Summary of the Psychology Department's Recent
Assessment of Scientific Research Methods and Skills

PLO - Scientific Research Methods and Skills: Our students will be able to recognize, describe, and implement a variety of research methods and skills common to the psychological sciences.

- Assessment: The department was interested in how well its senior students in capstone courses accomplished two tasks related to critical thinking, more broadly defined.

  1. First, their abilities to "use disciplinary . . . databases . . . effectively and efficiently to refine research questions in psychology and identify extant answers within the literature . . . " were assessed. In this assessment, 18 students in PSY 111, History and Systems of Psychology, were given a scenario that described a young woman having difficulty controlling her eating behaviors when she was simultaneously trying to control her reactions to an old boyfriend. They were then asked, "Suppose you want to investigate the existence of this phenomenon in other cultures, but you don't want to waste your time replicating other people's research. We would like to know what you would do to research what experimental studies have already been done." They were told they could only search PsycINFO, the primary database indexing psychological, professional publications, in order to determine the availability of information that could be used to answer a research question related to the scenario. They were asked to turn in a list of the searches that they performed and, based on those searches, a list of articles that they thought were most relevant to understanding what effects self control has on the depletion of psychological resources for people in other cultures.

     A rubric was developed that allowed assessment of the number and quality of the searches that were performed; the number and quality of the articles that were chosen; and the ability of the students to follow the directions. The levels of achievement selected for the rubric were: No Attempt, Beginning, Developing, Accomplished, and Exemplary. Benchmarks for the 3 assessed dimensions were that 75% of students would perform at or above the Accomplished level (indicated by the red outline in Table 1, below). They were given up to 3% extra credit.

  2. The second assessment focused on how well senior psychology majors "demonstrate[ed the] ability to recognize good versus bad experimental designs, theories, and arguments in psychology . . ." In order to assess these abilities, the department reviewed the literature reviews of 7 students who completed PSY 198, Capstone Senior Research in Psychology. The two instructors of the course distributed the 7 literature reviews to department members. A rubric was prepared that allowed department members to assess 1) whether and how well students presented and discussed relevant theories and 2) appropriately linked their literature reviews to their own experimental studies (See Table 2, below). Levels of achievement selected for the rubric were: Absent, Beginning, Developing, Accomplished, and Exemplary. Again, benchmarks were that 75% of students performed at or above the Accomplished level for each dimension. With some discussion, department members achieved a consensus on each literature review for each dimension.

- What We Learned:

  1. *Assessment #1*: Table 1 shows the numbers of students who performed at each level of the rubric. And reveals a number of interesting and important findings.

     a. The majority of students in PSY 111 were willing to try to complete the task, indicating this was a task that senior students generally thought they could successfully complete.
     b. The assessment was not completely effective, given the topic that was chosen and the time limit that was imposed.
     c. The majority of students (89%) performed multiple searches, indicating that they persevered (another quality that is rewarding to see) in trying to find articles that satisfied the requirements of the task. For us, this is an important finding because it indicates that students are critically evaluating the results of their searches and continuing to look for articles, rather than stopping with one or two searches.

d. Of the students who completed the task, (11), 7 (64%) were able to find some articles that pertained to the study of self control in other cultures.

e. Seniors mostly used reasonable judgment in completing the task according to the instructions provided. After discussing these results, the department agreed that the assessment results were helpful, given the limitations of the assessment instrument, and concluded that the seniors are accomplished in most aspects of this critical thinking assessment.

Table 1

Rubric for, and Student Performance on, a PsycINFO Search, Evaluated on Three Dimensions and by Level of

Development

	No Attempt 0	Beginning 1	Developing 2	Accomplished 3	Exemplary 4
Number & quality of searches performed	No attempt to perform a relevant search; Or performs one search using ineffective search terms	Performs only one search; some effective search terms are used **1**	Performs at most 2 searches using some effective search terms **1**	Performs more than 2 searches, using mostly effective search terms **5**	Performs multiple searches using the most effective search terms **11**
Quality & relevance of articles identified & selected	Articles are at best tangentially related to the topic but not to a cross-cultural perspective **No Articles: 7**	Articles are relevant to the general topic but not to a cross-cultural perspective **4**	Some articles are relevant to a cross-cultural perspective of the topic **3**	The majority of articles are directly relevant and some are critical for understanding research on cross-cultural perspectives for this topic **4**	The majority of articles are critical for understanding research on cross-cultural perspectives for this topic
Ability to follow instructions	Articles or search list is missing but student claims to have completed the task	Articles or search list is uploaded but student does not complete task by date deadline **8**	Articles & search list are uploaded but student does not complete task by date deadline **3**	Articles & search list are uploaded; student completes task by date deadline but takes more than 15 min **3**	Articles & search list are uploaded; student completes task by date deadline and takes no more than 15 min **4**

2. *Assessment #2*: Table 2 shows the results, which were quite disappointing. The department expected that these students would perform more highly on both dimensions of this assessment. Some possible reasons for these results that were discussed included the possibility that this sample was small; that this group of students happened to be atypical in their performance; that perhaps seniors aren't getting the training and experience they need in writing literature reviews and linking them to their experimental studies in PSY 197, the first semester of Capstone Senior Research in Psychology; or that the students are not taking the literature review 7 task seriously, so they procrastinate in PSY 197, during the Fall semester and do not do the research that is required to produce excellent literature reviews.

Table 2

Rubric for, and Student Performance on, a Senior Level Literature Review, Evaluated on Two Dimensions and by

Level of Development

Students will demonstrate the ability to:	Absent 0	Beginning 1	Developing 2	Accomplished 3	Exemplary 4
present and discuss relevant theories	No evidence of this ability	Identifies theories, but does not discuss	Identifies theories and describes reasons for choosing them but does not flesh them out	Identifies and discusses theories, evaluating various alternatives but doesn't provide rationale for theory that is selected	Identifies theories, comparing and contrasting where appropriate, and evaluating various alternatives; provides rationale for selected theory
	1	1	2	3	
appropriately link their literature reviews and their own experimental studies	No evidence of this ability	States that there is a connection or it is clear that the student is assuming a connection but the link is not explicit	States that there is a connection, describes it to some extent but not enough to be compelling	States that there is a connection, describes it in enough detail to be somewhat convincing	States that there is a connection, and describes it in enough detail to be compelling
	2	1	2	2	

- <u>Changes We Have Made and Plan to Make:</u> The department identified changes in PSY 197 that will be implemented Fall 2014, in order to provide more training and guidance for this year's students. After applying these changes, the department will consider reassessing this aspect of critical thinking.

    1. The emphasis in the syllabus and conversations with students will be that they focus first on a research topic and question, and only after that, on a method. Many students seem to select a method (e.g., using EEG to record brain activity) and only after that, try to find a research question that allows that particular method to be used. It is expected that a focus on a research topic and question will result in broader reading in various research areas and then greater familiarity with the literature in one area as students narrow their focus.
    2. Course meetings will shift from a discussion of weekly chapter readings in ethics and experimental design, to weekly reports of each student's progress in identifying a research topic or question. Students will answer questions about the chapters in ethics and experimental design using an LMS. Students will also be required to keep a "journal," identifying and summarizing the literature that they have read each week.
    3. Each student will create a timeline in which he or she lays out what needs to be accomplished each week for his or her project. This task, if completed properly, is intended to provide more structure for students, compared to what they have experienced in the course in the past, helping them see more clearly what must be accomplished each week if they are to complete the semester's tasks. In addition, the course syllabus will make it clear when students must identify a research topic, and then a research question.