RUNESTONE,
an International Student Collaboration Project

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Abstract

Our students will eventually work in a global market; what better preparation can we provide for international collaboration than … international collaboration? The RUNESTONE project is developing and evaluating the notion of incorporating international group projects into the undergraduate Computer Science curriculum. RUNESTONE adds new dimensions to student teamwork, requiring students to handle collaboration that is remote, cross-cultural, and linguistically challenging. RUNESTONE is a three year project, with the prototype version running in winter 1998 with students at Uppsala University, Sweden, and Grand Valley State University, Michigan, USA. The 1998 pilot study will be followed by a full-scale implementation in 1999 and another in 2000.

Introduction

The RUNESTONE project involves students and faculty at Uppsala University (Sweden), and Grand Valley State University (Michigan, USA), and researchers from the Open University (UK) and the University of Texas at Austin (Texas, USA). The project's primary aim is to introduce real international experience into undergraduate Computer Science education in a way that has value for all participants. Group projects (typically 5-10 students per team, 5-10 weeks per project) will be incorporated into courses at Uppsala University and Grand Valley State University. These students will collaborate closely with their foreign counterparts using appropriate communications and computing technology to solve a given problem. Because the students come from different specializations (all CS majors), they have different knowledge to contribute to the project. Problems will be designed to cover the spectrum of backgrounds. RUNESTONE's secondary aim is to identify effective support structures for remote international collaboration, encompassing strategies for communication, management, and technology use. RUNESTONE will evaluate pedagogical and technical solutions for collaboration, will examine the costs, both in time and money, and will investigate how students learn in such a setting and what they learn. This paper introduces the RUNESTONE project, describes the support and pedagogic mechanisms used, and presents preliminary observations from the first year.

Further Aims

The RUNESTONE project aims to:
• Give students international contacts and experience with teamwork with people from a foreign culture.
• Give students experience of collaboration with a group having a different educational back-ground.
• Encourage learning through peer-teaching.
• Give students experience with the use of Information Technology in problem solving.
• Prepare students for the possibility of working in a foreign culture.
• Use the foreign experience to aid students in producing a superior product locally.
• Benefit staff by close collaboration with other universities, giving insights to other departments and ideas for new teaching methods.
• Gain experience with use of new techniques in the running of a course.

Another goal is to create a well-organized setting with courses that, after the initially higher start-up costs, run at normal or lower costs. One example of cutting costs without compromising quality is the use of student peer-learning, which will reduce the demand for staff hours. Another example of cost cutting is that the costs for renewing the course can be distributed across the departments involved.

In carrying out the RUNESTONE project, we will establish results that address the issue of transferability to other departments and institutions. For this reason, the evaluation will aim to distinguish between domain-specific and general lessons, particularly with respect to the impact of international collaboration on group interaction and personal development, the extent of peer-learning, and the costs of using this form of education. For example, the project shall examine questions such as how much time is spent on becoming acquainted with new techniques for communication and in what ways (if any) using non-native language impairs learning.

Peer-learning

Based on anecdotal evidence from our own experience as teachers, we believe that having students explain concepts and solutions to one another is a powerful learning technique. Our conjecture is that there will be plenty of occasions for the