WATCHME: Workplace-based assessment and feedback by means of e-portfolios

Jeroen Donkers[1], Marieke van der Schaaf[2]

1. Dep. of Educ, FHML, Maastricht University, PO Box 616, 6200 MD Maastricht, NL
jeroen.donkers@maastrichtuniversity.nl
2. Dep. of Educ, FSBS, Utrecht University, PO Box 80.140, 3508 TC, Utrecht, NL
m.vanderschaaf@uu.nl

Abstract. In the European WATCHME project (started at March 1, 2014), eleven partners will apply learning analytics in a workplace-based assessment environment by means of adding student modelling to a pre-existing ePortfolio system in order to provide just-in-time personalized feedback and aggregated visualisation. The approach will be applied and tested in three professional domains, each in two countries: medicine, veterinary medicine and teacher education. The student models will be based on a multi-entity belief network and will use the information from human-entered assessment collected in the ePortfolio as their input.

Workplace-based feedback and assessment has become urgent for accountability purposes and due to the redesign of higher education. More than ever, due to changing work practices, professionals should invest in lifelong learning and secure continuous accountability. From a macro perspective, much of learning is now shifting from an educational setting to a workplace setting, both within and outside schools. Feedback on and assessment of activities in the workplace are critical in developing professional expertise and are the most powerful sources for learning in professional learning[1]. However, for many years trainees have issued urgent calls for more and better feedback, but their pleas have mostly fallen on deaf ears. Workplace-based feedback and assessment requires that non-standard work contexts are adequately dealt with. This implies the gathering of data from performance over a longer period of time in different complex contexts. Consequently, the implementation of workplace-based feedback and assessment is often inefficient, its quality (in terms of validity and reliability) is generally low and moreover the impact on learning is limited. This hampers students' professional development. Often electronic portfolios (ePortfolios) are used that enclose a multi-textured view of a trainee and demonstrate products and processes of life-long learning. Problematically, important ingredients for learning at the workplace such as frequent, tailored feedback are scarce and potentially rich data are underutilised. This hampers trainees' learning and in the end reflects a societal loss. With emerging ICT technologies for learning and through the exploitation of learning analytics (LA) tools this information can be made available to improve trainees' learning.

The WATCHME project aims to improve the quality and efficiency of workplace-based feedback and assessment and increase students' and trainees' learning through

the development, implementation and evaluation of a mobile, electronic portfolio based system to gather and produce tailored data, extended with student models and visualisation tools (see the architecture in Fig. 1). Its exclusiveness lies in the use of authentic data from workplace settings and the integration of narrative and quantitative data from various sources, including videos and serious educational games. A new approach to developing student models will be used that enables aggregation of data and tailored just-in-time feedback based on a Multi-entity Bayesian Network[2]. Feedback and assessment will be visualised by intuitive interfaces. The project focuses on integration of the tools in the professions of medicine, veterinary medicine and teaching as exemplary fields.
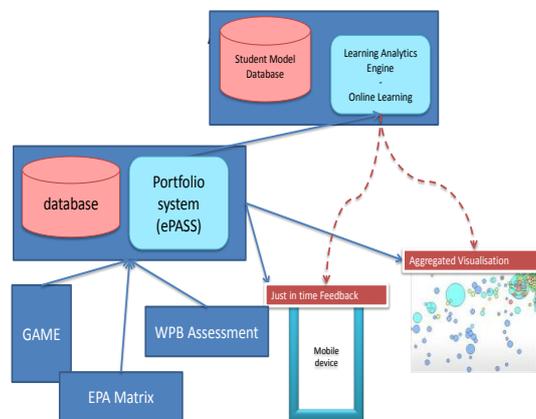

Fig 1. The WATCHME architecture.

In a close cooperation between educational researchers and ICT developers the main output results will be: a tool to map critical professional activities and link these with competences; markers for feedback and assessment at the workplace; an easy access electronic portfolio system for data collection; LA driven tools to inform trainees, and, teachers and supervisors about trainee progress and to deliver tailored, just-in-time feedback with intuitive visualisation tools. Each result will be empirically evaluated regarding its quality and contribution to trainees' learning. The overall system is evaluated formatively and summatively in three professional environments against existing data sets.

References.
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