# **Reflections on the Workshop**

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**Abstract.** In this paper we shortly summarize the discussions and outcomes of the first workshop on Analytics for Everyday Learning co-located with the 13<sup>th</sup> European Conference on Technology Enhanced Learning in Leeds (UK) on the 4<sup>th</sup> September 2018. First we will briefly summarize the discussions for each of the five papers and finally synthetize the most important findings.

Keywords: Learning Analytics, Everyday Learning.

## 1 Introduction

The workshop on "analytics for everyday learning" brought together researchers, practitioners, educational developers, entrepreneurs and policy makers from different backgrounds and provided a forum for discussing the multi-faceted area of analytics for everyday learning. The papers presented on the AFEL workshop centered around learning analytics in the context of everyday learning on many levels and in different contexts.

The paper by S.S.E. Zainab and M. d'Aquin titled "Detection of Online Activity Scope" [1] reported about a clustering approach on how to identify key areas based on a learner's online activities using a browser. The browser activities including the used resources are tracked, afterwards these resources are analyzed and enriched to create a profile of the resource. This enriched information is then used for clustering the resources and to identify the most representative cluster of the user. The most interesting discussion on this topic focused on the clustering itself, and if this clustering should be performed for every learner individually or for groups of learners.

The paper by Yenikent et al. titled "Evaluating the AFEL Learning Tool: Didactalia Users' Experiences with Personalized Recommendations and Interactive Visualizations" [2] presented an experimental study of a learning application for everyday learning. By analyzing the learning activities of learners, the learning scopes and trajectories of the learner were analyzed. After having presented the study and the corresponding results to the audience a discussion about how tools for everyday learning can be evaluated has arisen.

The paper by Fessl et al. titled "Challenges in Developing Automatic Learning Guidance in Relation to an Information Literacy Curriculum" [3] presented an automatic learning guidance widget integrated in a learning and training platform. The goal of the widget is to track and present the learning progress of an individual user of the platform with regard to a defined curriculum. Here, the discussion focused on how to track the user's learning progress with the help of activity log data. Suggestions were on using different heuristics, like for example opening a page relevant for the curriculum, the average stay on the page, and if the user is scrolling down the document to the end. Although all suggestions are meaningful, they also have some disadvantages. For example, although the average stay on a page might be useful, it cannot be ensured that the user opening a page is still in front of the screen.

Paper four by Fessl et al. titled "Analytics for Everyday Learning from two Perspectives: Knowledge Workers and Teachers." [4] reported about the results of two conducted focus group interviews on the effects of a learning resource recommender system and a dashboard based on analytics for everyday learning. The first focus group focused on knowledge workers as self-regulated everyday learners (i.e., informal learning) and the second focus group dealt with teachers who serve as instructors for learners. The workshop participants were interested in the recommender as recommending relevant learning resources is always an important feature for learning. Especially, in informal learning scenarios it is not that easy to provide the right learning resources at the right time. Furthermore, another topic of interest was the diversity of resources, thus how diverse such recommendations can be in order to be still useful for the learner.

The last paper by Mutlu et al. titled "Towards a Learning Dashboard for Community Visualization." [5] presented a learning dashboard for community visualizations. The dashboard serves the purpose of (statistically) analyzing and exploring the behavior of communities and users. The discussion centered on using such dashboards for informal vs. formal learning. While in formal learning, learning activities are often conducted in learning environments, the collected activity data in such environments is easy to use for providing meaningful visualizations. In contrast, in informal learning settings this is not the case as there is often no learning environment available and the learning activities – if they are somehow extracted – consist of different types of data not known beforehand – thus is it not that easy to provide general applicable visualizations for all types of data.

In the following we will summarize the most important outcomes of the discussions.

1. Learning Analytics helps to organize everyday learning:

Informal learning and workplace learning are established research fields in the domain of technology enhanced learning (TEL) focusing primary on the learning needs of employees in their business processes. However, learning takes place everywhere and also outside of professional contexts in everyday situations. Everyday learning as self-steered and curiosity-driven learning will become more and more important as part of life-long learning and personal development in future as knowledge and information develop rapidly. However, due to the rising complexity of available learning resources, support for self-organization and reflection about the own learning behavior seems useful. Inspired by the "quantify yourself" trend and current applications in sports and dietary, learning analytics can offer promising approaches to better organize personal learning.

#### 2. Everyday learning becomes more important:

Everyday learning becomes more and more important as learners, educators, knowledge workers, professionals etc. need to stay-up-to date for their daily learning and working activities. As technology evolves rapidly, continuous everyday learning in fast changing environments will become a crucial part of the personal development. An important aspect in this regards is the blurring of boarders between private and professional life, making the distinction between private and professional learning more difficult. Hence, the main conclusion we draw in the workshop was, that new concepts of work also require new concepts of learning and that taking everyday learning serious could be one answer.

### 3. Tool support for everyday learning:

There exist different approaches on how everyday learning can be supported. For example, learning analytics provides mechanisms for analyzing digital traces to support learners with regard to their learning goals, learning progress or learning strategies. Data-driven reflective learning is an approach to re-evaluate past experiences with the goal to improve future behavior. Furthermore, there already exist manifold technologies and tools that imitate everyday learning without recognizing it as "learning tool or technology". For example, gamification approaches that motivate for learning in language learning platforms (Duolingo), or tools that automatically give you an overview of your working or learning activities depending on the browser history, or tools that provide you guidance to improve your search behavior.

#### 4. Ethical issues around analytics for everyday learning

Analytics for everyday learning requires a holistic tracking of user interactions. This leads to a comprehensive data set about users and also bear the risk of misuse. Especially as data about the everyday learning can be considered highly sensitive. Hence, data privacy and misuse by employers or other stakeholders need to be restricted. We further discussed the challenge of evaluating tools for learning analytics by using real user data.

### Acknowledgement

The project "AFEL – Analytics for Everyday Learning" is funded under the Horizon 2020 of the European Commission (project number 687916). The Know-Center is funded within the Austrian COMET Program - Competence Centers for Excellent Technologies - under the auspices of the Austrian Federal Ministry of Transport, Innovation and Technology, the Austrian Federal Ministry of Economy, Family and Youth and by the State of Styria. COMET is managed by the Austrian Research Promotion Agency FFG.

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