

# Work in Progress – Web-based Screen Movie Presentations as Part of a Professionalism Course in Chemical Engineering

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**Abstract** - Over the last few years we have reported on a research program focusing on the use of online screen movies as a content delivery mechanism, and in particular, as a mechanism for use in high enrollment, lecture-laboratory courses. In the current report we begin a new thread in our research program: the use of online screen movies created by students as an exercise in building communication skills. In a junior level chemical engineering course on professionalism in the College of Engineering, Michigan State University, one of the course goals focuses on fulfilling ABET criteria for developing effective student oral communication skills. We augmented the traditional live presentation setting with student assignments to create a web-based presentation. Although preliminary, initial data suggests that the two types of presentations augment one another; students report skills learned in creating voice over screen presentations helped them be better traditional oral presenters, and vice versa.

*Index Terms* - web-based instruction, professionalism, ABET, voice-over screen movies.

## INTRODUCTION AND RESEARCH QUESTIONS

We are embarked on a program to identify opportunities for the use of web-based, voice-over screen movies in instructional settings. Previously, we reported our first studies that were undertaken in the setting of a high enrollment, early engineering course in computer-based problem solving. In particular we studied the effect of replacing the lecture component of a lecture/recitation class with on-line screen movies. [1, 2] Our key results were that (a) students who used screen movies in lieu of attending traditional lectures were statistically no different than students attending traditional lectures on the dimension of learning outcomes and (b) students had very positive attitudes towards use of screen movies to replace traditional lecture.

Although there is a large literature in general on the use of web-based movies as instructional tools, there is no literature in engineering education on student use of web movie technology to address oral presentation as part of becoming an engineering professional. In the study reported here, our research setting is a junior level chemical engineering course that focuses on professional

development. One emphasis of the course is on developing oral presentation skills of the students. But instead of targeting traditional PowerPoint-based oral presentation development, students are expected to develop both (a) a standard PowerPoint-based oral presentation and (b) a web-based, voice over screen movie. The rationale for the non-traditional exercise in developing web-based presentations is that both for students aimed at a commercial career path and for those intending to go on to advanced degrees and possible to an academic career, the ability to “tell a story” well on the web is a leg up in today’s world. And in the world many of our graduates will live in, it is reasonable to believe that the ability to develop such web-based materials could become a requirement.

Students worked in teams of 4-5 that were stable throughout the course. One group of teams (GROUP A) developed and presented their traditional oral presentations first, followed later in the term by an exercise to develop and publish a web-based, voice over movie. A second group of teams (GROUP B) reversed the order: GROUP B teams developed and published their web-based movies first, then later in the term had their experience to develop and present a traditional oral presentation.

For all students, demographic data was collected from our Registrar’s Office: gender, ACT scores, GPA entering the term, and ethnic affiliation. In addition, all of the course graded work was recorded as part of student data records. Finally, a survey on student attitudes towards the screen movies was recorded. In this WIP report, we describe the most intriguing results from the student attitudes survey.

Our survey data sheds light on the perceptions of students with respect to the synergism of having both traditional oral presentation and web-based presentation tasks in the same course, one of the key reasons for our interest in student developed, web-based screen movies.

## DESCRIPTION OF THE STUDENT ATTITUDES SURVEY

The survey was taken online in a computer laboratory. It consisted of ten likert scale questions with responses on a five point scale: strongly agree, agree, neutral, disagree, strongly disagree, please three free response questions. Enrollment in the class (ChE 301) was 83 students. 14 students choose not to participate in the survey; 69 students completed the entire survey.

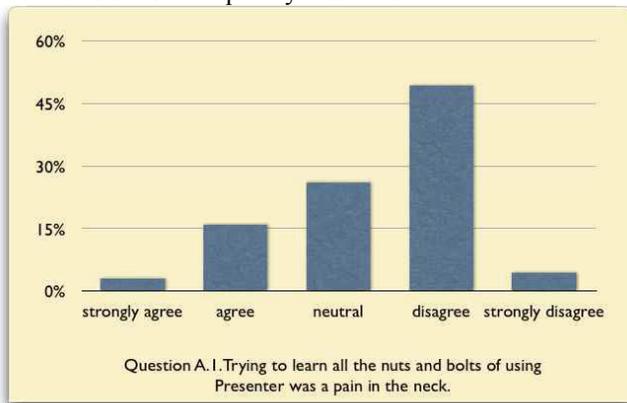
The ten likert scale questions were (paraphrasing):

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- A. questions about how hard the web-based tool was to use
  - 1.1. learning to the tool was a pain in the neck
  - 1.2. the learning curve for the tool was not hard
  - 1.3. using the tool was enjoyable
- B. question about having enough help to learn the tool
  - 2.4. the instructor provided plenty of help to learn the tool
- C. questions about synergism between learning to present orally and learning to create web movie presentations
  - 3.5. screen movies provided me a viable alternative for making presentations
  - 3.6. because of doing a presentation as a screen movie, I learned to make more effective oral presentations
  - 3.7. because of doing a presentation in the traditional oral manner, I learned to make more effective screen movies
  - 3.8. the general skills I learned in making oral presentations are valuable general skills for making effective screen movies
- D. question about why screen movies are effective
  - 4.9. ability to stop and replay parts of movies helped me understand screen movie presentations of other students
- E. question about student attitudes on faculty use of screen movies
  - 5.10. if faculty put up more screen movies to augment lectures, I would make use of them

Questions D.9 and E.10 were placed on the survey as a consistency check with our earlier study. Results here were consistent with results from our earlier students.

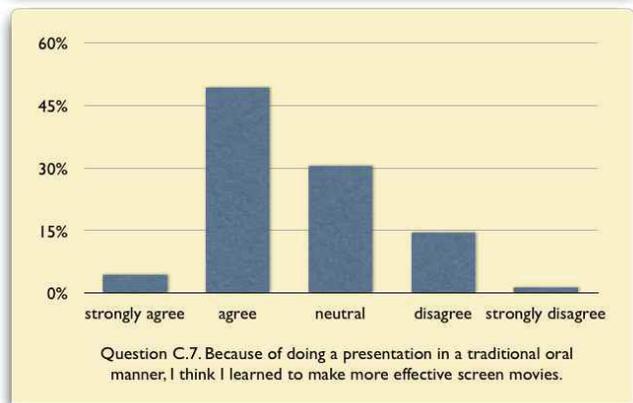
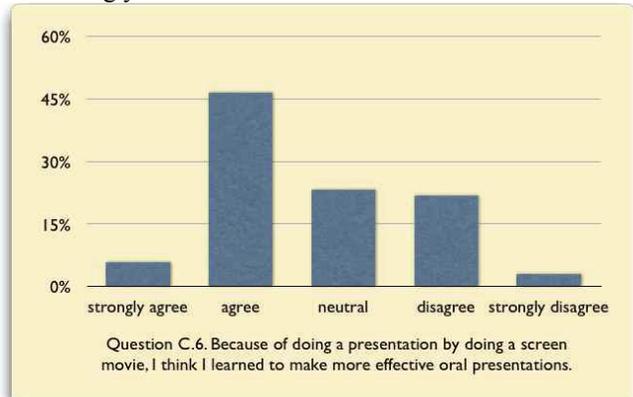
Students in general found the tool to create screen movies to be easy to learn. The tool used was Adobe Presenter, which was chosen explicitly because the rudiments of use are quickly mastered.



The cluster of question in C forms the heart of our new research thread, particularly C.6 and C.7. Student responses to these two key questions are shown below.

The responses are remarkably similar and in some aspects the distributions are identical. Skills employed to present a good oral talk are quite different than skills employed to develop a good screen movie. We believe that the two modes of presentation may share the underlying theme of “being able to tell a story.” Once a student masters

this in either oral or screen movie presentation, then it may be that the student is able to transfer the deep understanding. That is the working conjecture that we intend to explore in the coming year.



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