A new online testing program in training of cytotechnologists

Marlies Nemeth¹, Helene G. Wiener², Josefine Stani², Christian Dusek¹, Thomas Pekar¹

¹ University of Applied Sciences Wiener Neustadt, Austria ² Medical University Vienna, Austria

marlies.nemeth@fhwn.ac.at  helene.wiener@meduniwien.ac.at  josefine.stani@meduniwien.ac.at
christian.dusek@fhwn.ac.at  thomas.pekar@fhwn.ac.at

Introduction: In 2008 a course for gynaecological and extragynaecological cytopathology was established at the University of Applied Sciences Wiener Neustadt. All biomedical Scientists, Laboratory Technicians, Biologists, medical practitioners and Pathologists attending the course have been already working in the field of cytology/pathology. The training has included several different educational methods, but always has been based on small student groups. Theoretical input via lectures, conventional microscopic work partly combined with computer-aided e-learning parts and team based learning at the microscope entered the curriculum. Since then 5 courses have been held and all participants were periodically asked for their feedback. Data were anonymised.

Problem: The collected feedbacks demonstrated that handouts, Power Point presentations, talks and team-based-learning were very helpful, whereas the used online-training and online feedback was considered less helpful. Reflecting on the results the first version of the e-learning system was replaced by a new program. In 2013 the microscopic work combined with computer-aided e-learning was modified.

Methods: A Learning Management System has been developed making entirely use of open source products as the Django framework using PostgreSQL as ORDBMS and Debian Linux as supporting OS platform. Due to the MVC paradigm, template based views and the object-oriented paradigm supported by the underlying Python programming language, the system can easily be adopted to changed work-flow or grading requirements. The system presents a consistent work-flow through the assessment including statistics of their individual performance, the possibility to display annotations or resubmit the assessment if required by the didactic concept. Multiple images can be annexed to every cytogram giving the possibility to guide the attention to peculiarities of the specific specimen. The images can be presented in arbitrary resolutions allowing to accommodate different requirements of technical infrastructure at the students accommodation. For the lecturer an asset management system allows quick overviews of every specimen's whereabouts and detailed reports of the students' performance.

Conclusion: Since half a year the new open source system is used by the trainees. Screening a specimen includes now a selection of special diagnostic features. Classifying those via the system gives the opportunity to reach high knowledge level without loss of time waiting for any tutor’s answer. The preliminary feedback of the students is very positive. And at the same time the tutor’s on spot workload is reduced.