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Title:

Analyzing Resonance of Motivation in Software Development Process Training by Using FRAM

Abstract:

Software development process plays an important role in developing quality software. Part of universities offer classes of such software development training as well as lectures. One of the examples is offering PSP (Personal Software Process) training course in an academic setting, which is originally developed for engineers in industry.

However, it is not easy to manage such a training class even if we have well established materials as PSP. One of the typical problems of such a class is lower completion rate, or higher dropout rate, than that of the industry average. Some of less experienced developers such as students seem less motivated with a feeling that practices of software process are just overheads. In this presentation, we explain our approach to resolving the situation. In order to solve the problem, we formalize the motivation process of the PSP course trainees by using state transition modelling based on the Organizational Expectancy Model. The derived model, Practical-STM, treats an individual trainee of the PSP course as a state machine, and formalizes the motivation process of a trainee using the state, values of the factors regarding the trainee's motivation and a set of operations from the course instructors.

Theoretically, instructors can decide effective actions for the trainees based on the state and the corresponding state transition function of the trainees. However, it is difficult to develop effective instructor scenarios, series of instructions during the PSP course, by considering the trainee's variability. We use FRAM to analyze the resonance arising from variability of instructor's activities as well as that of student's performance from a viewpoint of increasing and/or decreasing student's motivation.
