Abstract - A student-centered classroom is enhanced when students are more aware of learning goals they are pursuing and learning outcomes expected of them. Assessment is an effective means of increasing student learning awareness. When the goals of the assessment are tailored appropriately, students learn to focus quickly on aspects of their learning and how to present evidence of that learning. Simultaneously, students learn to recognize their strengths and weaknesses as learners, thus providing opportunity for accelerated growth. This work in progress describes how the Strength, Areas for Improvement, and Insights (SII) style of assessment has been implemented into one introductory engineering and one calculus-based physics course. Consistent with the SII spirit, strengths, areas for improvement, and insights gained from the implementation of this technique into the two courses are discussed along with preliminary results.

PROJECT FEASIBILITY

Implementing the SII technique is relatively easy to do. First, it requires that students be trained in how to produce a quality assessment. Information on how to do this has been produced by Steciak and Madison Area Technical College [3, 4]. This initial training only takes about 10-15 minutes, but can save much more time than that later.

The second aspect of implementing the SII technique is that it requires small amounts of class/lab time each time it is used. Thus, sacrifice of other activities is required and the relative benefits of assessment versus other ways of utilizing class time must be weighed. Once students are proficient at the SII technique it will take as little as two minutes to perform, but five minutes was more common in the author's experience.

As with any class activity, implementing assessment into regular class activities gives the best results with proper prior planning by the instructor. Students may feel uncomfortable with what they are supposed to evaluate without quality guidance on what specific aspects of their learning they should be assessing. This typically consists of assessing specific content in homework or laboratory assignments, but can be applied to any identifiable subject matter that is accessible to the assessor.

The eventual goals of a quality assessment program are to replace significant amounts of evaluative grading with student self and peer assessment. This should lead to reduced grading time investment for instructors. This did not occur in the first semester of the assessment project for the author, but plans to change that are in progress.

EXPECTED OUTCOMES AND EVALUATION

The expected outcomes of utilizing assessment in-class are:

- increased student self-awareness as a learner
- accelerated learning growth rates
- increased understanding of performance expectations
- increased understanding and achievement of expected learning outcomes from the course
- reduced grading time investment for instructors

The success of these expected project outcomes will be evaluated in two ways:
• qualitative comparison of students in the same courses with and without SII techniques in place
• a feedback form (summarized in Table I) with questions regarding student perception of their learning and how it was impacted by the assessment program

Table II lists the major components of the project and their current status:

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation into classes</td>
<td>complete for Engineering Physics I and Engineering Fundamentals, Analysis, and Design</td>
</tr>
<tr>
<td>Design of feedback form</td>
<td>first iteration complete</td>
</tr>
<tr>
<td>Obtain student feedback data</td>
<td>one semester of data</td>
</tr>
<tr>
<td>Improve implementation to optimize student benefit</td>
<td>in progress</td>
</tr>
<tr>
<td>Gather additional data for analysis</td>
<td>incomplete</td>
</tr>
<tr>
<td>Dissemination of results</td>
<td>in progress</td>
</tr>
</tbody>
</table>

**PRELIMINARY RESULTS**

The first semester of student feedback regarding the use of SIIs gave somewhat mixed results. Feedback was solicited twice, with much more favorable results after only a few weeks into the semester than towards the latter part of the semester. These results echo observations made by the author that students appear to become complacent or bored with the SII format and their learning after a few weeks. Averages of results in the first part of the semester were “somewhat helpful” for all categories of SII, but dropped to “not helpful” later in the semester. Potential reasons for this are outlined in the reflective SII below showing how effectively the assessment program was implemented in the first semester.

**IMPORTANCE TO EDUCATION COMMUNITY**

This work focuses on assessment of student learning by students, rather than by instructors or administrators or program evaluators. This is a relatively unique, student-centered perspective on assessment that speaks directly to what the aim of all assessment is about: gauging progress towards specific learning outcomes. When students are aware of expected learning outcomes, they will be better able to guide themselves towards achieving them. When done well enough, those performing institutional assessment and/or programmatic or course assessment will have much of their work already done for them. All that will be needed is a summary of the data received from student assessments.

Another benefit of this student-centered approach is the potential for reduced grading time by instructors as instructor evaluation is replaced by student assessment. This is especially attractive in times where teaching and research expectations are continually growing and time is limited.

The most important benefit of an in-class student assessment program is the potential for improved student performance. This goal must remain central when planning and implementing an assessment program.

Finally, if one is considering utilizing assessment to increase student awareness of their learning, two advantages of the SII style of assessment are that it is easy for students to grasp and does not take much time to use.

**PROJECT STATUS**

This project is just entering its second phase, where refinements of the implementation into classes will occur.

**REFERENCES**


