

Foreword

Software engineering is a human-intensive engineering discipline requiring other research methods than most other engineering disciplines, including computer science. Consequently, empirical research has become an essential part of contemporary software engineering.

Empirical studies are helpful for both practitioners and researchers. Practitioners may evaluate how users perceive different solutions, for example, web page designs or alternative feature implementations. Moreover, practitioners may want to assess whether a new method, technique, or tool improves what is currently used. Researchers may use empirical methods to explore, describe, explain or evaluate a software engineering activity or artefact, for example, studying an activity at a company using case study or action research, or evaluating a novel tool for software testing. The different objectives for launching an empirical study imply that software engineering practitioners and researchers need many research methods in their research toolbox.

Taking an evolutionary perspective on software engineering, empirical studies were rare in the early days of software engineering research. However, as time passed, researchers began promoting software engineering as an experimental science. In the 1990s, it was enlarged into an empirical science, and it was established as such through the creation of conferences and a journal devoted to empirical software engineering. Furthermore, other conferences and journals also started encouraging and welcoming empirical research articles. Around and after the millennium, books dedicated to empirical research in software engineering were published. It includes books focusing on specific research methods, primarily experimentation, case study research, and action research, as well as edited books covering different aspects of empirical software engineering research. However, the primary focus has, so far, been on conducting research.

Based on the learning from conducting empirical research in software engineering, it is essential to further integrate empirical research into the software engineering curricula at the different levels of software engineering education. The courses may be general courses concerning empirical research methods or focusing on specific aspects of empirical research, such as research ethics. Moreover, empirical studies can be a natural part of the thesis work for bachelor, master, and PhD level studies. As we continue to integrate empirical research methods and studies into education, it becomes essential to have good sources for teaching empirical research methods and to learn how to conduct empirical studies in software engineering.

The current book, “Teaching Empirical Research Methods in Software Engineering”, edited by Professors Daniel Mendez, Paris Avgeriou, Marcos Kalinowski and Dr. Nauman bin Ali, takes a timely focus on teaching empirical software engineering. The editors have done an excellent job attracting some of the area's world-leading researchers and teachers. The book provides an excellent collection of chapters covering different empirical research methods. Furthermore, the chapters take a pedagogical stance concerning several essential topics to teach. The focus on teaching is well illustrated by the titles of many of the chapters.

The book is highly recommended for teachers who want to integrate empirical research methods into their courses at different educational levels or run a separate course on empirical research methods.

Furthermore, the book is also recommended for students who wish to become more proficient in conducting empirical studies.

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