Teaching methods matched with TEL tools to improve higher education within AduLeT project

Ildikó Szabó
John von Neumann University Pedagogical Faculty,
Kaszap u. 6 – 14, 6000 Kecskemét, Hungary.
E-mail address: szabo.ildiko@pk.uni-neumann.hu
ORCID number: https://orcid.org/0000-0003-2394-5237

Abstract

Concepts discussed. E-learning has become a common way to teach and learn. The number of technologies for a variety of educational purposes is already quite large and constantly rising. Nevertheless, there is still a lack of formal training and support of digital skills within faculty training. The European ERASMUS+ project AduLeT (Advanced Use of Technologies in Higher Education) wants to improve the teaching quality of lecturers by enhancing their skills concerning the use of technologies in an advanced way. It also aims at training the lecturer on how a specific teaching method can be combined with a certain technology in addition to providing guidelines, best practice and strategy concepts for lecturers and universities. AduLeT has the primary target group of lectures at the partners' universities.

Results and conclusions. The analysis of multiple studies before the project identified: the following barriers concerning the advanced use of learning technologies in higher learning: (1) time, (2) motivation, (3) institutional/cultural factors and (4) self-efficacy/self-confidence. As higher education lecturers face almost the same barriers to a different extend in many different countries, the aim of AduLeT is to provide lecturers an environment with helpful information for their teaching. A support system is implemented as a community of practice (CoP) with all the results of the project and driven by pedagogical aspects.

Original approach. This article gives an insight into the project, and discusses the barriers that were identified within the scope of the project among the Hungarian participants.

Key words: barriers for technology enhanced learning, higher education, TEL tools.

Introduction

The number of useful technologies for a variety of educational purposes is already quite large and constantly rising and scientific experiments and studies increasingly confirm the usefulness of various technologies. Nevertheless there is still a lack of formal training and of supporting digital skills within faculty training. Up til now universities throughout Europe have established Learning Management Systems (LMS), but they are used in a rather basic way. At the same time, higher education institutions all over Europe are expected to take into account innovative technologies and scenarios such as Open Educational Resources (OER) or Massive

Open Online Courses (MOOCs), but only a small number of universities actually do. (Szabó, T. Varga, 2018).

AduLeT has the primary target group of lectures at the partners' universities. These lecturers mainly have low skills in the advanced use of ICT within teaching or do not have enough time. The analysis of multiple studies before the project identified: the following barriers concerning the advanced use of learning technologies in higher learning: (1) time, (2) motivation, (3) institutional/cultural factors and (4) self-efficacy/self-confidence. The aim of AduLeT is to provide lecturers an environment with helpful information for their teaching.

The Goals of AduLeT project

The cross-cultural cooperation and the exchange about the country-specific TEL situation at universities at the European level is fundamental to this project. The persons involved in the project serve as multipliers in their institutions as well as their regions. In this way, the project approach accomplishes the use of participatory approaches and TEL based methodologies and more strategic and integrated use of TEL and open educational resources (OER). To improve the awareness of lecturer and trainers in the advantages and perils of TEL is an important part of the project. This is in accordance with the aims of the strategic framework *Education and Training 2020* i.e. digital competence.

In everyday university teaching there is still room for improvement regarding the use of TEL approaches, especially in keeping up with recent developments like MOOCS (Massive Open Online Courses) or OER (Open Educational Resources). For instance that TEL approaches are only to a limited extent part of training for teaching at universities and that practice guidelines to the application of TEL-based approaches in daily teaching activities are sparse. AduLeT aims to support lecturers to bring TEL approaches into their daily teaching practice. Therefore, the project aims to set up teaching methods for TEL, guidelines for the effective use of TEL tools to be used in these methods and a collection of case studies. To achieve this goal, AduLeT aims to integrate TEL-based elements into the training for university lecturer. This way AduLeT aims to improve achievement in relevant competences for TEL in a lifelong learning perspective.

A support system is to be implemented as a community of practice (CoP) with all the results of the project. The CoP also provides the possibility to get into contact with other lecturers and to share experiences about teaching with TEL. The CoP will also provide a possibility to improve and extend the existing results of AduLeT after the project ended.

A basis of the teaching methods is a template which already exists (TMT). This template has already been reviewed and several descriptions for different teaching methods based on this template have already been developed.

Guidelines for the effective use of TEL tools: the TEL tools are as well described with a template that already exists (TTT). Also this template has been reviewed and several descriptions for TEL tools have been developed.

The existing surveys mentioned above are enriched by modern research technologies, tailored to the partners' needs and performed at each partner university. The results and additionally a guideline of how to enrich, tailor and perform such surveys will also be published on the CoP.

A collection of already existing strategies, support concepts and facts about TEL will be summarised and linked on the CoP to provide the lecturer with further information.

The primary target group (lecturers of the participating institutions) are involved in the development of the outputs right from the beginning with two 'build the community' workshops at each university. During these workshops the partners have reviewed the existing collection together with the lecturers and prove the use of the methods and technology for teaching practice at the universities.

In this way the project makes a strong contribution to the modernisation of Europe's higher education systems for education and training by focusing on a pedagogical approach rather than technologies to enable high quality teaching. The widespread skills and experiences that are demanded to deal with the challenge of improving lecturers' skills, knowledge and attitude to use more active different forms of TEL could not be performed by a single university. Carrying out this project enables high quality results e.g. in the development of the guidelines and the concepts for the CoP. Encouraging and supporting lecturers in higher education to use learning technologies in an advanced way in their teaching will improve the quality and relevance of higher education. AduLeT project intends to have a direct impact on the target group, the lecturers and teaching staff at the universities involved in the project to further develop their skills and knowledge about active and recently developed forms of TEL (Technology Enhanced Learning) in university teaching. The project informs lecturers which teaching methods are suitable for TEL scenarios. Moreover guidelines for the effective use of TEL tools are to be developed. In this way lecturers can acquire digital skills and learning methods.

PROJECT OUTCOMES AND RESEARCH METHODS

One of the outcomes of the project is a teaching method template, which is a standardised, structured template for the description of an individual teaching method for technology-enhanced learning (TEL) support. The goal of this template is to help educators to describe TEL-based methods in a structured, standardised way and to help the lecturer to find and reuse these methods. Moreover, the project provides a collection of teaching methods as a structured, standardised collection, describing educational scenarios, pedagogical approaches and connected TEL approaches. It aims to serve as a collection of reusable, applicable methods, which a lecturer can select and easily apply in their education.

The guidelines for the effective use of TEL tools as the second output of the project are a structured, standardised collection, describing TEL tools in a way that enables teachers to find, select and apply appropriate tools supporting speci-

fic teaching methods. The guidelines comprise two further constituents: the TEL tool template (TTT) and the collection of TEL tools (CTT) (Szabó et al., 2017).

Output 3 is titled as 'Case studies' and it contains two products: a collection of existing strategies and support concepts as well as facts about TEL, and concepts for strategies and support.

Output 4 deals with barriers for the basic use of TEL at the universities. It provides further insights into reasons, why educators are hesitant to include TEL--based teaching methods into their daily teaching practice. As a final outcome a research paper with the results of the survey in each country is to be published (Jokiaho et al., 2018)

Output 5 establishes a community of practice (CoP) as a community portal including guidelines for the application of TEL-based teaching methods, best practice. It accumulates all AduLeT results and is consequently a core output of AduLeT, as it is the basis for successful sustainability (the link of the CoP is https://dev. adulet.eu/) (Szabó, Varga, 2018).

SOLUTIONS AND STRATEGIES TO NATIONAL BARRIERS TO TEL IN HUNGARY

One of the first initial research action plans was to investigate the current status of TEL in HE and barriers to adoption for HE in Europe (Jokiaho et al, 2018). This section is about the barriers to TEL in Hungarian higher education according to the AduLeT project findings.

The Group Concept Mapping (GCM) was used to capture and analyse the challenges and barriers in technology-enhanced learning (TEL) for the higher education (HE) in Europe, GCM affords a structured participative approach to
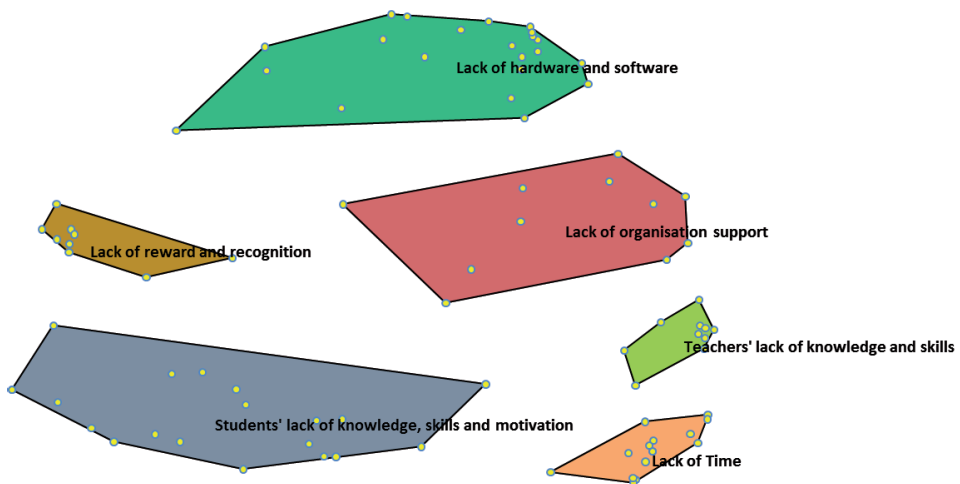

Fig. 1. Categories of barriers for implementing ICT in teaching in Hungary (AduLeT project).

Source: https://cop.adulet.eu/research-publications.

facilitate groups of experts to arrive at a consensus on a particular issue. The multi-
-step approach includes a number of simple and intuitive activities such as idea
generation at the brainstorming phase, followed by sorting and rating of ideas.
Participants first sorted the ideas by means of grouping them based on similar
meanings and providing a group name to these similar ideas.

Finally, participants had to rate the ideas based on a) importance level; and
b) easy to solve level. For the importance level about the problems using ICT in
HE, participants used a scale ranging from 1 (relatively unimportant) to 5 (very
important) and for the rating each of statement on how difficult /easy it is to solve
the problem about using ICT in teaching, participants used a scale ranging from 1
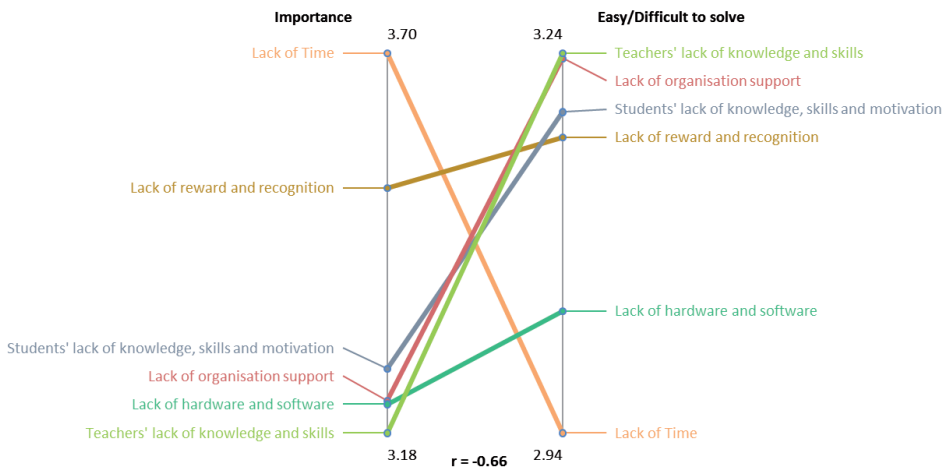(very difficult) to 5 (very easy).

Fig. 2. Comparison of barriers on importance and easy/difficult to handle in Hungary (AduLeT project).
Source: https://cop.adulet.eu/research-publications.

Lack of time barrier is found as the most important barrier by the Hungarian
respondents. Too many administrative tasks have been a burden on teachers in
all areas of education. Teachers in primary and secondary education and lec-
turers in higher education spend a lot of time on keeping records of their own
work, students' performance, informing all the partners about their achieve-
ment. Every action of theirs should be documented, which is really time-consu-
ming. Although preparation for classes, assessment duties are coherent parts of
a lecturer's job, time devoted for these tasks is very hard to encounter. There is
no regulation on how to count the time a lecturer spends on preparation, asses-
sment, professional development and so on. It is just estimated how much time
preparation for one session takes. Certainly, depending on the content and the
setting it may differ to a great extent. It is only self-motivation, self-efficacy and
self-esteem that make a lecturer move towards higher goals and more up-to-
-date ways of education.

In theory lecturers are entitled to a sabbatical; in practice it is very rarely realised. It could be a period of doing research on TELmethods and tools, results of which could be shared with fellow lecturers at a university.

Unfortunately, doing research, getting familiar with new ways of lecturing, new (TEL) methods and tools are not included in the worksheet of lecturers, although they are expected to carry out these tasks. Most of them do so in their spare time.

Although lack of time is regarded to be the most important barrier, it seems to be not so easy to solve; it is the second most difficult issue on the scale.

1. Time spent on preparation, including using TEL, should be calculated into lecturers' full-time working hours.
2. Face-to-face and online or blended learning settings should have different time allocation being provided. This way lecturers could be motivated to devote the time that is needed to follow and use the most innovative TEL methods and tools.
3. Less bureaucracy in everyday duties of lecturers could spare time they could spend on professional work.

Lack of hardware and software is considered the second most important barrier, and the most difficult to solve.

Due to the constant technological improvements, hardware and software quickly needs to be replaced by the most modern innovations. This, of course, requires a lot of investment by the higher education institutions, most of which are in hard financial situations. Lecturers are not only aware of this fact, but face this situation in their job. The solutions for this barrier could be:

1. investment by the government into the TEL enhancement of higher education;
2. sponsorship, e.g. within dual system education (companies/firms offer field practice for university students) partners of universities could fund purchasing software and hardware that guarantees high standards of education.

Teachers' lack of knowledge and skills is a crucial barrier in Hungary, although not the most important one. It is closely connected to the first two barriers: as lecturers have no time for professional development, and there is a lack of tools available for them, they lack the knowledge and skills needed to use TEL methods and tools. It is a vicious circle: without providing time and tools for lecturers, they are unable to have access to the required knowledge to apply new innovations in their practice. Missing the right skills and knowledge, lecturers need more time for self-development (if they have no motivation at all) in this area.

According to the respondents, this barrier is relatively easy to overcome. The solution could be:

1. offering training and courses for lecturers in their working hours. In this case, taking part in CPD courses could be made mandatory;
2. providing technological support available at higher institutions during academic hours;
3. providing tutorials for lecturers on how to use and apply TEL tools;
4. knowledge sharing workshops among lecturers.

Not surprisingly, students' lack of knowledge, skills and motivation as a barrier is in the last third of the importance scale, but the easiest to overcome. Students belonging to generation Z are at universities these days. They have a very good command of how to use TEL tools; what they miss is how to apply them sensibly in education. What they also lack is motivation; however, it is lack of motivation in education in general. The lecturers need to have a methodological toolkit to motivate students who are digital natives, who retrieve information or learn in a different way than their lecturers do or used to do. In order to overcome this barrier the following actions could be done:

- having cross-curricular courses for freshers at universities, where they are familiarised with all the tools that will be used during their studies;
- having tutorials and guidance provided on how to use these tools;
- available assistance in case technological help is needed.

Although lack of reward and recognition is regarded to be a less important barrier in Hungary, it is among the easy-to-solve ones. Lecturers are used to not getting any bonuses for outstandingly or exceptionally good work, they are mainly self--motivated persons who like meeting challenges and high expectations. Achieving success, meeting these expectations mean rewards for them. Nevertheless, both top--down and bottom-up solutions to overcome this barrier could be found, e.g.:

- introducing bonuses or incentives for those who take the extra effort that TEL methods require;
- initiating awards/certificates/prizes for innovative lecturers could highlight their extra work for the others;
- make this work visible for others through professional journals, websites; publishing such initiatives make colleagues in the field aware of them, and even motivate them.

Lack of organisational support is regarded as the least important barrier, however, it is not the easiest to be solved. At John von Neumann University lecturers have developed a blended learning course for in-service teachers, however, it could not be implemented as there is no online platform that could be used for such a course. It would require investment first, but there is no support for that. It may seem to be not so important as lecturers lack knowledge, skills to manage such courses. Still, educational settings as online and blended courses need technological background at higher education institutions. When accrediting in-service teacher training courses, for example, they are required to be partly or completely online. To find solutions for this barrier

- all higher education institution should have a free online educational platform;
- training on their usage should be offered for both lecturers and students.

Conclusion

It is envisaged that the lecturers involved in the project develop their skills, knowledge and also attitudes to use teaching methods and TEL tools more actively

and as part of their daily teaching routine. This could improve the diversity of their teaching approaches adapting them to different learning scenarios and subjects according to the students' needs, allowing them to experiment with a variety of methods. Therefore AduLeT contributes to the use of participatory approaches and TEL based methodologies and more strategic and integrated use of TEL tools and open educational resources (OER) by education, training and youth systems.

The impact envisaged on the students is very similar: their skills, knowledge and attitude to use Technology enhanced materials is to become more appealing. The project strengthens also their competence to be active in the use of different technologies in different situations in their studies and also after they have graduated, in labour context.

Based on the investigation on TEL tools barriers in higher eduaction it is revealed that both technological and pedagogical support from the institutions are very crucial. There is not enough time to get to know and apply TEL tools in practcice; therefore lecturers' have very low self-esteem regarding their technologival skills. The ones who use TEL tools in an innovative way do not get enough reward. A new element compared to previous researches that students' lack of motivation was mentioned. The extra effort and time to motivate students was also seen as a barrier just like the lack students' appreciation of these pluses.

It is worth highlighting that lack of motivation among lecturers has not even been listed. This fact shows that lecturers think their difficulties have external reasons. Nevertheless, all the listed barriers effect lecturers' motivation in a negative way.

Facing the problems, being aware of teaching staff's opinion may promote finding short- and long-run solutions for the difficulties.

The universities are expected achieve knowledge and experiences on how to adequately include the TEL competences into the curricula, and how to describe the TEL learning outcomes in combination with their regular skills.

Relevant stakeholders, such as decision makers and policy makers in the field of higher education, are to be involved in order to promote the best practices in the field, as well as to perceive the benefits of the impact in their own organisations or decisions.

References

AduLeT project website. (2019). *Research & Publications*. Retreved from: https://cop.adulet.eu/research-publications

Jokiaho, A., May, B., Specht, M., & Stoyanov, S. (2018). *Obstacles to Using ELearning in an Advanced Way.* The International Conference on E-Learning in the Workplace 2018, June 13th-15th, New York, NY, USA. Retrieved from: www.icelw.org

Szabó, I., Devosa, I., Lipóczi-Csabai, S., & Tánczikné Varga, Sz. (2017). Output No 1 and 2 of AduLeT project (Advanced Use of Learning Technologies in Higher Education) in Hungary. *GRADUS 4:(2)*, 48-54.

Szabó, I., T. & Varga, Sz. (2018). A TEL eszközök széles használatát akadályozó tényezők a felsőoktatásban. *GRADUS 5: (2)*, 67-73.