

Editorial

Reflections on the influences of the COCOMO, spiral and the Win-Win models on software project and risk management

The Conference on Software Engineering Education and Training (CSEE&T) is the premier forum where researchers and practitioners interested in software engineering education (SEE) and training come together to assess the existing state of the art and practice in SEE, to exchange ideas, and to define and identify new directions in the field. The 19th CSEE&T was held in Turtle Bay, Hawaii in April 2006.

A new track in the CSEE&T 2006 program was devoted to Barry Boehm and his contributions and how his contributions have influenced and shaped the software engineering education and training programs. A number of submissions to the Boehm track were considered for the current issue of the *Journal of Systems and Software*. The authors of the selected papers were asked to revise and extend their articles for the *JSS* publication. Their contributions highlight the impact of Barry Boehm's work, and in particular the uses of the COCOMO, Spiral, and the Win-Win models in classroom instructions. The following is a summary of each of the articles.

The impact of MBASE on software engineering graduate courses. Riardo Valerdi (Massachusetts Institute of Technology, USA) discusses significant contributions by Barry Boehm including the COCOMO, the Spiral model, the Win-Win theory, and risk management principles. Valerdi highlights the impact of these contributions in industry, government, and the educational institutions, especially those at Boehm's home institution, the University of Southern California. Valerdi devotes the majority of his article to the MBASE framework. The MBASE (Model-Based System Architecting and Software Engineering) is an approach to the development of software systems that integrate the system's process, product, and success models to enable successful development of software-intensive systems.

Making every student a winner. Paul Grunbacher (Christian Doppler Laboratory for Automated Software Engineering in Austria) and his co-authors from the United States, Austria, and S. Korea report on the use of Barry W. Boehm's Theory-W and Win-Win requirements negoti-

ation approach in software engineering education at several universities in the US, Europe, and Asia. The aim of their paper is to describe teaching methods and experiences of adopting Win-Win in different contexts. They briefly describe Theory-W, the Win-Win negotiation model, and available processes and tool support. The authors explore the benefits of Win-Win for students and describe different options for teaching the approach. The teaching options are illustrated by concrete examples and experiences from different universities. The paper demonstrates that collaboration support, facilitation techniques, and process guidance are key success factors for teaching Win-Win.

The influences of COCOMO on software engineering education and training. Richard Fairley (Software Engineering Management Associates) reviews the COCOMO model and its influence on software engineering education and training. The author traces the evolution of COCOMO from its introduction in 1981 and relates the many ways in which faculty members have used it (and its successors) as the basis for introducing students to cost and effort estimation and software project management. Fairley discusses how COCOMO can be used in introducing many topics in software engineering economics and offers future directions for COCOMO-based education and training.

Reflections on 10 years of "Students Win-Clients Win." Robert Fornaro and his colleagues from the North Carolina State University, USA) review their 10 years of sponsored senior projects with their "Students Win-Clients Win" approach. The authors' approach provides for a practical settings for the undergraduate students to engage in a real project with real clients. The approach has many advantages, including an ease of transition for students into industrial workplace, provide an opportunity for the students to demonstrate the knowledge they have obtained, and for the students to gain insight into practical and useful real-world knowledge that is normally unavailable in traditional courses.

Teaching Barry Boehm's techniques in industrial settings. Dennis Frailey (Raytheon) discuss his 25 years of experience in teaching Boehm's various software project management

techniques. Though Frailey discusses his experiences in both academic and industrial settings, it is his industrial experiences that makes his contribution apart from others. Frailey has presented 60 industrial courses based on Boehm's techniques in organizations such as Texas Instruments and Raytheon.

Leadership by example. Finally, Ray Vaughn of Mississippi State University, who was invited to contribute to this special issue, in an article entitled "Leadership by Example: A Perspective on the Influences of Barry Boehm", provides a focused discussion of the influences of Barry Boehm's work on the software engineering program at the Mississippi State University as well as its impact on the growth and expansion of the MSU's ABET accredited undergraduate software engineering degree program. Ray Vaughn also reflects on his personal working relationship and experiences with Boehm.

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