

Reflection on Project-Oriented Practice in Software Engineering Curriculum

Arnon Sturm, Gera Weiss – Ben Gurion University

sturm@bgu.ac.il, geraw@cs.bgu.ac.il

Project-based learning refers to programmatic or instructional approaches that utilize multifaceted projects as a central organizing strategy for educating students. Within the Software Engineering Program at Ben-Gurion University of the Negev, we have courses with projects weaving throughout the entire curriculum and there is an ongoing debate, among course teachers, on the benefits of teaching that way. In this work, we reflect on our experience of using project-based learning based on both lectures and students feedbacks. In particular, we look at aspects related to the scope, context, size, and characteristics of the projects as well as, examine the benefits in light of project management, communication skills, technical skills, and application of theory. Our findings indicate that although students usually complain about the load caused by such projects, they feel of achieving a real value out of it. Nevertheless, it seems that such projects do not necessarily help in assimilating the theoretical material taught in the course. For the instructors, managing projects as part of a course introduces additional difficulties in particular in project evaluation. On the other hand, one of the motivations for instructors to introduce projects is to allow for quick and accurate feedback that is very hard to provide when teaching many students with relatively little resources. The projects in our program are usually computer based and allow for automatic feedback to students via unit-tests and via automatic analysis of formal models. Here, again, there are downsides in terms of focusing on the aspects, such as correctness of the solution while less attention is paid to unmeasurable aspects such as elegance of the solution and reusability of the models.

Arnon Sturm is a faculty at the department of Information System Engineering in Ben Gurion University of the Negev. His research interests includes modeling approaches, human aspects of software engineering, and software engineering education.

Gera Weiss is a faculty at the department of Computer Science in Ben Gurion University of the Negev. His research interests includes software engineering, formal methods, cyber-physical systems, and control theory.