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M.A. in Linguistics: Theory and Applications

M.A. Thesis

**The Impact of the Digital School Open Educational Resources and
Practices on EFL primary and secondary courses in Greece**

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Declaration

This submission is my own work. Any quotation from, or description of, the work of others is acknowledged herein by reference to the sources, whether published or unpublished.

Υπογραφή

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List of Abbreviations

CALL	Computer Assisted Language Learning
CC	Creative Commons
CERI	Centre for Educational Research and Innovation
COL	Commonwealth of Learning
CTI	Computer Technology Institute & Press “Diophantus”
ESF	European Social Fund
ICT	Information and Communication Technologies
ISCED	International Standard Classification of Education
JISC	Joint Information Systems Committee
IKSME	Institute for the Study of Knowledge Management in Education
JRC	Joint Research Centre
LMS	Learning Management system
LO	Learning Object
LOR	Learning Object Repository
LORO	Languages Open Resources Online
MIT	Massachusetts Institute of Technology
MOOC	Massive Open Online Course
OA	Open Access
ODS	Open Discovery Space
OECD	Organisation for Economic Co-operation and Development
OEP	Open Educational Practices
OER	Open Educational Resources
OERRH	Open Educational Resources Research Hub
PLE	Personalised Learning Environment
POERUP	Policies for Open Educational Resources Uptake
RLO	Reusable Learning Objects
RLOR	Reusable Learning Objects
SPARC	Scholarly Publishing and Academic Resources Coalition
UGC	user generated content
UNESCO	United Nations Educational, Scientific and Cultural Organisation

Abstract

The dissertation draws on National Educational Initiatives to promote open and flexible learning through ICT, in particular the impact of Open Educational Resources (OERs) on language teaching and learning. The *Digital School Open Content services* have been implemented in the realms of the Hellenic National policy for Digital Educational Content for primary and secondary education and have effected the Open Interactive Textbooks portal and ‘Photodentro’ Reusable Learning Object Repositories (RLORs) (Megalou & Kaklamanis, 2018). Although open educational resources (OERs) reside in the foundational pillar of educational policies for equitable access to high quality learning, there are challenges preventing educators from adopting them. However, educators’ responsiveness to OERs has not been widely researched neither the outcomes of open education intervention schemes have been consistently monitored and assessed. (UNESCO & COL, 2016).

With a view to investigating the impact of the *Digital School Open Content e-based services* on English language courses across primary and secondary education, a survey study was conducted using a questionnaire amongst 198 EFL teachers. The research explored the extent to which Dschool Interactive Textbooks, Photodentro RLORs and platforms are known and used for English language learning in primary and secondary schools. It also explored EFL teachers’ perceptions and engagement with OERs and open educational practices (OEPs). Findings suggest that teachers’ awareness of OERs was high but their levels of familiarity and engagement were moderately low. It also was found that only the OERs embedded in the Interactive Textbooks were systematically applied by half of the respondents, almost exclusively for the preparation and the presentation of their lessons with appropriate adaptation. As

regards the impact of open educational practices (OEPs), there was low scale reporting of repurposing and redistribution between teachers. This research offers insight into Dschool open content applications for other school subjects and contributes to the digital education action plan agenda.

Σύνοψη

Η παρούσα μελέτη οδηγείται από τις Εθνικές Εκπαιδευτικές Πρωτοβουλίες με σκοπό την ανοικτή και ευέλικτη εκπαίδευση μέσω των Νέων Τεχνολογιών της Πληροφορίας και Επικοινωνίας (ΤΠΕ), ιδιαιτέρως την επίδραση των Ανοικτών Εκπαιδευτικών Πόρων στην ξενόγλωσση εκπαίδευση. Το πρόγραμμα «Ψηφιακό Σχολείο - Υπηρεσίες Ανοικτού Εκπαιδευτικού Περιεχομένου» υλοποιείται στο πλαίσιο της Ελληνικής Εκπαιδευτικής Πολιτικής για το Ψηφιακό Εκπαιδευτικό Περιεχόμενο στην Πρωτοβάθμια και Δευτεροβάθμια Εκπαίδευση και συντέλεσε στη δημιουργία της πλατφόρμας με τα Ανοικτά Διαδραστικά Σχολικά Βοηθήματα και των αποθετηρίων «Φωτόδεντρο» (Megalou & Kaklamanis, 2018). Παρόλο που οι Ανοικτοί Εκπαιδευτικοί Πόροι αποτελούν βασικό πυλώνα πολλών εκπαιδευτικών πολιτικών παγκοσμίως αποσκοπώντας στην ισότιμη πρόσβαση σε υψηλής ποιότητας μάθηση, υπάρχουν περιορισμοί που εμποδίζουν την αξιοποίησή τους από τους εκπαιδευτικούς.

Με σκοπό την διερεύνηση της επίδρασης του προγράμματος «Ψηφιακό Σχολείο - Υπηρεσίες Ανοικτού Εκπαιδευτικού Περιεχομένου» στην ξενόγλωσση εκπαίδευση στην Πρωτοβάθμια και Δευτεροβάθμια Εκπαίδευση, διεξήχθη έρευνα με χρήση ερωτηματολογίου μεταξύ 198 εκπαιδευτικών Αγγλικής γλώσσας. Σκοπός της έρευνας ήταν να διακριβωθούν τα επίπεδα ενημερότητας και εξοικείωσης των εκπαιδευτικών με τις πλατφόρμες «Ψηφιακό Σχολείο – Φωτόδεντρο - Διαδραστικά Σχολικά

Βοηθήματα», τα αποθετήρια Ανοικτών Ψηφιακών πόρων και Ανοικτών Εκπαιδευτικών Πρακτικών. Σύμφωνα με τα αποτελέσματα της έρευνας οι εκπαιδευτικοί έδειξαν υψηλή γνώση αλλά σχετικά μέτρια εξοικείωση και εμπλοκή με το ανοικτό εκπαιδευτικό υλικό και τις πρακτικές. Μόνο οι ενσωματωμένοι Ανοικτοί Εκπαιδευτικοί Πόροι στα Διαδραστικά Σχολικά Βοήθημα διαπιστώθηκε ότι αξιοποιούνταν συστηματικά από τους συμμετέχοντες στην έρευνα με στόχο την προετοιμασία και παρουσίαση του μαθήματός τους, κάνοντας και την κατάλληλη προσαρμογή. Σχετικά με την επίδραση των Ανοικτών Εκπαιδευτικών Πρακτικών αναφέρθηκε πολύ περιορισμένη τροποποίηση και διαμοιρασμός των Ανοικτών Εκπαιδευτικών Πόρων μεταξύ των εκπαιδευτικών. Τα αποτελέσματα της έρευνας για τις εφαρμογές του «Ψηφιακού Σχολείου» προσφέρονται για επεξεργασία και αξιοποίηση για άλλα σχολικά μαθήματα και για το στρατηγικό σχεδιασμό της Ψηφιακής Εκπαίδευσης.

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Introduction

Within the e-learning ecologies of today, signified by distributed cognition and the co-construction of meaning on new media spaces, Open Educational Resources (OERs) have gained prominence as an innovative and dynamic approach to the development, dissemination and utilisation of knowledge (Butcher et al., 2011; OECD, 2007; UNESCO, 2012). Their origins can be traced in the large-scale OpenCourseWare programme launched by the Massachusetts Institute of Technology (MIT) in 2001, while the concept “Open Educational Resources” was officially adopted by UNESCO in the Forum on the Impact of Open Courseware for Higher Education in Developing Countries in 2002 (UNESCO, 2002). Since then, they have diversified to include a wide variety of openly available learning materials, technologies and educational platforms with implementation sources which afford the important capabilities of use, adaptation, sharing, relocation and expansion in teaching, learning and research free of royalties or license fees (Butcher, 2015; OECD-CERI, 2007; UNESCO & COL, 2012). OERs lie at the heart of the openness movement for establishing equal and free-of-cost access to knowledge for all, sustainability and quality growth in education, life-long learning as well as open participatory learning designs (Ehlers, 2011; OECD-CERI, 2007; Thomas & Brown, 2011; United Nations, p. n.p.). Following the OECD recommendations (OECD-CERI, 2007), the UNESCO Paris OER declaration (UNESCO, 2012) and the support of other key global actors, there has been an acceleration of OER policies and initiatives worldwide in order to share by electronic means all publicly funded educational materials. Also, the European Commission has prioritised and supported

OERs by launching several funded action schemes such as the ‘Open Education Resources and Practices in Europe’ and the ‘Gateway to European Innovative Learning Policies for OER Uptake (POERUP)’ programmes (Hylén et al., 2012).

In this general context, Greece has been engaged in the OER field through different programmes across all educational levels, a significant milestone of which is the national strategic programme *Digital School Action I & II* for primary and secondary education (Megalou & Kaklamanis, 2018, JRC, 2017:68). The *Digital School* national initiative was launched in 2010 by the Greek Ministry of Education (MoE) and has now completed its second implementation phase (2017-2018) with the primary goals to foster and facilitate the supply of high-quality educational content as OERs, to offer flexible learning opportunities, to promote enhanced pedagogies, continuous professional development, best practice and innovation through mainstreaming Open Educational Practices (OEP). The activities of the Digital School initiative towards the field of open education comprised the conversion and enrichment of all primary and secondary level compulsory textbooks as *Open Interactive Textbooks*, the development of *Photodentro Reusable Learning Object Repositories (RLORs)* & the *National OER Aggregator* as well as the *Personalised Learning Environment (PLE) ‘e-me’*. The initiative also focussed on ICT integration in the school system, teacher training and the adoption of a clear definition of open licenses, open source standards and criteria for the quality and transparency of the resources (Megalou & Kaklamanis, 2018).

Although OERs have been part of the Greek educational system for almost a decade, no concrete evidence exists about the outcomes of their implementation in the teaching-learning process. More specifically, we do not know how far the *Digital School Open Educational Resources and Practices (OERs /OEPs)* have been utilised

by public school teachers, the ways they adopt and implement OERs, the opportunities they are offered and the challenges they face in their teaching practice. The progress of the *Digital School* national initiative has been well documented with regards to the large pool of quality open content and the new models of knowledge sharing it has generated in the European Commission reports (POERUP, 2014, JRC, 2018) and the OER World Map-Mapping the Open Educational Landscape (Weller, Jordan et.al., 2018). However, the implementation of the *Digital School* has not been investigated in terms of the actual benefits OERs confer for the educational system. This largely remains an unresolved issue as far as most OER national initiatives are concerned. As literature has shown, the potential of OERs for building reputation for individuals and institutions, improved efficiency and their transformative capacity for the educational system has not been evaluated on the basis of research outcomes (Weller, de los Arcos, Farrow et.al, 2015; Mia, Mishra, Mc Greal, 2016). Taking this into consideration, the present research study undertakes to establish the first evidence base for the impact of the *Digital School Open Educational Resources and Practices (OERs /OEPs)*, acknowledging them as a high-educational capital for all stake-holders involved.

This study aims to investigate the impact of the *Digital School Open Educational Resources and Practices (OERs /OEPs)* programme on English as Foreign language (EFL) courses in primary and secondary schools in Greece. In this endeavour, the study draws on the rationale of the Digital School implementation and OER literature with a specific focus on the resources and platforms catering for EFL teachers in public schools. The objectives of the study are to examine and analyse EFL teachers' familiarity, evaluation and ways of engagement with the *Digital School* portal and practices. Furthermore, it is within its scope to discuss the implications for OER strategic schemes and to offer recommendations to help build capacity professional

development programmes for open education in Greece. The study will seek to give an answer to the following research questions:

- (1) How far are EFL teachers familiar with the use of ICT devices and tools for language teaching and learning?
- (2) To what extent are EFL teachers aware of and familiar with the Digital School Open content-based e-services platform and OER services?
- (3) What are EFL teachers' perceptions regarding OER ease of use, quality, relevance and impact on learner interest and language skills?
- (4) In what ways have EFL teachers integrated OER in their teaching practice?
- (5) How far have EFL teachers been engaged with the open educational practices (OEP) of adapting, remixing, repurposing and redistributing?

For the purposes of this research study, a survey will be conducted (Owen, 2017) with a purposive sampling approach to restrict participants to EFL teachers in public schools. As a method of data collection, a questionnaire has been designed to be administered online via email listservs. The questionnaire comprises three categories of questions with different response format (yes/no, Linkert-type anchored 1-5, and open questions) (de Leeuw, Hox & Dillman, 2008) dealing with participants' demographics, ICT use and *Digital School* familiarity, level of engagement and their evaluation, OEP and OER opportunities and challenges. For the quantitative analysis of the collected data, reliability Cronbach's Alphas and descriptive statistics presented as percentages, means and standard deviation (SD) will be performed. Also, Pearson chi-square tests for comparison between variables and multivariate regression tests to detect correlations between frequency of use and ratings will be applied (SPSS; Chicago, IL, USA). For the qualitative analysis of the open question, responses will be summarised and categorised as OER reported opportunities and constraints.

After this brief introduction of the study, the dissertation gives a chapter on Open Educational Resources and Practices (OER/OEP) through the lens of National Educational Initiatives which explains the theoretical foundations for adopting them, their benefits and limitations. The *Digital School* initiative is also presented along with the development of the EFL digital resources and services and an overview of the outcomes of initiatives and smaller-scale projects. Next, Chapter 2 is devoted to the methods used both in collecting and analysing the data whereas the analysis of the research findings is given in Chapter 3. Finally, Chapter 4 discusses the findings and suggests implications not least for implementing OERs but also for the development and sustainability of action schemes.

Chapter 1

Open Educational Resources and Open Educational Practices

1. Open Content in National Educational Initiatives

Technology has been extremely successful in providing users convenience, ubiquity (Blake, 2011) and a wide variety of multimedia, often cost-free, contents (Barabási, 2002; de Kunder, 2012; Page, 2014), and, more specifically, language learning applications and resources in the form of massive open online courses (MOOCs) and Open Educational Resources (OERs). Also, many researchers (Blyth, 2013; Thomas and Evans, 2014) have underlined the relevance of OERs for enriching language teachers' knowledge and skills in the context of the social web services (Web 2.0 tools and Learning Management Systems-LMS), user-generated content (UGC) as well as in pedagogical concepts and theories such as constructivism, mobile learning, learning by design and personalised learning whereby learning is viewed as a participatory process and knowledge is co-constructed between teachers and learners.

Acknowledging the key role of (ICT) in 21st century learning and skills, digital educational content resides in the foundational pillar of many National Initiatives. Germane educational policy action plans globally prioritise frameworks for the production of digital educational resources, the design and implementation of web-based content services for the systematic management and distribution of educational resources in school communities, along with the design of methodological and pedagogical frameworks for optimum exploitation. These action plans are considered

to represent current developments in the Open Educational Resources (OER) movement. Openness in education is attributed to the MIT's Open Course Ware project in 2001 (Weller, Jordan, DeVries, Rolfe, 2018). Although in its initial stages, the OER movement gained momentum with Open Access (OA) in Higher Education, supported by the Scholarly Publishing and Academic Resources Coalition (SPARC) and saw the rise in Massive Open Online Courses (MOOCs), since 2010 principled open education recommendations have been formalised into policy in the compulsory education sector so as to foster and facilitate their adoption (Bonk, 2009).

The influence of Open Educational Resources (OEP) on school education has been considerable in the light of worldwide National Initiatives for the effective integration of information and Communication Technologies (ICT) in schools. In September 2013 the European Commission launched its 'Opening Up Education' strategy – a central axis of its three-strand initiative being 'increased use of Open Educational Resources (OERs), ensuring that educational materials produced with public funding are available to all' (POERUP, 2014). Also, in the OECD Country questionnaire analysis, Hylén et al. (2012: 7) noted "Primary, lower secondary and upper secondary education are about as involved in OER as tertiary education. Most countries have simultaneously initiated activities in several educational sectors. Some, like Austria, Greece, Mexico and the Netherlands, are active over the full spectrum, with the exception of International Standard Classification of Education (ISCED) sector 4." Details about the OER development and use we find in *Rethinking Education* (EC, 2012) and in the 'Gateway to European Innovative Learning', POERUP project- Policies for Open Educational Resources Uptake (2011-2014) which lists 248 large-scale, government funded school-related OER initiatives, either regional such as the NordicOER or national the Wikiwijs programme in the Netherlands, the Digital School

Programme in Greece, the Portal das Escolas in Portugal and many more. In the US, the OER mainstream strategy has yielded resources aligned to K-12 curricula and open textbooks produced by the CK-12 FlexBooks and K-12 OER Collaborative and digital repositories like Curriki and Open Culture (Hylén et al., 2012:11; Bliss & Smith, 2017: 395). In response to this, repositories or referatories have been constructed around the learning object model and delivered as open learning resources. These endeavours are associated with the diversification Open Educational Resources (OER) movement for primary and secondary education.

The following section defines Open Educational Resources (OERs) in terms of theory and practice and accounts for their scope and challenges for education in general and for language teaching.

2 Openness in Education: Theoretical Foundations

Introduced by UNESCO (2002) in the Forum on the Impact of Open Courseware for Higher Education in Developing Countries, Open Educational Resources (OERs), by its formally adopted definition signify “teaching, learning and research materials in any medium, digital or otherwise, that resides in the public domain or has been released under an open license that permits no cost access, use, adaptation and distribution by others with no or limited restrictions.” (UNESCO & COL, 2012). The UNESCO Paris Declaration specifies as *open* those teaching and learning educational materials, not necessarily digital assets, which have been made freely available through either open access standards (see Wiley in Grossman, 1998 for definition open content as copyrightable work and open source software) or are released under various Creative

Commons licenses (Plotkin, 2002) which grant users permission to engage with the following 5R practices:

- Retain – the right to make own, control copies of content.
- Reuse – the right to use the content in a wide range of ways (i.e. in class, on a website).
- Revise – the right to adapt, adjust, modify, or alter content itself.
- Remix – the right to combine the original or revised content with other material to create something new and re-purpose it.
- Redistribute – the right to share copies of the original content or your revisions, ... with others. (Wiley, 2014; Janowska, 2016).

In practice, the term OER is often applied to extended Open Educational Practices (OEPs), including developing and applying open pedagogies; open learning; and the use of open technologies for teaching (Beetham, Falconer, Mc Grill, and Littlejohn, 2012). As such, OERs are deemed as a paradigm shift with social, economic, cognitive and technical dimensions. From a social-economic perspective, *openness* can be viewed in the light of United Nations, Article 26, ‘Education as a fundamental human right’ as the most important element of policies that want to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations, 2017, p n.p.; Geser, 2012). OERs lead in UNESCO, the OECD and other global actors’ policies to democratise education, to enhance the quality of teaching and learning by reducing physical, economic or social barriers, particularly for low-income societies or marginalized populations. *Openness* in pedagogy, largely rests on the innovation of Open Education Practices (OEPs) by means of which teachers and learners are empowered to design more engaging, locally relevant, interactive customizable and shareable content (Byswas-Dienever and Jhangiani, 2017: 121;

Peters, 2008). While technology is revolutionising how learning takes place in the classroom, reduced funding means that schools have to function with fewer resources. In view of this paradox, Littlejohn and Hood (2017) elaborate on the perceived benefits of using OERs in: that they provide a basis for collaboration and partnership by means of the 5R activities; that OERs facilitate knowledge sharing and bridge the gap between formal and informal learning as they broaden access to resources in and outside school settings; that they reduce production costs by allowing the circulation of shareable and repurposable materials; that OER quality is regularly improved by sustaining a process of evaluation and updating; and in that OERs foster autonomous and personalized learning and improved instruction. These are exactly the same premises which are shared by the majority of the OER consortium (Mc Grill, Falconer, Dempster, Littlejohn and Beetham, 2013) and motivate general research of OER impact on teaching and learning practice (Weller, de los Arcos, Farrow, Pitt and McAndrew, 2015). Butcher (2015) explains this transformative potential of OERs, with an educational purpose which may come either from the creator or the user of the resource, distinguishes them from other freely available materials on the Internet and has accelerated their global spread along with the advances in mobile technologies which have increased their sustainability.

2.1 Defining OER use for schools

The term OER broadens by reference to the word *resource* which applies to content with a didactic concept and aim and tools to support access and inquiry. Resources as a medium for and as educational content of formal study have primarily been designed in the model of the *learning object (LO)* for reuse and repurposing (Weller, Rolfe, DeVries, Rolfe, 2018; Schibecchi, Lake, Phillips et al., 2006). ICT ubiquity enabled the

production of digital content both by individual educators and institutional initiatives, one of the many instances being the UK's FAVOR project for EFL language educators (JISC, 2012), and the LO provided a template for OERs. Wiley (2000) defines a learning object as 'any digital resource that can be used to support learning. It applies to educational materials designed and created in small chunks for the purpose of maximizing the number of learning situations in which the resource can be utilized.' An LO is a granular, digital resource developed to meet a single objective; it has at least three internal and editable components: content, learning activities and elements of context; and comes with an external structure of information to facilitate its identification, storage and retrieval: the metadata (Margaryan and Littlejohn, 2007; Laverde, Cifuentes, Rodriguez, 2007). In the school context, we can identify six types of LOs: texts with embedded hypermedia applications, drills, exercises, interpretative activities, simulations and games for practice. These are designed to be self-contained or integrated into the curriculum, aggregated, that is designed to be grouped in larger collections of content, or sequenced to produce longer units of learning (Carey, Swallow and Oldfield, 2002). The LO open format has the potential of widespread availability and of high-quality interactive learning, through the exchange of the invested knowledge of their creators and users.

LOs as OERs have become available in Learning Object repositories (LORs) for educators engaged with computer supported collaborative learning and smaller repositories have been built into federated repositories by being harvested for their metadata for better access to a higher number of LOs (Tzikopoulos and Manouselis and Vuorikaki, 2007). Specifically, for primary and secondary education (K-12), National Learning Repositories have been built so as to meet the goals of national curricula and develop educational resources at a national level, especially in countries with

centralized educational systems (Megalou and Kaklamanis, 2014). LORs generally serve as multi-functional platforms which are designed to facilitate access to re-usable learning objects in a variety of formats, so users can search for, find and make use of content (Downes, 2001; Mc Greal, 2011). National LORs, as on-line libraries most commonly host:

- Learning content: Interactive open textbooks with multimedia applications and embedded LOs, digital or analog courseware and curriculum-aligned collections of textual, audible, visual OERs .
- Tools: Software to support access to and the development of learning content including the provision of Learning Management Systems (LMS).
- Implementation Sources: Intellectual property licenses to promote open publishing of materials and localization (repurposing) of content. (OECD-CERI, 2007; Bock, 2014; Megalou and Koutroumanos, 2015).

This list of components makes it obvious that OERs have diversified to include what is frequently termed as ‘big OERs’ when referring to whole courseware, e-content services, syllabi, learning scenarios of connected materials and Open textbooks and ‘little OERs’ when referring to single shared items such as videos, slidesets and tasksheets (Weller, 2010).

2.2 OER significance: enablers and challenges

The following considerations reflect on the opportunities presented by OERs and point to several challenges in the context of public educational systems. The discussion draws on the implications for OER extent of use and quality linked to engagement and open practice.

OERs have the potential to contribute substantially to the fundamental evolving process of knowledge production, dissemination and utilisation. The Creative Commons (n.d.) OER policy registry, the Commonwealth of Learning (COL) and UNESCO provide evidence of widespread OER education policies (McGreal, Miao and Mishra, 2016:4) according to UNESCO's (2012) recommendations: to facilitate ICT use, to reinforce OER strategies and to support capacity building for the sustainable development of quality learning materials. The integration and utilization of OERs into school e-learning systems through a National LOR and Aggregator portal is driven by a growing sense of their quality, efficiency and systemic transformative capacity. As literature supports, OERs are subject to potential continuous revision in comparison to conventionally published resources; force institutions to improve their digital infrastructure and foster innovative educational practices by engaging the teaching community in the development of new courses and transforming learners from knowledge consumers into knowledge prodsumers (participating actively into what is learnt) (Lau and Woods, 2009; Borthwick and Gallagher-Brett, 2014, Havemann, 2016; Son, 2018). These motivations, of course, assume that a reusable LOR supports a collaborative learning environment by hosting tools for posting knowledge atrefacts and feedback by its users, it enables a culture of co-knowing and social interaction and it can play a fundamental role in knowledge production within the school community by serving a shared goal and outcome (Margaryan and Littlejohn, 2007; Sánchez-Alonso, Sicilia, García-Barriocanal, et al., 2011).

To this end, the Creative Commons (CC, 2016) licensing standards adopted by the OER community give legal sharing options ranging from open (public domain), through open with various combinations of attribution requirements to one or more restrictions *non-commercial*, *share-alike* and *no derivatives*. Inevitably, as Green

(2017) underlines, because copyright permissions and licensing adhere to a continuum of openness rather than an open/closed dichotomy, a basic understanding of CC licensing by the OER community is critical if this new creativity is to scale effectively and go mainstream.

Beyond accessibility, cost efficiency and the capability to enjoy the services generated by the resource (UNESO, 2017), Tuomi (2013) argues that modifying the resource undergirds situated professional learning and when the improved resource can be re-distributed, a new accumulative and expansionary dynamic of resource development emerges - users can become producers who work on the received resource. This adds to the ‘strong’ OER value. In other words, the Open Reusable LOR ecosystem permits a cycle of reflective practice which ensures the quality and efficacy of resources. In this respect, Elhers and Conole (2010: 5) state that the actual quality of an educational product is associated with the capability of teachers in evidence of their teaching open practices. Open Educational Practices (OEP), therefore, extend beyond the exercise of the 5R activities and hinge upon educational policies which establish professional knowledge co-construction in a community of practice, innovative pedagogical models and curriculum change (Alevizou, 2012; Andrade, Caine & Carneiro, 2011; Beetham, Falconer, McGrill and Littlejohn, 2012). Thus, quality is guaranteed when open pedagogies are applied. Inarguably, then, EFL teachers, and any other subject-specific educators’ community, are presented with the task of acquiring skills and knowledge ranging from basic digital literacy to creativity and technical information about Creative licenses and tools (Atkins, 2007; Green, 2017), all of which are extremely instrumental for OER responsiveness.

According to the European Commission Joint Research Centre (JRC) *OpenEdu Framework and Policies* report, albeit being a priority, policies are too recent to yield

concrete evidence of teachers' responsiveness and impact and, in most European schools, OERs function as a supplement not a substitute for existing conventional textbooks (Inamorato dos Santos, Nascimbeni, Bacsich, Atenas., 2017: 9). Moreover, research into funded projects has raised questions about curriculum compatibility and the lack of provision for learning pathways and scenarios (Simpson, 2013; Cobb, 2018). The JRC report (2017:10) also cites among the barriers for OER adoption: low-ICT readiness; lack of awareness of open education; low open education capacity within the teaching population; fragmentation of initiatives; and absence of an open licenses national recognition scheme. This means that the digitation in the design of learning is often seen as an endeavor in private as OER production and distribution has not been systematised or adequately regulated. Alternately, although collaborative production of OER requires well-designed and robust online spaces, repositories and infrastructure (Mc Greal et al., 2013) we witness cases of under-financed educational systems that cannot invest heavily either on digital equipment or on continuing professional development programmes in raising awareness of the pedagogical value of OERs irrespective of the available technologies (Marcus-Quinn & Hourigan, 2016). Repositories of OERs fulfil the task of provisioning content, however unresolved is the issue of to offer an appropriate infrastructure for the dissemination and circulation of these resources between content developers, teachers and learners (Conole & Alevizou, 2010). In considering, also, the importance of teachers' role in scaffolding knowledge acquisition, we inevitably need to look into how low open education capacity among education practitioners may impede OER viability.

Apparently, the implementation of OER strategic actions is inextricably linked to the foregoing challenges and affordances. As subject-specific teachers currently in practice in primary and secondary education are the key facilitators of open practice,

understanding how they perceive OERs and how far they apply them can provide insight into the requirements for wider and more effective OER integration.

3. Open Access to Educational Resources through the National Digital School Programme for Public Schools in Greece

The *Digital School* initiative¹ in Greece has evolved from the operational programme *Education and Lifelong Learning* 2007-2013 and is currently implemented under the *3rd National Action Plan on Open Government*² 2016-2018 by the Greek Ministry of Education (MoE) and the Computer Technology Institute & Press “Diophantus”. Co-funded by the European Social Fund (ESF) and the Greek MoE, the primary goals of the Digital School programme are to develop and provide all levels of primary and secondary education with a continuing supply of high quality educational content and e-services; to reinforce the quality of teacher training with an emphasis on open pedagogies and the use of ICT; and to promote inclusion in education by fostering reusability and easy access (Megalou and Kaklamanis, 2018: 146; JRC, 2017: 68). The digitation of the mainstream educational system has involved experienced educational practitioners, pedagogical and domain experts, academic professors, engineers and technical personnel who have developed and maintained more than 7.500 curriculum aligned LOs and curated OERs from other existing repositories (Megalou and Kaklamanis, 2018: 147). Distinguished with a best practice award by European Social Fund (ESF), the Digital School programme elaborates on the European 2020 digital agenda³ by expanding its services to support teachers and pupils as content creators

¹ <http://dschool.edu.gr>

² <http://www.opengovpartnership.org>

³ <https://ec.europa.eu/digital-single-market/en/europe-2020-strategy>

within a community of practice applying quality seals and open licensing standards (Megalou and Kaklamanis, 2018: 150).

3.1 The framework and content of the Greek OER/OEP infrastructure

The Digital School programme web platform supports the following open content-based e-services:

Open Interactive Textbooks. Around 300 open digital formats of the ministry approved compulsory textbooks for all taught school subjects are available at e-books.edu.gr, the official portal of the Greek MoE for hosting and delivering digital school textbooks. enriched with multimedia resources oriented to Open textbooks (around 300) and supplementary courseware for all school subjects are available with embedded hypermedia applications and course-aligned resources (Megalou and Kaklamanis, 2018; 147-148). These enriched textbooks in open digital formats, pdf or editable html resembles the printed book version and serve as a vehicle for a smooth transition towards teachers' familiarization with digital learning resources because they offer a familiar browsing interface with links to navigate through RLORs and OERs.

For EFL instruction, specifically, the process of textbook enrichment was implemented in three stages: a principled and systematic analysis of the course aims followed by the planning stage and finally content development. EFL Open Interactive Textbooks support multimodality and personalised learning with LOs in each of the following taxonomies: informative (e.g. glossaries, picture dictionaries), instructional (e.g. edugames), exploratory (e.g. Mystery and Lost series) and experiential (e.g. digital stories and writing applications) (Mitsikopoulou, 2014).

In Primary education, two e-portfolios support Grades 1 & 2 and four Interactive Textbooks cater for Grades 3 to 6. In lower Secondary there are five level-specific Open Interactive textbooks and two in pdf format for upper Secondary education.

'Photodentro' Reusable Repositories of Learning Objects (RLORs) and the National OER Aggregator.

The *Photodentro* ecosystem is the core dimension of the Greek national infrastructure for regular educational content as it hosts six OER repositories with a distinctive purpose each, as well as the *Hellenic National Educational Content Aggregator* with certified curated and deliverable OERs from different domain sources (Megalou and Kaklamanis, 2018: 148). Authorised users can publish in the repositories under CC licenses in:

(1) *Photodentro LOR* (Photodentro.edu.gr/lor). For English, it hosts the collection of 690 LOs linked to the Interactive English textbooks and 178 linked to the Preliminary English e-portfolios. Classified into the aforementioned taxonomies, these present a wealth of applications and a variety of multimedia formats such as picture dictionaries, mind maps, reading and genre-based writing and listening applications, virtual tours and web quests. They are related to a core concept, lesson aim and target audience by means of taxonomy metadata cards for easy access, repurposing and use in different learning contexts in or outside classrooms. LOs are meant to foster and facilitate a cycle of learning processes towards the design of learning: experiential learning through reflections and making real-world connections, analysis of knowledge, reasoning and problem solving (Wiley, Hilton, Ellington, 2012).

(2) *Photodentro Video* (photodentro.edu.gr/video) hosts 112 quality certified videos developed by the digital community 2010-2015, the Greek Educational TV, the learner community or retrieved from other sources. Aiming at supporting literacy skills,

arousing interest and establishing bonds with other cultures, the video collections include warm-up brainstorming, digital storytelling, action songs, documentaries and reading comprehension narrations with visual support (Mitsikopoulou, 2014).

(3) *Photodentro EduSoft* (photodentro.edu.gr/edusoft) comprises standalone educational software of four categories: educational multimedia, sets of learning scenarios, educational software tools, open learning environments including six for English: e-slate exploration for designing microcosms targeted at Grades 4 & 5 for the consolidation of vocabulary and grammar and for Grade 6 and secondary level 1 beginner English si-lang software for building games.

(4) *Photodentro User Generated Content (UGC)* (photodentro.edu.gr/ugc) provides a place where teachers can publish and share their own OERs so as to build a community of open practice and professional development (Megalou, Gkamas, Papadimitriou et al., 2016:3). Thirteen teacher-generated OERs for English are included in the UGC repository.

(5) *Photodentro OEP* (photodentro.edu.gr/oep). Enhancing community bonds through sharing open practices, *Photodentro OEP* hosts seven reusable learning scenarios for English. With the support action *i-participate* and through annual contests for primary and secondary OEPs, teachers are eligible for publishing their work, share reflections and experiences and invite feedback from peers (Megalou, Gkamas, Papadimitriou et al., 2016:4)

(6) *Photodentro Culture* (Photodentro.edu.gr/culture). Seven aggregated OERs link aspects and important figures from Greek and English literature and history to English language instruction.

In order to expand the pool of OERs and increase their transparency, separate subject- specific microsites have been constructed and supported in the ecosystem of

Photodentro. These support certain dimensions of the Photodentro harvested content and carry a separate domain name (Megalou & Kaklamanis, 2014:6). *The English Language Photodentro microsite* (micro.photodentro.edu.gr/english2015) aggregates from the British Council Learn English collections and the Preliminary English programme for Grades 1 to 3 with 176 LOs, audiotexts and sixty-three videos. Also, three micro learning scenarios for primary and six for lower secondary schools serve as exponents for incorporating these resources into practice.

Alternately, the *National Aggregator* of digital content provides access to a series of open archives and *Aesop- Advanced Electronic Scenarios Operating Platform* (aesop.iep.edu.gr). The platform provides the tools for the design of open learning scenarios with the application of Web 2.0 technologies for classroom use or self-study. The learning scenarios are learner centred and utilise innovative approaches to learning (e.g. Learning by Design) in tandem with the Integrated Foreign Languages Programme in Greek education (2011) (Mitsikopoulou, 2015). Currently, it hosts forty-one accredited English language learning scenarios.

A very significant aspect of the primary and secondary school digital infrastructure constitutes the Hellenic Digital Educational Platform *e-me* (e-me.edu.gr) provided by the MoE which implements a social learning environment where teachers and learners can safely share content, collaborate with peers, publish individual knowledge artefacts and interact with OERs using the embedded applications and social web tools (Megalou, Koutroumanos et al., 2015).

e-me as an open source implementation of a safe *Personalised Learning Environment (PLE)* is innovative in design and scope in that it responds to the necessity for easily customizable learning environments and management of multi-sourced open contents. As such, it complies with the principles of open education: learner

engagement in knowledge co-construction, reducing technological barriers, supporting sustainable and extendable educational models for OER growth and dissemination. (Megalou, Koutroumanos et al., 2015: 3; Megalou & Kaklamanis, 2018:149).

The diffusion OER/OEP in the Greek educational system has been well documented in the analysis of the strategic action. An LOR, *Photodentro*, is one of the main components of the Greek e- learning environment, and, therefore, the overall quality of the learning services highly depends on it. Nevertheless, the impact of openness depends on whether it makes the current educational system more productive and effective by addressing the needs of all the stake-holders involved. Thus, research into the outcomes of this educational transformation through the lens of its beneficiaries is necessary to help better co-ordinate policy action plans.

3.2. A literature review of OER projects and initiatives

Just a cursory review of scholarship on the OER movement justifiably yields ample evidence from Higher Education since ‘historically its roots lie in civil approaches to education and open universities’, whereas OERs, initially focusing upon learning objects, OpenCourseWare and massive open online courses (MOOCS) and links of OEP to open publishing have been thoroughly investigated (Weller, Jordan, De Vies, Rolfe, 2018). From this perspective, studies point to growing awareness, community building and reflective practice between educators (Farrow et al., 2015; Petrides, Jimes, Middleton-Detzner, & Howell, 2010), improved learning outcomes (Farrow et al., 2015), reduced costs for both teachers and students during the academic year and less time spent on lesson preparation (Bliss, Robinson, Hilton, & Wiley, 2013; Wenk, 2010; Wiley, Hilton, Ellington, & Hall, 2012). Yet, these perceived benefits remain either generally unexplored for compulsory education. Furthermore, few are the empirical

studies in all this scholarship which explore the influence of OER in teaching and learning as a transformative force in education.

According to the Hewlett-funded OER Research Hub (OERRH) international survey (de los Arcos, Farrow, Pitt, Weller & Mc Andrew, 2016), which addressed the need to develop a robust evidence base for the impact of OERs in the school sector, results obtained from 657 teachers across the William and Flora Hewlett Foundation collaboration countries, revealed a positive impact (64,3%) in terms of professional development, facilitation of their practice and collaboration while 92.2% attested to broadening curriculum coverage via OERs. Such findings confirm a direct impact arising mainly from free cost and access. Concerning the degree of teachers' engagement with OER to foster personalized learning, a percentage pattern of high adaptation (94,4%) followed by lower production (77.8%) and even lower open publishing (38.9%) was observed. However, the researchers admit to the difficulty of obtaining more qualitative, comparative data about the impact on learner performance and how they benefit from OER improved course design due to the reportedly 'nebulous nature of OER adaptation'. Interestingly, teachers' awareness of open repositories was satisfactory (69,8%), whereas 32.8% were involved in designing for LORs and 14.3% had written methodological suggestions as comments after using the resources. Furthermore, the types of resources teachers more frequently used included videos, images, elements of a course and open textbooks mainly to prepare the lesson, as assets or to 'interest hard-to-engage' learners. In tandem with previous studies, they also reported on demotivators in regards with finding high quality resources (57,3%), relevance to the subject area (56,1%) and transparency (50,1%). In the researchers' view, such generally positive attitudinal response 'makes a compelling case for high quality, free resources being released'.

In another study from the United States addressing 128 educators across three sectors, K-12, higher education and workplace training environments who were identified as being aware of and implementing OER in their practice, Kelly (2014) applying the technology acceptance model in her analysis (see Davies, 1996) established that: a) teachers with a higher sense of computer application efficacy are more inclined to report on OER ease of use, which, in turn, has a strong effect on their perceived efficacy, b) K-12 teachers found OER more useful than the other two groups, c) elementary school teachers, in particular, were the most hesitant to adopt OERs as they displayed the lowest self-efficacy perceptions, d) quality in the user interface design is essential in the adoption of the resource, although content may guide its initial selection, and more importantly that: e) teacher education programmes demonstrating or embedding the application of OER in the teaching-learning process contribute to their perceived usefulness which leads to mainstream adoption. Similar outcomes have been supported by a number of relevant studies across Europe.

Longer than a decade, the European Union has been promoting OERs since they can facilitate policy dialogue, knowledge sharing and collaboration between states and institutions internationally (Sabadie et al., 2014). Engagement with open content implies participation in a community of practice and research with language educators using the Languages Open Resources Online (LORO) repository at the UK's Open University has verified collaboration and skills development (Comas-Quinn, Beaven, Pleies, Pulker, & de los Arcos, 2011). On the topic of OER efficacy and language teaching, an Erasmus+ funded survey in 2017, involving a small number of language teachers from Spain and the UK indicated that the UK respondents were significantly less familiar with OERs than their Spanish counterparts, (41,8% and 24,4%

respectively). Frequency of use scores were below 30% and heavily influenced by institutional infrastructure and training (Paredes, Guillamón, Jiménez, 2018).

In the area of language teachers' professional development and OEP, research conducted in the framework of the FAVOR project from 2011 to 2012 in the UK which required the participants to develop open learning objects revealed a moderately high increase in teachers' self-efficacy and confidence in extending digital skills in their classrooms (Borthwick & Gallagher-Brett, 2014).

Richter et al. (2014) report on the issues raised in a formal workshop which involved teachers, e-learning experts and policy makers in a qualitative study of the European Commission Open Discovery Space (ODS) project (2012-2015). ODS was developed as a web-portal for the school sector to support distributed access, production, use and adaptation of OERs and to foster open practices regarding the share of knowledge. Among the conditions, investigated for establishing OER efficacy and expansion, we find those relevant to [a.] quality – licensing, sustainability of materials, curriculum-fit, [b.] institutional constraints and ease of use and [c.] professional development incentives. The researchers concluded that the most pertinent deterrents towards wider adoption were: Insufficient dissemination practices and training, the usability of OERs in learning scenarios alien to the originators' setting thus unsuitability for local curriculums, lack of ICT professionalism and institutional constraints such as limited time and lack of interdisciplinary support between teachers and the taught school subjects. Richter and Ehlers (2011) had previously determined German teachers' views and experiences regarding their use of OERs in the German Educational system through a qualitative survey and had drawn the same conclusions about the enablers and barriers effecting awareness, use and dissemination levels of OER in schools. The majority of the respondents admitted to remixing publicly available resources to inform

and update their lesson presentations locally (i.e. YouTube User Generated Content) without being specifically aware of intellectual property licenses or official open content aggregators incorporated in LORs because of the weak support they received from school administrators and federal governments. Thus, they encountered challenges concerning access, quality reliability and evaluation of materials so as to cover exact learner needs. Although they had all produced resources for ‘Lehrer-Online’, the official on-line school portal, it was discovered that there was ‘no explicit demand or quota for using OERs at schools’ and that ‘lack of funds almost always drove teachers to use other free learning resources’ in the context of general ICT integration at school or to serve their purposes in Moodle-like Learning Managements Systems (LMS). In regards of National Initiatives to support ICT integration in schools, a more recent survey, aimed at determining OER awareness and perceptions within the Educational Information Network project in Turkey reaffirmed findings along the same lines (Ozdemir and Bonk, 2017). Turkish K-12 teachers were not extensively aware of OEP ($M < 3,66$) and even less so of the CC license mechanisms ($M = 1,66$), a major reason for confusing freely available e-content with OERs. They were also reported to have some degree of difficulty in accessing repurposable learning objects in different repositories (9,8%) and in editing (16,2%). Beliefs in the value of OERs in increasing learner satisfaction and performance were measured at $M = 3,92$ and $M = 4,01$ while lack of institutional support, shortage of subject-specific or up-to-date resources figured prominently among the reported constraints (8,8%, 9,8% and 13,8% respectively).

On evaluating the role of OER in transforming pedagogy, a research study conducted by the Institute for the Study of Knowledge Management in Education (IKSME) over a year (2009-2010) collected data from 136 recruited teachers to participate in a community of practice model sharing, discussing and posting

information about resources and resource use in their classrooms on the OER-Ning platform which hosted an OER Commons aggregator and a Wiki (Petrides, Jimes, Middleton-Detzner, Howell, 2010). The participants displayed low levels of engagement with the platform (33% had used it once-three times and 33% never). Concerning the ways that OER was integrated into their teaching practices, the majority (67%) reported using OER to prepare for lessons and sharing OER with colleagues, only 22% were found to incorporate OER into presentations for students and none of the respondents facilitated their students to use OER as part of their school work. In terms of OEP, remixing OER with other materials was favoured by 67%, use without adaptation by 33% and repurposing/editing by 22%. The researchers concluded that these findings deaccelerated the wider OER implementation and pointed to the pressing need of identifying ways to inspire teachers to form OER communities around personal teaching challenges and pedagogical approaches.

4. Conclusion

From this overview it is understood that there is a dearth of research into National Strategic plans on the Digitisation of education in comparison to the big number of initiatives currently operating. The Global Creative Commons OER Policy Registry lists 158 OER policies of which 14 are currently operating in compulsory education in Europe (Creative Commons n.d.; JRC, 2018). As the investigation of various OER projects suggest, it is much less clear how the introduction of OERs as a high-stake educational capital has been received by teachers in primary and secondary education in general and how their needs have been met in their everyday practice. Rather, these research projects focused on identified groups of educators joined around

a common aim. Considering the role which OER can have in supporting school-level pedagogical transformation, evidence mainly comes from descriptive reports about their adoption (Miao, Mishra, McGreal, 2016) lacking in substantial results about OER impact on learning and teachers' participation in the design of open resources/practices.

Chapter 2

Research Methodology

1. Introduction

The purpose of this chapter is to present the aim and scope of the study based on what benefits and constraints have risen from previous investigations on OER action plans and projects internationally. The study was targeted at EFL teachers in primary and secondary state schools in Greece. It sought to investigate their perceptions as well as analyse their reported use of the Digital School open content platform and the National OER Aggregator. In addition, the study aimed to identify the ways which the resources are integrated into the foreign language education courses at schools and which open educational practices (OEP) are adopted.

In the subsequent parts of the chapter, I present and discuss the methodology of the study and its limitations.

2. The present study: Aim and scope

In conjunction with national policies in the European Union and elsewhere with the goal to promote open and flexible learning through ICT and OER in education, Greece has made significant progress. Greece has been documented in the European Commission Policies for OER Uptake (POERUP, 2014) and OER World Map to have a significant OER activity with national programmes running across all educational levels and thirty-five open access repositories (Inamorato dos Santos, Nascimbeni, Bacsich, Atenas., 2017: 68). However, as effort has concentrated on access and the

development of content, the impact and outcomes of this comprehensive network for supporting educational institutions has not been investigated so far.

Understanding more generally the professional educators' perceptions of OER is important as these are the prominent users of the resources in education. Furthermore, since the launch of OERs in 2011 at all levels in Greek primary and secondary state schools, no one has investigated implementation and use yet. The main reasons are that efforts have mainly concentrated on releasing OER content, fostering its transparency and reinforcing in-service teachers' development programmes in OER affordances. Furthermore, given that open education principles have been embedded in the national strategic processes, a careful evaluation of teachers' perceptions on the current state of OER and how its utilization affects learning is necessary, especially now that the field is approaching its first decade of implementation in Greece. Nevertheless, previous research has not looked into the quality and impact of the OER produced or aggregated for specific school course which OEP teachers apply in their subject areas per se.

A programme of research can help to understand and respond to educators' attitudes and needs around the use of OER and inform OER content developers accordingly. It can also help to determine policy requirements so as to address emergent gaps regarding the efficacy and viability of the system. As previous research has emphasised, the design and sustainability of OERs has to be grounded on evidence and principles that guarantee broader acceptance and exploitation (de los Arcos, Farrow, Pitt, Weller & Mc Andrew, 2016). Such evidence concerns the digital literacy skills and the e-maturity level of teachers and students and their dynamics and the existing ICT infrastructure in schools.

In this vein, the present research study seeks to explore the beliefs, attitudes and motivations of Greek State school teachers of English as a Foreign language (EFL)

regarding the open content-based e-services available at *Digital School-Photodentro*, the Greek State school portal and the *National OER Aggregator* for the teaching and learning of English. To my knowledge and in consultation with the director of the Computer and Technology Institute (CTI), this is the first study which attempts to offer insight into the application of the OER/OEP Greek initiative by answering the following research questions from the perspective of EFL teachers:

- (6) How far are EFL teachers familiar with the use of ICT devices and tools for language teaching and learning?
- (7) To what extent are EFL teachers aware of and familiar with the Digital School Open content-based e-services platform and OER services?
- (8) What are EFL teachers' perceptions regarding OER ease of use, quality, relevance and impact on learner interest and language skills?
- (9) In what ways have EFL teachers integrated OER in their teaching practice?
- (10) How far have EFL teachers been engaged with the open educational practices (OEP) of adapting, remixing, repurposing and redistributing?

3. Methodology

A survey was used (Owen, 2017) to investigate the extent to which EFL teachers' in state Primary and Secondary education are aware and apply OERs/OEP in their practice. As a method of data collection, a questionnaire was designed ad hoc for the present study, drawing on the literature review and according to standard specifications for questionnaires (De Leeuw, Hox, Dillman, 2008; Harkness, 2008). (for a questionnaire sample see Appendix A, p. 73). The questionnaire was amended as a result of the piloting phase which involved the deputy director of the Digital School

Programme at the Computer and Technology Institute (CTI), one in-service EFL teacher from the OER working group at CTI, two academic language professors and experienced language teachers. The piloting phase showed that teachers were motivated to answer questions about the platform services but they were not very clear about certain tools and activities. So, where appropriate, definitions were added to the terminology.

The revised questionnaire was administered online on LimeSurvey.com. A sample version of the questionnaire can be found in the appendix p.... It comprised 15 questions grouped into 3 categories: «Demographic questions», «ICT use» and «Use of Dschool Open content-based e-services». The answers of the questions had a different response format (yes/no, Likert-type anchored 1-4, Likert-type anchored 1-5, closed-ended questions and one open-ended question).

Category 1 «Demographic questions» consisted of 9 questions including gender, age, qualification, training background, years of experience, working institution, school region and training background in the use of ICT.

Category 2 «ICT use» aimed to answer the first research question about the extent of utilisation of specific tools in everyday practice. It included 5 questions related to the use of ICT. The first question referred to the use of ICT in the classroom with possible answers «Yes» or «No», while the second one referred to the frequency of the use of ICT in the teaching context which was answered via a four rating Likert scale 1 to 4 with 1 meaning «Never», 2 «A few times a year », 3 «Once or twice a week» and 4 «Daily». The third question «Which ICT do you specifically use» had as possible answers: computer/laptop, projector, interactive whiteboard, computer lab at school, tablets/smartphones, Web2.0 tools, teaching/learning online platforms, education software and Web services. The technologies were selected with the intent of covering

a wide range of available types of tools, thus aiming for a high relevance to the users' needs. The fourth question «Do your pupils make use of ICT to learn English» was answered via a four rating Likert scale 1 to 4 with 1 meaning «Never», 2 «A few times a year», 3 «Once or twice a week» and 4 «Daily». The last question «How would you rate/describe your computer skills (Digital literacy)» was answered via a five rating Likert scale 1 to 5 with 1 meaning «Low», 2 «Moderate», 3 «Good», 4 «Very good» and 5 «Excellent».

Category 3A «Use of Dschool Open content e-based services» aimed to answer the second research question about EFL teachers' level of awareness and reported use of the Dschool portal, the OER National Aggregator and the other embedded platforms. This category included two questions related to the use of OERs/OEPs. The first question inquired about Dschool Programme awareness with possible answers «Yes» or «No» and the second question was restricted to those who answered «Yes» asking how often they used Dschool open content-based e-Services via a five rating Likert scale 1 to 5 with 1 meaning «Never», 2 «A few times a year», 3 «A few times a month», 4 «Once or twice a week» and 5 «Daily». This section of the category was divided into five subgroups “Interactive Textbooks”, “Photodentro OER LOR & OER National Aggregator”, “English Language Microsite”, “e-me Digital Educational Platform” and “Aesop, Electronic Scenarios” where scores were deducted from the sum of each of the above answers.

Category 3B «Evaluation of digital school open content-based e-services» included three closed-ended questions related to research questions three, four and five about:

(1) the evaluation and the use of OERs/OEPs regarding ease of use, quality, relevance to the teaching practice and impact on learner interest and language skills via a five rating Likert scale 1=unsatisfactory to 5=excellent.

(2) EFL teachers' ways they engaged with OERs via four «Yes-No» closed statements.

(3) Forms of OER localization via five «Yes-No» closed statements..

The fourth question in this category was open inviting respondents to express their beliefs about the opportunities and challenges to OERs.

3.1 Data Analysis

The reliability of the questionnaire scale was tested with Cronbach's Alpha estimator, with a range of 0 to 1. With values higher to 0.7 indicating good internal consistency of the items, «Use of Dschool OER/OEP services» measured 0.88, EFL teachers' OER evaluation 0.87 and level and ways of OER engagement 1.0. Descriptive statistics were performed based on demographics, ICT use, Dschool OER/OEP frequency of use, evaluation and engagement and are presented as percentages or means and standard deviation (SD). Pearson chi-square tests were used for comparison between variables, and multivariate regression tests to detect correlations between frequency of use and ratings. The data for the Dschool open content services frequency of use were not normally distributed as was shown by the Kolmogorov-Smirnov test, therefore non-parametric Mann-Whitney tests or Kruskal-Wallis were applied where appropriate to analyse differences between responses. All statistic tests were two-tailed, with significance set at $p < .05$. All statistical analyses were performed with SPSS 22.0 for Windows (SPSS; Chicago, IL, USA).

3.2 Participants and settings

A purposive sampling approach was followed in order to restrict the sample of participants to those EFL teachers who were officially appointed at State schools. On-line survey participants were solicited via the email listservs of Primary and Secondary Educational Administrative Bureaus at a local level, the non-governmental Panhellenic EFL Teachers' Association and the EFL Teachers' Association of Central Greece. EFL teachers were contacted via email with a request to participate in the study, an explanation of the purpose of the research and a brief orientation to the Digital School initiative for OER integration in school contexts. The survey extended over one month in November 2018, while two weeks from initial contact, participants were sent a second request to complete the survey.

4. Limitations

There are limitations to this study which should be acknowledged. First, the survey questionnaire was designed with the Digital School -Photodentro open content services and State school EFL teachers in mind. Although, the research design and the sampling strategy has been adopted in similar investigations into OER national projects, the outcomes reflect the specific participants' experiences, beliefs and reported use of the Digital school portal and Photodentro repository and the other platforms. However, the survey outcomes offer insights for other primary and secondary courses in the Greek school system to a certain degree. Finally, it should be noted that the second phase of the *Digital School Programme: Expanding and Exploring (2017-2018)* is still in its recency and as a result a deeper understanding of its impact on the teaching-learning processes was beyond the scope of the present study.

5. Conclusion

In this chapter the purpose, research questions and research methodology employed in this study was presented. In the next part, the survey results are presented and illustrated according to the questions of the research.

Chapter 3

EFL teachers and the Digital School Programme: research results

1. Introduction

In this chapter, the results of the survey are presented. The survey investigated EFL teachers' awareness, perceptions and reported use the Digital School open content e-based services platform and Photodentro portal, the mainstream OER/OEP service for state education in Greece. In the first part, the informant sample is described. The second part presents the quantitative analysis of the survey results according to the following research questions:

1. How far are EFL teachers familiar with the use of ICT devices and tools for language teaching and learning?
2. To what extent are EFL teachers aware of and familiar with the Digital School Open content-based e-services platform and OER services?
3. What are EFL teachers' perceptions regarding OER ease of use, quality, relevance and impact on learner interest and language skills?
4. In what ways have EFL teachers integrated OER in their practice?
5. How far have EFL teachers been engaged with the OEP of adapting, remixing, repurposing and redistribution of OERs?

In the final part of the chapter, a qualitative analysis is made of the participants' comments in the last open-ended question which encouraged them to express their ideas about Dschool portal and Photodentro repositories.

2. Participants' Demographics

From 371 responses to the survey, 198 were fully complete questionnaires and qualified for analysis, providing a sufficient sample (Suhr, 2008). The majority of the participants were female (90.9% to 9.1% male). Half of them (50%) belonged to 36-45 age group (36.9% aged 46 to 55, 6.6% aged ≥ 56 years old). They were high-profile educators with graduate degrees (46% bachelor's, 44.9% master's and 2.8% doctoral). It is important to note that almost half of the informants had completed post graduate studies, primarily in English Language and Literature (41.3%), in TESOL (26.6%) and Applied Linguistics (11.2%). The majority were experienced professionals with over ten years of teaching practice. It is worth noting that the sample was well distributed among all the categories of high teaching experience (26.8% 16-20 years, 24.7% 11-15 years, 22.2% 21-25 years and 19.2% ≥ 26 years). Slightly more than half of the respondents (51.5%) taught English at a primary school (ISCED1), 22.7% at a lower secondary school (ISCED2) and 17.7% at higher secondary school (ISCED3), thus representing primary and secondary education almost equally. Based in schools in urban areas at 61.1%, 20.7% in provincial areas, 15.2% in semi-urban areas and 3% in remote areas, the respondents reflected a good variety of local instructional settings. The majority (77.3%) had received training in the use of ICT in their teaching practice, with 48.4% at an expert lower level and 15.7% at an expert higher level by the Ministry of Education (MoE) or other educational agents. Teachers who had completed the ministry funded ICT level A course as well some other type of ICT course from other education agents (MOODLE, eTwinning) were categorized as lower experts. Respectively, as higher experts were taken to be those teachers who had completed ICT

level B1 and other ICT courses. **Table 1** describes the main characteristics of the sample collected.

Table 1

Characteristics of the participants N=198.

		Total	
		N(198)	%
Gender	<i>Male</i>	18	9.1
	<i>Female</i>	180	90.9
Age Range	<i><=25</i>	2	1
	<i>26-35</i>	11	5.6
	<i>36-45</i>	99	50
	<i>46-55</i>	73	36.9
	<i>>=56</i>	13	6.6
Qualification	<i>B.A.</i>	91	46
	<i>Second B.A.</i>	4	2
	<i>Diploma</i>	6	3
	<i>M.A.</i>	89	44.9
	<i>PhD</i>	8	4
Professional Background	<i>Applied Linguistics</i>	16	11.2
	<i>Education</i>	12	8.4
	<i>Language and Literature</i>	59	41.3
	<i>ICT</i>	4	2.8
	<i>TESOL</i>	38	26.6
	<i>Other</i>	14	9.8
Professional Experience	<i><3 years</i>	2	1
	<i>3-5 years</i>	2	1
	<i>6-10 years</i>	10	5.1
	<i>11-15 years</i>	49	24.7
	<i>16-20 years</i>	53	26.8
	<i>21-25 years</i>	44	22.2
	<i>>26 years</i>	38	19.2
Working Institution	<i>Primary school</i>	102	51.5
	<i>Lower secondary school</i>	45	22.7
	<i>Higher secondary school</i>	35	17.7
	<i>Other</i>	16	8.1
School Region	<i>Remote Area</i>	6	3
	<i>Provincial Area</i>	41	20.7
	<i>Semi-Urban Area</i>	30	15.2
	<i>Urban Area</i>	121	61.1

ICT training	<i>Yes</i>	153	77.3
	<i>No</i>	45	22.7
ICT Level	<i>Novice</i>	55	35.9
	<i>Expert lower</i>	74	48.4
	<i>Expert higher</i>	24	15.7

3. Results

3.1 Frequency of use of ICT devices and tools.

When asked to state whether they use ICT in their classes or not and how often they do so, the majority of EFL teachers (90.9%) gave an affirmative answer. Systematic ICT use was reported at 70% (43.9% using ICT once or twice a week and 26.1% daily). (**Table 2**).

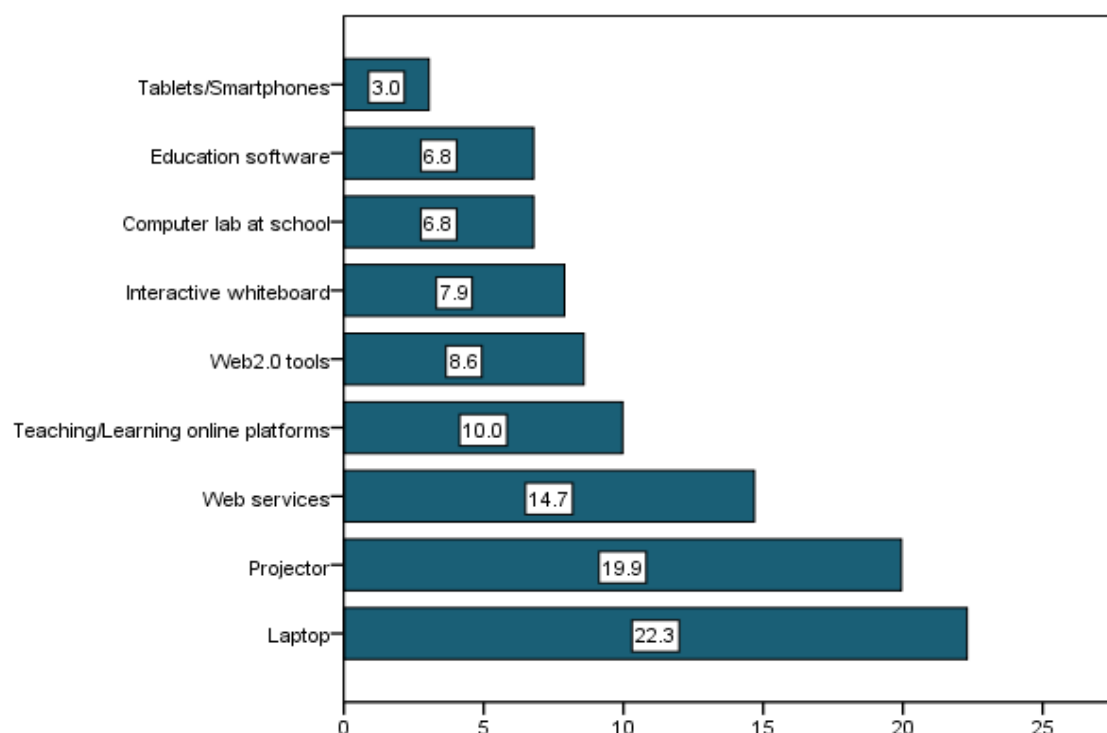
Table 2. Results for teachers' frequency of ICT use.

		N	%
Do you use ICT in the classroom?	<i>Yes</i>	180	90.9
	<i>No</i>	18	9.1
How often do you use the ICT	<i>Never</i>	1	0.6
	<i>A few times a year</i>	53	29.4
	<i>Once/ twice a week</i>	79	43.9
	<i>Daily</i>	47	26.1

The general response leaned towards a laptop and a projector (22.3% and 19.9% respectively), web services (14.7%), while the computer lab (6.8%), education software (6.8%) and tablets/smartphones (3%), were the least used. Given that, ICT use revolved around information and presentation tools considerably more than collaborative devices and applications. Also, Pearson chi-square tests for ICT Use and level of engagement with Dschool and Open Educational Practices (OEP) showed that the participants used a laptop and a projector to incorporate OERs in the presentation stage of their lesson ($\chi^2 p = .008$), while they used Web 2.0 tools to remix OERs with other materials ($\chi^2 p = .001$). In effect, the application of OERs did not extend to redistribution and sharing

between teachers. **Figure 1** shows the frequency of use of different types of devices and tools in the classrooms.

Figure 1. *Frequency of use of different types of devices in language teaching.*



3.2 Awareness and frequency of use of Dschool OER/OEP e-based content services.

Respondents were inquired about their awareness of the Dschool Open content-based services. This was confirmed by the majority (N = 174, 87.9% vs N=24, 12.1%), who constituted the informant sample for the following survey items.

Then, the informants were presented with a set of various Digital School Open content-based e-Services: *Interactive Textbooks*, *Photodentro* & *National Aggregator RLORs*, the *English microsite*, “*e-me -PLE*” and *Aesop advanced electronic educational scenarios* so as to measure extent of use and familiarity. The results showed that *Interactive Textbooks* were primarily used a few times a month (*M 3.01*) whereas

Photodentro & National OER Aggregator RLORs (*M 11.46*) as well as the rest of the services (*M 4.79*) were mainly used only a few times a year. This indicates low familiarity with a good range of affordances supported by the web-based portal. Frequency of use mean scores are presented in **Table 3**.

Table 3. Results for teachers' familiarity mean scores of Dschool open content e-based services

DSchool Open content-based e-Services	Mean	SD	Min	Max
<i>Interactive Textbooks</i>	3.01	1.32	1	5
<i>Photodentro & National Aggregator RLORs</i>	11.46	4.44	2	25
<i>English Microsite/«e-me»/Aesop</i>	4.79	1.97	2	12

In more specific terms, the analysis indicated that EFL teachers were predominantly familiar with *Interactive Textbooks*, with the majority implementing them on a daily basis (19.1%), once or twice a week (17.3%) and a few times a month (21.4%). Lower but substantial use was made of *Photodentro LOR* (15.8% once or twice a week and 23.6% a few times a month. Limited use was reported for *Photodentro videos* with once or twice a week at 11.4% and a few times a year representing the greatest percentage of respondents (44%). Most EFL teachers used *Photodentro eduSoft* and *Photodentro e_yliko User Generated Content (UGC)* a few times a year (34,1% and 42.7% respectively). On the opposite end of the spectrum, it was noticed that the majority of EFL teachers did not make any use of *«e-me»-Personal Learning Environment (PLE)* (69.3%) and *Aesop – Advanced Electronic Scenarios* (52.1%). Likewise, most of them reported limited or no use of: *Photodentro_OEP* (35.8% and 46.1%), *Photodentro_culture* (38.8%, 49.7%) and the *English Language Microsite* (28.7% and 46.3%). **Table 3** presents the analysis of the frequencies of Dschool use.

Table 3 *Frequency of the use of Dschool open content-based e-services.*

	Never N(%)	A few times a year N(%)	A few times a month N(%)	Once or twice a week N(%)	Daily N(%)
Interactive Textbooks	22(12.7%)	51(29.5%)	37(21.4%)	30(17.3%)	33(19.1%)
Photodentro_LOR	32(19.4%)	64(38.8%)	39(23.6%)	26(15.8%)	4(2.4%)
Photodentro_video	33(19.9%)	73(44%)	38(22.9%)	19(11.4%)	3(1.8%)
Photodentro_Edusoft	63(38.4%)	56(34.1%)	34(20.7%)	10(6.1%)	1(0.6%)
Photodentro_e_yliko (UCG)	60(36.6%)	70(42.7%)	31(18.9%)	3(1.8%)	0(0%)
Photodentro_OEP	76(46.1%)	59(35.8%)	23(13.9%)	7(4.2%)	0(0%)
Photodentro_culture	82(49.7%)	64(38.8%)	17(10.3%)	2(1.2%)	0(0%)
English Language Microsite	76(46.3%)	47(28.7%)	28(17.1%)	12(7.3%)	1(0.6%)
«e-me» PLE	113(69.3%)	40(24.5%)	6(3.7%)	4(2.5%)	1(0.6%)
Aesop – Scenarios	88(52.1%)	66(39.1%)	11(6.5%)	2(1.2%)	2(1.2%)

The results of the Mann-Whitney test indicated no significant between-group differences for the variable «ICT training level» and «Use of Digital School Open content-based e-Services» ($U: 2029.5; p = .700$). Thus, it appears that ICT training to foster the use of tools and devices in the classroom had little impact on the extent of use of each of the components of the Dschool open services.

3.3 Evaluation ratings of Dschool open content e-based services: ease of use, quality, relevance and impact on the learners

Descriptive characteristics for the question “*How do you rate Digital School Open content-based e-Services?*” are presented in **Figures 2-6**. Most teachers replied that they were satisfied with the ease of use of *Dschool* (N=99, 56.9%) and rated the quality of the digital content as good (N=72, 41.4%). Regarding its relevance with the teaching-

learning process and suitability, the majority of the participants believed that it was very good (N=67, 38.5%) with a good impact on learner interest during the learning - teaching process (N=69, 39.7%) and on learners' skills (N=72, 41.4%). As expected, Spearman Rank-order Correlations between Dschool services extent of use and evaluation were found to be statistically significant. Considering the findings (coefficient $r .470$,; $p < .001$), there is a positive relationship between the variables, so higher use of Dschool OERs/OEPs affects EFL teachers to rate them with a higher grade. Of all the factors influencing participants' evaluation, it was indicated that there was statistically a significant difference in "Relevance with the teaching-learning process and suitability" and "Qualification" (χ^2 p -value=.030). As this was a well-qualified group of EFL teachers, they easily identified the materials appropriacy to the English courses and therefore rated this more highly in comparison to the other criteria.

Figure 3 *Frequencies of Dschool Ease of use*

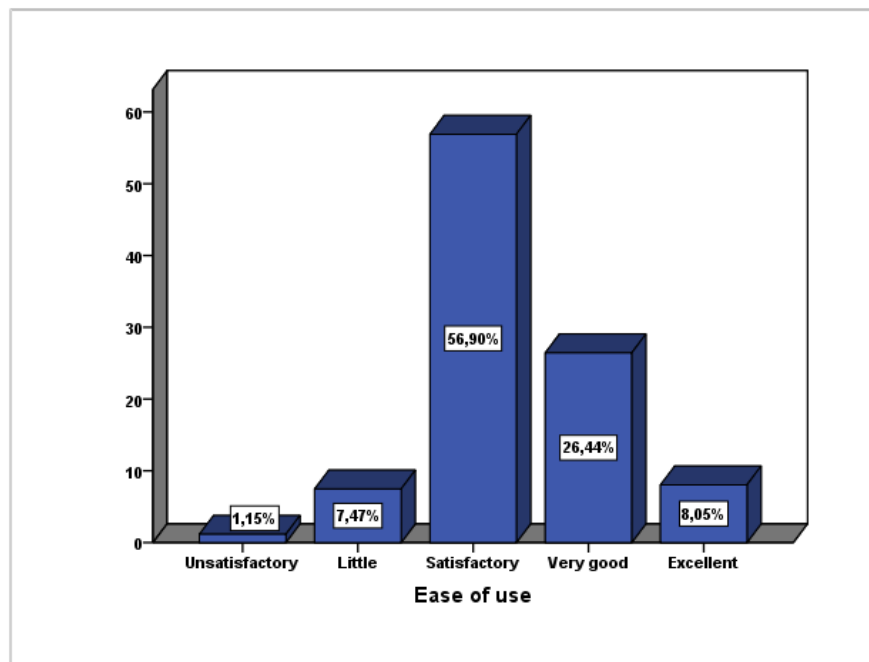


Figure 3 *Frequency of participants' answers to the question "Quality of digital content"*

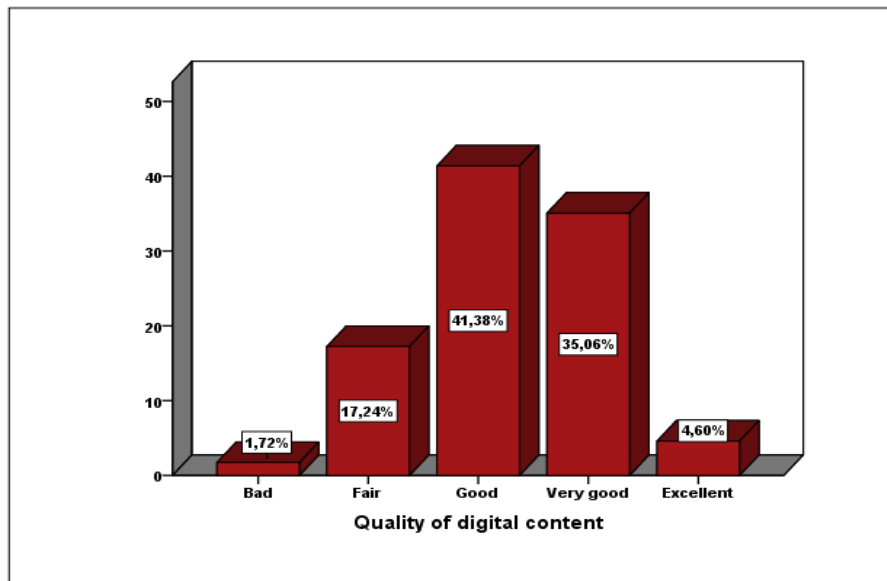


Figure 4 *Frequency of participants' answers to the question "Relevance with the teaching-learning process and suitability"*

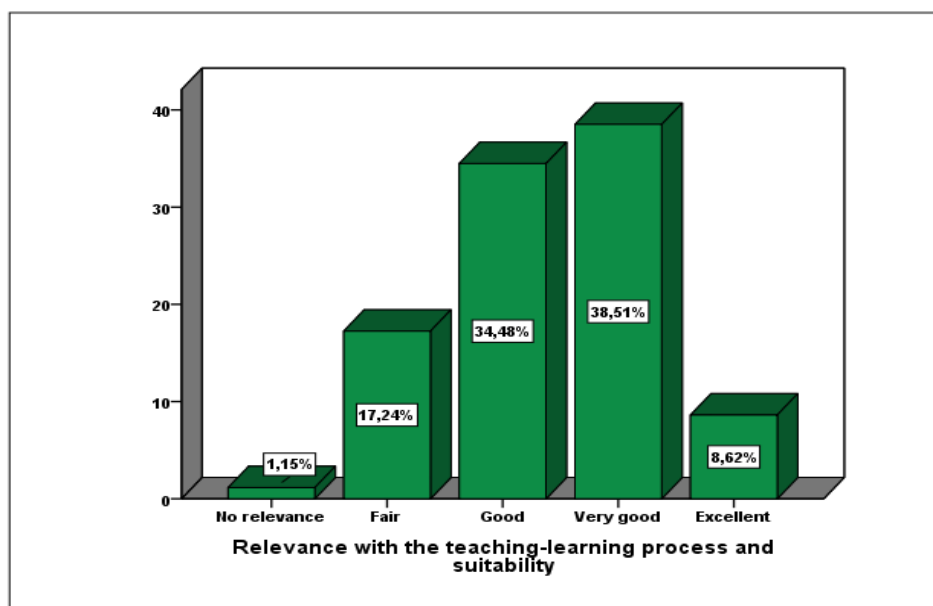


Figure 5 *Frequency of participants' answers to the question "Impact on learner interest during the learning teaching process"*

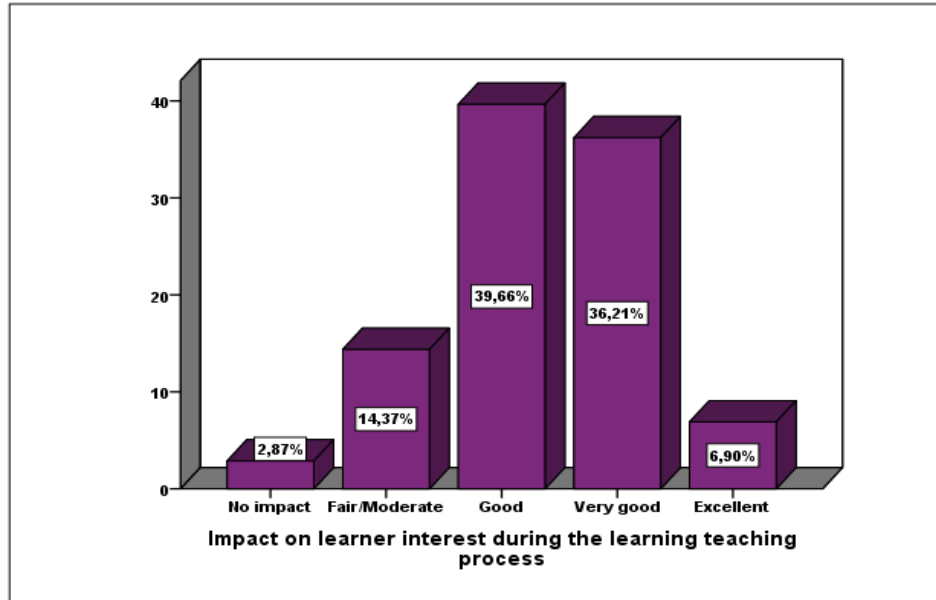
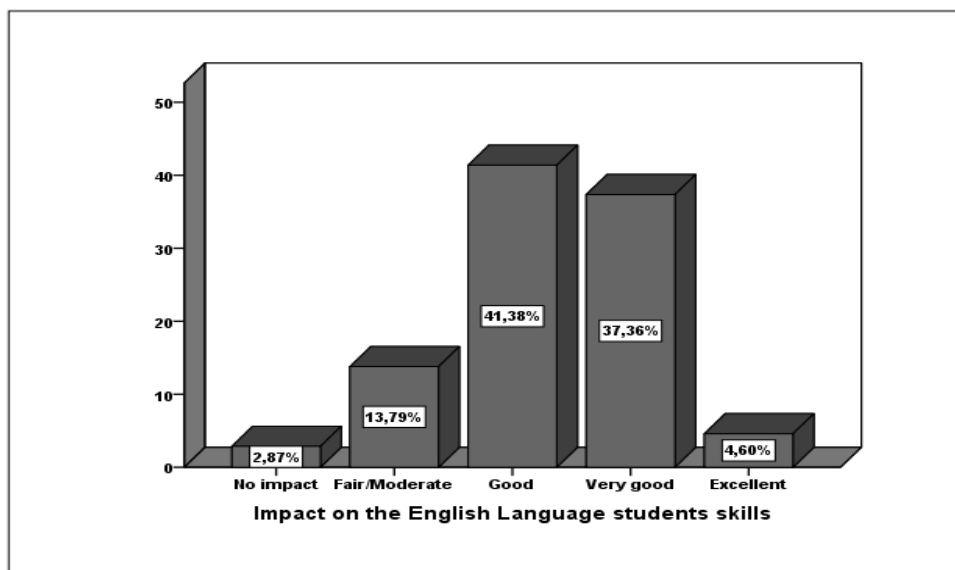


Figure 6 *Frequency of participants' answers to the question "Impact on the English Language students skills"*



3.4 Ways EFL teachers make use of /engage with OERs from Digital School Open content-based e-Services

In regards to the ways EFL teachers engage with Dschool OER content and services, the highest reported item was «*Incorporate OERs in the presentation stage of my lesson*» (N=108, 62.1%). EFL teachers made moderate use of OERs to *prepare the lesson plan* (40.8% as opposed to 59.2% as opposed who did not). On the contrary, a greater percentage did not *involve their students in the co-operative use of OERs in order to achieve the aims of the lesson* (71.8% to 28.2%). Moreover, a clear majority did not *share OERs with their colleagues* (87.4% to 12.6%). Descriptive characteristics for the frequencies of Level of Engagement are presented in **Table 4**

Table 4 EFL teachers' engagement with Digital School Open content-based e-Services OERs/OEPs

Ways of engagement with Digital School open services		N(174)	%
Use OERs to prepare the lesson plan	Yes	71	40.8
	No	103	59.2
Incorporate OERs in the presentation stage of the lesson	Yes	108	62.1
	No	66	37.9
Involve my students in the co-operative use of OERs in order to achieve the aims of the lesson	Yes	49	28.2
	No	125	71.8
Share OERs with colleagues	Yes	22	12.6
	No	152	87.4

The multivariate regression analysis performed so as to determine the correlations between the «Use of Dschool Open content services» and the «Level of teachers' engagement» ($F(4,164) = 3,082$, $p = 0,018$, Adjusted $R^2 = 0.047$) showed that extent of use reduced by 3 points for those who did not incorporate OERs in the presentation stage of their lesson ($p = .005$). Moreover, frequency of use reduced by 2.7

points for those who did not involve their students in the co-operative use of OERs to achieve the aims of the lesson ($p = .016$).

Among the factors which may influence the ways teachers use Dschool services, statistically significant was their ICT level. The Chi-square test indicated that there is statistically significant difference between the frequencies in the two variables for those who «Incorporate OERs in the presentation stage of the lesson» ($p\text{-value}=0.016$). Therefore, OERs from Dschool-Photodentro LOR were utilised for the English lesson preparation and presentation in the classroom mainly, influencing and accounting for the portal frequency of use.

3.5 EFL teachers' application of Open Educational Practices (OEP) in order to meet their local instructional needs.

Descriptive characteristics for the question «*Forms of Localisation – Ways that EFL teachers engage with OEP*» revealed that a clear majority (51.7%) “adapt or edit OERs appropriately” to meet their local classroom needs, whereas EFL teachers were found to “implement OERs without adaptation” to a lesser extent (35.5%). On the contrary, the greater percentage (69%) did not “remix OERs by combining them with other educational materials” and the vast majority (96.6%) did not “re-purpose and re-distribute OERs” (**Table 5** for further information on descriptive analysis).

Table 5 *EFL teachers' Open Educational Practices (OEP) - Forms of Localisation.*

	Yes	No
	N(%)	N(%)
Implement OERs without adaptation	62(35.6%)	112(64.4%)
Remix OERs by combining with other educational materials	54(31%)	120(69%)
Adapt/Edit OERs appropriately	90(51.7%)	84(48.3%)

Re-purpose OERs in co-operation with other educators and re-distribute	6(3.4%)	168(96.6%)
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A series of Pearson chi-square tests performed to assess possible differences between the categorical variable “*How do you rate Digital school Quality of digital content*” and each of the variables “*Level of engagement*” and “*Forms of localisation*” suggested no significant differences (*all χ^2 p-values $\geq .312$*). Thus, the informants’ perceptions were not influenced by extensive engagement with Dschool services as this was indicated to revolve around adapting OERs from Photodentro in order to prepare and present the lesson.

3.6 Descriptive report of EFL teachers’ answers comments

Twenty-four respondents added their comments about the English Interactive Textbooks, the Digital School-Photodentro learning object repositories (LORs), the National OER Aggregator for English language courses at schools, «e-me» Personalised Learning environment (PLE), the English Microsite and the open learning scenarios (see Appendix II p.78) Interestingly, all comments mentioned only Photodentro LOR, the Interactive textbooks and the open learning scenarios. The considerable majority of the responses in this entry reported limited or no use of the platforms in the classroom. In what follows, EFL teachers’ reported benefits, limitations and their recommendations are summarised.

Cited in six comments we find the benefits of the potential of OERs to be redistributed between teachers, the resulting added value, cost-efficiency and the extensive support they offer particularly for lower secondary English courses. Dschool portal was reported as a safe environment where teachers and learners can draw suitable educational material. Teachers were appreciative of the substantial effort invested in

OER creation and development with respect and consideration for teachers and learners alike. Distinct reference was also made to the learning objects and the advanced electronic scenarios as a source of inspiration for creative project work. Learning objects were cited as easy to apply, useful and relevant to the teaching-learning process, engaging learner interest and as motivating learners to be focussed on their task. Adding to the benefits, teachers mentioned the ability users have to distribute and share good teaching practices, explaining that this inspires, develops knowledge and creates the sense of a community.

Notwithstanding, cited in 20 comments we find the barriers raised against more frequent and better use of the platforms, EFL teachers most commonly mentioned the lack of technical support at state schools: use of their own laptops, poor Internet access, limited or no use of the computer lab catering for many classes, very few Interactive whiteboards and projectors. They also reported time constraints because of the reduced teaching hours for English courses in secondary schools and poor workplace conditions. Along with these problems, insufficient information on the Dschool platform and support regarding ways of implementation was reported. For instance, an opinion shared by a few was that EFL teachers were unable to take full advantage of WEB 2.0 and Photodentro affordances, although they had learnt about them in ICT teacher training at Level B.

Explaining further the constraints they encountered, EFL teachers stated that they felt unsure about licensing mechanisms and their permission to upload materials on the platform. Furthermore, they commented on the quantity and quality of the content. They stated that the amount of OER content for upper secondary English courses was scant. For some teachers, the existing resources for all levels required updating and enrichment. Also, they recommended improvements on the quality of the

learning objects (LOs). For example, they suggested that videos should have better audio-visual features and a supplementary text and that activities should incorporate more game-like and interactive features. Finally, there were suggestions for more technical support, a friendlier search interface and a better organisation layout of the OERs on the platform.

As a final note to the aforementioned, EFL teachers' comments spoke more for the challenges they faced rather the opportunities they were offered. It was observed that most of these challenges arose from lack of technical support at schools, insufficient awareness-raising and a low level of familiarity with the functions of the platform. (See Appendix B p. 76 for the respondents' comments).

4. Conclusion

This chapter presented the findings from EFL teachers' survey and a report of their comments on Digital School Interactive Textbooks – Photodentro LOR and the other repositories. It derives that EFL teachers had knowledge of the platform but low use rates overall with the exception of Interactive Textbooks and Photodentro LOR. Their evaluations were good regarding quality of content, ease of use and impact on learning, whereas they rated the content relevance and suitability as very good. EFL teachers mostly made use of OER content to prepare and present their lessons. From open educational practices (OEP) the greater majority favoured adapting OER content. Seen together, these results indicate how limited application open pedagogical practices influence low extent of use the range of Digital School-Photodentro LORs and other platforms. Discussion of these findings along with their implications presented in the last chapter.

Chapter 4

Discussion of findings and conclusion

1. Introduction

In the last chapter, the results of the study are discussed in terms of the areas investigated in the survey. In addition, the most important observations from twenty-four EFL teachers who chose to answer the last open-ended question are embedded in the discussion by way of illustration. Overall, the informants' comments showed parallel results with the data findings. Finally, the implications of Dschool initiative for language learning and the education community are discussed and recommendations are offered.

2. Discussion of findings

From the factors influencing the viability of OER investment for education is the range of technology resources available to teachers at schools. In answer to the first research question, the study indicated that informants were more familiar with the use of laptops, projectors and Web 2.0 tools in their teaching practice on a systematic basis (70% daily or weekly). Laptops and projectors were reported to be used for the presentation of the lesson while Web 2.0 tools were applied in the adaptation of resources during lesson preparation. From this, it derives that OERs were not implemented to foster collaborative learning in the classroom, in evidence of digital technologies serving more as information rather than as pedagogical tools (Selwyn, 2017). Exploiting the full potential of Dschool open educational services was hindered by insufficient ICT

equipment. The survey indicated that access to one central computer lab (usually shared between 15-20 classes) was problematic and that the use of mobile devices and educational software was limited. In the comment below one teacher summarises how technical support is still not in place at some schools:

«In my view there has been a considerable effort in the production of resources. Personally, I'd use them daily, if I could. Unfortunately, there are a lot of obstacles which have nothing to do with them (very few classroom interactive white boards, bad Internet connection, teachers using their own laptops). »

As reported in the European Commission Open Discovery Space (ODS) review (2012-2015) development of OERs has not been technologically supported by parallel developments in the school infrastructure. It seems that this continues to be of an issue for any considered approach to the integration of ICT into the teaching and learning experience at policy level. (Borthwick & Gallagher-Brett, 2014, Ozdemir and Bonk, 2017).

Despite these challenges to the digitisation of public education, the study proved that the level of EFL teachers' awareness of the Digital School open content services and Photodentro portal was high (87.9%). This confirms previous research statements in both the European Commission Policies for OER Uptake (POERUP, 2014) and the Joint Research Centre (JRC, 2018) reports that OERs have been significantly and systematically promoted in Greece. Overall, EFL teachers' awareness was higher than frequency of use of OERs from the Photodentro repository with more than half of the teachers applying them a few times a year. Lack of the necessary training about curriculum-specific OERs might account for this general attitude and explain EFL teachers' overreliance on the *Open Interactive textbooks* to support the presentation of their lessons while underusing the other components. *Photodentro LOR* was moderately

used, presumably because it hosts the learning objects embedded in the *Interactive Textbooks*. Among the least utilised components were “*e-me*”-*Personalised Learning Environment (PLE)*, *Aesop- Advanced Electronic scenarios* and *Photodentro_OEP*. The usefulness of the resources, however, was underlined despite the obstacles, as this quote demonstrates:

«I use OERs mainly for ideas for creative projects, the learning scenarios are very useful. Generally, the largest part of the English content in Photodentro is not targeted at Lyceum learners (upper secondary). Perhaps, with the New Integrated Foreign Languages Programme for Lyceum the materials will become more useful. »

Concerning EFL teachers’ evaluation of Dschool open content services, the general attitude was positive. The resources were perceived to facilitate easy access, to be of good quality, value and relevance as well as having a good impact on the learners. EFL teachers, who had been actively engaged in the ways the resources can be shaped to fit their purposes, commented on the usefulness of the learning objects in the learning experience and the potential to foster an environment of openness and a culture of sharing in a community of practice. In the qualitative data we find evidence for a growing sense of a community that could be built around the use, adaptation and creation of OERs:

«Photodentro is a safe place and way to retrieve suitable learning content that respects pupils».

«Sharing educational practices is very important; it inspires, it promotes knowledge and creates the sense of a community».

In consistency with previous results about the impact of openness in education (Weller, de los Arcos, Farrow et al, 2105), the EFL teachers in this study underline that the open aspect of OERs produces a variety of usage and adoption patterns on a continuum from inspiration to creativity. On the other hand, there is evidence to show

that there is criticism as far as the quality and quantity of the content and its relevance to learning processes are concerned:

«I don't use Photodentro because the content of English for Lyceum (upper secondary) is limited to non-existent. »

«In fact, the repository doesn't offer much; it is a reproduction of the book contents. »

«Students are so conditioned to simulation, rich media virtual environments and the fast interactivity of the social web that OERs seem outdated and obsolete. However, they offer a good alternative to the conventional model of instruction. »

One indicator influencing EFL teachers' perceptions was their level of engagement with the resources. This concentrated mainly on the LOs embedded in the Interactive textbooks, much less frequent use of the other platforms and limited application of open practices. Little awareness raising and support with the functionalities of the platforms were observed as serious impediments by a number of teachers as this quote shows:

«I learnt about Photodentro and the other free materials available on the Internet about my subject in the Level B seminar. Because of intellectual property rights we cannot upload and share audio-visual material that doesn't belong to us. Also, the absence of guidance for colleagues and pupils about the potential of OERs is a deterrent. »

This also highlights the insecurity which revolves around licensing mechanisms and Open Educational Practices (OEP). Creating awareness of OERs and promoting the necessary OER literacies and skills have been confirmed as priority actions in previous literature (Kelly, 2014; Richter et al. 2014). Regarding insufficient professional development opportunities in Greece, it was admitted that the preparation of trainers has been a core issue so that different groups of educational practitioners can be adequately supported (JRC, 2018: 67). In order to address these concerns, *The Digital School II Expanding and Exploring Action (2017-2018)* has recently promoted direct

contact with the community of practitioners in the cycle of resource creation and sharing by launching the *i-participate* initiative and adding new functionalities to the “*e-me-Personalised Learning Environment*” (PLE) (Megalou and Kaklamanis, 2018: 150). In this respect, it can multiply its dissemination channels and influence the teaching and learning environment by aligning administrators and educators to the action plan. Furthermore, in the debate revolving around branded digital content and OERs, it has been countered that OER production and use should be understood as dependent on the aims and objectives of the developer and the end user rather than educational agencies or organisations (Mc Quinn, 2017; Hylén, 2006). Educators are invited to test and evaluate these tools and content in order to facilitate learner development.

With more specific reference to the ways EFL teachers integrate learning objects (LOs) from Photodentro LOR, a percentage pattern of moderate usability for the lesson preparation and presentation (40.8% and 62.1%) was observed. The present results align with previous findings (Petrides, Jimes, Middleton-Detzner, Howell, 2010) in that learners are not encouraged to engage with the LOs. LOs have been found to contribute to language learning in diverse ways, in that they foster personalization of the learning experience, allow for multimodality in meaning making and the processes of analysis and application of knowledge (Wiley, Hilton, Ellington & Hall, 2012). In that sense, language learners are deprived of significant learning opportunities when LOs are underexploited. From the point of view of the participant teachers, capacity building, self-efficacy and more frequent use of the repository play an important role in changing the notion that OERs are offered as supplementary teaching aids to the compulsory textbooks and reducing the sentiment of acting in isolation, which is prevalent in quotes such as the following:

«I attended ICT Level B teacher development seminar... it is difficult to make full use of the resources because I need Internet access to present them on the projector and I couldn't download some interesting videos...»

«... the whole support structure could possibly be friendlier to the user, with a more structured design and different aesthetics so that it (Photodentro) is more efficient and up-to-date.»

«...I feel like swimming in the ocean without a life jacket. »

Similar comments received demonstrate the low level of EFL teachers' self-efficacy in the area of OER and language teaching, which also accounts for the very low percentage (12.6%) of those who share OERs with colleagues. Despite the specific respondents' high self-reported qualifications, skills and teaching experience in state education, this result indicates that the OER potential of efficiency and professional recognition through the sharing of knowledge and expertise is largely unexploited. Communities of professional practice and development that are organised around OERs and OEP are likely to have been helpful for all field practitioners.

In answer to the question of which open educational practices (OER) teachers apply, even lower rates were reported for the open practices of repurposing and redistribution (3,4%). EFL teachers more often adapted OER (51.1%) to suit their purposes but even less so in comparison to educators from abroad who had been involved in other OER projects. For instance, studies carried out in the realms of Favor Project in the UK (Borthwick and Gallagher-Brett, 2014) and by the OER Research Hub (de los Arcos, Farrow, Pitt et al, 2016) reported a high adaptation rate. Again, adaptation of resources can be interpreted in different ways. In the case of the specific group, most obviously, 'adaptation' was taken to mean 'designing the lesson aims and staging of its presentation around the OERs on Photodentro' as they reported not to be making full use of all the features of the learning objects (LOs) due to all the reasons mentioned before. In comparison to the OER Research Hub international research

findings indicating production rate at 77.8% and open publishing at 38.9% (also lower than adaptation), the present study results confirm a frequently reported barrier to OER sustainability at a higher degree (Ehlers & Conole, 2010:7; Farrow et al., 2015). In order for educational institutions to drive OER impactful change, clearly there has to be more purposeful goal-oriented activity.

3. Significance of the study and implications

The research has unveiled low rates of responsiveness the full spectrum of Digital School Platform and the different types of open content services. More importantly, it has highlighted the low levels of teachers' familiarity with the ways they can apply OERs and use the open practice processes of re purposing and redistribution. From this perspective their evaluation ranged from average to very good. One major finding of the study was that the Digital School Initiative has not yet reached its full potential and it has not reinforced technological innovation at schools. Some implementation stages of the Digital School initiative such as technical infrastructure, the quantity of the resources and OER skills among educators present great challenges. The study showed that EFL teachers recognise the benefits of the programme but also demotivators have been detected. OER/OEP represent a high-stake educational capital and responsibility for mainstreaming the services of the repositories should be shared between public bodies and the teaching profession. As Hamilton (2013:116) proposed, we must encourage evolving personalised environments which all stakeholders including policy makers, administrators, teachers and learners collaborate to create a future of renegotiated core competencies. Openness in education supports participatory learning environments where teachers and learners are encouraged to participate in the

production and sharing of high-quality educational content. Establishing communities of practice around educators and schools is one step towards this direction. Ehlers (2011: 4) posits that in such environments OEPs can bring on change so that knowledge is created collaboratively by means of reflective practice. To cultivate meaningful ownership, the open educational system should allow for teachers and education coordinators to take on roles as ambassadors for its dissemination, as disciplinary administrators in special interest collaboratories within the portal to support participation-based learning and as tutors in webinars offered on the platforms. Through mainstreaming open standards in this manner, educators can understand the added value OERs bring to their organisation and to their professional recognition.

4. Concluding note

In sum, the study research has confirmed previous findings concerning OER impediments regarding flexible learning opportunities, efficiency in quality production and systematic transformative capacity from the perspective of primary and secondary EFL courses in the Greek OER initiative. The outcomes offer insight into the Dschool Reusable Learning Object Repositories (RLORS) for other disciplines in the educational system and contribute to designing intervention schemes for OER implementation.

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Appendix I

Questionnaire on the use of digital educational content

Part A

Personal Data

1. Gender

☐ Male

☐ Female

2. Age Group:

☐ <25

☐ 26-35

☐ 36-45

☐ 46-55

☐ >56

3. Qualification:

☐ BA

☐ Diploma*

☐ MA*

☐ PhD*

* Field of Expertise _____

4. Years of Experience in teaching:

☐ < 3 years
years

☐ 3-5 years

☐ 6-10 years

☐ 11-15 years

☐ 16-20

☐ 21-25 years

☐ >26 years

5. Working Institution :

☐ A Primary School institution (ISCED 1) ☐ A lower Secondary School Institution (ISCED 2) ☐ A higher Secondary School Institution (ISCED3)

6. Region of your present school:

a. urban

b. semi-urban

c. provincial

d. remote

Part B

ICT USE

7. Do you use ICT in the classroom;

☐ Yes* ☐ No

If yes*:

(α) How often do you use the ICT your institution provides in your teaching context;

☐ Never ☐ A few times a year ☐ Once or twice a week ☐ Daily

(β) Which ICT do you specifically use;

(Choose all that apply.)

☐ Computer/ Laptop

☐ Projector

☐ Interactive whiteboard

☐ Computer lab at school

☐ Tablets/Smartphones

☐ Web 2.0 tools

☐ Teaching/ Learning online platforms

☐ Educational software

☐ Web services

☐ Other

8. Do your pupils make use of ICT to learn English;

☐ Never ☐ A few times a year ☐ A few times a month ☐ Once or twice a week ☐ Daily

9. Have you received any training in the use of ICT in the teaching context;

☐ Yes* ☐ No

If Yes*, which level of training/ training course have you completed;

Level 1

Level 2.1

Other:

10. How would you rate/ describe your computer skills (Digital literacy);

5 ☐
Excellent

4 ☐
Very good

3 ☐
Good

2 ☐
Moderate

1 ☐
Low

Part C

Use of Open Educational Resources/ Practices (OERs/ OEPs), Learning Object Repositories applications

11. Do you know the “Digital School Platform, Interactive Books, and Learning Object Repositories” at <http://photodentro.edu.gr>, the National Greek Programme for digital educational content for schools;

☐ Yes*

☐ No

If Yes*, please indicate how often do you use:

	Level of teacher engagement				
Digital School Open content-based e-Services:	Never	A few times a year	A few times a month	Once or twice a week	Daily
Interactive Textbooks http://e-books.edu.gr					
Photodentro Digital OER Repositories & National OER Aggregator					
Photodentro_LOR Learning Objects (LOs) http://photodentro.edu.gr/lor					
Photodentro_video http://photodentro.edu.gr/video					
Photodentro_Edusoft http://photodentro.edu.gr/edusoft					
Photodentro e_yliko users (UCG) with OERs designed by teachers http://photodentro.edu.gr/ugc					
Photodentro_OEP with Open Educational Practices http://photodentro.edu.gr/oep					
Photodentro _Culture http://photodentro.edu.gr/cultural					
English Language Microsite: http://micro.photodentro.edu.gr/english2015					
e-me Digital Educational Platform for pupils and teachers http://e-me.edu.gr/					

Aesop – Advanced Electronic Scenarios Operating platform – of Advanced Electronic scenarios http://aesop.iep.edu.gr/					
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12. How do you rate **Digital School Open content-based e-Services OERs/OEPs: Photodentro OER Repositories & National Aggregator, Interactive Textbooks, and the Digital Educational Platform e-me:**

α. Ease of use.

☐5 Excellent
 ☐4 Very good
 ☐3 Satisfactory
 ☐2 Little
 ☐1 Unsatisfactory

β. Quality of digital content.

☐5 excellent
☐4 very good
☐3 good
☐2 fair
☐1 bad

γ. Relevance with the teaching-learning process and suitability.

☐5 excellent
☐4 very good
☐3 good
☐2 fair
☐1 no relevance

δ. Impact on learner interest during the learning teaching process

☐5 excellent
☐4 very good
☐3 good
☐2 fair/moderate
☐1 no impact

ε. Impact on the English Language student skills

☐5 excellent
☐4 very good
☐3 good
☐2 fair/moderate
☐1 no impact

13. Level of Engagement with **Digital School Open content-based e-Services OERs/OEPs: Photodentro OER Repositories & National Aggregator, Interactive Textbooks, and the Digital Educational Platform e-me.** How do you use Dschool services? Please one or more ways you use Dschool open content:

- α ☐ Use OERs to prepare the lesson plan.
 β ☐ Incorporate OERs in the presentation stage of the lesson.
 γ ☐ Involve my students in the co-operative use of OERs in order to achieve

the aims of the lesson.

δ ☐ Share OERs with colleagues

14. Forms of Localisation – **Digital School Open content-based e-Services OERs/OEPs: Photodentro OER Repositories & National Aggregator, Interactive Textbooks, and the Digital Educational Platform e-me.** Which practices do you apply in ?

Please, choose or more:

α ☐ Implement OERs without adaptation

β ☐ Remix OERs by combining with other educational materials

γ ☐ Adapt/Edit OERs appropriately

δ ☐ Re-purpose OERs in co-operation with other educators and re-distribute

15. Please use the space below to add any comments about the benefits and the challenges you face using OERs:

.....
.....
.....
.....
.....
.....
.....
.....

Thank you very much for your help.

Appendix II

Answers to open ended question 15

Απάντηση	Μέτρηση	Ποσοστό
Απάντηση	24	6.47%
Καμία απάντηση	152	40.97%
Μη ολοκληρωμένο ή μη εμφανιζόμενο	195	52.56%

ID Απάντηση

- 6 Η υλικοτεχνική υποδομή εμποδίζει την αξιοποίηση των OERs στην εκπαιδευτική πρόταξη (μια τάξη με εξοπλισμό για τους καθηγητές).
- 8 Χρηζουν επικαιροποίησης
- 31 Χρειάζεται καλύτερη υποδομή στο δημόσιο σχολείο και περισσότερες ώρες για την διδασκαλία της αγγλικής γλώσσας
- 68 Το υλικο που υπαρχει για επιπεδο β2 και τα ενδιαφέροντα μαθητων λυκείου ειναι ελαχιστο εως ανυπαρκτο οσον αφορα την αγγλικη γλωσσα.
- 72 Καλό θα ήταν να προστεθούν πόροι και εκτός βιβλίων. Γενικά οι διαθέσιμοι πόροι υπάρχουν ήδη και στα σχολικά εγχειρίδια.
- 116 Θεωρώ πως έχει γίνει πολύ μεγάλη και καλή προσπάθεια σχετικά με τα OERs.
Προσωπικά, αν ήταν εφικτό, θα τα χρησιμοποιούσα καθημερινά. Υπάρχουν δυσκολίες όμως που δεν σχετίζονται με αυτά και που περιορίζουν τη χρήση τους. Η έλλειψη τεχνικών μέσων ή οι σποραδικές ευκαιρίες που μου δίνονται να χρησιμοποιήσω τα υπάρχοντα μέσα (λίγες αίθουσες με διαδραστικούς πίνακες, κακή πρόσβαση στο ιντερνετικό δίκτυο κ.αλ.) και η έλλειψη ενημέρωσης συναδέλφων και μαθητών σχετικά με τις δυνατότητες που προσφέρουν τα OERs, λειτουργούν αποτρεπτικά.
- 125 Δεν τα χρησιμοποιω επειδη δεν υπαρχει υλικο για το λυκειο

128 Να δημιουργηθούν σύγχρονα OERs με καλύτερη εικόνα και ήχο.

131 Τα εξελιγμένα παιχνίδια προσωμοίωσης και εικονικής πραγματικότητας που έχουν συνηθίσει να παίζουν οι μαθητές καθώς και η εξοικείωση τους με τη γρήγορη διάδραση στα μέσα μαζικής δικτύωσης κάνουν τα περιβάλλοντα των OER να φαίνονται "παλαιομοδίτικα" και "παρωχημένα".

Εκτιμάται πάντως η χρήση τους καθώς προσφέρουν καλοδεχούμενη εναλλαγή από το παραδοσιακό μοντέλο.

141 Στα πλεονεκτήματα συγκαταλέγω την χρησιμότητά τους στην εκπαιδευτική διαδικασία. Την δυνατότητα και ευκολία διαμοιρασμού τους και το μηδενικό κόστος για τον συνάδελφο της τάξης.

Οι περιορισμοί έχουν να κάνουν κυρίως με την πρόσβαση σε ίντερνετ ή την χαμηλή ταχύτητα των συνδέσεων στα σχολεία.

Ένας ακόμα περιορισμός στην δημιουργία νέων OER είναι και το θέμα των πνευματικών δικαιωμάτων καθώς δεν μπορούμε να ανεβάσουμε υλικό με εικόνες και ήχο που δεν είναι δικά μας.

Συχνά επίσης κάποια OER δεν ανανεώνονται/ενημερώνονται (και όποτε αυτό συμβαίνει συμβαίνει δυστυχώς σε πολύ αραιά διαστήματα)

152 Χρησιμοποιώ OERs κυρίως για ιδέες στις δημιουργικές εργασίες, τα εκπαιδευτικά σενάρια είναι πολύ χρήσιμα . Γενικά το μεγαλύτερο μέρος του υλικού Αγγλικής του φωτόδενδρου δεν απευθύνεται σε μαθητές Λυκείου. Ίσως με τα νέα προγράμματα ξένων γλωσσών του Λυκείου, το υλικό γίνει πιο χρήσιμο.

156 Το αποθετήριο είναι ασφαλής τόπος και τρόπος να αντλείς υλικό κατάλληλο για την εκπαίδευση και με σεβασμό στους μαθητές, μακάρι να υπήρχε και ο ανάλογος εξοπλισμός στην ελληνική εκπαίδευση ώστε να γίνεται εκτενής χρήση του.

173 Ουσιαστικά δεν μου προσφέρουν τίποτα, είναι αναπαραγωγή υλικού που ήδη υπάρχει στα βιβλία.

- 194 Αυτή τη βδομάδα ξεκινώ την επιμόρφωση επίπεδο β1. Ελπίζω να καταφέρω να χρησιμοποιήσω τις πρακτικές αυτές καλύτερα. Πρέπει όμως να επισημάνω ότι 5 χρόνια πριν διδάσκοντας σε γυμνάσιο μου δόθηκε τεράστια βοήθεια! Ελπίζω να οργανωθεί κάτι αντίστοιχο για το υλικό της Α λυκείου γιατί επί του παρόντος νιώθω πως κολυμπώ στον ωκεανό.. Χωρίς σωσίβιο. SOS!!!
- 199 Εάν η μορφή των OERS γίνει περισσότερο παιγνιώδης και η κατ' οίκον πρόσβασή τους από τους μαθητές ευκολότερη, η χρήση τους θα καταστεί συχνότερη ως μία πολύ ευχάριστη δραστηριότητα του ελεύθερου χρόνου τους.
- 202 Δυστυχώς δεν μπορώ να συνεισφέρω διότι δεν χρησιμοποιώ Τ.Π.Ε. στο μάθημα όσο θα ήθελα για λόγους που δεν εξαρτώνται από εμένα.
- Ίσως θα μπορούσε το όλο πλαίσιο να είναι πιο φιλικό προς τον χρήστη, με πιο δομημένο σχεδιασμό και άλλη αισθητική, να ήταν έτσι πιο αποτελεσματικό και πιο σύγχρονο. Προσωπικά πάντα μιλώντας, δεν ανταποκρίνεται στις προσδοκίες που μου δημιουργεί. Κάθε φορά που το χρησιμοποιώ, αντιλαμβάνομαι γιατί δεν το χρησιμοποιώ συχνότερα (πέρα από την ελλιπή πρόσβαση στο σχολείο).
- 230 Students become focused and less noisy!
- 250 Καλό θα είναι να ληφθεί υπόψη ότι ΔΕΝ υπάρχει ο κατάλληλος εξοπλισμός. Πολλά εργαστήρια είναι εξαιρετικά ανεπαρκή, αλλά και όταν υπάρχει ο κατάλληλος εξοπλισμός ΠΟΙΟΣ θα πρωτοχρησιμοποιήσει το εργαστήριο πληροφορικής? Σε σχολείο δευτεροβάθμιας με 1 εργαστήριο με 15 υπολογιστές (λειτουργούν οι 11-12), με εκπαιδευτικούς να πηγαινοέρχονται σε 2-3 σχολεία, με τον καθηγητή πληροφορικής να προηγείται στη χρήση του εργαστηρίου είναι πρακτικά αδύνατο να διαμορφωθεί το ωρολόγιο πρόγραμμα ώστε να υπάρχει στοιχειωδώς νορμάλ πρόσβαση στους υπολογιστές. Το ψηφιακό υλικό υπάρχει, αλλά η χρήση και η αξιοποίησή του σε ΠΡΑΓΜΑΤΙΚΕΣ συνθήκες της πλειονότητας των δημοσίων σχολείων είναι επιεικώς ουτοπική. Ό,τι

γίνεται, γίνεται με προσωπικό κόστος και υλικό (πχ laptop) του εκπαιδευτικού. Είναι αστείο να μιλάμε για ψηφιακό εκπαιδευτικό υλικό και αξιοποίησή του, όταν η πρόσβαση σε υπολογιστές και διαδίκτυο σε πληθώρα δημοσίων σχολείων είναι από τουλάχιστον προβληματική έως παντελώς αδύνατη.

269 Η ελλειψη σχετικης υποδομής (υπολογιστες, projectors) στο σχολειο που εργάζομαι καθιστά τη χρηση του Φωτοδεντρου αδυνατη.

306 Ο διαμοιρασμός εκπαιδευτικών πρακτικών είναι πολύ σημαντικός στην εκπαίδευση: εμπνέει, αναπτύσσει τη γνώση και δημιουργεί το αίσθημα μιας κοινότητας.

307 Χρήζουν επικαιροποίησης

345 Παρακολούθησα την επιμόρφωση επιπέδου B1, και έτσι έμαθα για το Web 2, το φωτόδεντρο και τις πλατφόρμες όπως τον Αίσωπο. Είναι δύσκολο να τα αξιοποιήσω γιατί:

Θα πρέπει να έχω σύνδεση με διαδίκτυο για να τα προβάλω, δεν κατάφερα να κατεβάσω κάποια βίντεο από το φωτόδεντρο που είχαν ενδιαφέρον, Τα βίντεο στα Αγγλικά δεν συνοδεύονται από αντίστοιχο κείμενο (ή τουλάχιστον εγώ δεν το βρήκα), το εργαστήρι πληροφορικής είναι μικρό και χρησιμοποιείται από τους συναδέλφους της πληροφορικής υπάρχει πίεση χρόνου (στο Γυμνάσιο δύο ώρες την εβδομάδα μόνο) Στις ερωτήσεις 13 και 14 οι απαντήσεις που έδωσα δεν ισχύουν γιατί δεν τα χρησιμοποιώ στην τάξη (τα έχω δει μόνο στην επιμόρφωση επιπέδου B1), αλλά δεν υπήρχε αυτή η εναλλακτική απάντηση για να την επιλέξω.

375 Δεν χρησιμοποιώ το φωτόδεντρο. Όταν το

πρωτοεπισκέφθηκα πριν από τρία χρόνια, το βρήκα πολύ "φτωχό" σε περιεχόμενο και δεν αναζήτησα ξανά τις υπηρεσίες του. Κάποια από τα παραπάνω στοιχεία είναι ψευδή και συμπληρώθηκαν μόνο για το σκοπό της ολοκλήρωσης του ερωτηματολογίου.

Το τριετίας τα υπόλοιπα αφορούν την εμπειρία μου προ τριετίας.

Σας ευχαριστώ.

382 Περισσότερο υλικό