

Injecting Offshore Outsourcing into the CS/IS Curriculum¹

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1. Introduction, Significance and Relevance of the Topic

Intense media and political spotlight on Information Technology Offshore Outsourcing had a serious impact on computer science education in the United States. To leverage the advantages of global working, it is understandable that organizations seek to recruit those graduates with a set of desired “softer” skills to augment technical ability and thereby enable new employees to function as a competent member of a globally distributed and multi-disciplinary team. It is natural for educators to re-examine the skills and roles that our future graduating computer science students will need to employ and play in a global workplace and respond by preparing students for this scenario.

2. Contents of the Poster

This poster will focus on the changing needs of CS/IS education, describe the results of some early initiatives and suggest some new and interesting ways to prepare the students to evolve as competent professionals in a global workplace. Our proposals are informed by field trips to India and Cambodia, discussions and interviews with business leaders in the US, UK, France, India and Cambodia, and supported by two linked studies: a project examining group work within computer science courses at Pace University and the simulation of IT Offshore Outsourcing by collaborating with service providing countries in the capstone software engineering course. We will present our findings from these studies and lessons for CS/IS education. In particular, we will provide ideas and guidelines to faculty interested in setting up distributed team projects, present students and groups’ self-assessment guides and tools, and report on students’ experiences in and out of the classroom.

3. Experiencing IT Offshore Outsourcing in the Classroom

In Spring 2005 we changed the nature of the group project in the capstone Software Engineering course for undergraduate Computer Science students. The students of Pace University worked with students of the Institute of Technology of Cambodia to form a distributed team. We set up the projects so that: (a) the Cambodian students act as customers and end-users – they know the problem the proposed system is to tackle, the environment it is to operate in and have the authority to accept the work of the developers (or not); and (b) the Pace University students act as developers – it was their responsibility to “capture” the requirements for the system from the other half of the team, propose design options, build the selected design and test the eventual system, while also handling requirements changes (note the important reversal of conventional onshore / offshore roles in this scenario). We closely controlled and monitored aspects of the project relating to cultural differences, time and space complications, and choice of communications tool for sharing project artefacts and managing project activities (using surveys and logs).

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In this simulated offshore outsourcing setting, we suggest that students can acquire the technical knowledge and softer skills that are needed to thrive in a globally distributed and multi-cultural working environment. The experience was designed to raise student awareness of the issues associated with working in this manner and to provide early (i.e. safe) exposure to successful, and not so successful, working practices and tools.

4. Gaining the “Softer” Skills that are Required for Distributed Group Work

The project objectives build upon each other to support the overall goal of improving the effectiveness and assessment of student group projects in the Computer Science curriculum. This project will:

- examine the relationship between group project effectiveness and student learning experiences on core Computer Science courses;
- identify the critical success factors and major risks to group projects;
- prepare learning objectives and expected outcomes related to the process (i.e. “softer”) aspect of group projects, in the assumption that the technical aspects are already well-defined;
- develop a maturity model tailored to student group projects and the “softer” skills required to survive and thrive on such projects, bringing a proven approach in Software Process Improvement circles to a student-oriented domain;
- deploy the model in the form of a student self-diagnosis / self-help tool to provide a rich skills profile²;
- associate the underlying model with supporting educational material so as to direct students to resources that can explain the need for the required skills and help in the pursuit of their attainment;
- examine ways in which data gathered at an individual level can be rolled-up to assess skills at the group level, since there may be certain skills desirable for an effective team that do not need to be possessed by all parties; and
- evaluate the work with respect to the overarching goal of improved group experience and assessment.

We believe that the understanding of these points will be essential if we are to prepare world class engineers, managers and entrepreneurs.

² There may be important privacy requirements associated with use of this tool and these will need to be investigated.