Assessing Immersive Learning Projects

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**Abstract**

The Center for Information and Communications Sciences (CICS) program at Ball State University has been in existence for 25 years. The MS in ICS is a 38 credit hour graduate professional program that prepares students for career opportunities and leadership positions in the various organizational settings in which information and communication technologies are employed. The program is designed to help students understand the technological options available for the delivery and distribution (or convergence) of media products across multiple digital platforms, and acquaint them with the equipment and applications options available in designing or selecting each option. The most important aspect of this program is it hands-on (Immersive Learning) nature. In the Summer Semester of 2010 I had the opportunity to consider the University’s newly developed assessment planning. I then put together a project to recommend to the seven CICS faculty a method to attempt to standardize our approach to assessment, especially in the area of one of the most distinctive attributes of our program. This paper will explain method of establishing guidelines for assessing Immersive Learning.

**1. Background**

Our faculty teaches a variety of courses in our program at Ball State, but almost all of them involve some type of Immersive Learning. The University Strategic Plan states: Ball State University will promote academic excellence among undergraduate and graduate students seeking a rigorous learning experience. Objective B of that Goal goes on to state: Departments will provide each undergraduate and graduate student with the opportunity to participate in an immersive learning experience. Immersive learning experiences at Ball State have most or all of the following characteristics: carry academic credit , engage participants in an active learning process that is student-driven but guided by a faculty mentor, produce a tangible outcome or product, such as a business plan, policy recommendation, book, play, or DVD, involve at least one team of students, often working on a project that is interdisciplinary in nature, include community partners and create an impact on the larger community as well as on the student participants, focus on student learning outcomes, and help students define a career path or make connections to a profession or industry. Currently each faculty member in our Center assesses student participation based on his own criteria.

**2. Approach**

In order to start this activity the criteria for assessment needed to be agreed upon. Such things as Project Management activities, presentation criteria and final documentation needed to be considered. Guidelines for evaluation needed to be formalized and finally, since the University is moving to a digital data base for all academic material, all storage and accessing requirements had to be determined. The Center provided clerical support, telephone and computer support as was required. It soon became apparent that guidelines, as opposed to standards were necessary to lead our faculty along the lines that the Director and I assume will provide appropriate assessment of our expected learning outcomes. The goal was to look at our immersive learning projects so we chose a sample course that has 60% of its expected outcome as an applied project and met all the other University Immersive Learning requirements.

It was determined that starting from the present syllabus was the best way to look at each course in order to establish assessment criteria: We needed to look at the course objectives. We then had to determine how to assess the student accomplishing those objectives. We needed to state the assessment means of each objective. Finally we had to give the digital retention requirements for all components of the course.

**3. “Old Syllabus”**

In order to provide an example of the methodology to the faculty, I took my Spring Semester 2010 syllabus for ICS 660 Human Factors course and called it “Old Syllabus.” Following are the germane portions of the “Old Syllabus” that required modification.

**3.1 General Course Goals**

This course is intended to provide insights into the human aspects of information and communications systems planning, design, implementation, and evaluation. It will deal with the physical and psychological aspects of the human-machine interaction from initial studies and needs assessment through user-driven design strategies. It will also deal with ergonomics in the work place and the automated office.

The course will expose the student to formal management approaches to mechanization projects including needs evaluation and acceptance testing. It will deal with the changes in the use of technology including human factor/artificial intelligence relationships and the shift from programmer to knowledge engineer.

The course is organized around student participation in at least one hands-on human factors project (applied project) which is introduced early and reviewed continuously. Real clients are usually involved and real outcomes are expected. You will earn a certification to complete your project.

**3.2. Course Objectives**

3.2.1. Students will be able to describe and skillfully apply selected human factor and ergonomic theories, models, principles, and guidelines to a variety of real-world technology design and management problems. They should be able to define the role of a knowledge engineer and what he or she needs to know and contrast to conventional systems work.

3.2.2. Students will be able to explain management approaches to the introduction of mechanization projects including approval processes, milestone reports, and acceptance testing. They will be able to explain the role of a human information needs-assessment in the overall planning, design, management, and evaluation of an information or communication system.

3.2.3. Students will learn the basic research data gathering techniques and refinement and tuning of user needs through the use of application prototyping and computer modeling. They will define, compare, and contrast such primary user-interface styles as menu selection, form fill-in, command languages, natural languages interaction, and direct manipulation. They will learn to evaluate web sites in order to optimize the user experience. All students will accomplish the Certificate for Human Participants Protection Education for Research Teams. To register for the Certificate go to http://phrp.nihtraining.com/users/login.php

3.2.4. Students will summarize and defend verbally and in writing human factor and ergonomic state-of-the-art, and what decision-makers and problem-solvers need to know about these subjects. Ergonomics will be defined from the desktop to the enterprise.

3.2.5. The applied project presentation and documentation will be scheduled in conjunction with client availability. Any special contingencies or new developments in the field will be presented.

**4. “New Syllabus”**

In looking at the “Old Syllabus” I determined that the assessment criteria had to be much more specifically spelled out and the retention requirements’ had to be included. The General Course Goals stated above remained the same. Following are the germane portions of the “New Syllabus” that show the changes.

**4.1 Course Objectives:**

4.1.1 Students will be able to describe and skillfully apply selected human factor and ergonomic theories, models, principles, and guidelines, (such as User Centered Design, Prototyping and Interaction Design) to a variety of real-world technology design and management problems. They should be able to define the role of a knowledge engineer and what he or she needs to know and contrast to conventional systems work.

4.1.2. Students will be able to explain management approaches (such as System Development Life Cycle and Project Management) to the introduction of mechanization projects including approval processes, milestone reports, and acceptance testing. They will be able to explain the role of a human information needs-assessment in the overall planning, design, management, and evaluation of an information or communication system.

4.1.3 Students will learn the basic research data gathering techniques and refinement and tuning of user needs through the use of application prototyping and computer modeling. They will define, compare, and contrast primary user-interface styles. They will learn to evaluate web sites in order to optimize the user experience. All students will accomplish the Certificate for Collaborative Institutional Training Initiative. To register for the Certificate go to https://www.citiprogram.org/default.asp?language=english.

4.1.4 Students will summarize and defend verbally and in writing human factor and ergonomic state-of-the-art, and what decision-makers and problem-solvers need to know about these subjects. Ergonomics will be defined from the desktop to the enterprise.

**4.2 Assessment:**

There will be three methods of assessment for the above objectives:

4.2.1 A certificate of successful completion of the Collaborative Institutional Training Initiative will be provided to the instructor by each student.

4.2.2 A Mid-term written examination will cover the human factor and management concepts studied and in Week 1 through Week 8 lectures. A final written examination will be comprehensive, but concentrate on the final 7 weeks of the subjects listed in the syllabus. A digital copy of the tests and grades will be kept with the course files and the exam papers will be returned to the students.

4.2.3 An applied study will incorporate the human factor and management concepts, theories, guidelines, etc., mentioned above. Research, project management, paper preparation, and presentation skills will also be assessed. Teams of students will volunteer (or be assigned) usability, ergonomic, or other type human factors project to be solved before the end of the semester. As much as possible outside clients will be involved. The applied study will be assessed upon a presentation of findings, a paper covering the life of the project, including project management requirements, and a “team evaluation.”

4.2.3.1 The Presentation will be evaluated upon:

Problem articulation

Data gathering methodology

Data gathering results

Any retesting or other adjustments

Findings/Recommendations

Client’s reactions to findings/recommendations

Presentation - professionalism, transitions, organizational pattern, visualization, clarity of conclusions/recommendations

4.2.3.2 The paper will be evaluated upon the logical explanation of the facts, an acceptable management report style, proper use of English and grammar. The “team evaluation” will consist of each student rating the whole team) including themselves on a basis that the individual was “met expectations of was above below, or below expectations.” A digital copy of the papers and all grades will be kept in the course files. Paper copies of the Presentation Evaluation Forms and “team evaluation forms” will be retained.

**5.0 Digital Storage**

Since there are still two “Bluebook” tests in the example course not all students inputs for assessment can be digitized. Since a very important part of assessment of projects is presentation and a project paper a good deal of assessment needed to include the evaluation of these activities. The evaluation criteria needs to be shared with the students early and continuously. I recommend during the course to use a “Draft Presentation Evaluation Form” including all criteria mentioned above. This form may be used for presentation assessment of “non-course” projects also.

The guideline I recommended for digital storage is tenuous since there will be University standards at some point in time. Since I do teach two on-line courses and all aspects of assessment for these courses are digitized I have provided a copy of the filing structure of one of these to our CICS faculty. The course is assessed based on: A Case Study, a Final Examination, and Participation. The sample I showed included a file for each assessment objective. Within the files are the original digital input from the student and a graded version. Outside the files are the Syllabus, a Spread Sheet of student grades, and a screen shot of the Grade Book input, which is our official grading methodology. Also present were the Student Course Evaluations and some extraordinary communications for this particular course. All these item are available using MS Office or Ball State required systems. In my opinion this would be a very easy file structure for faculty to use without any new software to learn. I turn similar files for each course I teach over to our Center technical person to use as my digital record of the courses.

**6.0 Conclusion**

I shared this development activity with faculty three times, with written material provided beforehand, during the Summer of 2010. The final presentation was shared with the CICS faculty on July 16, 2010. The consensus feeling was that the approach of looking at each of their syllabi and evaluating them such as the “New Syllabus” was a realistic approach to meeting the new assessment guidelines. We agreed to each look at our Fall 2010 semester syllabi and make sure our assessment criteria are highlighted. We plan to review the syllabi as a group at the end of the semester and correct our methodology as needed before we adjust the syllabi for the Spring semester courses.