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Open Educational Resources in Public Administration: A Case Study in Greece

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Open educational resources in public administration: a case study in Greece

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ABSTRACT

The use of Open Educational Resources (OER) for training in public administration has yet to see a wide adoption globally, mostly due to challenges related to the discovery and reuse of high-quality OER for training purposes. These challenges, combined with the general lack of openness in the public sector, have greatly impacted the penetration of OER in public administration. This paper presents a case study on the use of OER for expanding and enhancing curricular and resource sharing in public administration in Greece. Within this case study, an OER authoring and sharing platform was introduced to the Greek public sector, employing crowdsourcing methods for supporting trainers and trainees in authoring, sharing, reusing and remixing OER. The paper presents the deployment of this platform and the use of OER in the context of training programmes in the Greek public sector and reports on the lessons learned and the impact on public administration. The results of the case study showed that the use of OER was very positively received by civil servants, with a remarkable response, through active participation and engagement that led to the enhancement of existing OER and the co-creation of new ones for public administration.

Introduction

Open Educational Resources (OER) can be described as 'teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or repurposing by others depending on which Creative Commons license is used' (Atkins et al., 2007). The emergence of OER has greatly facilitated online education through the use and sharing of open and reusable learning resources on the Web. Learners and educators have been allowed to access, download, remix, and republish a wide variety of quality learning materials for use within different levels of education and different learning contexts (Baas et al., 2019; De los Arcos et al., 2016; Gourley & Lane, 2009; Hilton, 2019; McGowan, 2020; Mishra, 2017; S. Wang & Wang, 2017; Wilson et al., 2010).

Nevertheless, various challenges and barriers still hinder the wider adoption of OER, with a significant impact both on the producers of OER, as well as on those who wish to find, reuse and adapt OER. More specifically, there is still considerable room for

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improvement in the ways OER are created and published online, as this can be a tedious, time-consuming and expensive process (Coughlan et al., 2019; Ovadia, 2019). Similar challenges apply to the discoverability, reusability and openness of learning materials, as content creators still face considerable difficulties in finding suitable and high-quality OER that they can reuse and repurpose in a cost-efficient way (Gaskell & Mills, 2014; Kaatrakoski et al., 2017; Luo et al., 2020). The accessibility of available OER and OER delivery platforms is usually quite limited, therefore negatively impacting the inclusivity of the open education movement (Brahim et al., 2017; Navarrete & Luján-Mora, 2018; Rodríguez et al., 2017). Last but not least, the existing policies within educational institutions and other public or private organisations regarding the creation and use of educational content, favour the authoring and use of original content, rather than the adoption of OER (Henderson & Ostashewski, 2018; T. Wang & Towey, 2017).

On top of these challenges, the public sector is also facing an overall lack of openness, which is not limited to the training offered to civil servants, but spans across other aspects of public administration as well (J. Stoffregen et al., 2015). In particular, the vast majority of information resources, including laws, regulations, guidelines and bulletins produced by the public sector in countries around the world, is not in a machine-readable format and does not follow open licencing standards. As a result, these resources cannot be easily shared, searched and categorised according to their content (J. D. Stoffregen et al., 2016; Stoffregen & Pawlowski, 2018). The same applies to the learning resources and training courses offered to employees of the public sector, which in many cases are outdated due to the costs of updating them. Reusing and adapting OER can significantly reduce these costs. Additionally, increasing openness in public administration can facilitate the open access of citizens and businesses to public administration resources, as well as collaboration and co-creation towards improving these resources (Voß et al., 2018). Finally, openness can leverage transparency in the public sector, thus leading to improvements in the regulation and accountability of public administration processes and employees (Maier-Rabler & Huber, 2011).

This paper investigates the use of OER for expanding and enhancing curricular and resource sharing in public administration, through a case study in the Greek public sector. Within this case study, a wide range of OER was developed and piloted in public administration and local government in Greece. This deployment of OER in the public sector has demonstrated the advantages of collaboration between different agencies of the public sector, the added value of learning communities, as well as the significance of self-assessment and self-regulation.

The remainder of this paper is structured as follows. First, we present the background and objectives of the case study in the Greek public sector. We then proceed with the adopted methodology, as well as the results obtained from the evaluation performed. Finally, we conclude this paper by discussing the lessons learned and the key take-away messages that have emerged.

Case study

Background

The public sector in Greece consists of the publicly controlled and funded agencies and other entities that deliver goods and services to the public. These agencies and entities

include Ministries, Local Government Agencies, Public Legal Entities and Independent Administrative Authorities.[1] Pertaining to the training of civil servants, the National Centre of Public Administration and Local Government (EKDDA) was established in 1983.[2] EKDDA, being the Hellenic strategic agent for the development of public administration and local government human resources, was selected as the most suitable organisation for this case study.

The core mission of EKDDA is to provide education in, and training for, public administration. This mission is realised through a series of targeted actions and initiatives that are implemented by the National School of Public Administration and Local Government (ESDDA), the Institute of Training (INEP), and the Institute of Documentation and Innovations (IDI). In particular, the National School of Public Administration and Local Government feeds the administration with highly qualified and specialised officers for rapid promotion. The Institute of Training upgrades the Public Administration's Human Recourses through lifelong learning seminars with certified knowledge and skills. Finally, the Documentation and Innovations Institute has established specific labs where staff and scientists from organisations such as ministries, professional bodies, non-profit organisations, the academic and research community and other associations, systematically discuss public policies in order to find the best ways for their implementation.

EKDDA is responsible for the vocational training of over 650,000 Greek public servants nationally from all geographical areas, all types of public organisations and municipalities. EKDDA receives more than 100,000 applications for training from public servants per year but manages to cover only one third of these applications. It is therefore evident that new and open policies, methods and practices are necessary in order to address the training needs of public administration in Greece.

Objectives

The main goal of this case study is the investigation of the potential of OER for expanding and enhancing curricular and resource sharing in public administration. To this end, EKDDA has spearheaded an OER initiative for engaging civil servants and achieving the following objectives:

(1) Collaborative creation of OER, i.e. curriculum, slide presentations, quizzes, case studies, examples, videos, images, etc.
(2) Automatic or semi-automatic translation of OER in different languages and continuous improvement of translated OER via crowdsourcing.
(3) Supporting the social networking of trainers and trainees around OER and processes of administration.
(4) Collaboration between individuals and agencies in the public sector around the use of OER.
(5) Streamlining understanding of the benefits of OER, in terms of promoting OER and developing reusable content.
(6) Identifying and analysing obstacles, challenges and opportunities for the use of OER in public administration.

(7) Exploiting and re-using at a national level the international and European experience on the use of OER in public administration, through the study of relevant initiatives and best practices.

(8) Raising awareness about the concepts of open government, eGovernment, ICT collaborative tools and OER, and their identification in the broader context of digital transformation and modernisation of public administration.

Methodology

The SlideWiki platform

The SlideWiki[3] platform was used within this case study for the authoring and sharing of OER. Since its launch (Auer et al., 2013), the SlideWiki platform has grown its user base to hundreds of educators and thousands of learners and has won the OpenCourseWare Consortium's Excellence Award. Several hundred comprehensive open learning materials are currently available on the SlideWiki platform in different languages (Elias et al., 2018; Mikroyannidis, 2018; Mikroyannidis et al., 2018).

SlideWiki records the provenance and detailed history of the different versions of OER, thus ensuring intellectual property rights are protected and making the lifecycle and evolution of OER on the platform completely transparent. In order to reuse OER on the SlideWiki platform, one can 'fork' it thus creating a copy of the OER that can be further adapted by the user that forked it. All changes made to OER are tracked by the platform and displayed in the history of the OER. Authors can track how their OER is being reused and repurposed within the platform via the activity feed and usage area of their OER.
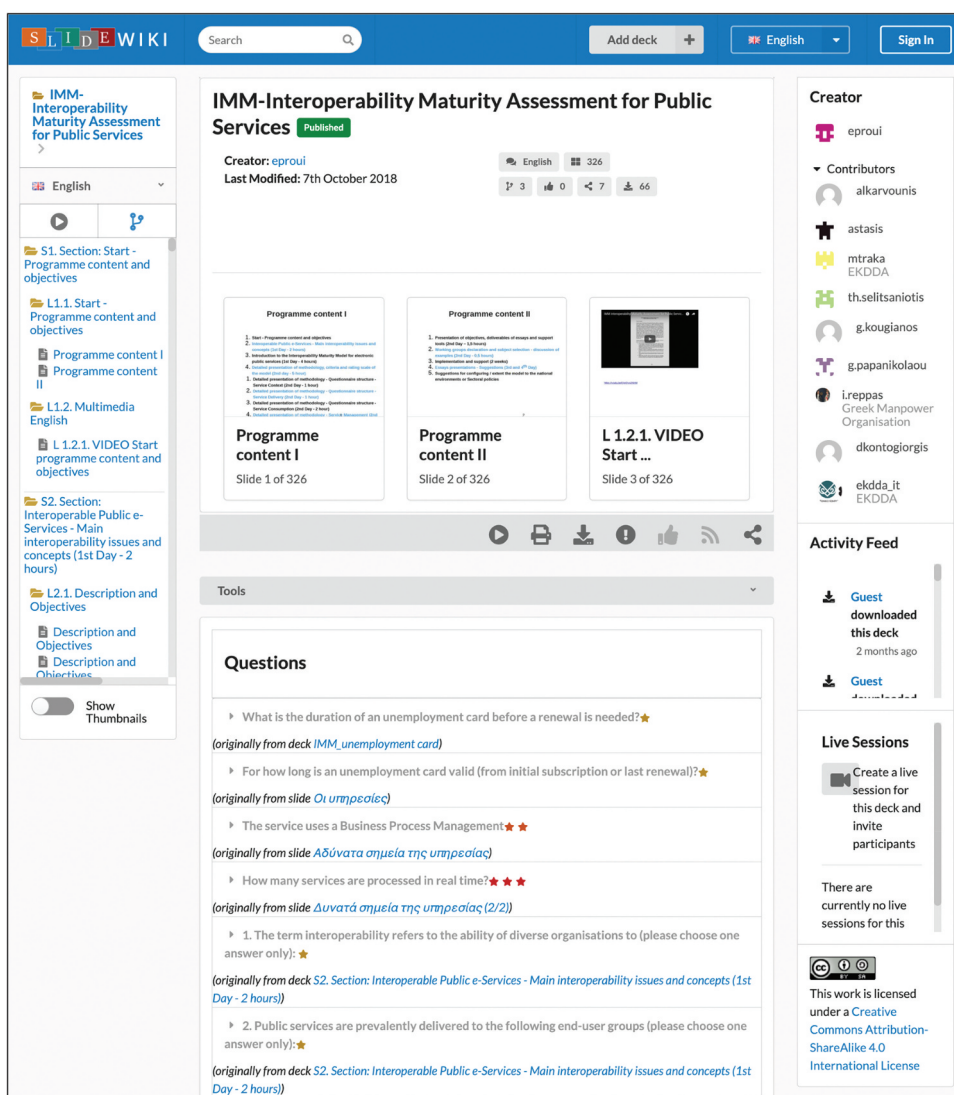
OER development

A team of instructors and trainers from EKDDA were recruited for providing training in this case study and for the development of training materials as OER. It should be noted that authoring and co-creation of OER was also performed by trainees during their participation in the pilot courses and workshops of this case study. A team of 25 instructors, belonging to EKDDA's certified database of instructors, prepared the training materials in SlideWiki. Additionally, EKDDA set up a team of 70 trainers in accordance with its regulations, in order to certify the developed training materials. EKDDA's instructors and trainers have a background on open government policies and also experience in transparency applications, electronic participation, accountability mechanisms and, in general, in open government and open education thematic areas.

The OER produced by EKDDA have been made available in the Greek and English languages and consist of over 3,000 slides, 220 videos, 350 questions, as well as additional learning artefacts, such as PDF and MS Word documents. All this content has been certified by EKDDA and is reusable via Creative Commons licences. For the production of this OER, existing EKDDA training materials were reused and repurposed, following the e-learning guidelines of EKDDA. The existing training materials, which were originally designed for face-to-face delivery, were transformed into smaller learning objects, suitable for online learning. In this way, a collection of learning objects was produced, consisting of slides, images, videos, self-assessment tests, questionnaires, etc. Finally, the documentation of learning objects was performed, followed by integrative and

structural development activities, before the OER was published on the SlideWiki platform.

Figure 1 showcases an example of the OER that were created and published via the SlideWiki platform. Slides in SlideWiki are organised into decks and subdecks, thus forming the tree structure shown on the left-hand side of Figure 1. On the right-hand sidebar of the slide deck, the creator and contributors of the OER are displayed, together with the activity feed of the OER. The activity feed shows the most recent changes to the OER, as well as how these OER are being utilised by other users in their decks. Finally, the pane below the slide deck displays different types of detailed information about the OER, including the sources of OER, tags associated with the OER, comments from users, history of the OER, as well as where else the OER are being used within the platform. Authors may

Figure 1. Example of OER produced by EKDDA and published on the SlideWiki platform.

also create quizzes for their slides, consisting of multiple-choice questions, as shown in Figure 1.

Pilot courses and workshops

The OER produced by EKDDA was delivered to trainees via the following pilot courses and workshops:

- Open Government and eGovernment (7 online courses).
- Basic Interoperability Issues and Concepts (5 face-to-face courses).
- Interoperability Maturity Assessment of Public Services (4 blended learning courses).
- Management of Learning Systems Educational Resources (1 face-to-face workshop).
- Exploitation of Learning Systems Educational Resources (1 face-to-face workshop).
- Collaborative Tools in Public Administration (1 face-to-face workshop).

Trainees and trainers from different administrative levels became familiar through these pilot courses and workshops with the features and opportunities that the SlideWiki platform offers. As shown in Figure 2, participants in workshops covered a wide range of stakeholders representing bodies of public administration and self-government, independent authorities, audit authorities and the academic and research community.

The EKDDA pilot courses engaged learners in a variety of activities following Salmon's 5-stage model of teaching and learning online (Salmon, 2004):

- *Stage 1 – Access and Motivation*: The SlideWiki platform was presented, together with other OER best practices, in order to motivate learners to explore the platform and learn about OER.
- *Stage 2 – Online Socialisation*: Learners created an account in SlideWiki and started interacting with other learners via the platform.
- *Stage 3 – Information Exchange*: Learners were asked to find suitable OER on SlideWiki, to provide their feedback about these OER via the commenting
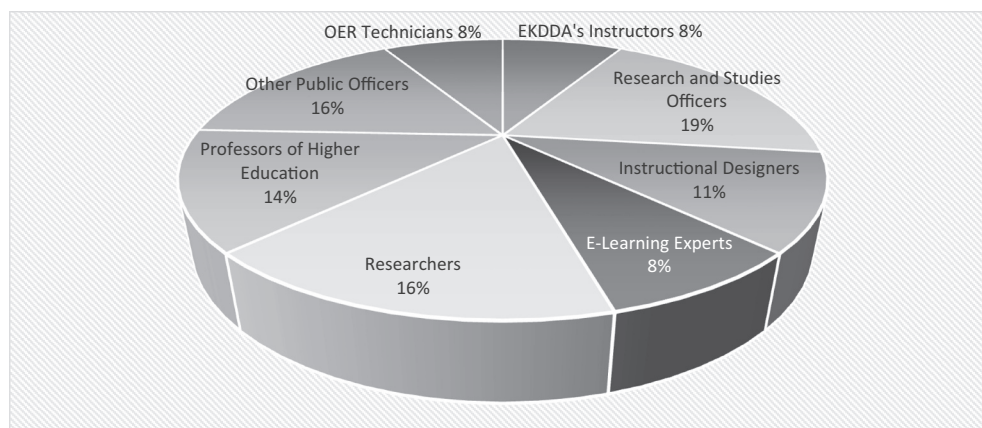

Figure 2. Profiles of case study participants in workshops.

functionality of the platform, as well as sharing these OER with other learners on the platform and performing self-assessment using the online quizzes on the SlideWiki platform.

- *Stage 4 – Knowledge Construction*: Learners were invited to create original OER on SlideWiki, or reuse and adapt existing OER. Learners also worked in groups in order to collaboratively create OER on the platform.
- *Stage 5 – Development*: Each group of learners presented the OER that they co-created on SlideWiki and reflected on what they had learned from this process, as well as on how they could optimise this process for better co-creation and collaboration outcomes.

The first three stages of Salmon's model offered trainees the opportunity to improve their competencies towards becoming self-regulated learners. In the last two stages, trainees increased team maturity and performed collaboration and co-creation activities.

Evaluation results

Over 750 employees of the public sector received certified training though the EKDDA pilot courses and workshops. A large percentage of participants (87%) evaluated the received training and the SlideWiki platform, both quantitatively via questionnaires and qualitatively via interviews and specific consultations. Figure 3 shows the evaluation model that was adopted for the evaluation of the pilot courses and workshops, based on Kirkpatrick's training evaluation model (Kirkpatrick & Kirkpatrick, 2006).

Phase 1: user feedback and ongoing achievements

This phase took place at the same time as the training period. During this phase, participants were trained in specific scenarios of public administration involving real data and services, so that they could acquire skills in co-authoring, co-creation, co-production and collaboration. The outcomes and best practices derived from this phase were recorded and uploaded in SlideWiki. This process allowed participants to strengthen their knowledge and skills, so that they could attain specific practical achievements with
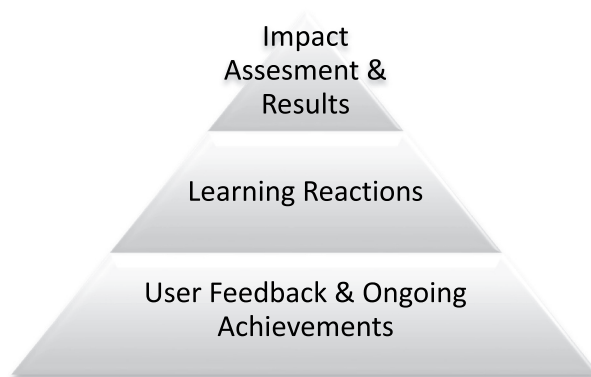

Figure 3. Case study evaluation phases.

proof of being able to apply them in their jobs as new competencies. In particular, the following learning achievements were recorded via active participation and learning engagement in the SlideWiki platform:

- *Involvement*: All participants have logged in to the platform, browsed, searched and followed the existing OER.
- *Self-testing of knowledge and skills*: Almost all participants responded to diagnostic self-test questions, before and at the end of learning, to provide proof of their ongoing learning achievements.
- *Reuse*: Over 180 forks of OER were performed, as well as more than 3,000 downloads of OER.
- *Active participation*: Over 2,000 comments were recorded, in addition to responses to online questions and tests.
- *Collaboration*: Proposals for the improvement of SlideWiki were brought forward from trainees and trainers via consultation workshops.
- *Co-authoring*: About 120 trainees acted as contributors during the training period, resulting in new decks, subdecks, slides, case studies etc.
- *Co-creation*: Several new decks and slides were uploaded to SlideWiki, with real examples from public administration services. Over 98 trainees evaluated public services via the Interoperability Maturity Assessment Model for a Public Service (IMM-IMAPS) (Papastilianou et al., 2019).
- *Co-production*: New administrative open datasets were co-created and shared via SlideWiki (Papastilianou, 2019b). Some of these datasets were also uploaded to the national administrative data portal.[4]
- *Co-working*: Administrative networks around public services were introduced as a new working method. Additionally, the flipped classroom model (Abeysekera & Dawson, 2015) was achieved, where trainees become authors and trainers.

Phase 2: learning reactions

This phase took place right after the end of the training period. During this phase, 480 trainees evaluated the training programmes via 47 educational statistics indicators, recording their immediate reactions regarding the usefulness of the training, their satisfaction, the quality of the training materials, the improvement of their knowledge, and more. The results obtained from these indicators show a high level of satisfaction across all educational parameters. The responses were recorded in a scale of 1–10 with the following mean (M) values:

- Usefulness: M = 9.17
- Goals and scope: M = 9.23
- New knowledge and skills: M = 9.00
- OER evaluation: M = 9.03
- Educational parameters: M = 9.12

During this phase, quantitative evaluation data were also collected via a questionnaire designed specifically for the evaluation of the SlideWiki platform. The results of this

evaluation reinforce the positive attitude of the trainees and trainers (580 trainees and trainers) towards SlideWiki:

- 80% would use it and recommend it to others.
- 90% think that the platform's interface is user friendly and there is no special need for technical support.

Phase 3: impact assessment & results

This phase took place 2 months after the end of the training period. During this phase, 380 trainees from different administration levels responded to a questionnaire (with over 140 questions) that assessed the impact of the training programmes. In particular, participants provided their feedback about the applicability of the training in their jobs, how much their professional performance had been affected, as well as the impact on their knowledge and skills. Participants were also asked about any changes they have implemented in their respective organisations as a result of this training, as well as how often they use in their jobs the knowledge and skills they have acquired. Figure 4 summarises the
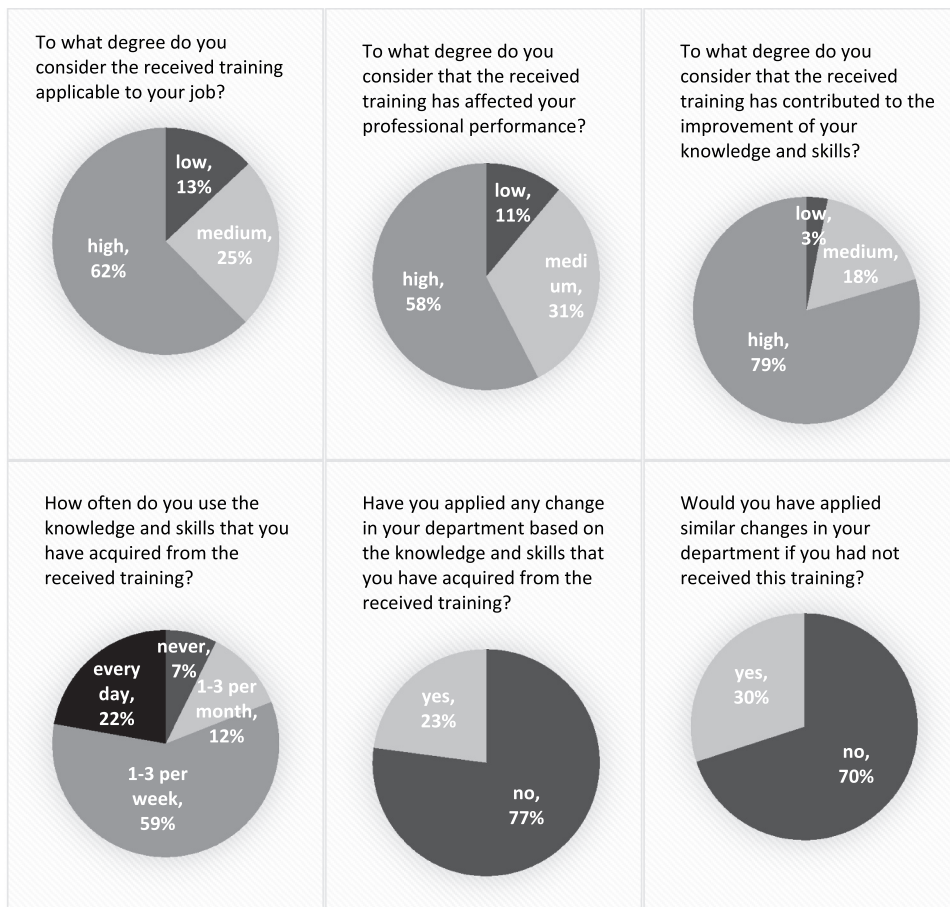

Figure 4. Impact assessment results.

responses of participants to questions about the value of the training they received via the SlideWiki platform. The responses were recorded in a scale of 1–10 and categorised as low (1–5), medium (6–7) and high (8–10).

Participants were also asked to provide some examples of knowledge and skills that they had acquired from the received training that they consider applicable to their job. Some indicative responses are the following:

- Tools and methods for online collaboration.
- More efficient organisation of resources.
- New methods of assurance and circulation of original resources.
- Use of tools related to open-source software and open data.
- Content publishing and sharing tools.
- Designing a strategy for the use of OER in public administration.

Discussion and conclusions

This case study has offered a valuable insight into the opportunities and challenges associated with the use of OER for expanding and enhancing curricular and resource sharing in public administration. First and foremost, the existence of an open online space for the creation and sharing of OER was deemed crucial for the recording, dissemination, deliberation and collaborative growth of knowledge and skills related to public administration (Papastilianou, 2019a). The use of OER has facilitated the collaboration between public sector employees, thus offering them new knowledge and skills. Through open courses and workshops, synergies were established between public agencies related to OER and know-how was transferred among them.

It should be noted that the production of OER based on existing face-to-face training materials was proven to be quite costly for EKDDA, both in terms of effort and time. Significant effort and time were dedicated to the curriculum redesign, the development of small autonomous learning objects, together with the appropriate documentation and reusing guidelines. Relevant expertise and competencies were also required by the instructional designers and technicians involved in the OER production process.

On the other hand, it is noteworthy that several novel and unexpected initiatives were performed by trainees, either by repurposing existing OER or by co-creating new OER. Public administration employees have collaborated to produce studies[5] and present their work in conferences, such as the comparison of health services with other public services that were evaluated in the context of educational programmes (Kouroubali et al., 2019).

More specifically, let us consider the EKDDA course 'Interoperability Maturity Assessment for Public Services',[6] which was also showcased in the methodology section of this paper (see Figure 1). This course was enriched and extended by the trainees listed as contributors of this OER on the SlideWiki platform (shown in the right-hand sidebar of Figure 1). Several sections were collaboratively added to the course by these contributors, including subdecks on the interoperability assessment of issuing driving licences[7] and the interoperability assessment of issuing unemployment cards.[8] The course was also repurposed, extended and translated into Greek.[9] Additionally, this course was reused by the Greek Institute of Computer Science (ICS) part of the Foundation for Research and Technology (FORTH), a national research organisation that is training numerous

professionals in cutting-edge information and communication technologies. FORTH-ICS reused this course for authoring the course 'Interoperability in Health',[10] which they offered as part of their training programmes. Another OER reuse initiative concerns an EKDDA course on Open Government.[11] This course was reused by a local municipality, in order to produce a revised version of the course tailored to the training needs of the municipality's civil servants.[12]

Another interesting outcome of this case study was the inverse in the role of trainers and trainees, as the latter group contributed to the co-creation of OER. In this way, a critical mass of experts around creating and reusing OER was developed. Because of this development, issues for protecting intellectual property rights were recorded as a priority among content authors.

The case study offered trainees the opportunity to self-regulate their learning and perform self-assessment via quizzes provided in the produced OER. These self-regulation skills can be useful for public employees who want to act as mentors of their colleagues and drive change in their workplace. Consequently, the current model of assessment in public administration needs to be re-examined in order to recognise and incorporate self-regulated learning, as well as effective co-creation and collaboration.

The use of OER has facilitated the publishing and dissemination of knowledge within the public sector. Online and collaborative creation of OER was performed in a very short time and with low cost, with the activities of all involved instructors being coordinated through the SlideWiki platform. The produced OER were augmented through the synthesis of contributions and ideas from different public agencies and by reusing and repurposing existing OER. Both trainers and trainees developed reusable skills, which raised their satisfaction and self-esteem.

As a result, beyond the strengthening of knowledge and skills, trainees co-created proposals for the redesign of public administration services, which were accepted by all participants, thus creating a commitment around them. Open and collaborative learning, together with project-based learning, were proven to be suitable methods for the development of collaborative learning assets, centred around the offered services with the participation of instructors and of those who benefited from these services. This combination of learning methods constitutes a proposal for the assurance of continuous improvement and evolution of the offered public administration services and can be characterised as 'Service-Based Learning'.

Through open participation and co-creation, communities of learning around a certain public administration service were developed. Through these communities, the common goals and common interests were identified for the improvement of the service in question. The members of these communities evaluated the value and usability of each service by collaborating within each community. Participation in professional communities was proven as the factor of engaging and supporting human resources in public administration in order to achieve common goals. Open processes allowed for the continuous evaluation, updating and reusing of services, which can benefit from significant feedback from public sector employees, government agencies, citizens, or private organisations, instead of exclusive design by public administration.

A key take-away message from this case study is that public administration should be involved in OER initiatives and should provide the ability to the general public to participate in the development of knowledge via suitable tools. It has become evident from this case study that every public organisation has a lot to gain from such activities, as

public administration services require interoperability. Additionally, interoperability requires a culture of collaboration, which open and collaborative learning can guarantee. Ensuring the active engagement of all participants constitutes proof of the creation of open public services and policies, as well as their continuous improvement and a critical factor for the digital reform of public administration.

The next steps of this work will be focused on promoting the culture of openness that was fostered by this case study, through additional OER initiatives targeting different training programmes of public administration in Greece. We aim to support the wider use of the SlideWiki platform in the Greek public sector, towards establishing a central repository that will act as a one-stop shop of OER that can be accessed and reused by public servants across different agencies, as well as by the public. This will help reinforce the culture of openness in public administration, with a view to transforming the public sector into an open entity that encourages evolution driven by the public.

Notes

1. https://www.mfa.gr/missionsabroad/en/about-greece/government-and-politics/public-administration.html
2. https://www.ekdd.gr/en/
3. https://slidewiki.org
4. www.data.gov.gr
5. https://slidewiki.org/deck/110710/kainotomo-ergasthrio-hackathon-diaxeirish-ekpaideytikwn-porwn-systhmatwn-ma8hshs
6. https://slidewiki.org/deck/108796/deck/108796
7. https://slidewiki.org/deck/108796-2/imm-interoperability-maturity-assessment-for-public-services/deck/110230-2/110187-2:8;110230–2:2/view
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12. https://slidewiki.org/deck/121719-1/anoikth-diakybernhsh-dhmoy-prosotsanhs

Disclosure statement

Funding

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