differences among the sources. Students gain experience in finding and evaluating sources, accurately summarizing and documenting sources, and the beginning stages of synthesizing the information they find. The English instructor and librarian grade the annotated bibliographies together. The English instructor provides feedback on organization, and expression of the essay and citation summaries, as well as the precision of their documentation style. The librarian assesses each source using the evaluative criteria (authority, accuracy, currency, purpose) and also evaluates the relevancy of each source to the topic. Each source is given a rating: acceptable, satisfactory, or unacceptable. Students are required to replace any unacceptable sources in the next draft. If needed, students are given additional suggestions. Typical suggestions include any or all of the following:

1. Encourage students to search the library catalog for books related to their topic. Many times, a specific book is recommended.
2. Suggest additional indexes. For example, one research topic is about the benefits of horticultural therapy. PsychINFO, the major index for psychology and related disciplines, is a relevant recommendation.
3. Suggest additional keywords and/or specific Library of Congress subject headings. Selecting search terms may be a difficult task for students. A recent example related to a student who needed assistance researching the topic of locally grown foods and economic benefits. The following terms were suggested: community supported agriculture, farmers markets, local food, locavore.
4. Provide a citation to a specific article if it appears that the student is having difficulty identifying appropriate articles. One of the challenges students face regarding the journal literature is being able to find articles that they can understand.

Component 4: Research Paper. After the students have completed the annotated bibliography assignment, they develop an answer to their research question, organize supporting materials, and write a five- to seven-page informative, and, to some extent, persuasive research paper. Because the topics are specific to the field of horticulture, members of the horticulture faculty are recruited by the English instructor to evaluate the content of the research papers. Approximately 11 horticulture faculty review one or two research papers in their specific emphasis within the discipline. Faculty are asked to comment on the accuracy of the content and the quality of the information sources, and they are also encouraged to recommend additional information sources to the students.

After students receive written suggestions from the horticulture faculty, they often elect to meet with the faculty member for additional feedback at a later date. Students also meet with the English instructor to review the horticulture faculty comments and create a plan for revision based on the comments and suggestions. After the students revise the content, the English instructor works with the students to improve the papers' organization, paragraph use, expression, and grammar. All subsequent drafts are reviewed by the English instructor for improvements on organization, expression, and mechanics.

Component 5: Research Poster. The final assignment in the course requires students to redesign their research papers into posters for presentation at a poster session. This assignment gives students the opportunity to give a presentation about a topic that is related to their major using a format that is typical in scientific disciplines. A horticulture faculty member assists the students in the development of their posters early on in the process. The students are featured in a poster ses-

Table 3. Examples of research topics for student research project. Students select one topic.

Theme	Research topics
Environment	What is a "rain barrel" water conservation program and how does it benefit the individual, their community, and the environment?
	When one weighs long-term human health and environmental effects with immediate profits, are biological control practices to manage pests as effective as conventional pesticides?
	What horticultural practices contribute to hypoxia in the Gulf of Mexico?
	What are the effects of pesticides applied to a golf course on the nearby environment and what can superintendants do in order to avoid these?
	How can alternative energy sources be used in horticulture?
	What are the problems of soil erosion on golf courses, and should golf courses manage soil erosion by using riparian buffer strips along their waterways?
	What are the management skills required by the new fungicides used in turfgrass management? In other words, what are the management skills necessary for using a wide variety of narrow spectrum fungicides rather than fewer broad spectrum fungicides?
	Should golf courses be encouraged to provide habitat for songbirds and become Audubon certified golf courses?
	What defines an invasive plant? Are they really a problem?
	What are the potential advantages and disadvantages of having Roundup Ready bentgrass on a golf course green?
Food safety and human health	What are the food safety risks for using surface water for irrigating fresh market vegetable crops, and should growers be required to document clean irrigation water?
	What are the food safety issues associated with apple cider and should all apple cider be pasteurized?
	If black raspberries are found to contain nutraceutical properties, is there any advantage to eating the fruit vs. the synthesized compound?
	Does "eating an apple a day" really "keep the doctor away"? In other words, are the USDA recommendations of five fruits and vegetables a day keeping people healthier?
	How do the developmental and educational disadvantages suffered by children and adults who are food insecure impact their lives and community?
Policy	Should fruit and vegetable growers with farms that were recently surrounded by housing developments be protected from changes in zoning and lawsuits?
	Why should golf courses have access to public water during a drought?
	What are the advantages of horticultural therapy in nursing homes and, considering the high cost of patient healthcare, should nursing homes provide this service?
	Should cities invest resources for community gardens?
	Should public funds support public gardens and arboreta?
	What are the advantages and disadvantages of planting genetically modified plants in developing countries?
	Why should areas outside of the southwestern United States be encouraged to use xeriscaping?
	Is using DDT to control mosquitoes in a region with malaria ethical?
Sustainable horticulture	What are the advantages and disadvantages to the Iowa economy for eating locally grown fruits and vegetables in season compared to purchasing fruits and vegetables grown elsewhere?
	Should the future U.S. Farm Bill provide direct payments for fruits and vegetables?
	Organic fruits and vegetables often are more costly for consumers to purchase. What are the benefits and drawbacks of such products for consumers, producers, and the environment?

sion during the last Department of Horticulture seminar of the semester; all faculty members and some graduate students attend. All of the posters are displayed in a classroom, and seminar attendees spend time visiting each poster and discussing the content with the students. The horticulture faculty evaluate the student presentations and present awards to two students: one for the best verbal presentation and one for the best visual presentation of the topic.

Additional Horticulture Faculty Contributions to English 250. In addition to horticulture faculty reviewing the students' research papers and participating in the poster session, several faculty serve as guest speakers in the English course and share their perspective on rhetoric and argumentation topics in the field of horticulture—from emotional diversion to anticipating rebuttals. These are the same rhetorical concepts covered in the communication class, but the information is contextualized in the students' major and comes from their discipline's faculty.

For example, a horticulture faculty member gives a lecture on "Environmental Rhetoric" that illustrates how, as professionals, students will need to critically evaluate written works. Using a case study to illustrate this point, the horticulture faculty member emphasizes the need to carefully examine the credentials of the authors, question the meth-

Table 4. Assessment of librarian instruction by students enrolled in English 250.†

Statement	Strongly agree	Agree	Disagree	Strongly disagree
I feel more confident about doing library research because of the information provided during the librarian's class presentations.	18 (22%)	59 (72%)	5 (6%)	0 (0%)
I feel confident that I can now use Academic OneFile, EBSCOHost Academic Search Elite, or other research databases to locate citations on a specific topic.	23 (28%)	55 (67%)	4 (5%)	0 (0%)
I feel confident that I can now locate books in the Parks Library online catalog related to a specific topic.	19 (23%)	59 (72%)	4 (5%)	0 (0%)
I feel confident that I can now evaluate the quality of information that I find in books, journals, newspapers, or on the web.	27 (33%)	54 (66%)	1 (1%)	0 (0%)
The librarian provided written feedback on the first draft of the annotated bibliography. Did you find the written comments useful as you revised and completed the annotated bibliography assignment?	76 (93%)	6 (7%)	0 (0%)	0 (0%)
I feel the quality of my annotated bibliography and research paper was better than I might have done without the librarian's input and involvement.	24 (29%)	48 (59%)	9 (11%)	1 (1%)

† Assessment completed spring 2006, 2007, 2008, 2009, n = 82.

odology of the research, evaluate the data points to assure the validity of the methods and data analysis, and consider how the materials are being presented. In particular, the faculty member emphasizes the differences between factual arguments and emotive arguments, and the case study shows where information was distorted, misinterpreted, or where the study was designed for specific inflammatory results. Another faculty member provides an analysis of a book chapter from the popular press for its use of misinformation and demonstrates facts taken out of context, misinterpreted, or uses studies without valid scientific methods.

In addition to emphasizing the importance of critical evaluation, another faculty member reinforces the value of knowing how to search for information. In deference to the importance of quality information sources in upper-level courses, the faculty member lectures on effective searches, for example in the Turfgrass Information File, and provides specific examples of search strategies. The faculty member also reminds students that when they submit papers in future courses, faculty may search the relevant article indexes to determine the amount and quality of scientific literature available, and then compare it to what the student provides.

Faculty from the major discipline also add support to the importance of knowing and understanding both sides of an argument, such as when a horticulture professor lectures on the ethical development of a controversial topic. The faculty member repeatedly emphasizes how a communicator must know and understand all sides of an issue, particularly the pros and cons, for an argument to be effective.

Reflections from Students and Faculty

The collaboration and activities described in this article have been ongoing since 2006. This section of English 250 is offered once a year; the section enrollment ranged from 19 to 22 students. Several kinds of feedback (student self-evaluation and focus group and a horticulture faculty focus group) have been collected from students and faculty. The responses from students and faculty suggest that the teaching approaches described in this article are having a positive impact on student learning.

Student assessment of the information literacy component of the English 250 course (n = 82) indicates that students value the role of the librarian in the course. Ninety-three percent of the students enrolled in the course in spring 2006, 2007, 2008 and 2009 "strongly agreed" that the written comments provided by the librarian on the annotated bibliography assignment were useful; 88% of the students "strongly agreed" or "agreed" that the quality of the annotated bibliography and research paper were better because of the librarian's input and involvement (Table 4). The remaining items on the assessment ask students to evaluate their confidence in their ability to use the library and do research. Lastly, students also answered the following question: "What is the most significant or meaningful thing you have learned about the library and its resources as you completed the annotated bibliography, research paper, and poster?" This question is purposefully asked at the end of the semester—after students have completed all of the assignments. The most frequent response has been learning how to find and use the library's subscription-based online resources. Some representative comments are listed below:

"I have learned that in order to have good papers you must have good research, and I found mine in the library."

"How to evaluate sources and where to find quality information."

"Finding credible sources."

"There are always reference librarians that can help me if I can't find the information I need."

"What words to type to search a specific topic."

"Start earlier. Take lots of time to find quality sources. Quality sources = good paper."

"I became more effective in finding information."

Separate focus group discussions with students and horticulture faculty took place with the Coordinator of Continuous Academic Program Improvement at ISU. The focus groups assessed student and faculty perspectives about the project. Prior to the focus group discussions, Institutional Review Board approval (IRB 06-471) was obtained. Focus group information was analyzed to determine themes from student and faculty participants. Information from students and faculty is reported in the aggregate, without any identifying information. All students who participated in the Horticulture Learning Community during the 2005–2006 school year were invited to participate in a focus group. A student focus group (four students) was conducted in fall 2006; these students had participated in the Horticulture Learning Community during the 2005–2006 school year. The purpose of the focus group was to gain student perspectives about the Horticulture Learning Community, English 250, and Horticulture 221, the principles of horticulture course required in the curriculum. Several student comments related to some of the English 250 assignments. Example comments are as follows:

> "I think, as much as we complained about it, making the [research] poster in English 250 and doing the presentation helped, because it gave me presentation practice. You also got to meet all the professors in the Horticulture Department. People I thought were scary really aren't."
>
> "I like the way they [faculty] circulated [at the poster presentation]. The first round I was really nervous, but by the end, I felt good about it."
>
> "We always had a chance to improve our [research] paper, which helps to control your grade. You learn more from always correcting everything."
>
> "For some classes, I study the information really hard for a test, and then I take the test. But, after the test that information is gone. In English we kept working on the same project, and the knowledge seemed to stick more."
>
> "It helped to keep writing and practicing."
>
> "From the writing aspect, I'm more conscious of detail. I write papers with more specific ideas. I write more clearly and concisely."
>
> "[My horticulture professor] knew what we were doing in English 250. In other colleges at ISU you probably wouldn't have professors knowing what you were doing in other classes. Here everyone is so involved."
>
> "When I sent mine [research paper] to the professor [they were] helpful in some of the areas I was wrong with, or some of the factual stuff."

Themes from the focus group assessment indicate that students value interaction with faculty from their major, and, more specifically, they appreciate faculty input on their research projects. The poster session gives students a chance to converse with faculty in a setting that is different from the classroom. Although novices, students value their developing ability to converse with experts about their topic. Another theme that emerges is that students like having the opportunity to revise written assignments. The review and revision process models scientific writing practices.

A focus group discussion involving horticulture faculty in May 2009 was conducted to gain faculty perspectives about the English 250 components. Many of the faculty who participated in the focus group are actively involved in assessing student learning for departmental courses. Since English 250 is not a departmental course, the course has not been a formal part of the department's assessment program. The focus group provided valuable feedback regarding the English 250 course. Faculty voiced appreciation regarding the link between English 250 and the discipline because they see students starting to make connections between communication, information literacy, and horticulture. The faculty believed students showed marked confidence for novice students in their abilities to discuss their research topics in the poster session. Faculty valued the connection of written, oral, and visual communication, and that students had to defend their researched stance and ideas.

Recommendations

Faculty from any discipline are encouraged to explore potential teaching partnerships with English instructors and librarians at their institution. If it is not possible to establish a connection with a foundation English communication course, the course activities described in this article could be modified for use in an introductory course in the discipline.

Because the development of communication skills in college students is a process, discipline faculty should include assignments in their courses that give students an opportunity to expand their written, oral, visual, and electronic communication skills in the discipline. While a formal teaching partnership with an English instructor may not continue beyond a foundation communications course, faculty are encouraged to contact the English department for assistance in developing assignments that incorporate communication skills. Likewise, there are many components of information literacy, and it is not possible, nor is it appropriate, to incorporate all of them in a single course. As students progress through their course of study, there is a continued need for librarian involvement throughout the curriculum. Librarians can assist faculty with assignment development to ensure that departmental learning outcomes and information literacy standards are incorporated and achieved. Because information literacy skills contribute to the further development of good communication skills, it is critical that information literacy skills are incorporated into assignments throughout the curriculum.

Conclusion

Collaboration between English, horticulture, and library faculty within English 250 is an effective approach in teaching communication and information literacy skills to undergraduate students majoring in horticulture and related disciplines. By incorporating content from the field of horticulture and including horticulture faculty in English 250, students are more likely to understand the relevance of the required English course. Students value the involvement of faculty from horticulture and the librarian. Because of the success of this interdisciplinary model, other academic disciplines have adapted and implemented collaborative part-

nerships with English and the library at ISU. A few examples include agricultural and biosystems engineering, agronomy, genetics, and microbiology.

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