

Agronomy Learner Outcomes: Emphasis, Assignments, Learning Assessment, and Needs

Report to Agronomy Teaching Panel
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The purpose of this inquiry was to determine what emphasis Agronomy teaching faculty were placing on each of the identified learner outcomes, to identify assignments or experiences used to help students achieve these outcomes, to understand how learning was assessed, and to determine what kinds of assistance could be provided to help assess learning in courses. This report is divided into two sections: methods and results.

Methods

Sample and instrument

The sample for this study was all Agronomy undergraduate teaching faculty. Five questions were developed to elicit information on the courses taught, the emphasis placed on each of the learner outcomes, the assignments or experiences used to help students achieve learner outcomes, the methods used to assess learning, and the kinds of assistance needed to help assess learning. The questions were developed in collaboration with the Outcomes Assessment Committee and piloted on two of its' members. See questions below.

1. What undergraduate Agronomy courses do you teach?
2. In this course, what emphasis (1 = Not covered; 5 = Covered extensively) do you place on
 - a. Technical knowledge?
 - b. Professional skills?
 - c. Perspective?
 - d. Ethics/values?
 - e. Diversity?
3. In this course, what assignments (e.g., essays, presentations, papers, exhibits) help students achieve
 - a. Technical knowledge?
 - b. Professional skills?
 - c. Perspective?
 - d. Ethics/values?
 - e. Diversity?
4. In the assignments identified in Question 3, how is learning assessed?
5. What kinds of assistance (e.g., training, workshops, consulting) would help you assess learning in your courses?

Procedures

Dr. Russ Mullen sent an introductory email to the Agronomy Teaching Panel email list-serv to give a brief explanation of the study and to prepare faculty for follow-up contact. Shortly thereafter, each faculty member was contacted via email to schedule a 30-minute interview. Both the interview questions and a copy of the Agronomy Outcomes Assessment Plan were included as attachments. During a four-week period, 20 Agronomy teaching faculty were interviewed in their office and two faculty member answered the questions via email. The interviewer took notes. If more than one faculty member teaching the course was interviewed, their responses were averaged. Quantitative data were entered into an Excel worksheet.

Analysis

Means were computed for the emphasis placed on each of the learner outcomes by required and elective courses. The researcher re-read interview notes for emerging themes. Narratives outlining each of the course assignments or experiences used to help students achieve learner outcomes and the methods used to assess learning were written. Faculty had the opportunity to review their narratives and make corrections prior to the release of this report. Assistance needs were categorized.

Results

Learner outcome emphasis

The emphasis placed on each of the learner outcomes in required courses by course and overall average are reported in Table 1. Based on faculty self-report, there is a mid- to high emphasis placed on technical knowledge, professional skills, and perspective. There is a little emphasis on ethics/values and a negligible emphasis on diversity.

Table 1

Emphasis^a placed on each of the learner outcomes in required courses by course^b and level

Course Number	Course Name	Tech. Know.	Prof. Skills.	Persp.	Ethics/ Values	Div.
110	Professional Development in Agronomy: Orientation	2.0	5.0	3.0	3.0	1.0
114	Principles of Agronomy	5.0	3.0	3.5	2.0	2.0
154	Fundamentals of Soil Science	5.0	4.0	3.5	2.0	1.0
206	Introduction to Meteorology	5.0	2.0	5.0	3.0	1.0
210	Professional Development in Agronomy: Career Planning	1.0	5.0	3.0	2.0	1.0
230	Crop Structure-Function Relationships	5.0	3.0	3.0	2.0	1.0
306	Use of Weather Data in Agriculture	5.0	3.5	2.0	1.0	1.0
354	Soils and Plant Growth	5.0	2.5	3.0	2.0	1.0
354L	Soils and Plant Growth Laboratory	5.0	4.0	3.0	1.0	1.0
356	Soil, Fertilizer, and Water Management	5.0	5.0	5.0	5.0	1.0
392	Systems Analysis in Crop and Soil Management	5.0	4.0	1.0	3.0	2.0
410	Senior Forum	1.0	5.0	5.0	4.0	1.0
Required course averages		4.1	3.8	3.3	2.5	1.2

^aScale: 1 = Not covered; 5 = Covered extensively

^bExperiential learning programs (105, 298, 398, and 490) were not included in this analysis.

^cData were not available for 492.

The emphasis placed on each of the learner outcomes in elective courses by course and overall averages are reported in Table 2. These findings are similar to the overall averages for the required courses. There is a mid- to high emphasis placed on technical knowledge, professional skills, and perspective. There is a small emphasis placed on ethics/values and a scant emphasis placed on diversity.

Table 2

Emphasis^a placed on each of the learner outcomes in elective courses by course^b and level

Course Number	Course Name	Tech. Know.	Prof. Skills	Persp.	Ethics/ Values	Div.
212	Grain and Forage Crop Management	5.0	3.0	4.0	3.0	1.0
260	Soils and Environmental Quality	4.0	3.5	4.0	4.0	3.0
317	Principles of Weed Science	5.0	5.0	3.0	2.0	1.0
320	Genetics, Agriculture, and Biotechnology	5.0	2.0	2.0	2.0	1.0
332	Crop Quality, Traits, and Utilization	4.5	2.0	5.0	2.0	2.0
334	Forage Crop Management	5.0	2.0	1.0	1.0	1.0
338	Seed Science and Technology	4.0	4.0	4.0	4.0	1.0
342	World Food Issues: Past and Present	3.0	4.0	5.0	5.0	5.0
356	Soil, Fertilizer, and Water Management	5.0	5.0	5.0	5.0	1.0
360	Environmental Soil Science	4.0	4.5	4.5	4.0	3.0
370	Field Experience in Soil Description and Interpretation	5.0	3.5	2.5	1.5	1.0
402	Watershed Hydrology and Surficial Processes	5.0	2.0	2.0	2.0	1.0
402I	Watershed Hydrology and Surficial Processes	5.0	2.0	2.0	2.0	1.0
404	Global Change	3.0	4.5	4.5	3.0	1.5
406	Climate of the Continents	4.0	5.0	3.5	2.0	2.0
407	Mesoscale Meteorology	5.0	5.0	2.0	2.0	1.0
421	Introduction to Plant Breeding	5.0	2.0	2.0	2.0	1.0
434	Forage Utilization	5.0	3.0	3.0	1.0	1.0
446	World Agronomic Systems	3.0	4.0	5.0	4.0	5.0
450	Issues in Sustainable Agriculture	2.0	4.0	4.0	4.0	4.0
457	Agronomic Applications of Site-Specific Management	5.0	3.0	2.5	2.0	1.0
473	Soil Genesis and Landscape Relationships	5.0	3.5	3.5	2.0	1.5
473I	Soil Genesis and Landscape Relationships	5.0	2.0	2.0	2.0	1.0
485	Soil Microbial Ecology	3.0	2.0	3.0	2.0	1.0
496A	Agricultural Travel Course	2.0	5.0	5.0	4.5	5.0
Elective course averages		4.3	3.4	3.4	2.8	1.9

^aScale: 1 = Not covered; 5 = Covered extensively

^bCourses taught outside the department (120, 283, 351, 351L, and 460), as well as 155 and 156, were not included in this analysis.

^cData were not available for 459.

Assignments/experiences and learning assessment

Narratives outlining each of the course assignments or experiences used to help students achieve learner outcomes and the methods used to assess learning were developed. Following the narratives, a brief summary will be provided.

Leadership Experience (105). Data were not available.

Professional Development in Agronomy: Orientation (110). In this course, technical knowledge is addressed through discussion. Developing resumes, setting goals, attending career day, conducting an interview, making two presentations, and going to a club meeting help students obtain professional skills. Although the resume grading is not formalized, the instructors do provide an example resume to work from. Perspective is addressed through exposure to the Agriculture Study Abroad program. A role-playing activity is used to help students succeed in ethics/values. No formal assignments or experiences are designed to address diversity. All assignments need to be done satisfactorily.

Principles of Agronomy (114). In this course, students are given weekly quizzes and exams to help them achieve technical knowledge. The weekly quizzes are memory level while the exams require higher level of learning. Discussions (small group and class), a computer program, lectures, and Thinker, an extra-credit program, are used to help students obtain professional skills. In order to receive full credit for Thinker weekly assignments, students must write a legitimate justification and participate in discussion. The nature of the questions on the exams help students accomplish perspective. Ethics/values are addressed through weekly assignments on such topics as land stewardship and sustainable agriculture. Poetry, readings, and professor self-conduct are used to help students succeed in diversity.

Fundamentals of Soil Science (154). Agron 154, like Agron 155 and 156, are all self-taught courses in which students learn at their own pace using an interactive, web-based approach. Students are also assisted with introduction of concepts and objective expectations of the units of the week in group-discussions. A Site Lab is part of the course that helps students obtain professional skills and perspective. Students utilize solid information to make land use decisions. The exercise evaluates and subsequently enhances students' abilities in the following areas: comprehension of concepts, comprehension of the problem, creativity in solving problem, use of the computer to make land use decisions, and written communication. There is weekly testing to give students immediate feedback to identify both their strengths and weaknesses. Four major hour exams are administered during the semester to evaluate students' integrated comprehension and mastery of soil science concepts and principles.

Soils for Horticulture Students (155). The goal of Agron 155 is similar to Agron 154, which is to expose students to soil science and management. However, examples and problems in Agron 155 are related to horticultural applications. The same vehicle of instruction and evaluations are adopted for this course as Agron 154. The Site Lab

projects in Agron 155 emphasize soil management for horticultural crops. Weekly quizzes and four major exams are used to test students' comprehension of concepts and to provide a vehicle for feedback.

Soils for Urban Use (156). Being a parallel course to Agron 154 and Agron 155, Agron 156 shares the same goals and objectives and students are evaluated for the same outcomes as listed in Agron 154. Agron 154 emphasizes soil science and management in urban environments. The Site Lab projects are selected to address soil management for urban development and landscaping. The students physically visit the 240-acre site selected, which they are required to develop for a prospective client. An important component of this exercise is the student's ability to communicate their project results to the client in a written format. Quizzes and hour exams, similar to Agron 154 and 155 in structure but different in content, are used to evaluate students.

Introduction to Meteorology (206). In this course, the weather cyclers assignments and three interactive computer modules are used to help students achieve technical knowledge. A professional skills oriented extra credit assignment series may be completed. The instructor uses everyday examples to help students understand how weather affects their lives and to help students achieve perspective. The weather cyclers assignments and interactive computer modules typically have one right answer. ClassNet is also used to keep students informed of weather forecasts, announcements, lectures notes, test review sample questions, and progress to date (grade).

Professional Development in Agronomy: Career Planning (210). Developing a resume and cover letter, interviewing a professional agronomist, and introducing class speakers are a few ways that this course contributes to student achievement of professional skills. Weekly guest speakers on a variety of topics help students gain perspective and the speakers are selected to give students a broad exposure to professionals in Agronomy. Discussion provides a forum for students to address ethics/values. Examples are provided and students have the opportunity to revise. All assignments need to be done satisfactorily.

Grain and Forage Crop Management (212). In this course, exams (multiple choice and true/false), lectures, lab, bi-weekly lab quizzes, and bi-weekly study questions are used to help students achieve technical knowledge. The study questions and a paper help students achieve professional skills. Perspective is addressed through exams, study questions, and the paper. The study questions and an optional extra credit paper are used to help students develop ethics/values. The exams and quizzes are based on the course reading materials and have one correct answer. The instructor provides opportunities for student feedback on the correct answers for exam questions. The paper uses a jigsaw format, which requires the student to be present, engaged, and working with their classmates. Learner outcomes are used for exam development by the instructor, student preparation for the exams, student evaluation, and course evaluation.

Crop Structure-Function Relationships (230). In this course, students are given bi-weekly essay quizzes assessing concepts globally to help them achieve technical

knowledge. Lectures are used to help students obtain professional skills and perspective. Evening help sessions are scheduled on request in order to review material prior to quizzes. The ethical implications of technology that we use are used to help students develop ethics/values. To help students achieve diversity, the professor tries to help students understand where ideas came from. For example there are seven to eight key individuals in the discipline who have been recognized with Nobel prizes. The professor points out what they are doing and where they were. The goal is to provide an insight into the human dimension. An answer key and a full-period discussion and review is used to assess student learning on the bi-weekly quizzes.

Soils and Environmental Quality (260). In this course problem sets are used to help students achieve technical knowledge. The assessment of the problems sets is fairly objective. The remaining assignments and experiences are assessed within the context of the course. Items assessed include “Is logic exhibited? Is there an appreciation of the perspective? Do they recognize other perspectives?” Reports and papers are used to help students achieve professional skills and perspective. Quizzes help students obtain perspective and ethics/values. Students are thinking about the topic, responding, and practicing writing. Values are also implied in the questions. The laboratory is integrated with the course.

Use of Weather Data in Agriculture (306). In this course, technical knowledge and professional skills are addressed through homework and data assignments. The final exam also covers technical skills. Information is presented in the course to help students achieve perspective. Ethics/values are addressed through discussing academic dishonesty. In the homework and data assignments, the logic is more important than then correct answer. The final exam is 60 multiple-choice questions.

Professional Development in Agronomy: Internship (310). Data were not available.

Principles of Weed Science (317). In this course, students complete essay exams and weed identification quizzes to demonstrate their understanding of technical knowledge. Two papers, a scientific paper and a weed management plan, are used to help students achieve professional skills. The weed management plan is also used to help students achieve perspective and ethics/values. To assess the essay exam, the instructor writes an answer and determines whether or not the student answer covers enough to be complete, technically correct, and written understandably. In addition, the instructor has developed learner objectives for the exam. The identification quizzes have one right answer. Rubrics have been developed to assess both the scientific and weed management plan papers.

Genetics, Agriculture, and Biotechnology (320). Technical knowledge is addressed through four exams, four quizzes, and 25 problems. Professional skills are emphasized through the problem solving skills required for the exams and essays. The 25 problems have one right answer. To assess the exams, the professor writes out an answer key.

Crop Quality, Traits, and Utilization (332). In this course, laboratories and field trips are designed to help students develop technical knowledge. Perspective is addressed through quizzes, exams, and laboratory assignments. Different viewpoints on quality are used to address diversity. With the field trips, reflective questions are used to help students think about the big picture. The quizzes are essay, true/false, and crossword puzzle. In the essay answers, the instructor is looking for key points, logic, and accuracy. The purpose of the laboratory assignments is learn how to evaluate certain crops. This is done through doing problems and participating in hands-on activities.

Forage Crop Management (334). To help students achieve technical knowledge and professional skills, students write three linked essays. Assessment of the papers is based on instructor judgment. Instructor expectations are communicated to the students by providing a best practice example to the class.

Seed Science Technology (338). The first half of the course provides a technical knowledge of seed biology. The second half of the course provides technical knowledge of seed production, harvesting, storage, and testing using the knowledge of seed biology to predict outcomes and understand processes. The course is not intended to be an overview of hundreds of species rather it is meant to allow students to apply fundamental biological and technical principles to work with any species. Professional skills are developed through an exam with definitions, important points, and short answer essay. Team debates are used to help students achieve perspective and ethics/values.

World Food Issues: Past and Present (342). To help students achieve technical knowledge, the professor provides a series of optional readings and invites students to share their background with the class. To help students obtain professional skills, perspective, ethics/values, and diversity they work in teams to analyze a region or foods issue to improve. The project includes identifying, researching, analyzing, planning, organizing, and delivering an oral and written presentation. The evaluation for team participation has been developed by students over time. Students also obtain perspective through a role-playing experience. The professor also assesses individual contributions to class discussion.

Soils and Plant Growth (354). Term problems, homework sheets, and two writing assignments are used to help students achieve technical knowledge. The two writing assignments are also used to help students achieve professional skills. Ethics/values are not something that the instructor particularly teaches to. However, students do develop these areas when making recommendations. The term problems and homework sheets have a right or wrong answer. The two writing assignments are assessed based on principles and grammar.

Soils and Plant Growth Laboratory (354L). Final projects are used in this course to help students achieve technical knowledge and professional skills. Unit exhibits are used to help students obtain perspective. The exhibits are assessed by using a preliminary and final grading sheet.

Soil, Fertilizer, and Water Management (356). This course is integrated with English to form the Agronomy 356/Engl 309 Learning Community. The teachers practice “just in time teaching”. As technical information is presented, the students are expected to apply the information to their work with the client. In this course, students complete a semester long project as consultants to a real-life client. This assignment is designed to help students achieve technical knowledge, professional skills, perspective, and ethics/values. The plan needs to be agronomically sound. The recommendations need to be based in science and agronomic principle. Other assignments designed to help students achieve technical knowledge include weekly quizzes and case studies. Perspective is also addressed through the semester long project. Reports need to be agronomically sound, socially acceptable, environmentally friendly, and economically feasible. Students are expected to act in ways consistent with the profession. This expectation addresses ethics/values. Rubrics are used to assess the semester-long project. The professor identifies three to four points that need to be addressed in the quiz answers.

Environmental Soil Science (360). In this course problem sets are used to help students achieve technical knowledge. The assessment of the problems sets is fairly objective. The remaining assignments and experiences are assessed within the context of the course by examining replies vis-vis “Is logic exhibited? Is there an appreciation of the perspective? Do they recognize other perspectives?” Reports, papers, and presentations are used to help students achieve professional skills and perspective. The laboratory is integrated with the course.

Field Experience in Soil Description and Interpretation (370). To help students achieve technical knowledge, students are in the field, in the laboratory, completing homework assignments, and participating in a soil-judging contest. To help students obtain professional skills, students write soil descriptions, give an oral presentation, and work as a team to make joint decisions. To give students perspective, the professor point out where the soils occur around the world. Discussion of environmental quality conflicts with the land are used to address ethics/values. Students go over their soil descriptions and environmental ratings sheet in the field and make corrections as they go along. There is one right answer in the soil-judging contest. Participation is also graded.

Systems Analysis in Crop and Soil Management (392). In this course, both oral and written presentations for a manure management plan and site specific management are used to help students achieve technical knowledge. In addition to the oral and written presentations, essay take home exams are used to help students achieve professional skills. Also, 1100 of the 1200 possible points in the class are related to oral or written communication. Perspective is addressed through the appraisal of a farm. Ethics/values are addressed through working in groups on different solutions or options. The instructor also gives a lecture on plagiarism. Exposing students to different kinds of farms and taste testing tofu cookies are used to help students achieve diversity. Rating sheets have been developed to assess the technical knowledge and professional skills assignments. Ethics/values are assessed through observing classroom attitudes, attendance, and respect for each other. Students have the opportunity to assess each other through group work.

Cooperative Education (398). Data were not available.

Watershed Hydrology and Surficial Processes (402 and 402i). In this course problem sets are used to help students achieve technical knowledge. The assessment of the problems sets is fairly objective. The remaining assignments and experiences are assessed within the context of the course vis-à-vis “Is logic exhibited? Is there an appreciation of the perspective? Do they recognize other perspectives?” Reports, papers, and presentations are used to help students achieve professional skills and perspective.

Global Change (404). In this on-line course, calculations of global influences and global scale quantities are used to help students achieve technical knowledge. Twenty writing assignment postings employing critical thinking skills and requiring dialog with other students are used to help students achieve professional skills. Perspective is addressed through the global context of the course including pressures on the natural environment due to growth in global human population and consumption patterns. Ethics/values are addressed through short essays relating personal choices to environmental degradation. The postings are assessed through software developed by the instructor.

Climate of the Continents (406). Course material and small group problems are used to help students achieve technical knowledge. Both an oral and written report on a climate in a specific part of the world are used to help students achieve professional skills. Since this climate is a different region than where they live, this major semester project also helps students achieve perspective. Ethics/values are addressed by discussing plagiarism and more specifically the web. Diversity is addressed through understanding how different parts of the world are affected by their climate. Expectations for the oral and written report are outlined on the class website.

Mesoscale Meteorology (407). Course material and small group problems emphasize technical knowledge. Professional skills are developed through a semester research project that requires a written report and oral presentation. Perspective is given with respect to the practical consequences and interdisciplinary aspects of the processes that are studied. Ethics/values are addressed by discussing plagiarism along with expected standards for original research. Diversity is not a significant part of the course. Expectations for the oral and written report are outlined on the class website.

Professional Development in Agronomy: Senior Forum (410). In this course, four reaction papers (three to five pages) to guest speakers are used to help students develop professional skills. These papers and speakers also contribute to perspective by having students listen, participate in discussion, react to diverse points of view, and put their education in a context. Papers are assessed on both content and communication. Participation in discussion is also assessed each class meeting.

Introduction to Plant Breeding (421). Essay and problem solving exams and problem sets are used to help students achieve technical knowledge and professional

skills. Ethics/values are addressed through in class discussion. To assess the exams, the professor writes out an answer key and grades each question one at a time. The problem sets have one right answer.

Forage Utilization (434). In this course, exams, short written and oral reviews of papers, student lectures, and group debates are used to help students achieve technical knowledge. Professional skills and perspective are also developed through short written and oral reviews of papers, student lectures, and group debates. Students are expected to demonstrate their understanding of these concepts through these assignments.

World Agronomic Systems (446). In this course, a short oral report, quiz bowl, case study analysis, short assignments, and quizzes, are used to help students achieve technical knowledge. Writing quality, professional skills, is assessed in each of the assignments listed above. Perspective is integrated in the class. Case studies are also used to help students develop ethics/values and diversity. In addition, to writing quality, content is assessed in each assignment. Students receive feedback on their papers based on a rubric. For the semester-long project, students receive feedback from the instructor and peers before completing the final submission.

Issues in Sustainable Agriculture (450). In this course, web resources are provided to help students achieve technical knowledge. Professional skills are developed through the discussion-based format of the course. Students develop perspective by being placed in a role or side of an argument they might not normally adopt. Ethics/values are addressed through cases focusing on Agronomic decisions people have made across the world. Diversity is interwoven across each of the activities or experiences described above.

Agronomic Applications of Site-Specific Management (457). In this course, lectures, laboratories, GIS project, and tests are used to help students achieve technical knowledge. Lectures include multiple “guest” lecturers – academic, agency, and industry. The laboratories are gis/spatial based using computers and spatial databases. The GIS project includes both an oral presentation and a written report. This project also helps students achieve professional skills. Perspective is addressed through field trips. A rating sheet is used to assess the GIS project. The tests are multiple choice, short answer, and true/false.

Environmental Soil and Water Chemistry (459). Data were not available.

Soil Genesis and Landscape Relationships (473). In this course, formal exams, lab reports, two field trips, laboratory write-ups, reports, graphical assignments, and an optional term paper are used to help students achieve technical knowledge. Students describe and classify soils to obtain professional skills. Laboratory soil classification with soils from around the world and short answer questions or problems on exams are used to help students achieve perspective. For the exams, the professor writes out an answer key. There are key words and explanations that need to be included, however, there is a

variety of ways that students can get there. Understanding the why of the soil sheets and technical reports is assessed. The paper is assessed for content and quality.

Soil Genesis and Landscape Relationships (4731). In this course problem sets are used to help students achieve technical knowledge. The assessment of the problems sets is fairly objective. The remaining assignments and experiences are assessed within the context of the course as well as vis-à-vis “Is logic exhibited? Is there an appreciation of the perspective? Do they recognize other perspectives?” Reports, papers, and presentations are used to help students achieve professional skills and perspective. The laboratory is integrated with the course.

Soil Microbial Ecology (485). In this course, technical knowledge is addressed through the required laboratory and laboratory notebook. The laboratory notebook, along with exams, help students achieve professional skills. Perspective is addressed through lecture and discussion. The exams are half multiple choice, primarily memory level, and half essay. The instructor writes an answer to each of the essay questions and uses it to assess student answers. The laboratory quizzes are conceptual questions based on their work in the laboratory. Clear expectations for the laboratory notebook have been developed.

Independent Study (490). Data were not available.

Agronomic Issues: Science, Policy, and Resource Management (492). Data were not available.

Ag Travel Course to Panama (496A). This course provides exposure to international travel and meets the University diversity requirement. To help students achieve technical knowledge, students listen to guest speakers and collect information around a theme related to Panama and its resources. To help students achieve professional skills, students give oral reports and keep a journal. Students in this course are interviewed and selected based on their willingness to exhibit professional skills. Perspective is addressed through reflections after site visits. Students have an opportunity to consider “what does this mean in the big picture?” There are no formal assignments for ethics/values. However, these issues do come up informally. Diversity is achieved through exposure to a culture different from their own. The journals are assessed for both content and interpretation. The discussions are assessed through credit for participation.

Summary

After reviewing the course descriptions, several issues became clear. First, faculty are very comfortable with designing assignments and experiences that address technical knowledge. Second, many of the assignments and experiences are real-world examples and cross learner outcome boundaries (i.e., address one or more learner outcomes through one assignment or experience). Third, there is a variety of embedded course assignments and experiences that are currently being used (e.g., papers, oral report, management report, exams, and debates). Also, there are a variety of ways these assignments and

experiences are being assessed (e.g., rubrics, scoring sheet, professor judgment, answer key). Fourth, some of the experiential learning opportunities (e.g., leadership, internship) are not currently being assessed.

There were a couple of additional insights from the interviews. First, there does not seem to be a shared understanding of what these learner outcomes mean or represent. Second, faculty were more than willing and gracious to meet with me. They also seem open to exploring new ways to design experiences and assignments for students to achieve the learner outcomes as well as new ways to assess student learning. However, time appears to be a large deterrent. Third, there was a prevalent theme from several upper-level teachers. Specifically, they were concerned about students' written communication skills (oral communication is strong) and critical thinking skills.

Faculty assistance needs

Faculty members were asked to identify assistance that would help assess learning in their courses. Several themes emerged from these responses: personnel, faculty conversations, tools, time, and process. In addition, several faculty members identified questions that could be pursued as scholarship of teaching and learning activities. The researcher will follow-up with individual faculty members with either assistance or referrals to other supports available. Examples for each of the themes are provided below.

Examples of personnel needs include: identify graduate student to assist with developing questions, measures, and data collection; provide statistical consultation; and help with grading for a large course. Faculty conversations include discussions among faculty to: identify the best place to accomplish various learner outcomes, may want to also consider co-curricular opportunities; discuss how to re-structure courses; understand how outcomes are being accomplished in individual courses; identify overlaps, redundancy, and need for redundancy; close loop, make the process more linear; and define each of the learner outcomes, come to a common understanding.

Several tools were identified to help assess learning in courses: rubrics, embedded assessments, questions (reflective and pre-reflective), systematic way to assess term paper, self-reflection, plan development, student engagement, and evaluation section for the department (i.e., loss of University Test and Evaluation services). Time is a factor in the way assistance should be delivered. Many faculty are unable to make it to activities and workshops. Support and tips may need to be delivered in small useable tips, possibly through a website or email list-serv. More time to teach and hands to grade were also identified as time issues. Process included suggestions for how the program evaluation might be implemented: conducting independent external review and assessing whether or not we are graduating quality people.