

On-Line Learning Object
Operating Cash Flows-Indirect Method
MERLOT Proposal, 2005
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Users of financial statements are focusing on the cash flow statement to evaluate the financial status of a business. Students continually identify understanding and using operating cash flows within the cash flow statement as the most difficult course concept. Based on this student feedback and the growing size of classes, a need was identified for an on-line learning object, to act as a self-help tool for students. A Learning Initiatives Fund, administered by our Associate Provost, Dr. Tom Carey, provided the funding to develop and test the on-line learning object.

The learning object was designed to walk a user through the preparing of the operating activity section of a cash flow statement using the indirect method. Visual presentations of the material were combined with a number of tasks requiring the user to interact with the program. Instantaneous feedback was presented, where errors occurred, the user was provided with direction. Users were able to explore the learning object as frequently as desired. While a progressive set of screens was available, users could opt to skip certain steps based on level of comfort. Commencing at the beginning of the winter 2004 school term numerous versions of the learning object were developed. Reviews of the versions were conducted by knowledgeable faculty and focus groups of students. The beta version of the learning object was completed at the end of the winter 2004 school term.

An evaluation of the usefulness of the learning object was conducted in a two section, financial accounting course in the spring term of 2004. One section was treated as the test section, which had the learning object made available to them; and the other section was the control section, which did not have access to the learning object. Prior to the coverage of the cash flow statement, both sections were given a quiz to evaluate their understanding of the cash flow statement, and in particular the operating activity section, using the indirect method. Each section was then taught the material on the same basis, the only difference being, the test section had the option of accessing the on-line learning object. As students completed the on-line learning object, they were asked to register on-line. After the material was covered, both sections were then evaluated again on their comprehension of the subject material.

A statistically significant improvement on test scores exists when comparing results of students, who completed the on-line learning object, with other students. We compared the pre and post test scores of the registered users, using a matched subjects t-test, and this was significant at $p < .000$. Further analysis is underway and will be completed before the conference. The cash flow learning object has a significant, positive impact on student learning.

On an ongoing basis this learning object has and will be made available in all introductory financial accounting courses. This learning object will be made available to CLOE and MERLOT and submitted for publication in an appropriate Accounting journal.