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How to Become an Open Educator?

Estela Daukšienė [a,1], Elena Trepulė [a], Airina Volungevičienė [a], Marius Šadauskas [a], Ulf Ehlers [b]

[a] *Vytautas Magnus University – Kaunas (Lithuania)*

[b] *Baden-Wurttemberg Cooperative State University, Karlsruhe (Germany)*

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Abstract

The teachers in higher education (HE) could take a better advantage of the existing vast numbers open educational resources (OER) as well as invite their students in the process of sharing and knowledge co-creation, if they started using and adapting existing OER and/or creating their own OER. The question of this research was whether involving teachers into OER creation and providing them with a tool of a collaborative platform would increase their openness and readiness to share and become open educators? The research was performed on design-based research methodology and intervention, offering a group of university teachers in Lithuania to create, adapt and share OER in the format of slides, providing them with a collaborative platform as a tool, facilitating open-licensed content creation and publishing. After the intervention most of the participating university teachers emphasized the importance of openness, the feeling of more responsibility while preparing their open slides, expressed better understanding of OER, and even changed their pedagogy. Besides, OER integration had a direct impact upon student awareness on OER, overcoming the barriers towards openness, and their ability to contribute to the course.

KEYWORDS: Open Educational Resources (OER), Open Educator, Openness

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Introduction

The existence of multitudes of Open Educational Resources (OER) in the ever-changing environment of non-stopping streams of information offer a tremendous up-to-date potential for higher education teachers to include these materials into their courses. At the same time, academic community is still rather reluctant to open and share their resources with others as a memory of the times, when universities could enjoy the monopoly of knowledge and education. The teachers in higher education (HE) could take a better advantage of the existing open educational resources, as well as invite their students in the process of sharing and knowledge co-creation, if they started using and adapting existing OER and/or creating their own OER. *The question of this research* was whether involving teachers into OER creation and providing them with a tool of a collaborative platform would increase their openness and readiness to share and become open educators? *The aim of this research* is to study and discuss the impact of OER creation and integration into HE curriculum upon pedagogy and teacher attitude towards openness and readiness to share.

The research was performed on design-based methodology and intervention, offering a group of university teachers to create, adapt and share OER in the format of slides, providing them with a collaborative platform as a tool, facilitating open-licensed content creation and publishing.

This research refers to OER as: "teaching and learning materials, which are freely available and openly licensed" (Atenas & Haveman, 2014, p. 1).

In order to clarify how the design-based research interventions may facilitate teachers to become open educators, the open educator was defined as the one, who used: "open approaches, when possible and appropriate, with the aim to remove all unnecessary barriers to learning" (Nascimbeni & Burgos, 2016, p. 4).

An open educator implements openness through four main activities (Nascimbeni & Burgos, 2016):

1. implementing open learning design by openly sharing ideas about his/her teaching activities;
2. using open licences;

[1] corresponding author - email: estela.dauksiene@vdu.lt

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3. adopting open pedagogies and fostering co-creation of knowledge with students;
4. using open assessment practices such as peer and collaborative evaluation, open badges or e-portfolios.

Digitalization in education is irreversible, however in this light it is vital to rediscover the practices of effective teaching (Siemens, Gašević, & Dawson, 2015). Openness in education is related to progressive educational practices, change, learner empowerment and promotion of unrestricted access to education (Knight, 2008; Spiro & Alexander, 2012; Boudreau, 2014). The openness of education (Peter & Deimann, 2018), courses (Phili & Admiral, 2016; Sanchez-Gordon & Luján-Mora, 2014) and different dimensions for opening them up (Clark, 2013; Gilliot, Garlatti, Rebai, & Belen-Sapia) are analysed in different research. Technologies only open possibilities for interaction and sharing (Boudreau, 2014), and the collaboration of learners and teachers may open deep levels of interaction and guided discussions (Bates, 2014). Curriculum transformation by using OER is a deliberate process among other things involving responsiveness to social context, epistemological diversity and renewal of pedagogy and classroom practices, all supported by an institutional culture of openness and critical reflection (Mays, 2017).

This research mainly focusses on OER creation and integration in HE curriculum. Knox (2013) points out 2 scenarios for OER use within a curriculum: (1) use of OER as a way of sharing teaching resources, which are embedded into an educational experience; or (2) use of OER as entire educational experience. Although both scenarios focus on teaching and learning as educational experience, in this article they are seen as stressing the sharing of teacher perspective and representing teacher centred approach, or focusing on collaborative activities, which may be more learner centred.

OER integration in the curriculum is a challenging activity, mentioned in a number research (Wiley, Bliss, & McEwan, 2014; Judith and Bull, 2016); however, the mentioned challenges are form the perspective of OER reuse rather that the creation, which is the focus of this research. The openness and teacher readiness to share may foster student involvement in knowledge co-creation, providing learners with broader concept approach, or creating opportunities for learners to be a part of the open learning community.

2. Materials and Methods

2.1 Methodological Design. Research background

Vytautas Magnus University is an Artes Liberales university in Lithuania used to be a traditional, face to face learning and teaching institution, which moved all courses to virtual learning environment for technology enhanced learning and created the offer of an alternative blended mode courses for university students since more than 10 years. University has several online programs and is organizing their studies with the focus on liberal arts; it is also open for innovations and technology integration in the studies. With the gaining popularity of OER use in teaching and learning activities worldwide and constant teacher trainings on what OER are, what are the benefits of using them, and how to use them in the University, the problem of teacher resistance and vague OER integration in the University courses remained.

Design-based research methodology was used to answer the aim of the research. This methodology is

> *"not so much an approach as it is a series of approaches, with the intent of producing new theories, artefacts, and practices that account for and potentially impact learning and teaching in naturalistic settings" (Barab & Squire, 2004, p.2).*

It may be defined by the following characteristics (Anderson & Shattuck, 2012): being situated in a real educational context; focusing on the design and testing of a significant intervention; using mixed methods; involving multiple iterations; and involving a collaborative partnership between researchers and practitioners.

Thus, a group of 15 teachers (lecturers, assistant professors and professors) at Vytautas Magnus University were invited to open their course curriculum, by creating their course slides as OER, using a suggested OER development platform, and integrating the open slides in their blended or online courses. The suggested OER development platform provides a possibility to create slides and make them open as OER under CC-BY SA licence (see Figure 1).

One can also collaborate there on the OER creation, sharing, downloading and see what content was shared, downloaded, or created a new OER based on selected author's initial work. The design-based research method was selected for a deeper research with the focus on OER creation and integration in curriculum impact on course pedagogy and teacher attitudes towards openness and readiness to share.

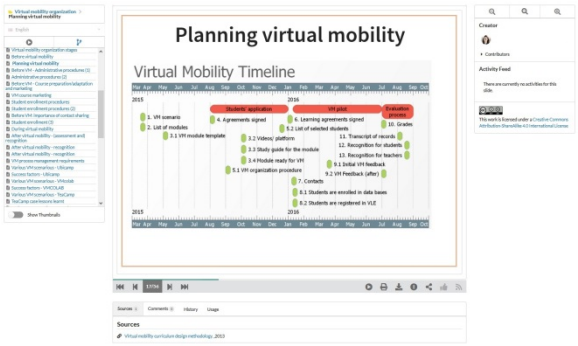

Figure 1 - Example of teacher created slides in the platform.

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One of the strengths of design-based research is the possibility to combine and integrate various research methods at different phases of research and development (Squire, 2005), thus curriculum design, teacher surveys and semi-structured interviews were organized. Second, the design-based research "has an interventionist nature that aims to solve problems in educational practice" (Oh & Reeves, 2010, p. 266).

Reeves (2006) suggests the design-based research process for refinement of problems, solutions, methods, and design principles as an ongoing process, starting with (1) the analysis of the problem by collaboration of researchers and practitioners; followed by (2) solution development integrating existing design principles and innovative, technological solutions; (3) testing and refining the solutions in practices; and (4) reflecting to test and define new design principles. The process of design-based research was created following Reeves indicated design-based research stages and was as follows (see Figure 2).

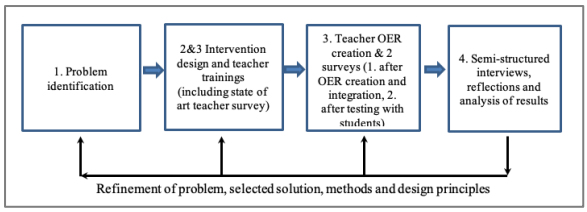

Figure 2 - Design-based research process.

First, the problem identification, analysis and search for possible solutions were implemented by collaborating researchers and practitioners in January-March 2018.

Second, the designed intervention (the creation of the open slides, their integration into online or blended courses, and test with students) was suggested for teachers during the trainings about the possibilities of the platform for OER creation in April 2018. In order to monitor teacher attitude towards openness and readiness to share the *State of art* survey was organized with the teachers after trainings.

Third, teacher OER creation using suggested OER creation platform, integration of created OER into curriculum, and testing was followed. The creation of OER was started in May 2018 and took until the end of August 2018. Teachers were creating their course materials as OER at their own pace, having a possibility to consult with learning specialists if there were any challenges or issues met. In September-October 2018 they tested the new OER in their online or blended university courses, delivering lectures, collaborating with, or engaging students to further develop the course materials on the same platform. The OER creation, integration and testing process was intervened with 2 teacher surveys – the first one after creation and publishing of the slides (in September 2018), and the second one after testing them with their students (in November 2018).

As the three surveys have served more the purpose of teacher attitude change towards openness and readiness to share, the individual semi-structured interviews were conducted with the same university teachers to get the deeper knowledge and identify the OER impact on the pedagogy used, and on teacher attitude towards openness and readiness to share. The interview questions required teacher reflections on OER creation and integration process from content creation, teaching and learning perspectives, skills necessary for the OER development and integration, and teacher attitudes towards openness and sharing. The 15 interviews with university teachers were conducted in November 2018, after the newly created OER slides were already tested in the courses.

Finally, the result analysis and generation of new ideas from the research were carried out and summed up in this paper.

2.2 Research instruments and participant profile

The state of art and 2 follow up teacher surveys aiming to measure teacher attitude towards openness and readiness to share were based on the ATOER questionnaire (developed, tested and validated by Mishra, Sharma, Sharma, Singh, & Thakur, 2016), where a confidence scale, Cronbach's α is 0.897; for calculations, the reliability coefficient is respectively 0.89 and 0.715 for sharing and adaptation. The adapted questionnaire consisted of 17 statements with a Likert scale template. The collected data was analysed using MS Excel, comparing the 3 periodical survey results. The questionnaire for teachers who developed OER slides, consisted in a set of statements reflecting their attitudes towards OER, readiness to share, knowledge of and skills on licencing and OER adoption.

The semi-structured interviews included 5 broad questions on the change of teacher attitudes towards OER and openness, skills necessary to create OER, on the impact of OER creation and integration towards curriculum design, teaching and learning in the course, and on the impact of the selected OER creation tool towards changes in curriculum design, teaching and learning.

The content analysis of the interviews was conducted and is discussed focusing on teacher attitude change towards openness and the changes needed while opening curriculum with OER from curriculum content, teaching and learning, and teacher skills perspectives.

The university teachers who were selected for the OER creation have already been involved in teaching their university courses in either an online distance mode, or in a blended learning mode. The selected teachers were predominantly women (14 women out of 15 participants) that were selected randomly, not according to the sex, but according to their experience in teaching distance or blended courses and willingness for trying a new platform. Among them there were 4 professors, 3

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associate professors and 8 lecturers (2 among them with PhD). Their age was from 29 to 66, the average age is 44 years. Their experience in teaching raged from 4 to 32 years, the average teaching experience was 15 years (14.7 years), while their experience teaching in distance or blended mode raged from 2 to 10 years (the average teaching in online or blended mode experience was 7 years, exactly 6.8 years).

3. Research Results

3.1 The change of teacher attitude to openness, OER, and readiness to share

The results of periodical surveys (filled in before creating OER, after the process of integrating the new OER slides in their blended courses, and after their use while delivering courses) demonstrated rather considerable change in the university teacher attitude towards openness and sharing.

The first part of the questionnaire for teachers who developed OER slides, consisted in a set of statements reflecting their attitudes towards OER and sharing, possibilities and feelings OER sharing provokes, and attitude towards OER adoption. The survey results demonstrated a clear increase in terms of teacher openness to share and their disclosure to the values of sharing in the second round of the survey (after having created their OER slides) and further on after having tested OER with the students.

The biggest shift in teacher attitude representing statements was recorded for the idea that teachers adopt OER as the requirement of students (an increase recorded from 3 teachers agreeing to statement before OER creation, to 13 after OER creation and testing). The OER testing activities with students had the largest impact on teacher obligation to share all created resources (from 7 of teachers that agreed to the statement after OER creation before testing to 12 after testing OER with students, see Figure 3). Teachers also have expressed a positive shift in attitudes towards the benefits that creating and sharing OER brings them, their professional growth, identity and respect through the statements like these: OER promotes collaboration and consortia (from 9 to 12 and 15), OER helps to disseminate my ideas (8, 12, 14), sharing of educational resources improves my professional respect (6, 8, 11), sharing enhances personal and organizational reputation (9, 12, 15), sharing enhances my confidence as I see myself in part of larger community (7, 10, 13).

The change in the attitude towards OER and their use was also recorded in the content analysis of interviews with the teachers. Teachers stressed that they as professionals may reach something more if they share what they have created (T4, T7), that OER creation and sharing widens their area of vision (T5), opens possibilities for promoting their ideas, programs and topics (T7); others stressed their cognitive understanding on how to use OER practically (T7, T11). There were also some, who pointed out the cognition of the negative aspects, such as the amount of low-quality learning content, which is created and launched in the air without any responsibility (T1). Anyway, most of the teacher supported the importance of opening what they have created, of sharing and making learning content available as OER; and stressed the importance of OER and openness for higher education.

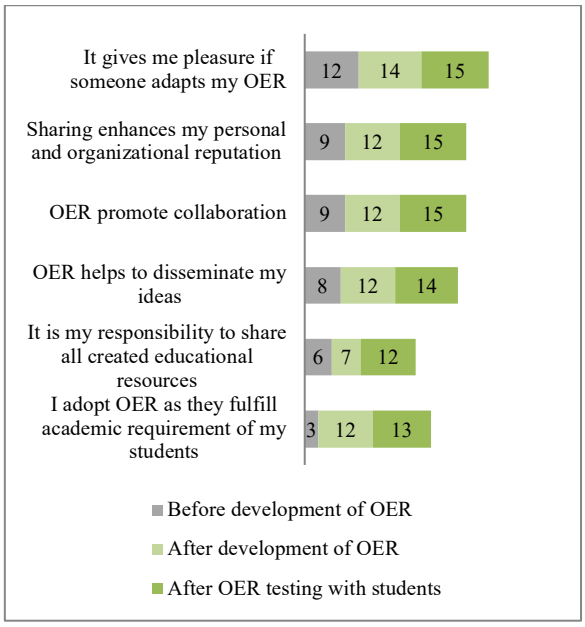

Figure 3 - Change of university teacher attitudes towards openness and OER before and after intervention.

The challenge of overcoming openness barrier was noticed by some teachers in students, but it was also a case for many teachers:

- *"before creating OER for this platform I would have said that I had no barriers, I was totally open, but it showed up it was not" (T3);*
- *"yes, there was some internal barrier I felt, and it was a good opportunity to overcome it" (T9).*

Student creation of OER as a task for a course resulted in student awareness on OER and openness: it was also new and interesting for students (T4, T6, T8) to work together, create a joint product (T4), they felt modern and trendy, creating new things, important things (T6), to learn the challenges of creating an open work, so they're more aware (T7),

- *"it was useful for them to learn about what is OER, that you need to share" (T4),*
- *"it is a new experience for students, ... more responsibility for them, on what they do, on what kind of works they share" (T8).*

However, there were teachers who stated that they were not sure, if students became really aware, perceived of the challenges you meet when sharing your work openly

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(T9). Some teachers marked the resistance for student OER creation (T7, T9, T15) – some of them did not do the activity or asked for preparing a regular ppt (not open) (T7), some raised questions why they should make their slides open (T15), resuming that it was not what they were used to do (T9).

To sum up, OER creation and integration in curriculum had an impact towards teacher attitude to openness and readiness to share as they felt more obliged to share after intervention, they saw how this impacts their students, and learnt more possibilities to open learning content.

3.2 The impact of OER creation and use from curriculum design perspective

The content analysis of the teacher interviews revealed that integration of OER in the curriculum design process first, impacts the process of the curriculum content creation, as the

> *"same content is provided in a different way"(T15)*

or

> *"when you know that it is OER, you address the topic more broadly" (T14, T2),*
>
> *"you feel the need to explain, reveal more" (T1).*

Some teachers stressed that selection of the topics to be prepared as OER resulted in the revision of course topics (T1, T14, T15) and selection of those that have more potential to be made interesting for the public, and not only for the students (T14). The introduction of OER in the course curriculum also required the integration of OER as one of the course topics (T3, T14, TI15).

Not only the revision of topics was necessary, but also the revision of learning content itself (T2, T5):

> *"you need to think about something new, additional, how to elaborate the topics and make them consistent, not separate" (T2).*

It is an inventory and renewal of the prepared content and selected resources (T9, T13). It also requires more accurate citations (T3, T10, T13) and revision of the selected resource licence (T9), as making an OER you make it public. The revision of course topics may result in the selection of different resources, if the possibility of making the resource results public is not clear (T7, T10). However, there were some teachers who stated that no major changes in curriculum design process is needed for using OER in the courses:

- *"the same planning and content structure" (T4);*
- *"no major changes in the course subject" (T7).*

Second, the integration of OER in the curriculum design process may lead to the new types of assignment or new learning methods. Trying to make use of the openly accessible tool there were some teachers who designed new assignments, such as

> *"created the slides, presented them during the lecture; and at home students… could contribute to the slides by elaboration on the provided ideas" (T6),*

or gave students the assignment of creating the OER in the platform (T9), or encouraged the co-creation of learning content together with the students (T11). However, there were some teachers who did not like the tool, and this resulted in retention of student activities using OER creation tool (T1, T5, T10).

To sum up, there were 6 teachers (out of 15), who planned student OER creation activities or active collaboration using the platform, and 9 teachers, who just created OER using this platform and used them as resource sharing, not asking for more engaging student activities or student OER creation.

3.3 The impact of OER introduction from teaching and learning perspectives

Most of the teachers indicated that the use of OER resulted in no changes in delivery or learning organization regardless of the student active or passive engagement with OER: there was no difference in lecture delivery or assignments (T5, T13), the learning process was similar (T15, T9), the methods used were the same (T10). Teachers, who created OER, but used them only for presentation of learning content, also indicated no change in student-teacher interaction:

- *"there were no major changes in interaction with students" (T3);*
- *"I could not say that I did something differently" (T13).*

However, there were some, who stressed the use of different learning methods, and this raised more questions than there were answers known (T4).

The content analysis of the interviews revealed student open collaboration or the change in student-student interaction after OER integration in curriculum: the students

> *"jointly created the presentation, but it was done not in a way that one prepared one slide, the other prepared another, and then presented, no, they created together, and there was a difference, and in the platform I see that they check each other's slides, they are interested and promote each other's slides with likes" (T9).*

During the interviews, teachers indicated that the use of open tool for OER creation lead to more engaged students:

- *"the tool and how I used it contributed to student engagement in the subject" (T6),*
- *"they became more active" (T12).*

The use of open tool for learning activities had an impact for teachers in understanding the student thinking:

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"the impact for me here was that I saw if, in general, they were interested during the lecture, I could see, what worked and what didn't. I could understand how they thought" (I6).

Furthermore, the change in teacher authority for students was also mentioned:

"I got rid of the students' attitude that I know everything and best" (T12).

The need for more responsibility for work, when it is to be made open, was stressed:

- *"when everyone may evaluate your work, you have a different approach at it" (T8);*
- *"the responsibility is higher, indeed, it acquires a different form, as the work is accessible publicly" (T9).*

As the subjects were delivered in the similar way they were done before (either fully online, either in blended learning mode), no changes in delivery methods, nor student-teacher interaction were recorded. However, OER integration in curriculum and the use of online tools for OER creation might be used for activities to foster student engagement and student open collaboration.

3.4 The impact of OER creation and use from teacher skills perspective

The analysis of periodical surveys revealed that creation of OER had the impact for teacher ICT skills to adopt and use OER in their courses: from only 5 out of 15 teachers stating that they hold the ICT skills necessary to adopt and use OER in their courses before they engaged in creating OER themselves, to 9 after having created OER slides, and to 13 after testing them. The trust in their own competencies to use OER has grown from 3 teachers agreeing that competences they possess help them adopt OER to 12 teachers after OER development and 13 after testing OER with students (see Figure 4).

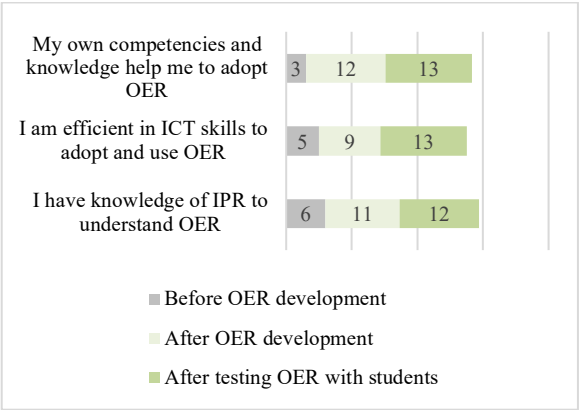

Figure 4 - Change of university teacher skills and competences before and after intervention.

However, the content analysis of teacher interviews has revealed that the dramatic change in the skills for OER development was not because teachers created OER and learnt how to do this, but more because they felt more comfortable in doing this afterwards, i.e. before creating OER teachers thought that more ICT skills are needed than they have, and creating OER and integrating them in the curriculum they have realized that they possess the necessary skills. Teachers only mentioned necessity for trainings on regular computer literacy and specific tool management skills, while creating OER. The content analysis of teacher interviews also stressed that teachers learned more about licencing and better understood what OER are (T4, T5, T15):

"I was more precise while quoting/citing and I noticed more student mistakes in citing" (T3).

The content analysis of interviews from technological perspective revealed the need for coherent instructions and consultations, if a new, specific tool for OER creation is suggested:

"without reading instructions I was not successful, but succeeded after reading them" (T3),

some tool possibilities were not noticed nor used (T10, T8). Nevertheless, teachers stressed the importance of the user-friendly OER sharing platform (T1, T6, T8, T15) and the importance of institutional policy to open. It was noted that the non-user friendly or imperfect tool limited their creativeness (T8) and limited their wish to use it creating OER in the future (T1).

Discussion

The research results revealed that the use of OER may have different impacts on the design of curriculum – it impacts course topics and the content itself, but it has no major impact on content structure and subject itself (minor changes may be found in some cases). The selection of learning methods and assignments depends more on teacher attitude and willingness to make use of the open tools or willingness to change learning methods, rather than the learning content type they use.

Gilliot and colleagues (2013) among dimensions of course openness identify organization of the learning activities, organization of the group work and collaborative coproduction. Sanchez-Gordon and Luján-Mora (2014) indicate the importance of open course content, generated by course participants. Mays (2017) refers to curriculum transformation through OER and a deliberate move from traditional lecture-based teaching to teaching and learning practices, related to activities and open resources, integrating OER, combining summative and formative assessment and different learner support strategies, supported by an institutional culture of openness and critical reflection as well as using wisdom of open and distance learning community.

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The OER intervention in our research revealed that using open platform for lecture slides may lead teachers to change their teaching practice and move from lecture-based teaching, to more engaging learning methods; however, it depends a lot on a teacher – if a teacher does not like the platform or find it difficult to use him/herself, he or she may stay using the open slides and keep the lecture-based teaching. However, there are teachers who like to innovate, and a possibility to open their slides lead them to changing their delivery methods and using more learner engaging activities, where the process of learning moves to an open online learning community, where students also become creators of learning content, and not just information receivers.

Ritchie (2018) notes the changing student and teacher roles, emerging co-creation of learning content, challenges of negotiating learning processes, and reach of more personal learning goals. The teachers from our research reported the possibilities for teachers to understand students learning better and the diminishing teacher authority for students. Knox (2013) mentions 2 scenarios for OER use within a curriculum- as a way of sharing teaching resources or OER as entire educational experience. Both of the suggested scenarios were recorded in our intervention: and although the suggested scenario focused on OER integration in curriculum as an educational experience, an opportunity for teachers to use created OER as sharing of teaching resources was possible, and it depended on the teacher, which of the scenario was more appropriate to them. During and after intervention our teachers shared their teaching activities, used open licenced content, and fostered their learners to do so, which lead that they embedded three out of four (i, ii, and iii) of Nascimbeni and Burgos (2016) indicated open educator activities.

Sanchez-Gordon and Luján-Mora (2014) mentioned the use of open technology and/or platform for course offer as the part of course openness. Our research confirmed the importance of platform and user-friendly technology for the use of open course content. Siemens, Gašević and Dawson (2015) emphasize the importance of rediscovering the practices of effective teaching that work in a new technological environment. Teachers from our research stressed that opening curriculum with open slides provided them the possibility to revise and update their teaching methods leading not only to the practice revision in new technological environment, but also to more engaged students, which were provided with the possibility of participation in an open community of learners and educators. Peter and Deimann (2018) refer more to the change of values of openness than the role of technologies in the process of opening educational resources. However, our research findings revealed that teacher openness to share and engage students in the open education practice depended more on the tool (in)appropriateness rather that the openness itself, as teachers who found the tool to complicated, did not encourage students to create OER using the platform. However, our research findings also stress the importance of openness for higher education and note that technologies create opportunities to foster openness.

There have been many studies (Ritchie, 2018; Wiley, Williams, DeMarte & Hilton, 2016; Wiley, Bliss & McEwan, 2014; Atenas, Havemann & Priego, 2014; Judith & Bull, 2016; Rennie, Jóhannesdóttir & Kristinsdottir, 2011) stressing the challenges for teachers in OER integration in the curriculum. Our research defined the ones, which are more related to OER creation and use while creating: overcoming openness barrier, selection of different resources instead of those which are used in the class (mainly due to the licence limitations), associated with the use of a specific tool or OER sharing platforms, and the student resistance for OER creation or opening of their work.

There also are lots of benefits for educators, learners or institutions that OER bring. Schuwer and Mulder (2009) notes that experimenting with OER results in positive experience and contributes to confidence of OER potential use. Our research confirmed the changed teacher attitude towards OER and potentials of their use in the future. It also expressed a positive shift in attitudes towards the benefits that creating and sharing OER brings to them, their professional growth, identity and reputation, increased networks and sphere of influence, profile amongst peers and others, and chance of recognition at a global level.

Conclusions

To sum up the research findings, the simple intervention – changing the use of teacher created course slides with the OER slides and engaging teachers in creating open content – resulted in teacher deeper understanding of OER leading to see the broader possibilities of its usage, and even change in their pedagogy: some teachers not only created open slides themselves, but also invited students in joint course content creation and learning in open community. Although the intervention did not have the same effect upon all teachers, almost all of them stressed the importance of openness, the feeling of more responsibility while preparing their open slides and better understanding of OER. Thus, the selected intervention increased teacher confidence and responsibility to share and promoted them to become open educators. Teachers not only used open licences and fostered co-creation of knowledge with students during intervention, but openly shared their practices and planned to apply them in other courses.

OER integration had direct impact upon students, especially upon their awareness on OER, and overcoming the barriers towards openness, as well as change in student attitude towards the teacher, and the change in student-student interaction.

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Research also revealed that teachers, who developed OER not only increased their skills of OER development, but more importantly, they realised that they possess skills to create OER.

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