Introduction
The purpose of this study was to assess the impact of meta-learning activities on student feedback and grades. Stephen Carroll and Andrea Pappas instructed students from 2005 to 2011 in undergraduate courses: English 1/2, Critical Thinking and Writing 1/2, and Cultures & Ideas 1/2. Over these years, in addition to basic course learning objectives, Carroll & Pappas added learning objectives and activities to support student metalearning (learning how to learn), collectively called Learning Boot Camp (LBC), designed to help students develop better learning habits to improve their success in school and with their long term goals.

Examples of Learning Boot Camp (LBC) Activities:
- Priming Students to be Self-Directed Learners: During student introductions on the first day of class, students are asked to reflect on their personal long term goals in enough depth to see ties between those goals and their behaviors in school. Throughout the course, if a student’s behaviors do not match his or her stated goals, professors encourage the student to change either the behavior or the goal.
- Learning Profile: The student writes a two page introspection examining their learning strengths and weaknesses. These are examined through the lens of their personal cultural, familial, and academic influences. This is to better understand their own learning process. The Learning Profile is not graded, but counted as class participation. Meyer & Lomax (2004) from the University of Sydney, Australia also investigated learning profiles by asking undergraduates to consider these factors in a first year economics course.
- Student Learning Contract: Within the first two weeks of a term, each student meets directly with both of the professors to discuss their personal long term goals in enough depth to see ties between those goals and their behaviors in school. Throughout the course, if a student’s behaviors do not match his or her stated goals, professors encourage the student to change either the behavior or the goal.
- Meta-Cognitive Not-taking: Students are given revised methods for note-taking and review, designed to improve their retention of the materials presented and the value of their notes for later reference. Traditional notes move to the right, but students are asked on a column on the left to “tag” traditional notes with their own annotations, questions or emotional reactions to the material being presented, making it easier to recall upon review. Students are also taught to write short summaries of each short section of notes, before they sleep, as a way to improve their retention of the material in the following days.

Hypothesis
- Hypothesis 1: Students will receive increased grades in undergraduate English courses because of Learning Boot Camp activities.
- Hypothesis 2: Students will report increased positive feedback on individual SALG questions in undergraduate English courses because of Learning Boot Camp activities.

Methods
Participants: Data for this study came from the 272 Santa Clara University undergraduate students who attended the 15 courses from 2005 to 2011.

Measures: The Student Assessment of their Learning Gains (SALG) is a free, customizable course evaluation tool developed with funding from the NSF. It allows instructors to more directly assess what students perceive about their learning gains and how different elements of a course contributed to them than standardized course evaluations. Providing formative feedback, professors can use to improve the designs of their courses. The SALG is designed to support innovations in teachings. The SALG questions that were examined for this study include:
1. The instructional approach taken in this class.
2. How the class topics, activities, reading and assignments fit together.
3. Explanation of how the class activities, reading and assignments related to each other.
4. How the class fits with a critical point of view that displays depth of thought and is mindful of the rhetorical situation.
5. Analyzing the rhetorical opportunities (and constraints) offered by different modes of presentation.
6. Writing with a critical point of view that displays depth of thought and is mindful of the rhetorical situation.
7. Confidence that you understand the material.
8. Your comfort level in working with complex ideas.
9. Applying what I learned in this class in other situations.
10. Professors refer to these personal learning objectives throughout the course. At the end of the course, students write reflection papers about their personal learning goals and progress.

Learning Journal: To help students be more metacognitive about their learning behaviors throughout the term, students are asked to create and maintain a learning journal, spending at least 15 minutes per week answering these questions. (1) What have you been learning? (2) How have your methods for learning been working? (3) Why are you learning this material? These journals are not graded but are occasionally spot checked by the professors and the use of them count toward class participation.

Other measures of metalearning have been developed and tested. Norton, Overton and Clark (2004) from Liverpool Hope University College, UK found that students indicated that the course activities which required them to reflect metacognitively, to revisit the class content and consider its meaning and importance were the ones who knew their opportunities and became fully aware of what they had learned. Wisker et al., (2004) from Anglia Polytechnic University, UK determined that metalearning skills were an essential element students successfully achieving Ph.D.s. These students became active and reflective learners through their work of supervision, supervisory dialogues, group-work and analogies used in the postgraduate research. The most successful students were the ones who knew their opportunities and became fully aware of their learning needs.

Hypothesis 1 was not supported by the results. Findings indicated a possible upwards trend in course grades in response to LBC implementation. Students grade fluctuation and large variance in 2005 scores may be attributed to variations in admission policies for students.

Hypothesis 2 was supported for four questions. Over the six years represented in this data, students increasingly indicated that the instructional approach (LBC’s metalearning activities) helped increase their learning proficiency. Students indicated that the synchronization of class topics, activities, readings and assignments helped increase their learning proficiency.

Students indicated that the course activities which required them to read with a critical point of view that displayed depth of thought and is mindful of the rhetorical situation helped increase their learning proficiency. Students indicated that the course activities which required them to analyze the rhetorical opportunities and constraints offered by different modes of presentation helped increase their learning proficiency.

Conclusions
This study provides new evidence that metalearning activities are an effective method for helping undergraduate students become more aware of their learning habits and to achieve those habits. Wisker et al. (2004) from Anglia Polytechnic University, UK determined that metalearning skills were an essential element students successfully achieving Ph.D.s. These students became active and reflective learners through their work of supervision, supervisory dialogues, group-work and analogies used in the postgraduate research. The most successful students were the ones who knew their opportunities and became fully aware of their learning needs.

The intrinsic attribute of the SALG which allows educators to ask direct questions of the student's component effectiveness should allow them to keep courses agile and contemporary.

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References