Contribution ID: **103** Type: **Talk (15min + 5min)**

Software Applications for Individuals with Low Literacy - Key Insights and Takeaways in Research Software Engineering from an Interdisciplinary Project

Wednesday, March 6, 2024 10:50 AM (20 minutes)

Introduction

In 2018, the LEO study identified approximately 6.2 million individuals between the ages of 18 to 64 in Germany with very low literacy skills. These individuals are deemed to have a literacy level that restricts their participation in crucial aspects of society. [1] Various former and recent studies, including VERA 8, PISA, ULME I-III, and IQB, have highlighted a similar situation within the realm of apprenticeship and for juveniles in general. [5] A widely accepted public measure to enhance this situation involves implementing literacy courses at German community colleges, also known as Volkshochschule (VHS). Nevertheless, evaluating initial skills is a time-consuming process, and maintaining ongoing documentation of the learning requires continuous alignment with the comprehensive competency model created during the original "lea" (literacy education for adults; own translation) project. [2] Moreover, there is a need for anonymous self-learning based on domain-specific parameters for those affected.

lea.online

The "lea.online" project (2018-2022; BMBF FKZ W143600) had the objective of enhancing the material and competency model towards vocational fields and to give teachers exclusive function to monitor and evaluate diagnostic findings over time. Additionally, it should provide a non-intrusive anonymous interactive and gamified experience for learners. [3][4]
The project started with digitizing the competency model, which evolved into a comprehensive content management system known as the "lea.Backend". It functions as the backbone for the user-facing software applications: "otu.lea,"a diagnostics app accessible through a browser, "lea.Dashboard,"a browser-based analytics app for teachers, and the "lea.App,"an anonymous self-learning app available for mobile devices. [5]
The lea.online project embraced a highly interdisciplinary approach to research software engineering. It comprises multiple target user groups: individuals with low literacy, teachers, and researchers, each segment defining their own requirements. The material for learning and assessment entails multiple occupational classifications spread across various subject dimensions, including reading, writing, language understanding, and mathematics. The team comprised of professionals hailing from diverse disciplines such as Educational Sciences, Mathematics, UX Research, Software Engineering, and Law with a shared goal of crafting software that is suitable for practical application in the field.

Key Insights and Takeaways

It is important to note that developing software for field use, rather than for exclusive expert use, introduces a wide range of additional factors and prerequisites typically associated with consumer-grade software designed for the mass market.
Therefore, the primary objective of this work is to present a comprehensive collection of key insights and takeaways acquired during the four-year developmental period, as well as in the current operational phase. It covers pitfalls, methods, and recommendations for future projects. It also displays examples and related code to explicitly demonstrate functionality. Due to its interdisciplinary nature, categorizing it by topics such as conceptual, UI/UX/accessibility, technical, legal, and ethical will support its overall structure.
At the end, a critical appraisal of the constraints of this project will be included.

Additionally, a roadmap for the current research and development will be presented, which offers prospects for joint efforts and progress for personal research and development.

Slot length

Primary author: KUESTER, Jan (University of Bremen)

Presenter: KUESTER, Jan (University of Bremen)

Session Classification: RSE in Digital Humanities

Track Classification: Research Software: Research Software for Digital Humanities