Application of the Rasch Model for Quantitative Determination of Programming Experience

Motivation

Metrics concerning people are seldom subject of attention within the area of software engineering. The focus is mostly drawn towards source code which is primarily analyzed concerning its syntax. This situation is a problematic one especially in the area of experimental software engineering as the programmer's skills constitute a very important factor during an experiment.

Goal

Your task during this thesis will be to create a scale that allows the evaluation of a participant's programming experience. For that, you will apply two techniques:

- Empirical validation of the scale through a web-based experiment. Students of our chair will be asked to fill out an online survey. Further participants can be members of newsgroups and participants of software engineering lectures.
- Application of the Rasch-model. This model is a simple item-response model which merely knows parameters concerning the item-complexity and the participant skills. Simple applicability and a user-oriented viewpoint as well as control over interval-scaled output variables are advantages of this model.

Java (because it is widespread in general) and C (for embedded systems) will be the programming languages you will work with. You have determine the basic areas of knowledge (syntax, semantics, libraries) yourself. Additionally, you must secure problems through programming (legal code). Finally, you shall examine the connection between the participant's experience and the number of years he/she has been involved in software development. The internal tool acrat as well as phpsurvey will serve as a basis for the survey.

Student

- David Schilli

Literature

- [Kontrollierte Experimente in der Softwaretechnik](#)
- Bond, T.G. & Fox, C.M. (2001). Applying the Rasch Model: Fundamental measurement in the

human sciences. Lawrence Erlbaum.

- Rasch Models: Foundations, Recent Developments, and Applications
- Experimentation in Software Engineering

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