

# Teach the Teachers – E-Learning in Further Education for Lecturers in Higher Education

Eva-Christina Edinger, Ricarda T.D. Reimer, and Stefan van der Vlies

**Abstract**—The article focuses on how lecturers in higher education use e-learning – not only in a teaching role, but furthermore as learners in further education. An insight into two empirical studies concerning the use of media in e-learning contexts in general and social media and tablet use in particular built the basis. Requirements for e-learning tools as well as demands on the teaching and learning settings will be illustrated. Based on the empirical results innovative e-learning settings for further education have been designed.

**Index Terms**—Continuing education, Educational technology, Tablet computers, Web 2.0

## I. INTRODUCTION

To offer further education on the topic of e-learning for lecturers at a college of education is probably the furthest one can get in the teaching chain. The materials, tools, and teaching concepts that are offered in further education for tertiary education will trickle down from the initial training to the lecturer, who passes them along to his or her student, who will one day introduce them to his or her pupils. The goal of further education in higher education is to enable lecturers to deal with diverse teaching challenges. This is especially the case for the topic of e-learning, where lecturers face three challenges. First of all, they will have to learn how a specific new tool works. Secondly, the lecturers also need to find out how they can integrate the associated teaching and learning materials didactically. Finally, a challenge for lecturers could be that the further education they attend uses a didactical setting they are not familiar with, like a blended learning or flipped classroom. In these particular settings a lecturer would need to have a certain degree of competence in the associated tools, like for example learning management systems (LMSs)

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E.-C. Edinger is with the Department for Digital Teaching and Learning in Higher Education of the School of Teacher Education of the University of Applied Sciences and Arts Northwestern Switzerland FHNW, 4500 Solothurn, Switzerland (e-mail: eva.edinger@fhnw.ch).

R. T. D. Reimer is head of the Department for Digital Teaching and Learning in Higher Education of the School of Teacher Education of the University of Applied Sciences and Arts Northwestern Switzerland FHNW, 4500 Solothurn, Switzerland (phone: +41 326286697; e-mail: ricarda.reimer@fhnw.ch).

S. van der Vlies is with the Department for Digital Teaching and Learning in Higher Education of the School of Teacher Education of the University of Applied Sciences and Arts Northwestern Switzerland FHNW, 4500 Solothurn, Switzerland (e-mail: stefan.vandervlies@fhnw.ch).

or communication tools, to be able to complete the course successfully.

Hence a certain level of media and information literacy might have become a condition both for following further education about e-learning and for academic teaching as well. On the one hand, the importance of e-learning, which here refers to all electronically based communication processes that support teaching and learning including social media, increases in terms of reputation and career opportunities within the scientific community (science 2.0). On the other hand, all of the above-named challenges show the difficulties surrounding e-learning for lecturers at a school of education. Both the increase in reputation and the challenges support the need for more further education in e-learning.

The Department for Digital Teaching and Learning (DTL) in Higher Education of the School of Teacher Education of the University of Applied Sciences and Arts Northwestern Switzerland FHNW offers further education for the entire teaching staff (about 680 persons). This further education focuses on the use of e-learning in didactical settings in higher education, for example: the use of tablets, LMSs, research tools, presentation tools and mobile learning. Each offer aims to raise the level of media and information literacy among lecturers. Besides the range of further education, the DTL is involved in research projects to evaluate the educational processes as well as to promote innovation in e-learning, focusing on hard- and software as well as e-learning scenarios. This article describes some of the empirical results of studies of the DTL and traces their interrelation to teaching innovation and further education concerning teaching in tertiary education.

## II. RESULTS OF EMPIRICAL STUDIES AND INNOVATIVE TEACHING CONCEPTS IN HIGHER EDUCATION

In order to offer innovative further education that promotes professional and critical-reflexive use of e-learning in higher education for the teaching staff, the DTL conveyed two empirical studies and an innovation project in the years 2012 and 2013. The innovation project was the first of its kind in the German-speaking countries. Since 2011 the DTL offers further education courses on the use of tablets in education for academic professionals that last several weeks. This pioneering project is permanently evaluated and continuously further developed with action research methods. The first study ‘Social media in learning and teaching scenarios in

(further) education' (<http://blogs.fhnw.ch/SMinLehre/ergebnisse/>) evaluated the possibilities of the use of social media in higher education [1]. The study contained three focus groups that included 18 participants (students and lecturers), an online survey among lecturers (n=288, full population survey, response rate: 15.6%), the design of scenarios and pilot tests [2]. The second study 'Media Education at the School of Teacher Education FHNW' pursued the question about the needs and requirements for the professional use of media in higher education. Following a kickoff event with 50 participants (students and lecturers) and a workshop (14 participants), an online survey (n=153, full population survey, response rate: 25.0%) was conducted among the lecturers of the School of Teacher Education FHNW.

#### *A. Requirements of lecturers for e-learning scenarios and tools*

In this paragraph some findings concerning requirements for e-learning in general and particular e-learning tools will be discussed. The following results cover the focus groups with academic students and lecturers of the first study and the workshop of the second study. It came to light that students as well as lecturers are "always chasing something". In the case of e-learning students chase content for them to study as well as information on examinations and lecturers chase new technologies that they can use when they teach.

Students feel unsure in matters that involve access to the information they need, for instance: Do they know all platforms the teachers use to distribute content? Did the lecturer hand out the content on paper and if not, is a digital version available on the LMS? Is e-mail the only way of communication? This last question is a legit concern, since most of the communication in higher education still happens via e-mail.

Lecturers are often uncertain if they are aware of the right tools and if they use these tools in the right way. Eventually this uncertainty leads to dissatisfaction and in the end to disturbance of teaching and learning. This could be the cause of the amount the LMS is being used: One third of the surveyed lecturers (study 1) use the LMS in every course, on the other hand another third don't use the LMS in any of their courses. When the LMS is being used, it is primarily used for the course administration and organisation (68.8%) and not for tasks like writing texts simultaneously and cooperatively. 22.6% of respondents are not familiar with collaborative text editing tools, which shows that the availability of innovative technology alone is not sufficient.

Students express a high expectation towards the professionalism of lecturers: They should choose the right tools depending on the didactic objectives and should use tools in the right way. The method-media match is very important. Students name unprofessional and therefore awkward YouTube videos as an example for wrong use of tools.

Both lecturers and students expect a high usability of the used tools and a device independent user experience that

allows working in an efficient and effective way. Especially the media discontinuity, when changing the device within one single task, increases inefficiency [3]. Switching the devices within one task is not only quite common, as a recent study from Google illustrates [4], but it will probably even increase in the future. This increase can be predicted by the current trend to bring your own device (BYOD), which means, that student and lecturers will be forced to combine devices that are provided by the institute with their own ones. Both students and lecturers (in the results of both studies) mentioned BYOD, which shows that it is indeed a current topic.

Lecturers (both in study 1 and 2) demand a 'landing page' that bundles information about both their further education as well as their teaching. This page could for example show which further education courses are available, which tools are recommended for teaching in higher education or who supports the training of these tools. Moreover, the lecturers expect a uniform graphical user interface as well as a single sign-in.

#### *B. Further Education in Teaching with Tablets*

The combination of technological developments on the one hand and media didactical implementations on the other hand led us to an innovative project that had high interest from the beginning. The current relevance of mobile learning and constantly growing user base of tablets motivated lecturers to change their role from teacher to student to address this issue. The online survey (study 2) showed that around 40% of respondents owned a tablet either personal or professional use. Additionally, around 110 tablets were purchased at the School of Teacher Education for use in teaching. Not only the faculty, but also the students use tablets for aid their learning and teaching.

It is important that further education in e-learning allows lecturers a direct transfer to their own teaching practice. For this project a course with blended learning design was created, this way lecturers could also be introduced to this kind of teaching. Furthermore, this course uses the university's LMS, evaluates mobile applications that support lecturers in the workplace, and ultimately helps lecturers translate didactical concepts of mobile learning and teaching into practical implementations. These translations are conceptualised by lecturers and are aimed to create workspace scenarios that involve tablets. Still during this blended learning course the participants actively perform these scenarios and finally they are collectively evaluated and discussed with the other participants. During the first three installments 35 lecturers have participated. The second study which is mentioned above added data about the usage of tablets by lecturers. These findings will lead to starting points as well as the potential for further development of university teaching. Figure 1 shows which activities lecturers of the School of Teacher Education FHNW perform with their tablets.

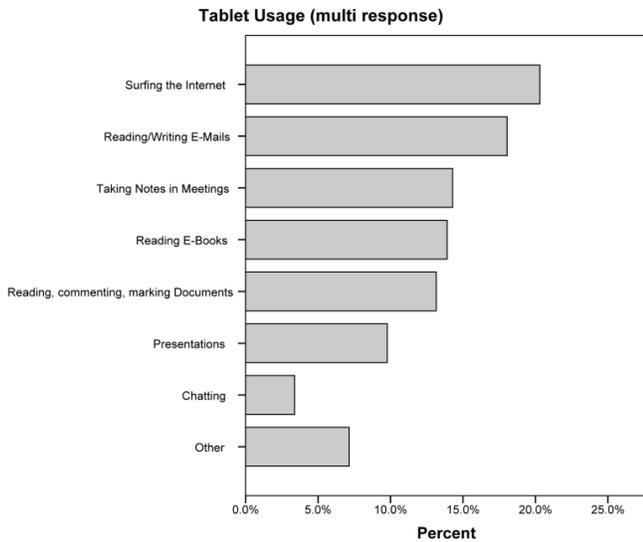


Fig. 1 Tablet Usage of lecturers of the School of Teacher Education FHNW.

### C. Heterogeneous Demands for Further Education in Higher Education

Further education can only be successful when it meets the demands of the target audience. However, the target audience of lecturers is very heterogeneous, concerning its pedagogic and media affinity and competencies as well as the desired topics and settings for further education. The pilot tests of the first study showed a dual challenge for the lecturers: New tools have to be learned and at the same time the lecturers also need to find out how they can integrate the associated teaching and learning materials didactically. If they are not able to merge these new tools in their teaching, they risk that their students will not use these tools, since they do not see the benefit in using them. Thus, the skills mentioned above are success factors for the use of e-learning. The same is also true for further education in higher education and should therefore be focused on both directions: University teaching on the one hand, media and information literacy on the other hand.

Lecturers, who have completed further education in the areas of university teaching and/or media literacy in the last ten years, are twice as likely to implement e-learning in their learning and teaching activities. Only 20.8% of all lecturers without such training implement e-learning in their teaching compared to 44.5% of lecturers with training ( $\chi^2 = 16.157$ ,  $p < 0.001$ ). If e-learning or collaboration tools like social media are to be used increasingly, then further education on these topics should be offered to the teaching staff of the university.

The affinities for media and pedagogy in higher education were constructed with indicators. In Figure 2, these two target variables are related to each other. Four target groups for further education can be identified.

Group 1 has both a high affinity for media and university didactics. This group scores higher than 3.0 on both variables and includes about 55% of the respondents. It will likely be able to apply to e-learning settings successfully when a good infrastructure and environment is provided. The second

biggest group, group 2, consists of about 30% of the respondents and can be labeled as media savvy, yet is weaker in terms of university didactics. Further education in university didactics has great potential; since it can be assumed that this group is well versed in Internet based application and requires only a (new) stimulus to be able to integrate e-learning in their teaching. The opposite is true for group 3 (9%), whose respondents score higher on university didactics but lower on media affinity. This group could be empowered by the use of e-learning during the further education about new media and university didactics. Group 4 is the most critical group, as both variables are low, but it is small (6%).

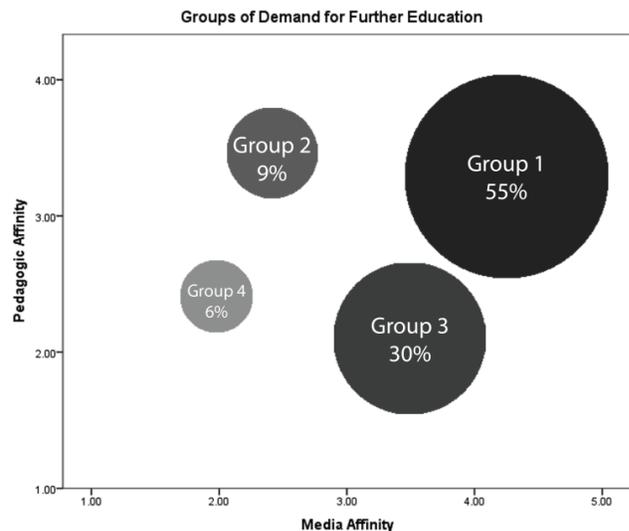


Fig. 2 Groups of demands for further education among of lecturers of the School of Teacher Education FHNW.

Moreover, there is a large spectrum of inquired settings and topics. Of the interviewed lecturers (study 1) 52.4% wished further education in blended learning settings and 21.9% wished pure online training (e.g. webinars). Study 2 identified a number of desired topics for further education in the areas of media education and university teaching, including university teaching in general (26.1%), use of tablets and/or smartphones in teaching (26.1%), use of new media in teaching (22.9%), and use of apps in teaching (22.2%).

### III. CONCLUSION

With the above illustrated empirical results from the two studies and the innovation project, we can substantiate and widen theoretical findings like those from Mishra and Koehler [5]. E-learning in higher education, for both university teaching and further education of university lecturers needs, besides disciplinary expertise, an adequate ICT infrastructure, knowledge of innovative tools, competences in university teaching, as well as information and media literacy.

The presented results can be used to help lecturers learn in the workplace by focusing on two factors: On the one hand

the institutional offer of training and coaching, on the other hand the teachers themselves. Training and coaching for lecturers should be on-demand, i.e. they must be aligned on the form and content requirements of the lecturers. Moreover, individual services should be available just-in-time. Furthermore training and coaching should not just focus on tools; it is the interplay with information and media literacy and university teaching, which makes them successful. Consequently, the target group is characterised by the heterogeneity in the topics they teach but also the heterogeneity in their knowledge levels of university teaching and media education. With this in mind we reach the second level, the lecturers themselves. Professional disciplinary knowledge must be combined with competencies in university teaching and media teaching skills. Therefore it is important that lecturers set their individual goals for further education that are related to their competence. They can develop their skills by, for instance, attending training and coaching, do some self-studies, and participate in a community of fellows where ideas, concepts and experiences can be exchanged.

The DTL provides training, coaching and on-demand online counseling. On its website ([www.digitallernen.ch](http://www.digitallernen.ch)) a large amount of self-study material can be found concerning e-learning tools, as well as the matching methods and settings in various formats like a blog, tutorials, screencasts, and an online community. This self-study material encourages just-in-time learning among the lecturers. The above introduced innovative tablet project based on a blended learning setting brings both levels, the named requirements for tools and devices as well as the demands on settings and topics together.

E-learning for teachers can be independent of site and time; this is due to the internationalisation of the university and higher education. However, it is crucial that it meets the needs of the lecturers; otherwise the training opportunities are not perceived as useful. At the same time the offers must be anchored to the lecturers workspace to reflect their personal situation. Last but not least: Bringing all the components together - disciplinary expertise, tools knowledge, media competency and concepts of university teaching – takes time; for both, learners as well as teachers.

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