

“Kallipos”, the first open academic textbooks initiative during the years of crisis in Greece and its sustainable continuation

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Abstract

In this paper, we explore the challenges towards the adoption/use of Open Educational Resources (OER) within the Greek Higher Education (HE). To achieve this objective, first we present “Kallipos”, a large-scale open access textbook publishing initiative that was launched in 2013 by the Hellenic Academic Libraries Link (HEAL-Link) consortium. Then, we analyse and interpret the results of two surveys performed at the outskirts of this project. The first survey, committed among faculty members that authored or peer-reviewed an open textbook, highlights the barriers they faced, as well as the teaching and learning benefits from OER adoption/use. The second survey, addressed to university administrative executives (Deans of Schools), identifies their views about the OER usefulness and further development. The empirical data were collected by the use of two questionnaires. The findings align with the results of the current European and international research, thus are usable not only by the national but also by the international policy makers and educational leaders. We conclude by summarising the main lessons learned by “Kallipos”, and by suggesting specific proposals for the sustainable continuation of the action guided by strategies for its potential international scope expansion.

Key Words

Open Educational Resources; open textbooks; Higher Education; barriers; benefits; sustainable continuation

Introduction

In the policy statements of many Organizations, European and international, it is stressed, among others, that universal access to high quality education is crucial to achieve sustainable socio-economic development. That’s why “a transforming education is necessary...to make possible the urgent and fundamental changes led by the challenge of sustainability” (Gadotti, 2016, p. 3). The “transformative potential” of Open Educational Resources (OER), as results from their “creatively disruptive role in opening up new educational models”, can significantly contribute to the sustainable and inclusive growth -if provided “in a planned and systematic manner”¹ (UNESCO/COL, 2015, p. 3).

The OER are defined as “teaching, learning and research materials in any medium, digital or otherwise, that reside in the Public Domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions” (UNESCO, 2012, p.1). Generally speaking, the term OER is applicable to “any copyrightable work licensed in a manner that provides users with free and perpetual permission to engage in the 5R activities: Retain, Reuse, Revise, Remix, Redistribute”². Or even simpler, OER are “resources in which one has a free, formal grant of permission to engage in the 5R activities”, as opposed to “traditionally copyrighted resources”³.

¹ *Wherever OER is well planned and executed, it can provide vast opportunities to improve learning outcomes, teaching quality...OER also provides opportunities...by making learning and teaching materials available to learners and educators at a larger scale while at the same time providing affordable educational options* (UNESCO, 2017, p. 7).

² This material is based on original writing by David Wiley, which was published freely under a Creative Commons Attribution 4.0 license at <http://opencontent.org/definition/>

³ [When is an OER an OER?](#) by david is licensed under [CC BY 4.0](#)

Additionally, the OER may appear in various forms, e.g. open textbooks and e-courses, open access scholarly publications, video lectures, presentations, images, infographics, interactive games, quizzes, tutorials, learning tools, software add-ons, podcasts, etc. They are usually being produced within the boundaries of open movement projects undertaken by institutions, libraries and international organizations and can be found in online libraries, directories, digital repositories, and educational websites⁴. In Greece, two important initiatives of Open Education⁵ have been implemented for supporting the Higher Education (HE) teaching needs, namely the “Open Courses”⁶ and the “Hellenic Academic Electronic Textbooks”⁷ (known as the “Kallipos”⁸ project).

Despite the strong and documented evidence about their benefits (financial, pedagogical and other), various barriers, as expected, obstruct both the implementation and the adoption of OER in the educational process. While there is a rich international literature available, highlighting the OER barriers and impact, no real evidence existed on how the Greek Academic Community perceived OER in general, and open textbooks⁹, in particular. In an attempt to look into this, two surveys were performed at the outskirts of the “Kallipos” project. The first survey was committed among faculty members that authored or peer-reviewed an open textbook, while the second survey addressed to university administration executives (Deans of Schools). The findings present similarities with other surveys thus are useful for national or international policy makers and educational leaders.

This paper is organized as follows: The next section of the paper refers to the related work on OER impact and barriers, while the third one presents, in brief, the Greek Higher Education landscape as well as the “Kallipos” profile. The fourth section contains the methodology of the two surveys performed, with information about the design of the questions, the response rate, and the demographic information about the participants. In the following sections, the main results of the surveys and a brief discussion on them are presented. The last section concludes with some lessons learned from the “Kallipos” initiative and a proposal for its sustainable continuation.

Related work on OER

The most “cost-effective way” for Higher Education Institutions (HEIs) to improve the quality of their teaching and learning is by a “demand-driven commitment” to OER, so as to avoid reinventing the wheel by “harnessing existing openly available OER” (Butcher, 2015, p. 14-15). In the entire body of the relevant international literature, the financial benefits of the OER adoption/use in education at any level are identified: especially in Higher Education, through the open textbooks the cost of studies is considerably reduced (Allen & Seaman, 2016; Annand, 2015; Florida Virtual Campus, 2016; Hilton, 2016; Pitt, 2015; Senack, 2015; The Hewlett Foundation, 2015).

Reviewing the international literature on OER impact, in a study which focuses on the developing parts of Asia it is emphasized that OER consist the only sustainable solution for the challenges of “access, quality and cost” in HE. However, although the above mentioned advantages are considered as the obvious profits resulting from OER adoption/use, they are not the only ones or

⁴ E.g. Open Learn - Open University, Massively Open Online Courses / MOOCs, MIT Open Courseware, TED talks / TED-Ed, Connexions, Khan Academy, Merlot, Creative Commons, Saylor Foundation, YouTube / YouTubeEdu, Wikibooks/Wikimedia/Wikipedia, iTunes / iTunesU, Flickr, etc (Farrow, Perryman, de los Arcos, Weller & Pitt, 2016).

⁵ Definitions of Open Education can be found at <https://www.yearofopen.org/open-education-definitions/>

⁶ Project web site (<http://www.opencourses.gr/>)

⁷ Project and repository web site (<https://www.kallipos.gr/en/>, <https://repository.kallipos.gr/?locale=en>)

⁸ Callippus (/kəˈlɪp.əs/; Ancient Greek: Κάλλιππος; c. 370 BC – c. 300 BC) was a Greek astronomer and mathematician (<https://en.wikipedia.org/wiki/Callippus>).

⁹ *Open textbooks are open educational resources or instructional resources created and shared or published in ways that allow more people to access them. They reside in the public domain -where copy rights has been waived by the copyright holder or copyright has expired -or have been released by the copyright holder under an open-copyright licence; both of these circumstances permits free use and repurposing by others* (Aesoph, 2018, p. 7). The creation of an open textbook is usually funded by open textbook projects, government, philanthropic organizations, professional societies, consortia, HEIs, e.g. [Open Access Publishing in European Networks](#), [Open Access Textbooks](#), [Connexions](#), [College Open Textbooks Collaborative](#), etc.

even the most significant benefits offered by promoting the OER in HE (Dhanarajan & Porter, 2013, p. 13). Also, in Belikov and Bodily (2016, p. 242), “along with cost savings, pedagogical benefits were perceived as positive outcomes of using OER in a course”. Generally, the empirical research has proved the OER efficacy and their undeniable economic gains and pedagogical benefits (Hilton, 2015; Hilton, 2016; Hilton, Wiley, Fischer & Nyland, 2016).

In particular, according to Washington study (Chae & Jenkins, 2015, pp. 16-20), the most frequent benefit that faculty identify by the OER use is the “saving of the students’ money”. Moreover, the faculty admit that “being able to update the content as needed” is one of the most significant benefits, because it results in “more current and evolving course content”, and “active student involvement in the creation of content”. In brief, OER helps faculty to be “more responsive in their use of course content”, to “increase student engagement in their classes and create a collaborative environment for improving course materials”. Another profit is the “flexibility to combine different elements into a new whole” by the implementation of different kinds of educational materials, that finally results in the “enhancement of students’ learning experiences”. Furthermore, they identify an “increased reflection on teaching practice”, as OER make them “reflect on their current practices and experiment with different teaching styles”. Also for Delimont, Turtle, Bennett, Adhikari & Lindshield (2016), the “students are connected better to the content” and the faculty enjoy “more flexibility in their course structure”.

From the survey data that were collected (2013-2015) by the OER Research Hub researching the impact of OER on teaching and learning, it is evident that “OER benefit learners’ engagement”. Additionally, OER lead educators “to the use of a broader range of teaching and learning methods”, “to reflect more on the way they teach”, etc (de los Arcos, Farrow, Pitt, Perryman, Weller & McAndrew, 2015; Weller, de los Arcos, Farrow, Pitt & McAndrew, 2015, pp. 354, 358-9). According to Pitt (2015, pp. 133, 147, 149-150), OER use allows educators “to respond better to their students’ needs”, “to think a little more creatively of what new experiences they can design for their students”, while at the same time through the use of OER “students can be exposed to a wider range of teaching styles”. In her survey, the educators also “perceive an increase in student satisfaction”, and recognize that they eventually proceed to a “change of pedagogical approach”. Indeed, the OER licencing, which allows the adaptation of the educational content, results in “more active participants in education”, since the students learn “by doing and creating”; in other words OER offer “more engaging, personalised learning experiences for students” (Hoosen, Moore & Butcher, 2016, p. 4).

Despite this evidence, the OER have not been established yet in the mainstream education practice (Kortemeyer, 2013; Falconer, Littlejohn, McGill & Beetham, 2016; Weller, 2014) and the faculty still express concern about their quality; which explains why “the OER is not a driving force in educational material adoption/use” (Allen & Seaman, 2014, 2016, p. 72). In general, in the existing literature it is common and dominant the belief that “the future of OER will depend on how the faculty staff perceives them” (Belikov et al, 2016, p. 235), a factor that is at the starting point of our first research, too. Besides, the “change of perspective is an important step towards mainstreaming OER” accompanied by “policy support which integrates OER into the common discourse and everyday practices of teachers and learners in the education”: if the above mentioned take place, it is possible that “a higher proportion of teachers and learners will fully use OER to their greatest potential” (Orr et al, 2015, p. 139).

The review of the international literature on OER barriers shows that, in small countries that use a non-English language, the spread of OER is hindered, among others, by obstacles such as “lack of OER implementation policy at national or institutional level, limited resources and inadequate support to OER customization and creation”. Furthermore, the widespread use of OER often is held back by the teachers’ “uncertainty regarding the copyright on educational content”, as well as by the great demand for “certain hardware, software, organizational, human and time resources”, since the teachers feel that they must “invest knowledge, experience, time” for the production of new or/and the revision of the existing OER (Krelja Kurelovic, 2016, pp.138-9).

According to Chae et al (2015, pp. 22-24, 26), “lack of time” to be devoted to discovering and modification of the educational content is “the most frequently mentioned challenge in implementing OER among faculty”. In addition to this, the “uninviting climate” (non supportive institutional policy), the “difficulty in wading through the information” as well as the “differences in course specifications”. For Belikov and Bodily (2016, p. 239), there are three dominant barriers to the OER adoption: “need for more information”, “lack of discoverability” and “confusing OER with

digital resources". As for Allen et al (2014, 2016, pp. 2-3, 72), the barriers to OER adoption most often mentioned by faculty are the following: "there are not enough resources for my subject", it is "too hard to find what I need" and "there is no comprehensive catalog of resources". According to Delimont, Turtle, Bennett, Adhikari & Lindshield (2016), the most frequent challenges in creation, adoption, or adaptation of Open Alternative Educational Resources (OAERs) are "time required, technology issues, and concerns about copyright/licensing". Besides them, faculty "need more support from the department, college, or university as a whole (most often department heads)". Finally, it must be noted that OER adoption/use can contribute to the achievement of the 4th goal of sustainable development, that means to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (<https://sustainabledevelopment.un.org/sdg4>). In line with this perspective, and despite the abundance of new media which have been enabled by the digital technologies and being used in education, textbooks will remain a precious instrument for teaching and learning, since the creation and use of high-quality open textbooks not only improves the quality of education but also facilitates the opening up of formal education and its convergence with the non-formal education (Koutsileou & Mitrou, 2017, p. 81).

The HE landscape in Greece - The "Kallipos" profile

The Greek HE landscape

In Greece, Higher Education is divided into two sectors, the University Sector and the Technological Sector. The Higher Education University Sector consists of the Universities, the National Technical Universities and the Higher School of Fine Arts, while the Higher Education Technological Sector provides programmes of more applied character. Both of them develop and teach Science and Technology, while promoting scientific research. Studies are divided into three cycles, the first, the second and the third one. The first cycle of studies leads to the award of a diploma/certificate, the second to the award of a Master's Degree and the third to the award of a doctoral diploma¹⁰.

With regard to funding, the social policy¹¹ of HEIs is expressed through the coverage -by the state- of all the first cycle HE expenses: faculty member salaries, operational and infrastructure costs, as well as expenses for educational and scientific content acquisition and access (e.g. textbooks, e-journals etc.). In relation to the educational content, students are allowed to select -from a predefined list- their printed textbooks (one per formal undergraduate course). The selected, free-of-charge academic textbooks are shipped through a central delivery service named "Eudoxus" (www.eudoxus.gr)¹².

The increasing annual cost for textbooks in conjunction with the financial crisis (after 2009) forced the Government and the HEIs to turn their attention to OER initiatives/actions (like the "Kallipos"), as a way to cut down the expenses without harming the educational process.

The profile of "Kallipos"

In this direction, the "Kallipos" initiative started in 2013 under the coordination of the HEAL-Link (<http://www.seab.gr>). It was mainly motivated by the necessity to reduce the tremendous cost of the textbooks provided to the 250.000 undergraduate students of the Greek Higher Education Institutions (HEIs), as explained in the previous paragraphs.

The project aims to create electronic textbooks, freely available through an open access digital repository, under Creative Commons licenses. The textbook authors are faculty members of the Greek HEIs. During the project's first phase (pilot phase), which lasted 3 years, more than five hundred twenty (520) e-textbooks of high-quality academic context were produced. The project's full-blown objective is the production of more than 3.000 open e-textbooks within the upcoming years, aiming to promote further the OER. Below, details about the project's bold characteristics are given, in terms of funding, thematic coverage, project organization and workflow, quality assurance measures, e-book format and access, featuring the innovative aspects introduced for the first time in an initiative of this kind.

Funding and prerequisites: The first phase of the project was co-funded by the EU and the Greek Government with a total budget of about 8 M€. The largest portion of the budget granted to

¹⁰ Retrieved from https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Greece:Higher_Education

¹¹ For the legislation see https://www.adip.gr/data/HQA_Law4009_en.pdf

¹² Retrieved from https://eacea.ec.europa.eu/national-policies/eurydice/content/support-measures-learners-higher-education-27_en?2nd-language=me

book authoring (~ 65%, on average, 10 K€ per book). Given the relatively low amount allocated for developing an e-textbook, the maturity of existing content (in the form of e.g. lecture notes) was a prerequisite for an authoring proposal to be considered for evaluation and funding. Additional eligibility criteria for the proposals included the coverage of at least one semester course in existing undergraduate curricula and the commitment of the proposing authors to include the book to be produced as the first suggestion in their course bibliography.

Thematic coverage: Covering as many different fields of education as possible and avoid duplications was one of the objectives of the “Kallipos” project. A separate Call for Proposals (CfP) for each of the following five main subject/thematic areas (Humanities and Law, Engineering and Computer Science, Medical Sciences and Life Sciences, Economic, Political, Social and Agricultural Sciences, Physical Sciences) was issued, in order to avoid competition between groups with different ICT skills as well as to ensure a balanced production of textbooks within the various thematic fields.

Project organization and workflow: The organization of the project along with its main workflow is shown in Figure 1. Specifically, the Scientific Committee (SciC) and the five Thematic Committees (ThC), staffed by high-rank academics, were responsible for assigning peer evaluators/reviewers (as needed at the different stages of the project) and for supervising the meritocracy and integrity of the procedures. The central Technical Support Team (TST) provided continuous support to the authoring teams, including technical help on using authoring and e-book formatting tools and advises on IPR (Intellectual Property Rights) issues.

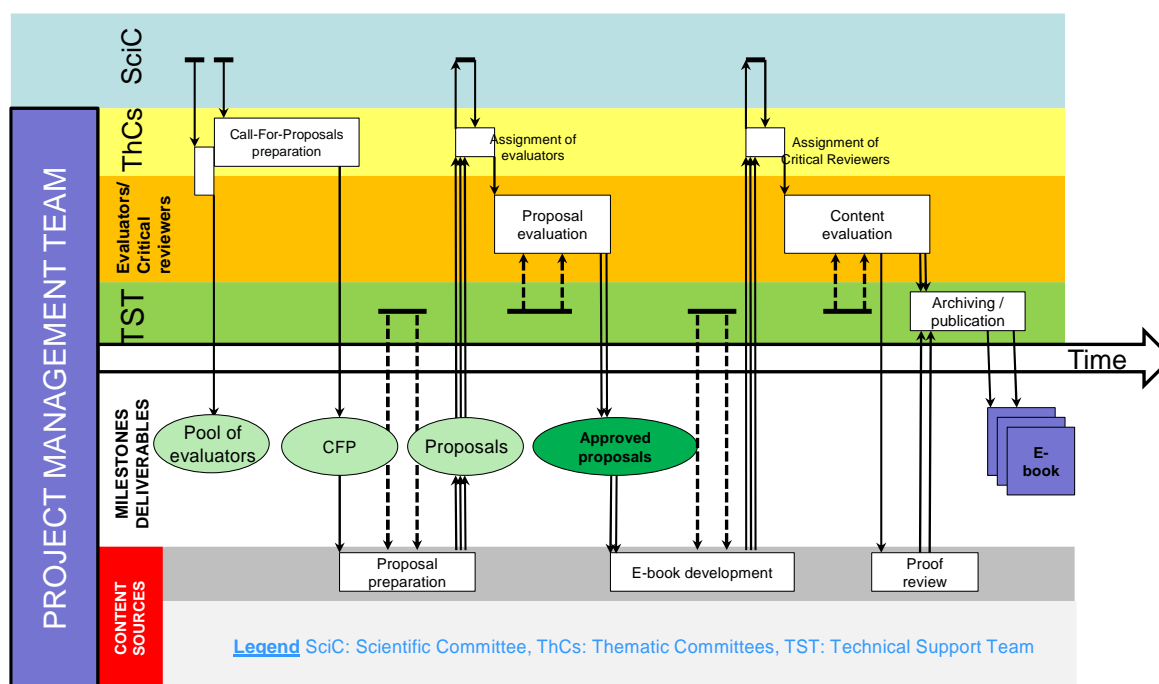


Figure 1. The project “Kallipos” organization and main workflows

Quality assurance: A great emphasis was put on quality matters. A first evaluation and screening was performed on the submitted proposals by peer evaluators, according to criteria set forth in advance and included in the CfPs, like content maturity and course coverage (content covering at least one semester course was required). Then, a peer academic, that was assigned to each accepted book proposal, had the important role of peer reviewing the delivered content, despite the generally accepted principle of the academic freedom that the HEIs faculty members enjoy in their teaching duties. Finally, an evaluation was performed by the SciC and ThC members on samples of the delivered books, in order to assess the overall quality of the project’s output.

E-book format and access: Other aspects, just as important, are the format of the e-textbooks and the access options. In this sense, the full body of the textbook as well as each chapter separately are available and accessible, both in pdf and e-pub format, though the project’s digital repository. Furthermore, the Technical Support Team of the project provided guidelines to the

authoring teams on how to organize parts of the textbooks content in the form of learning objects¹³. This innovative procedure resulted in the further enrichment of the repository with hundreds of learning objects in the form of chapters, infographics, videos, images etc., available to the academic staff for teaching purposes and for addressing the diverse learning needs of the students.

Finally, as stated before, the target of producing 3.000 e-textbooks target, within the next years was set. However, even with such a high figure, the ratio between open textbooks and the traditional “closed” (printed) textbooks, which are used in undergraduate curricula, will remain as low as 1:5. Apart from the high initial production cost of open e-textbooks, a number of additional reasons keep the transition to Open Education slow and cumbersome. The upcoming section presents the results of two surveys in an attempt to identify the views of the faculty members of the Greek Academic Community on the topic.

Methodology

The first survey (March 2017) addressed to a convenient sample of academics -presumably aware of OER and their impact in (Higher) Education. In particular, it was conducted among 600 faculty members that had authored or peer-reviewed/evaluated open textbooks as participants in the project “Kallipos”, a year ago, during a call for the updating of their open textbooks. At that time, the “Kallipos” open textbooks had already been used for almost a year (and a half in some cases).

An electronic questionnaire was used, and the participants were asked to answer questions concerning barriers and benefits (positive impact) from adopting/using OER in the teaching/learning process. The design of the questions was based upon relevant literature (related work on OER) and previous surveys conducted by field experts (Farrow et al, 2016, 66, 75-76, 79· Hilton et al, 2016). In the pilot phase, the questionnaire was answered by 5 instructors-OER authors. After its pilot completion, its size was reduced, the questions were further simplified, made clearer and accompanied by explanatory notes, so as to avoid ambiguity and ensure its reliability. For this reason, it began with the definition and examples of the term OER.

The research questions were the following:

a. Do the faculty (dis)agree with the barriers considered?

(insufficiency of technical skills to edit OER, difficulty in finding OER suitable for/relevant to Subject Area of teaching, lack of time to search for OER of sufficient quality, limited knowledge about the Intellectual Property Rights/IPR of OER, non-supportive institutional policy)

b. To what extent the teaching benefits considered result from OER adoption/use?

(better exploitation of the Information and Communication Technology/ICT skills in teaching practice, use of a great variety of teaching/learning methods, flexible adaptation of course content to meet students’ diverse needs, more critical reflection on teaching methods, updating course content)

c. How often the learning benefits examined result from OER adoption/use?

(promoting students’ interest for further study, strengthening of students’ collaboration, students’ active engagement to the shaping/formulation of the course content with their instructors, increased students’ satisfaction by their learning experience, improvement of students’ grades).

The respondents were 110, resulting in a 7% margin of error, with 90% confidence level.

The demographic (personal and educational) characteristics of the first survey’ s participants are presented in the **Figure 2**, where there is information about the participants’ gender, age, years of teaching, rank, type of course they teach (undergraduate, postgraduate, distance/on-line), subject areas/scientific topics of teaching. An additional feature is that the participants have knowledge and experience in the OER creation and/or use (88,18%), and express a positive view about the OER use/creation in the next years (82,73%).

¹³ The IEEE Learning Technology Standards Committee (LTSC) defines a learning object as “any entity, digital or non-digital, that can be used, re-used, or referenced during technology supported learning” (<http://ltsc.ieee.org/>).



Figure 2. The demographic characteristics of the first survey's participants

The second survey (July 2017) was conducted among university administrative executives (Deans of Schools) of the Greek HEIs, through the use of an electronic questionnaire. One hundred (100) Deans were asked to answer questions about the use of/familiarity with the open textbooks of “Kallipos” (in particular), the use of the digital/electronic content (in general) and the demand for print material (in parallel with the access to e-content), based on the students’ needs. Also, they were asked if they would support the continuation of initiatives like the “Kallipos” project and if there was a demand for open e-textbooks, written in English, to be taught in undergraduate and postgraduate courses. The respondents were 52 out of 100 total, resulting in a margin of error equal to 8%, with 90% confidence level.

Results

The results of the first survey / educational research are shown in the **Figures 3 to 5**.

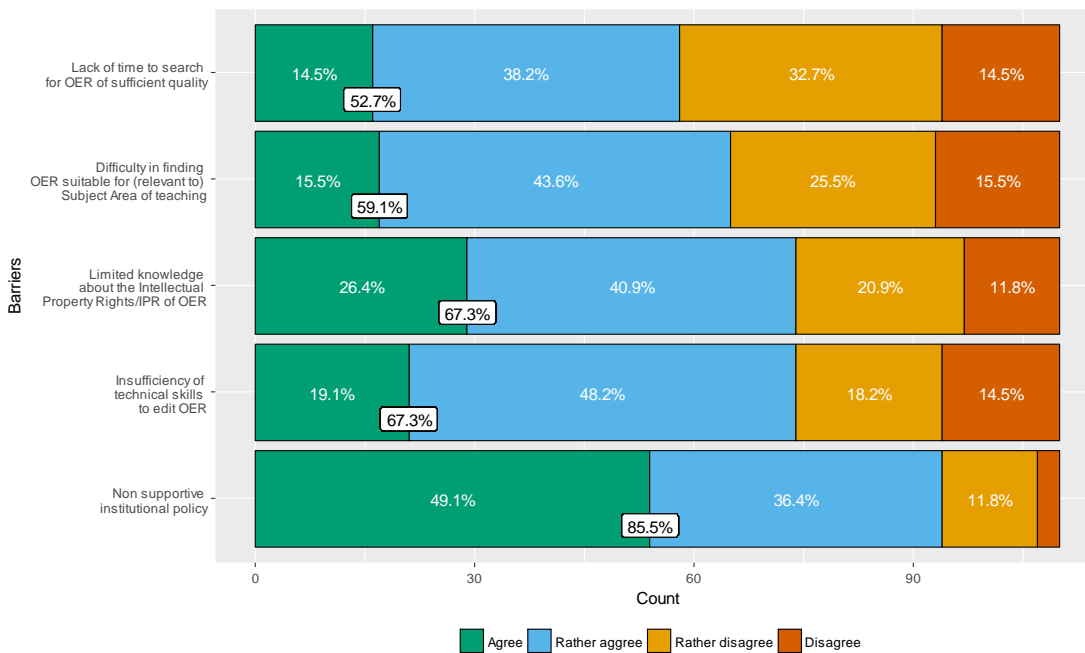


Figure 3. Barriers that hinder faculty staff from OER adoption/use

The most severe barrier, as resulted from the faculty views, is the “*non-supportive institutional policy*”, since the overwhelming majority of the respondents (85,5%) agree/rather agree with it. The “*limited knowledge about the IPR of OER*” and the “*insufficiency of technical skills to edit OER*” are both ranked in the second place (67,3%), while the “*difficulty in finding OER suitable for (relevant to) Subject Area of teaching*” (59,1%) comes third. The “*lack of time to search for OER of sufficient quality*”, about which the opinions are divided (52,7%), is considered to prohibit the OER adoption/use less than the other four factors (**Figure 3**).

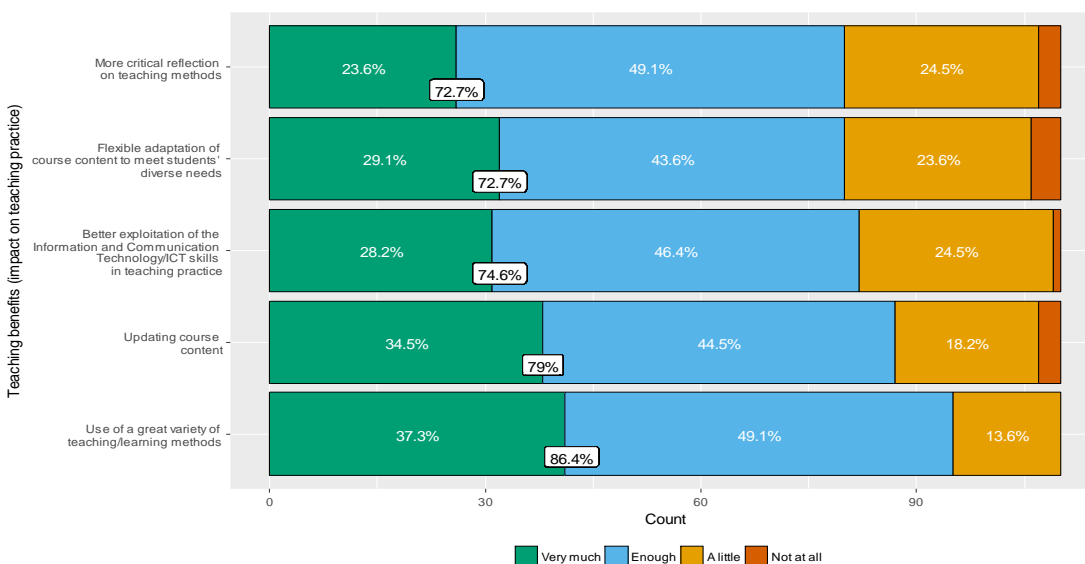


Figure 4. Teaching benefits (impact on teaching practice) from OER adoption/use

With regard to the teaching benefits, the highest in the rank is the “*use of a great variety of teaching/learning methods*” (86,4% very much and enough), followed by the “*updating of the course content*” (79%) and the “*better exploitation of the Information and Communication*

Technology/ICT skills in their teaching practice (74,6%). Finally, the faculty staff in the same percentage (72,7%) agree and rather agree that the *“flexible adaptation of their course content to meet students’ diverse needs”* and the *“more critical reflection on their teaching methods”* derive from the OER adoption/use while teaching (**Figure 4**).

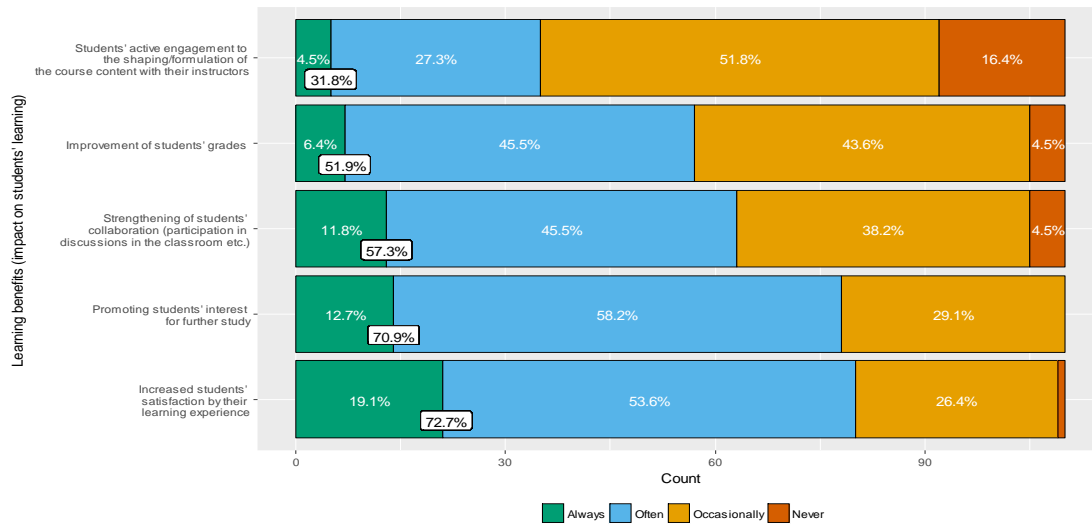


Figure 5. Learning benefits (impact on students’ learning) from OER adoption/use

According to Figure 5, the *“increased students’ satisfaction by their learning experience”* emerges as the most significant learning benefit from the OER adoption/use (72,7%), followed by the *“promoting of students’ interest for further study”* (70,9%). In addition to these, almost the 3/5 of the faculty staff (57,3%) believe that the *“strengthening of students’ collaboration”* results from the OER adoption/use in the classroom, while only one out of two (51,9%) thinks that *“improvement of students’ grades”* comes as a result from the aforementioned OER adoption/use. The least perceived as positive impact on students’ learning is the *“students’ active engagement to the shaping/formulation of the course content along with their instructors”* (31,8%) (**Figure 5**). The quantitative results of the second survey are shown in **Figure 6**.

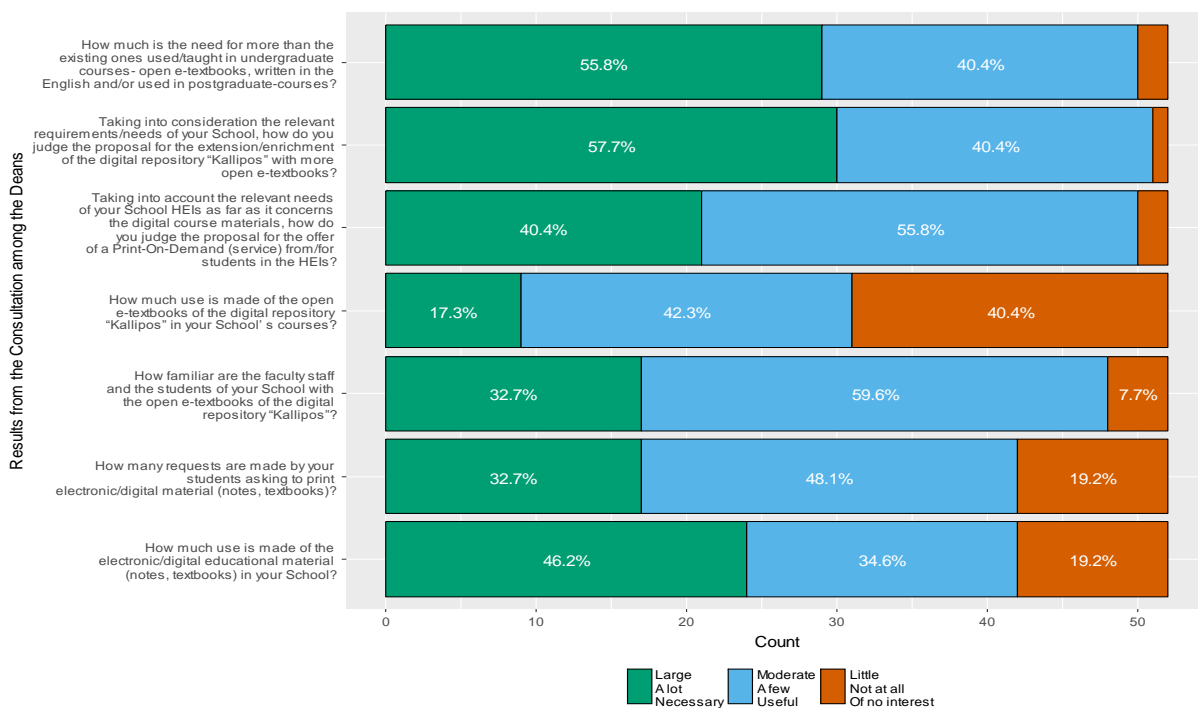


Figure 6. Results from the Consultation among the Deans of the Schools of the Greek HEIs

In Figure 6, the answers (Large, Moderate, Little) apply to the questions “How much is the need for more...?”, “How much use is made of the open e-textbooks...?”¹⁴, “How much use is made of the electronic/digital...?”, while the answers (Necessary, Useful, Of no interest) apply to the questions “Taking into consideration the relevant requirements/needs of your School, how do you judge the proposal...?”, “Taking into account the relevant requirements/needs of your School HEIs as far as it concerns the digital course materials...?” Finally, the answers (A lot, A little/few, Not at all) apply to the questions “How familiar are the faculty staff...?”, “How many requests are made...?”¹⁵.

Discussion - Main conclusions

Generally, the first survey results revealed very positive perceptions of the faculty about the adoption/use of OER, but one should take into account the relative bias of the researched sample, since the participants did have knowledge and experience in creating and/or using OER, through their participation in “Kallipos”. It is not a surprise, therefore, to give a positive answer when asked if they are going to create/use open material in the forthcoming years. Additionally, the results are consistent with the data findings from the literature review, according to which the faculty that are familiar with the OER, as the subjects of this survey, are in favour of the OER since they belong to the area of “primary OER usage”, or, in other words they are “OER active” (Jhangiani, Pitt, Hendricks, Key & Lalonde, 2016; Weller, 2014, pp. 184-5; Weller, de los Arcos, Farrow, Pitt & McAndrew, 2016, p. 86). Moreover, the perceptions of the participants regarding the teaching/learning potential benefits from OER use align with the data of the European and international related work on OER (see relevant section). Indeed, the majority of the faculty conclude positively on the considered benefits and, most of all, on the “*variety of the applied teaching and learning methods*” and on the “*students’ satisfaction from their learning experience*”. In addition to this, the fact that the faculty recognize the beneficial pedagogical impact/effectiveness of OER adoption/use while teaching in the “classroom” is in line with the beliefs of the education specialists/leaders who predict that “by OER shifting from a small-scale movement to standard education practice” teaching and learning will eventually be transformed (The Hewlett Foundation, 2013).

As concerns the teaching benefits, it is true that the faculty acknowledge the overall transformational impact of OER in their teaching. In regard to the learning/ benefits in particular, it makes sense that the faculty do not perceive them as highly as they perceive the teaching benefits, since the time they use OER while teaching in the “classroom” is shorter than the time they have been engaged with OER creation and use. For example, only half of them agree with the OER positive impact on “*students’ performance/grades*”, which can be explained by the fact that the faculty has not had yet a critical amount of feedback (for example, from the students’ exams, etc). Concerning “*students’ active engagement in the co-editing of the course materials*”, hardly one out of three recognizes it as an advantage from the OER use. This result shows that “active student involvement” is still “terra incognita” for the Greek Higher Education, in contrary to what is reported in the literature (de los Arcos et al, 2015; Weller et al, 2015), according to which “the responsive nature of OER engenders students to be more actively engaged with the specific content of the curriculum” (Chae et al, 2015, p. 18). In the following years, as soon as the faculty overcome their uncertainty and become more aware and informed about the open licencing, they will guide their students to remix/adapt/redesign the educational material, so that both of them energetically participate in the revision of the content to meet their needs. In that case, the students/learners will not remain passive “OER consumers” but they will become “OER active” (Weller et al, 2016).

As regards the examined barriers to OER adoption/use, in general terms the findings resemble with those of the literature (Allen et al, 2014, 2016; Delimont et al, 2016; Krelja Kurelovic, 2016). In particular, as the major obstacle is perceived the “*non-supportive institutional policy*”, which may be interpreted as lack of “course load reduction, curricular research assistance, library support, incentives (funding opportunities), endorsement from the school, clear policies about the OER

¹⁴ For the interpretation of the results, it must be taken into account that the open textbooks of the “Kallipos” represent only the 4% of the total amount of textbooks supplied by “Eudoxus”.

¹⁵ To interpret the results, it must be considered that, currently, there is no Print On Demand (POD) service for the students to make their requests.

adoption/use”, etc (Belikov et al, 2016, p. 239, 241, 243; Chae et al, 2015 p. 27). This finding is partly justified by the absence of clear OA/OER policies at a governmental or Institutional level in Greece and partly by the specific characteristics of the Greek Higher Education, to be exact, by the existing textbook supply system (“Eudoxus”) that offers commercial/traditional textbooks to the students for free, while, at the same time, the open e-textbooks of “Kallipos” are introduced only as supplementary electronic material. Therefore the current status quo -the selection of a standard textbook by the department- does not encourage the use of alternative educational content/material. The only “barrier” that is not perceived as barrier (contrary to the literature findings) is “time”. This can be explained if we assume that the faculty, despite the pressure by the work overload, they finally devote time to the “time-intensive” duty of OER finding/adaptation/creation during the sabbaticals or their release time.

As for the second survey, the vast majority of the Deans has answered that there is an increasing awareness about as well as adoption of the “Kallipos” open e-textbooks. In addition to this, they judge the action as (absolutely) necessary to be continued and extended to postgraduate-courses books as well as to textbooks written in English. Since the literature reports that the faculty need support from the administration of their institutions to implement OER, the outcomes of that survey can be used to the prioritization of the needs, so that the OER implementation proceeds in a “planned and deliberate way”.

Lessons learned from “Kallipos” and a proposal for its sustainable continuation

The principal lessons learned from “Kallipos” could be codified as follows:

Lesson 1: In order to have an essential impact on and to drive a drastic change of the educational paradigm in favour of the Open Education, a critical amount of open resources should be available to teachers and learners in a broad range of disciplines. The quality of these resources is a very critical factor.

Lesson 2: High-quality open textbooks require time and a considerable effort to be developed, thus, strong motives (financial and other) should be given to the authors. Moreover, authors need extensive technical support in using the required ICT tools, as well as in coping with IPR issues. Due to the high initial cost of OER development, initiatives with a systematic public funding are deemed necessary. There is no doubt that writing a textbook requires commitment, time, and fortitude.

Lesson 3: Any large-scale initiative for OER development within specific time constraints requires a secure funding schedule and a tight project coordination. A dedicated technical support team of experts from various disciplines (ICT experts, graphic designers, librarians, language editors, etc) is deemed necessary. Evaluation actions should be included in many stages of the workflow to ensure quality of the result, thus a network of peers (evaluators, peer reviewers, editors...) should be organized and maintained.

Lesson 4: Before starting any OER development initiative, one should devote effort and time for awareness creation among and mobilization of the Academic and Research Community (mainly the teachers as potential authors and peer evaluators/reviewers). Awareness among and mobilization of the potential learners (students, life-long learners) is necessary too.

Lesson 5: The more Institutions are involved in an OER development action the more efficient and effective such an action would be.

The overall experience gained from “Kallipos” and the conclusions drawn from the respective surveys implemented and presented in this paper, are in line and considerable agreement with what is reported elsewhere by respective Open Education fora and projects, as well as in the general literature (see previous sections). In summary, despite the obvious benefits of OE actions, in general, and of OER adoption, in particular, there is a reluctance by teachers and learners to include them as mainstreaming practices in their educational quiver. Among the admitted reasons are (i) the difficulties in finding OER suitable for (or relevant to) their Subject Area of teaching/learning, (ii) the lack of incentives (for the teachers) and of sufficient support from their institutions to develop/use OER for teaching.

It is obvious (and documented by numerous researches) that, in order to remove the above barriers and change the education paradigm in favour of the open practices, there is a need for coordinated and targeted actions by the responsible policy makers and funding bodies (institution administrations and governmental bodies as well). The “Kallipos” project was such an effort to promote openness in Higher Education in Greece. The ability to have a serious impact, however,

and to change the education paradigm in a sustainable way requires actions of a much larger scale in terms of budget, duration and number of collaborating institutions.

Most of the above observations and conclusions have been included also in recent EU and international organizations' reports, along with a strong will for undertaking appropriate actions (COL, 2017a; COL, 2017b; EC, 2013; EC, 2017; Inamorato dos Santos, Punie & Castaño-Muñoz, 2016; Inamorato dos Santos, 2017a; Inamorato dos Santos et al, 2017b; Miao, Mishra & McGreal, 2016; NMC, 2017; Orr et al, 2015; UNESCO, 2017).

Despite that, however, HE OER remains fragmented in Europe and without the strength to change the educational paradigm. With these considerations in mind and with the aim to expand Kallipos, both internally (with more content) and in scope (beyond national borders e.g. at a European level), we conclude this article with the following practical proposal.

Proposal

- a) Form a consortium of HE Institutions at a European or even a world-wide level. The EUA and the OE-GLOBAL could be suitable fora for such an initiative.
- b) Develop a platform and a living service with a two-fold target: (i) probe and prioritize the needs in OER – especially, in open textbooks - among HE curricula (ii) discover and present in handheld forms the availability of OER, in different languages and different disciplines.
- c) By combining/using b(i) and b(ii) above, compile documented plans for actions to be undertaken by education stakeholders and funders towards development or translation of OER.

The sustainable operation of the service to be developed at step (b) above requires the mobilization and support of the HE community as a whole: teachers/learners should be called to indicate their needs in OER, as well as to evaluate the suitability of available open resources for their courses. HEIs Administrations should feed the service with their study programmes along with the indicated OER needs; they should also decide on the prioritization of these needs. Governmental bodies should respond with strategic plans and funding actions, taking into account the outcome of step (c).

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References

- Aesoph, L.M. (2018). *Self-Publishing Guide*. Victoria, BC: BCcampus. Retrieved from <https://opentextbc.ca/selfpublishguide/>
- Allen, I. E., & Seaman, J. (2014). *Opening the curriculum: Open educational resources in US higher education, 2014*. Pearson: Babson Survey Research Group. Retrieved from <http://www.onlinelearningsurvey.com/reports/openingthecurriculum2014.pdf>
- Allen, I. E., & Seaman, J. (2016). *Opening the Textbook: Educational Resources in Us Higher Education, 2015-16*. Pearson: Babson Survey Research Group. Retrieved from <http://www.onlinelearningsurvey.com/reports/openingthetextbook2016.pdf>
- Annand, D. (2015). Developing a sustainable financial model in higher education for open educational resources. *The International Review of Research in Open and Distributed Learning*, 16(5). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/2133/3419>
- Belikov, O., & Bodily, R. (2016). Incentives and barriers to OER adoption: A qualitative analysis of faculty perceptions. *Open Praxis*, 8(3), 235-246. doi: 10.5944/openpraxis.8.3.308
- Butcher, N. (2015). *A Basic Guide to Open Educational Resources (OER)*. A. Kanwar & S. Uvalić-Trumbić (Eds.). Vancouver & Paris: Commonwealth of Learning & UNESCO. Retrieved from <http://oasis.col.org/handle/11599/36>
- Chae, B., & Jenkins, M. (2015). *A Qualitative Investigation of Faculty Open Educational Resource Usage in the Washington Community and Technical College System: Models for Support and Implementation*. SBCTC: Washington State Board for Community and Technical Colleges. Retrieved from <http://tinyurl.com/lpthvbp>
- COL-Commonwealth Of Learning- (2017a). *Open Educational Resources: Global Report 2017*. Burnaby: COL. Retrieved from http://oasis.col.org/bitstream/handle/11599/2788/2017_COL_OER-Global-Report.pdf?sequence=1&isAllowed=y
- COL-Commonwealth Of Learning- (2017b). *Open Educational Resources: From Commitment to Action*. Burnaby: COL. Retrieved from http://oasis.col.org/bitstream/handle/11599/2789/2017_COL_OER-From-Commitment-to-Action.pdf?sequence=1&isAllowed=y
- Delimont, N., Turtle, E. C., Bennett, A., Adhikari, K., & Lindshield, B. L. (2016). University students and faculty have positive perceptions of open/alternative resources and their utilization in a textbook replacement initiative. *Research in Learning Technology*, 24. Retrieved from https://krex.k-state.edu/dspace/bitstream/handle/2097/35319/2-1-2017_University.pdf?sequence=1
- de los Arcos, B., Farrow, R., Pitt, R., Perryman, L. A., Weller, M., & McAndrew, P. (2015). *OER Research Hub Data 2013-2015: Educators*. Open Education Research Hub. Retrieved from http://oro.open.ac.uk/47931/1/Educators_FINAL_OERRHData.pdf
- Dhanarajan, G., & Porter, D. (2013). *Open educational resources: An Asian perspective*. Commonwealth of Learning and OER Asia. Retrieved from http://oasis.col.org/bitstream/handle/11599/23/pub_PS_OER_Asia_web.pdf?sequence=1&isAllowed=y&utm_content=buffera7b58&utm_medium=social&utm_source=twitter.com&utm_campaign=bufferPursuing OER
- EC-European Commission. (2013). *Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources*. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0654&from=EN>
- EC-European Commission. (2017). *Open innovation, open science, open to the world (2017)*. Retrieved from <https://publications.europa.eu/en/publication-detail/-/publication/3213b335-1cbc-11e6-ba9a-01aa75ed71a1>
- Falconer, I. J., Littlejohn, A., McGill, L., & Beetham, H. (2016). Motives and tensions in the release of open educational resources: The UKOER program. *Australasian Journal of Educational Technology*, 32(4). Retrieved from https://research-repository.st-andrews.ac.uk/bitstream/handle/10023/9166/Falconer_2016_Motives_tensions_AJET_92.pdf?sequence=1
- Farrow, R., Perryman, L.-A., de los Arcos, B., Weller, M., & Pitt, R. (2016). *OER Hub Researcher Pack*. OER Hub. Retrieved from http://oro.open.ac.uk/48034/1/OERHub.ResearcherPack.FINAL_.pdf

- Florida Virtual Campus. (2016). *2016 Florida Student Textbook & Course Materials Survey*. Tallahassee, FL. Retrieved from <https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/2016%20Student%20Textbook%20Survey.pdf>
- Gadotti, M. (2016). *Education for sustainability-A critical contribution to the Decade of Education for Sustainable Development*. Retrieved from <http://gadotti.org.br:8080/xmlui/handle/123456789/420>
- Hilton, J. (2015). *The review project*. Open Education Group. Retrieved from <http://openedgroup.org/review>
- Hilton, J. (2016). Open educational resources and college textbook choices: a review of research on efficacy and perceptions. *Educational Technology Research and Development*, 64(4), 573-590. doi: 10.1007/s11423-016-9434-9
- Hilton III, J., Wiley, D., Fischer, L., & Nyland, R. (2016). *Guidebook to Research on Open Educational Resources Adoption*. Retrieved from <http://openedgroup.org/wp-content/uploads/2016/08/OER-Research-Guidebook.pdf>
- Hoosen, S., Moore, D., & Butcher, N. (2016). *Open Educational Resources (OER) Guide for Students in Post-Secondary and Higher Education*. Retrieved from http://oasis.col.org/bitstream/handle/11599/2093/2016_OER-Guide-for-Students-Post-Sec-HE.pdf?sequence=1
- Inamorato dos Santos, A., Punie, Y., & Castaño-Muñoz, J. (2016). *Opening up Education: A Support Framework for Higher Education Institutions*. Institute for Prospective Technological Studies. JRC Science for Policy Report. doi: 10.2791/293408
- Inamorato dos Santos, A. (2017a). *Going Open: Policy Recommendations on Open Education in Europe (OpenEdu Policies)* (No. JRC107708). Joint Research Centre (Seville site). Retrieved from <http://publications.jrc.ec.europa.eu/repository/handle/JRC107708>
- Inamorato dos Santos, A., Nascimbeni, F., Bacsich, P., Atenas, J., Aceto, S., Burgos, D., & Punie, Y. (2017b). *Policy Approaches to Open Education—Case Studies from 28 EU Member States (OpenEdu Policies)* (No. JRC107713). Joint Research Centre (Seville site). Retrieved from <http://publications.jrc.ec.europa.eu/repository/handle/JRC107713>
- Jhangiani, R.S., Pitt, R., Hendricks, C., Key, J., & Lalonde, C. (2016). *Exploring faculty use of open educational resources at British Columbia post-secondary institutions*. Victoria, BC: BCCampus. Retrieved from https://bccampus.ca/files/2016/01/BCFacultyUseOfOER_final.pdf
- Kortemeyer, G. (2013). Ten years later: Why open educational resources have not noticeably affected higher education, and why we should care. *Educause Review Online*. Retrieved from <http://www.educause.edu/ero/article/ten-years-later-why-open-educational-resources-have-not-noticeably-affected-higher-education-and-why-we-should-care>
- Koutsileou, S. K., & Mitrou, N. M. (2017). Barriers and teaching/learning benefits of the adoption/use of Open Educational Resources: a quantitative research with faculty staff – participants in the Project “Hellenic Academic E-textbooks / Kallipos” (in greek). *International Conference in Open & Distance Learning*, 9(4A), 70-84. Retrieved from <https://eproceedings.epublishing.ekt.gr/index.php/openedu/article/view/1329/1336>
- Krelja Kurelovic, E. (2016). Advantages and limitations of usage of open educational resources in small countries. *International Journal of Research in Education and Science (IJRES)*, 2(1), 136-142. Retrieved from <http://dergipark.ulakbim.gov.tr/ijres/article/viewFile/5000123134/50001402>
- Miao, F., Mishra, S., & McGreal, R. (2016, eds.). *Open Educational Resources: policy, costs and transformation*. UNESCO and Commonwealth of Learning. Retrieved from <http://unesdoc.unesco.org/images/0024/002443/244365e.pdf>
- Moore, A., & Butcher, N. (2016). *Guide to Developing Open Textbooks*. Retrieved from http://dspace.col.org/bitstream/handle/11599/2390/2016_Moore-Butcher_Guide-Open-Textbooks.pdf?sequence=1&isAllowed=y
- NMC-The New Media Consortium (2017). *NMC Horizon Report: 2017 Higher Education Edition*. Austin, Texas: The New Media Consortium. Retrieved from http://academedia.org/2017_NMC_horizon.pdf

- Orr, D., Rimini, M., & Van Damme, D. (2015). *Open educational resources: A catalyst for innovation*. Paris: Educational Research and Innovation, OECD Publishing. doi: 10.1787/9789264247543-en
- Pitt, R. (2015). Mainstreaming Open Textbooks: Educator Perspectives on the Impact of OpenStax College open textbooks. *The International Review of Research in Open and Distributed Learning (IRRODL)* 16 (4): 133-155. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/2381>
- Senack, E. (2015). Open textbooks: The billion dollar solution. *The Student PIRGs*. Retrieved from <http://studentpirgs.org/sites/student/files/reports/The%20Billion%20Dollar%20Solution.pdf>
- The William and Flora Hewlett Foundation (2013). *White Paper: Open Educational Resources. Breaking the Lockbox on Education*. Retrieved August, 2017, from http://www.hewlett.org/wp-content/uploads/2016/08/OER%20White%20Paper%20Nov%2022%202013%20Final_0.pdf
- The William and Flora Hewlett Foundation (2015). *Why we fund open textbooks (and plan to do more)*. Retrieved from <http://www.hewlett.org/why-we-fund-open-textbooks-and-plan-to-do-more/>
- UNESCO/COL (2015). *Guidelines for Open Educational Resources (OER) in Higher Education*. Retrieved from <http://unesdoc.unesco.org/images/0021/002136/213605e.pdf>
- UNESCO-United Nations Educational, Scientific and Cultural Organization (2012). *2012 Paris OER declaration*. Paris: UNESCO. Retrieved from http://www.unesco.org/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/Paris%20OER%20Declaration_01.pdf
- UNESCO-United Nations Educational, Scientific and Cultural Organization (2017). *Ljubljana OER action plan*. Paris: United Nations Educational, Scientific and Cultural Organization. Retrieved from https://en.unesco.org/sites/default/files/ljubljana_oer_action_plan_2017.pdf
- Weller, M. (2014). *The Battle for Open: How openness won and why it doesn't feel like victory*. London: Ubiquity Press. doi: 10.5334/bam
- Weller, M., de los Arcos, B., Farrow, R., Pitt, B., & McAndrew, P. (2015). The Impact of OER on Teaching and Learning Practice. *Open Praxis*, 7(4), 351-361. doi: 10.5944/openpraxis.7.4.227
- Weller, M., de los Arcos, B., Farrow, R., Pitt, R., & McAndrew, P. (2016). Identifying Categories of Open Educational Resource Users. In P. Blessinger & T.J. Bliss (Eds.), *Open Education: International Perspectives in Higher Education*, (pp. 73–92). doi: 10.11647/OBP.0103.04