

Youth, New Technologies and Informatics. The Regeneration of a Library

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Abstract

After the economic crisis of 2011 the library of our school, as of many other Greek public schools, remained unmanned and open for a few hours per week. During this period its electronic catalogue had been also corrupted. To solve this accessibility and functioning problem an Online Library Management System (OLMS) was created for the management of the everyday needs of any school library. It is a Free and Open Source Software written in PHP and hosted on the servers of the Greek School Network (<http://www.evangeliki-lykeio.gr/OSLL/>). It was implemented during this summer and we expect that from the new school year it will accelerate the restoration of the lost digital catalogue of our school library and its web utilization will make our school library accessible also to the local society. Also, we expect that through its easiness of use and its simple user interface it will increase the library usage by our students.

Keywords: School Library, Online Library Management System (OLMS), FOSS, OSLL

1. Introduction

Printed paper will never lose its magic, but as our society becomes more digitalized by the day, the need for digitally managing the books of a library is imperative. In this paper, we present a Free and Open Source Software solution that was created in order to accommodate the everyday running needs and the online management of the school library of the Model High School “Evangeliki School of Smyrna” in Nea Smyrni, Athens, Greece.

In the years 2000-2002, five hundred secondary school libraries were created (*Οδηγός Σχολικών Βιβλιοθηκών*, 2002) in Greece with the financial aid of the European Union. In the project, about six thousand titles were donated at each library. The titles were registered both in a hard copy and in an electronic file. In 2006 more school libraries were established (Μαλιγκάνη, 2012) and nowadays a total number of 757 school libraries exist in secondary education schools. The software ABEKT 5.0, created in 1999 (National Documentation Center, 2018b), was installed and used to

accomplish the libraries tasks (National Documentation Center, 2018a). There were no professional librarians employed but instead school professors were appointed and worked as librarians, usually for a year or more, part or full time. These “librarians” played a crucial role in the setup and afterwards in the operation of the libraries. These libraries were open only during school hours, thus not working during afternoons. After the economic crisis in 2011, due to staff reductions, the school libraries remained mostly unmanned, though by legislation the Ministry of Education suggested 2-6 opening hours per week in case that there is a surplus of teaching hours of the school professors.(Λειτουργία των 757 Σχολικών Βιβλιοθηκών ΕΠΕΑΕΚ για το Σχολικό Έτος 2015-2016, 2015). During 2017-2018 the library management software version ABEKT 5.6 had been donated to the school libraries but unfortunately, nowadays it has been replaced by a payable cloud version. The situation worsens as it is known worldwide that most young people do not use public libraries.

To address the problem of Greek school libraries underfunctioning an Open Source software solution (<https://github.com/Evangeliki-Scholi/Open-School-Library-Lite>) is proposed that we expect to enhance the use of school libraries and serve their running needs.

2. Libraries and youth

In countries where libraries are properly functioning, research shows that nearly half (47.8%) of young people do not use public libraries at all. The main reasons for this are : a) that their family did not use libraries (over 50%) b) that their friends do not go (about 40%) c) that they believe that the public libraries do not have any interesting materials for them (about 40%) d) that no one had taken them there (16%) (Clark & Hawkins, 2011). This trend of young people not visiting the public libraries is enhanced by the current operational status of the Greek school libraries.

2.1 Current status of our school library

After the year 2011 the library of our school suffered the same fate as most other school libraries in Greece. To make things worse, during these years its electronic catalogue had been corrupted and only a paper inventory remained containing book title, author name and the book barcode. Nowadays our school library is visited rarely by the 500 students of the school, usually for retrieving information for school projects, under the supervision of their professors and is almost never used for the joy of reading on site or after borrowing a book. Consequently the wealth it enshrines remains largely unexplored and the students do not get acquainted with the use of a library.

Concerning the other secondary school libraries, in 2018 47 % of the secondary school libraries were open for a few hours per week and 53% were closed. (Zachos,

2018). The only case that some school libraries function full time is by school professors that voluntarily run the libraries.(Παπαδάκη & Μανούσακα, 2016) Nowadays the libraries that are open function under the supervision of school professors that have been assigned this duty as an extracurricular activity. Even if the ABEKT software is functional in any working school library, the catalogue search or the eventual book borrowing process is mostly done manually, because the ABEKT software operation is allowed only by the professors and requires at least a basic acquaintance with its interface.

2.2 Dilemma

The aforementioned situation in Greek school libraries can be faced under different perspectives. Letting aside the option “let sleeping dogs lie”, one partial solution is to assign the library as an extracurricular activity to more than one school professors so as to increase the opening hours of the library to a maximum of 10 hours per week. This solution does not modernize or enhance the function of the library and at least in our library’s case does not solve the electronic catalogue loss problem.

The radical solution would be librarians to be employed in order to run and maintain the libraries and also a cloud library management software to be purchased to back the library operations. Due to the economic crisis, which has worsened after the coronavirus disease, this option cannot be realized in the near future.

Taking into account the almost non-existing funding of the Greek school libraries, their current functionality can be dramatically improved if their limited opening hours are “extended” with the use of an open-source OLMS (Basu, 2019) such as Koha, or with the use of a library website created by an open-source Content Management System (CMS) platform that will contain add-ons geared toward libraries (Pope, 2015) like Drupal.

The use of such software can enhance and extend the functionality of any library by offering an Online Public Access Catalogue (OPAC), or giving the ability to browse an online exhibit or to download a public domain e-book.

2.3 Our solution to revitalize our library

These days teenagers live in a world where their whole daily lives can be overseen through their smartphones (Andone et al., 2016). Creating an OLMS where students can index and search through all the available library books will bridge the gap between a physical library and a digital library. Also, an OLMS brings further advantages through solving unexpected problems such as data loss.

The solution we chose to revitalize our school library is to use an OLMS. Such a solution is ideal for the Greek school libraries as their extremely limited working hours can be used mostly for borrowing and returning books, while the searching/browsing of the library catalogue can be accomplished by the potential

readers beforehand, using our online running software. If proper announcements are done, such a solution extends the readers also to the local society.

We chose to write from scratch a completely new OLMS especially curated for our needs and the needs of any Greek school. We chose not to use any other available software as the service providers for our school website have outdated software and run on limited resources, and as a result most other software would be rendered useless.

In order to create a high standard OLMS, we had to implement some key features in the system so that it attracts teenagers and creates a seamless and coherent User Interface (UI) and User Experience. Keeping it as simple as possible, while maintaining all the key functionalities was a top priority. The software created has been named “Open School Library Lite” (OSLL) and it was designed to be Open Source (<https://github.com/Evangeliki-Scholi/Open-School-Library-Lite>) not computationally demanding and compatible with older versions of PHP that are widely available through cheap hosting services. A clean and user-friendly UI was created to help users focus on what is important, reducing unnecessary distractions and decluttering the Web View.

To address the problem of our school’s electronic book catalogue destruction, the available paper one was scanned, converted into text and imported in our Database. The created OSLL software has started its service by helping the validation of the electronic catalogue. The barcode of every book on the self is scanned and a match is attempted with entries existing in the electronic catalogue. If the match is successful, the Dewey code and the position of the book on the self is filled in the electronic catalogue. If the match fails all the data of the newfound book are filled afresh in the electronic catalogue. This process was done at a much slower pace the previous two years as it was done manually using an Excel file. Thus, an immediate benefit from the implementation of the OSLL in our library is the substantial acceleration of the correspondence process between the newly created electronic list and the existing titles in the library.

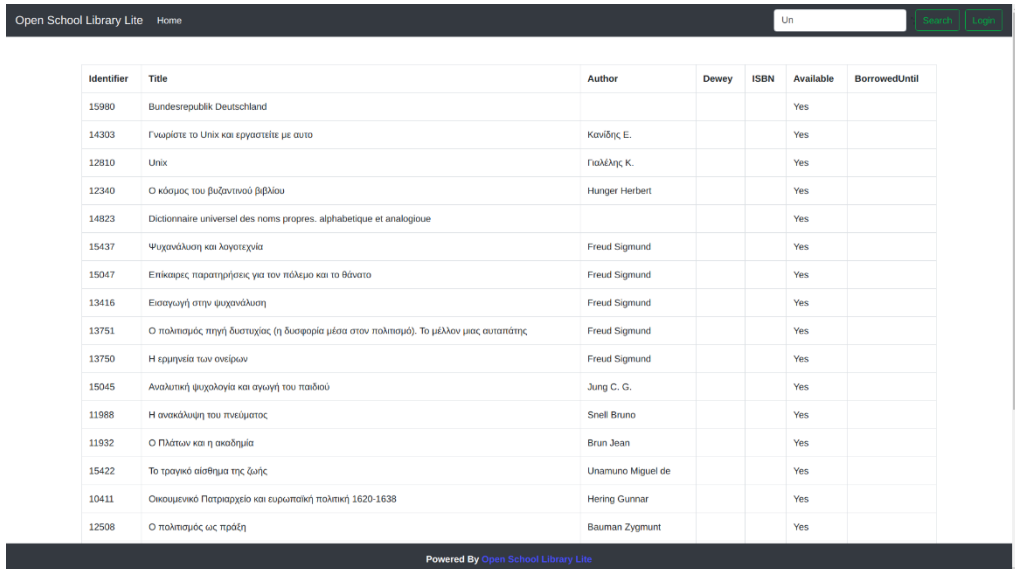
3. OSLL features

Our school’s new OPAC system is designed to allow students to get connected with the library while not going out of their way and “learn” how to use a conventional library. Our software can be paired with different types of peripherals to increase efficiency and create a more seamless experience. Some examples include a barcode scanner, which will allow someone to process books a lot quicker, an RFID scanner which can be paired with a smartphone, an RFID capable card for library user identity, and connecting with a NAS system to allow mass storage for free e-books.

Additionally, our solution can be paired with the Google API in order to gain access to many more metadata that can be used by the students to further see if the book that they found is actually what they are looking for.

3.1 The surface web interface

The search menu accepts alphanumeric values and a match is attempted with a string in the title and/or in author's name, Dewey, ISBN and with the unique identifier of the book. Then, it will show a grid box [Image 1] containing all the results returned from the database. The results are not categorized or sorted by default, but the use of modules, can allow the categorization and sorting of result,



Identifier	Title	Author	Dewey	ISBN	Available	BorrowedUntil
15980	Bundesrepublik Deutschland				Yes	
14303	Γνωρίστε το Unix και εργαστείτε με αυτο	Κωνίδης Ε.			Yes	
12810	Unix	Γκολέλης Κ.			Yes	
12340	Ο κόσμος του βιβλιντινού βιβλίου	Hunger Herbert			Yes	
14823	Dictionnaire universel des noms propres. alphabetique et analogique				Yes	
15437	Ψυχανάλυση και λογοτεχνία	Freud Sigmund			Yes	
15047	Επικρατές παρατηρήσεις για τον πόλεμο και το θάνατο	Freud Sigmund			Yes	
13416	Εισαγωγή στην ψυχανάλυση	Freud Sigmund			Yes	
13751	Ο πολιτισμός πηγή δυστυχίας (η δυσφορία μέσα στον πολιτισμό). Το μέλλον μας απαιτάται	Freud Sigmund			Yes	
13750	Η ερμηνεία των ονείρων	Freud Sigmund			Yes	
15045	Αναλυτική ψυχολογία και αγωγή του παιδιού	Jung C. G.			Yes	
11988	Η ανακάλυψη του πνεύματος	Snell Bruno			Yes	
11932	Ο Πλάτων και η ακαδημία	Brun Jean			Yes	
15422	Το τραγικό αίσθημα της ζωής	Unamuno Miguel de			Yes	
10411	Οικογενικό Πατριαρχείο και ευρωπαϊκή πολιτική 1620-1638	Hering Gunnar			Yes	
12508	Ο πολιτισμός ως πράξη	Bauman Zygmunt			Yes	

Image 1. Search output

3.2 The administrator's web interface

The administrator web interface is filled with many features that allow an easy interaction with the APIs that are provided by the platform. Such interactions include lending a book to a user [Image 3], returning a book [Image 4], editing an existing book entry in the database [Image 5], adding a new book entry to the database [Image 6], adding a new user to the database [Image 7] and changing some settings that will alter the way the website looks [Image 8]. In addition, when an administrator is logged in, and only then, when querying for a book, the results will also show who has been lent a book from the results [Image 9].

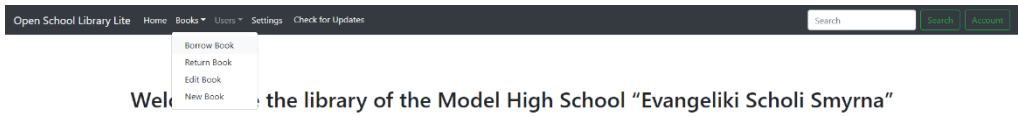


Image 2. Drop down menu for book handling

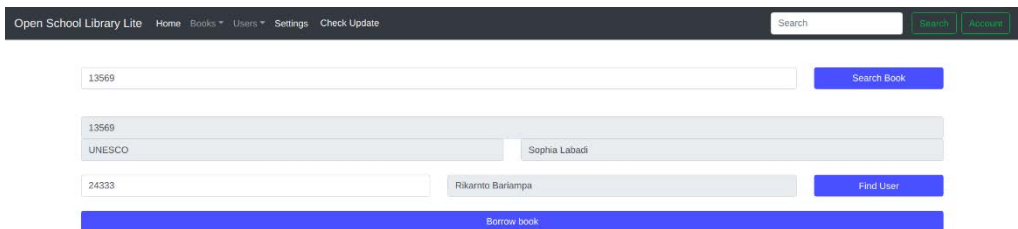


Image 3. UI for book borrowing

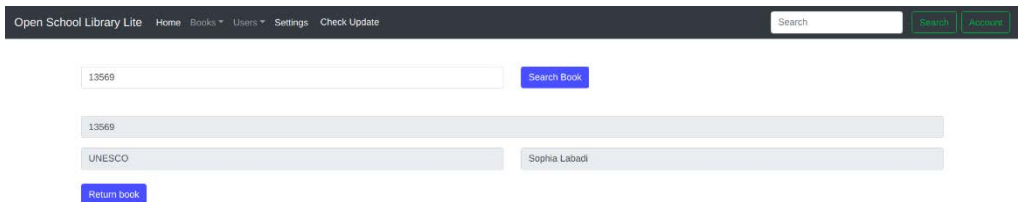


Image 4. UI for returning a book

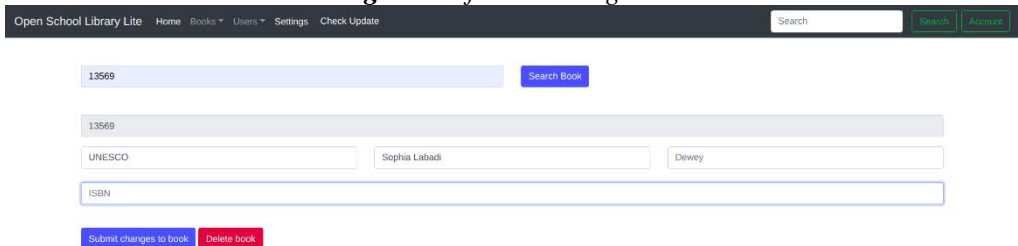


Image 5. UI for editing an existing book

Open School Library Lite Home Books Users Settings Check Update Search Search Account

10009

Dictionnaire francais-grec moderne Lust Colette Dewey

ISBN

Add book

Image 6. UI for adding a new book

Open School Library Lite Home Books Users Settings Check Update Search Search Account

24333

Rikarnto Bariampa

Add User

Image 7. UI for adding a new user

Open School Library Lite Home Books Users Settings Check for Updates Search Search Account

Site Name Open School Library Lite

Welcome Message Welcome to the library of the Model High School "Evangeliki Scholi Smyrna"

Home Home

Borrow Borrow Book

Return Return Book

Edit Book Edit Book

New Book New Book

New User New user

Check Update Check for Updates

Search Search

Settings Settings

Submit Changes Add Settings Field

Image 8. UI for interface manipulation

Open School Library Lite Home Books Users Settings Check Update

Identifier	Title	Author	Dewey	ISBN	Available	BorrowedUntil	Name of borrower
15980	Bundesrepublik Deutschland				Yes		
14303	Γνωρίστε το Unix και εργαστείτε με αυτο	Κωνσής Ε.			Yes		
12810	Unix	Γιούλιος Κ.			No	2020-08-19	Rikanto Bariampa
12340	Ο κόσμος του βυζαντινού βιβλίου	Hunger Herbert			Yes		
14823	Dictionnaire universel des noms propres. alphabetique et analogique				Yes		
15437	Ψυχανάλυση και λογοτεχνία	Freud Sigmund			Yes		
15047	Επικρατές παρατηρήσεις για τον πόλεμο και το θάνατο	Freud Sigmund			Yes		
13416	Εισαγωγή στην ψυχανάλυση	Freud Sigmund			Yes		
13751	Ο πολιτικός πηγή δυστυχίας (η δυσφορία μέσα στον πολιτισμό). Το μέλλον μας αυταπάτη	Freud Sigmund			Yes		
13750	Η ερμηνεία των ονείρων	Freud Sigmund			Yes		
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11988	Η ανακάλυψη του πνεύματος	Snell Bruno			Yes		
11932	Ο Πλάτων και η ακαδημία	Brun Jean			Yes		
15422	Το τραγικό αίσημα της ζωής	Ulamuro Miguel de			Yes		
10411	Οικουμενικό Πατριαρχείο και ευρωπαϊκή πολιτική 1620-1638	Hering Gunnar			Yes		

Powered By Open School Library Lite

Image 9. Search result for Admins, showing who has borrowed a book

3.3 Database

The OSLL’s database is structured and is split into 3 tables [Image 10]. The first table is for the admin information. This table contains information like the admins’ username, hashed passwords (the hashed password is hashed twice for security reasons, once on the users device and a second time at a server to ensure that the passwords are securely stored), email, name and metadata. This table also contains a row named ‘Algo’ which contains the hashing method used by the user to send securely the password to the server. The second table is for the book information. This table contains information about the books’ title, author, Dewey code, ISBN, availability in the library, the date of return if book is borrowed, id of user that has borrowed the book and metadata. The last table is the user information table. This table contains information like the users’ id, name and metadata.

The metadata field can be used to further expand the capabilities of the OSSL though modules, that can be installed to alter the functionality of the service. These modules will require a way to store some of its output somewhere, thus the metadata field.

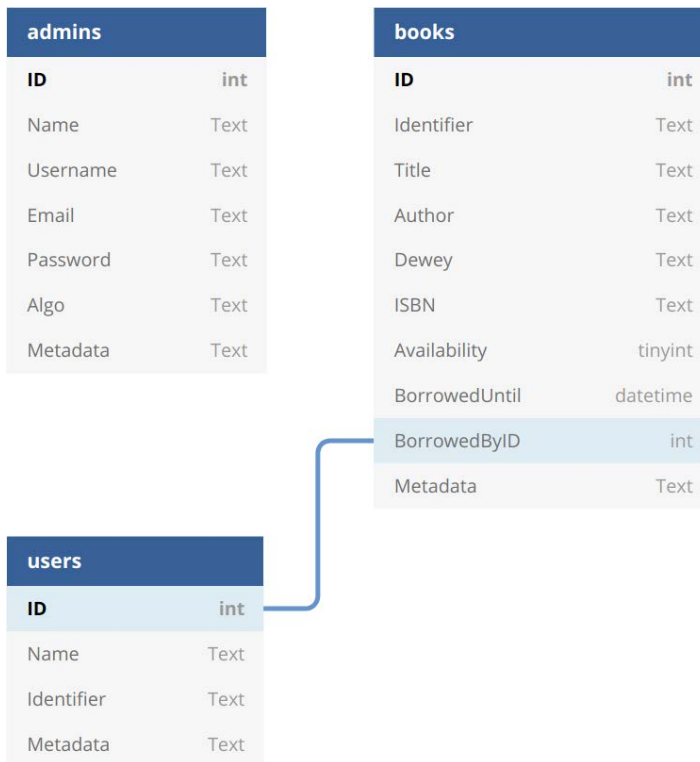


Image 10. SQL Database structure diagram

4. Conclusions

Our created OSLL software has been installed on the servers of the Greek School Network in July 2020 and is helping us to revitalize our school's library. From the new school year it is expected to accelerate the process of matching the books on the shelves with the titles in the newly created electronic catalogue.

It carries out all the necessary functions a library software does, as creating new book entries, editing old ones, recording book borrowing and return, and it also does user management. It pairs to optical and RF scanners thus accelerating all these processes.

Its use has extended the accessibility of the library catalogue from 2 hours per week to 24 hours a day, 7 days a week. It has simple use, a clean and user-friendly UI and it also runs on mobile devices. Due to the aforementioned characteristics, we expect that from the new school year it will help students search the library information more efficiently, make them more productive, and most importantly boost their interest in visiting the library and potentially introducing it to the local society. In a future

article, a retrospective study will be presented as a final validation of the tool's usefulness.

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Περίληψη

Μετά την οικονομική κρίση του 2011 η βιβλιοθήκη του σχολείου μας, όπως και οι βιβλιοθήκες πολλών άλλων δημόσιων σχολείων, ανοίγει για λίγες ώρες την εβδομάδα λόγω ελλείψεως προσωπικού. Κατά την διάρκεια αυτής της περιόδου ο ηλεκτρονικός κατάλογος της βιβλιοθήκης καταστράφηκε. Για να λύσουμε το πρόβλημα της δυνατότητας επίσκεψης στην βιβλιοθήκη και το πρόβλημα της εύρυθμης λειτουργίας της, ένα Διαδικτυακό Σύστημα Διαχείρισης Βιβλιοθήκης (ΔΣΔΒ) δημιουργήθηκε που μπορεί να χρησιμοποιηθεί για την διαχείριση των καθημερινών αναγκών οποιασδήποτε σχολικής βιβλιοθήκης. Είναι Λογισμικό Ανοιχτού Κώδικα γραμμένο σε PHP και φιλοξενείται στους εξυπηρετητές του Πανελληνίου Σχολικού Δικτύου (<http://www.evangeliki-lykeio.gr/OSLL/>). Είναι λειτουργικό από τον Αύγουστο του 2020 και αναμένουμε ότι από το νέο σχολικό έτος θα επιταχύνει την διαδικασία αποκατάστασης του ηλεκτρονικού καταλόγου της βιβλιοθήκης μας και η διαδικτυακή του χρήση θα δώσει δυνατότητα πρόσβασης της βιβλιοθήκης μας και στην τοπική κοινωνία. Αναμένουμε επίσης ότι η ευκολία χρήσης του και η απλή γραφική διεπαφή χρήστη θα αυξήσει την χρήση της βιβλιοθήκης από τους μαθητές μας.

Λέξεις κλειδιά: Σχολική Βιβλιοθήκη, Διαδικτυακό Σύστημα Διαχείρισης Βιβλιοθήκης (ΔΣΔΒ), FOSS, OSLL