

Editorial Preface

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This Issue has three full-length papers each with quite divergent themes from one another, but each is very interesting in its own right, so I'll try to give you an insight into each of them.

The first paper is titled *Inclusion of users with special needs in the Human-Centered Design of a web-portal* by Renate Motschnig and Dominik Hagelkruys. The title and the following extract from their abstract does a very good job of summarising this particular paper: "The primary research objective of the case-study presented in this paper is to illustrate that it is essential to include users with special needs into all major steps of designing a web-portal that provides services to these special users. But how can this be accomplished in the case of users with special cognitive and affective needs? Would the "classical" Human-Centered Design Process (HCD) be sufficient or would it need to be adapted and complemented with special procedures and tools? In this paper the design team shares the strategies they adopted and the experiences they gained by including users with dyslexia in the design of the LITERACY Web-Portal. Besides providing insight into the special effort and steps needed to adapt HCD for users with special needs, the paper encourages application designers to include end-users even though - or particularly because - they have needs that are special and critical for the adoption of the product."

However, what doesn't get conveyed in that brief summary is the sheer impact of including those users with special needs, had upon the design team including the authors of the paper. As someone who has managed a research interaction and design lab over several years, I am fully aware of that sort of experience, and how it is hard to convey to someone else who wasn't there. It's a bit like trying to describe a powerful dream you had, to someone else, with mere words. These authors were definitely impacted by the experience with their special needs users, and they do a pretty good job of conveying that impact. Their words are backed-up with documentation of the procedures they employed including: semi-structured interviews, hands-on testings, card-sorting and questionnaires. And they called upon several experts in various fields within the LITERACY-Consortium. If your interests lie in HCD or you are involved in any other technology design space, I highly recommend this paper to you.

The second paper is titled *End User Perspective of E-learning using LMS-like Systems* by Robert Costello. This paper contributes to the field of Personalised Learning Environments (PLEs), an area where there are currently few papers. It has a significant literature survey across a number of related research areas including good coverage of: E-Learning Environments and issues; Intelligent Tutoring Systems (e.g. adaptive filtering); Adaptive Hypermedia; elements from User Modelling (e.g. personal preferences); Adaptive Information Retrieval; and Intelligent Tutoring Systems. It then presents a 'Personal Learning Environment Case Study', followed by an evaluation of it. It concludes with what a future PLE could be.

PLEs are largely on the drawing board - there are few of them in existence. Most prototypes string together various services of the day. Services that are not guaranteed to remain the same. Sure, several of the well-known LMSs (Learning Management Systems) have some advanced features these days, but they still lean heavily towards their roots, towards the administrator and the teacher, and away

from true personalised learning. This is a valuable paper, not the least for covering the research bases that are involved in defining the next generation of learning environments - the PLEs.

The third paper titled *Wolfram Language for Teaching Computational Thinking to K-12 Learners* by Alyson Gamble, informs us that Computational Thinking is now a part of the general K-12 curriculum in many places. This puts a burden on the novice learner (and upon the teacher) prior to them receiving the gains of an expanded curriculum. The paper is centred on making computational thinking accessible to the board range of students that now need to learn it. Research has shown that to maximise that accessibility "...instructors and mentors must pay attention to students' interests while using educational tools that have a low threshold and high ceiling." The low threshold refers to the student getting quick positive results or feedback from the tool in response to their activities, with a minimum of effort. Whereas the high ceiling means that as they become more proficient in their use of the tool, it should continue to service more complex learning situations, revealing more sophisticated capabilities as the student gains in ambition and ability. E.g. "...the learner must be able to create sophisticated material, such as a complex game."

Much (but not all) of the research on computation thinking has happened in the academic computer science department, whereas there are a whole set of different needs, perspectives and issues, when introducing it to the novice K-12 learner. This paper discusses the use of the Wolfram Language in doing that, through a range of purpose-built tools that incorporate that knowledge-based language. *Wolfram Programming Lab Explorations* is given as one example of a low threshold tool, while the relatively new *Wolfram|Alfa Open Code* as an example of one with a high ceiling, giving the student access to the code behind the natural language. Code which they can then easily modify and expand.

This paper complements the papers in our earlier *Special Issue on Kids and Other Novices Learning to Code: Insights, Tools and Lessons from the Visual Programming Frontline*, issue 4(1).

I hope you enjoy these three new long papers. I thank the authors for submitting them to IJPOP, and also the reviewers in helping them improve them. It has been my privilege to be involved in getting them all together. In wrapping these three fine papers together in the cover of this single issue 6(1).

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