

DOCTORAL PhD DISSERTATION

E-LEARNING LIBRARY SYSTEMS
IN HIGHER EDUCATION

THESES

LÁSZLÓ CZEGLÉDI

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E-LEARNING LIBRARY SYSTEMS IN HIGHER EDUCATION

The main points and a brief summary of the treatise

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1. Introduction

The rise of new instruction methods including e-learning and blended learning resulted in a closer connection between the library and the higher education institution. Subsequently, the scholarly community dedicated to the study of instruction and digital literacy has new questions to ponder. Since higher education is one of the avenues leading to digital erudition it is recommended that the means of obtaining digital culture along with the various types of digital literacy should be explored. It is through these means that libraries can provide effective help for instruction and teaching efforts and contribute to the maintenance and development of the respective programs. The actual or in some cases prospective paradigm shift in the field of education resulted in a definite impact on library services leading to a clear convergence between the two particular fields.

According to current knowledge the possibilities connected with digital content development and the related services are virtually unlimited. While a variety of positions and opinions has been expressed concerning the propriety and applicability of the achievements of digital culture, not even the most noted researchers of our profession have questioned the legitimacy of digitalization. My dissertation attempts to outline the future of digital content development. Although several options are available, the very extent of the given choice is the source of the problem as well. I hope that the investigation of the respective approaches and concepts will not only provide some guidance concerning which road to follow, but help in shaping one's perspective by identifying new directions in digital content development as well.

I am fully convinced that further research is needed in such crucial digital knowledge management tasks and technologies as digital document and content provision, since by now the original concept has broadened into digital object and information provision. Although these advances comprise only one of the many cornerstones of the discipline, they are vital to electronic learning efforts. Digital technology transforms the means of accessibility to research materials and educational texts. One of the most promising options of the future is the development of personalized services.

While my dissertation provides an overview of the imminent changes expected to impact the professional background of e-learning libraries, the exploration of all respective issues is beyond the scope of the present thesis. My primary focus was on the scientific exploration of

topics and themes indispensable for the understanding of the connection between library and instruction. Thus my dissertation performs a scholarly inquiry of the learning support function and the operation of e-learning libraries, along with the identification of the related problems and the examination of the questions concerning their significance.

At the same time due to temporal and spatial constraints I was not able to treat such issues as the collection management of electronic materials. While this question is partially solved by the content management of repositories, the respective theoretical and practical considerations highlight the complexity of content management systems.

Yet the broad scale of the collection enhancement, catalogue elaboration, service provision, and retention tasks performed by the digital library or repository creates unique situations requiring special approaches and solutions. Moreover, the varying context of collection arrangement and management tasks poses a rather difficult challenge requiring a wide variety of practical solutions. Consequently, virtually no plausible explanation can be given for the problem of collection depletion as neither storage, nor accessibility can imply significant restraints apart from material and financial considerations. The deletion of obsolete contents is not necessary either as the respective metadata structure facilitates the management of new and old data collections. Furthermore, as one basic difference, unlike traditional document management, digital document collections require hardware and software. Consequently, various content management systems assist in the, arrangement, retrieval, and use of digital documents. The resulting structural and operational variety, the exploration of related applicability, and practical experience-based comparisons spark new fields and themes for independent research and scientific inquiry.

As far as the topic of my dissertation is concerned, the exploration of e-learning library systems in higher education, the scope of the respective professional and theoretical background exceeds the boundaries of e-Learning, and in many cases even surpasses the limits of higher education eventually delving into everyday issues as well. The research effort explored the following crucial aspects and components of e-learning library systems:

- The connection between library and education the role of libraries in supporting the instruction process;
- digital literacy and erudition;
- ICT devices in the information society;
- library services in transition;
- digital and technological integration;
- e-learning – blended learning – library;
- e-learning library – terminology – repository – theory – operation;
- the provision of e-learning materials;
- the quality of e-learning library systems;
- an overview of international and domestic developments;
- a case study of possible implementation.

2. The main points of the dissertation

The presuppositions and hypotheses expressed in the following list can be justified and substantiated by the systematic structuring, arrangement, and analysis of the respective themes, the relevant research results, and practical experiences. Consequently, the obtained results promote further research either separately or jointly within a given context.

1. The connection between (higher) education and libraries can be described by a pre-determined criteria system facilitating the continuous analysis and monitoring of the tendencies and trends relevant to the respective correlation.

Having surveyed the themes and issues treated by the present dissertation, the compilation of the abovementioned criteria system becomes relatively easy. Consequently an optional criteria system defining the correlation between higher education and the respective institutional library is comprised of the following components:

Individual and society

- the level of digital erudition in the given external and internal environments
- the level and extent of ICT device use, the associated general and equipment or supply related standards
- the qualification of human resources, the ICT literacy of the respective personnel (instructor and librarian)

Services

- the availability of various instruction models and forms in the library
- the availability of various library services in the instruction sphere
- services – demands – the possibility of meeting the respective needs
- the role of e-learning educational materials in library services
- the extent of using e-learning materials and instructional support or auxiliary materials

Equipment and apparatus

- The equipment needs and standards of instruction and of the library environment, the appropriateness of said apparatus
- the level of informatization or the extent of digital and technological integration
- assessment of the connection between institutional repository– digital library– training management system

Quality

- the role of the traditional and e-learning library in the institutional quality assurance system
- the connection between the institutional quality management system with that of the library system

2. While the terminological system relevant to the given topic is adequate and the respective concepts can be easily distinguished, in some cases the information has to be supplemented or augmented. The concept of e-learning can be consistently integrated into the system. The e-learning library is not an arbitrary, separate unit, its

connection with the traditional library and the managed learning environments can be easily described.

The e-learning library is an electronic library embedded into an integrated virtual learning environment centred around a partly web-based digital repository. The e-learning library provides easily accessible and retrievable electronically and digitally stored learning resources and illustration materials required for teaching and learning. Furthermore, it facilitates the preparation and development of educational materials, grants access to external sources along with meeting the demands related to the research efforts of students and instructors alike. The operation of the e-learning library system is assisted by local indexing, adaptable navigational support, institutional repository, integrated library system, and a traditional library environment in an interactive service framework comprised of learners, instructors, librarians, and information and communication experts.

3. The connection between the institutional repository and the training management systems can be established or elaborated.

In case of electronic learning materials the capability of repositories to receive and process such documents has been illustrated. Accordingly the repositories can archive and explore these documents in addition to providing the respective metadata and facilitating retrieval and service options with an appropriate uncontested legal background eventually leading to a presentation at a basic readability level. The sophistication level of the given metadata structure allows the re-allocation or re-loading of the given material to the appropriate section of the training management system, or in other words, the right course upon demand. Related development efforts attempt to solve two problems, facilitating the modern, professionally appropriate, retrievable, and version proof archiving of e-learning materials along with decreasing the burden on training management systems by eliminating or deleting temporarily used or long term inactive educational materials.

4. Instruction efforts and library support schemes utilising web-based learning resources can meet the resource needs of given courses while carefully designed learning packages and auxiliary educational materials promote learning efficiency, academic progress, and information acquisition.

Unfortunately, the analysis of web-based materials did not produce the desired results. It is noteworthy, that authors refer to printed sources in case of the materials under examination and the number of electronic resources is rather low. This implies that the learner entering the electronic platform is directed to the traditional library. Consequently, the research effort confirms that the traditional library still plays a vital role in supporting e-learning systems and libraries. Moreover, it was proven that printed sources still enjoy significant priority in case of professional and academic texts.

5. The newly available services and the modern methods of library support pose a significant challenge for the librarian, for library service theories and the related equipment along with the user. Consequently, all components of the system, either on the client or material side need development or renewal. Effective instructional support on the part of libraries requires the constant expansion of available information and knowledge.

As the broad scope of the cited sources illustrates the dissertation treats components indispensable for a library to fulfill its modern instruction support function. One of the crucial issues from the standpoint of human resources is the improvement of the workers' professional competences aimed at keeping abreast with the respective technological developments. This has proven to be an everpresent and ubiquitous problem, especially today when the human resource potential cannot keep pace with the dramatic rate of technological development. Suffice to point to the expected familiarity levels with information and communication technology including software for the elaboration of a repository, or taken further, of an e-learning library. Furthermore, the continuous improvement of learning management systems and communication devices highlight the potentially harmful effects of the lack of a periodic renewal of the respective competences. This can also be proven by the neglected educational platforms, or the low number of training programs offered by

libraries along with the limited success of the respective advertising efforts. The analysis performed in this dissertation unequivocally proves that all participants in instruction, learning, and learning support must possess ICT knowledge in order to convey or accept information transmitted via these devices.

6. Library services face an imminent paradigm change as library-based content provision reaches a new dimension.

Library services are in a state of transition, and the respective changes are motivated by the contemporary demands. Having compared modern information transmission apparatus with the equipment standards of the citizens of the information society we can conclude that one of the crucial factors in the development of appropriate learning environments is the library itself. E-learning and the library provide mutual benefits but a greater set of expectations arise regarding the library environment including the human and material, or physical aspects as well. Furthermore, libraries have to face another burden as a continuously increasing amount or „piles” of educational materials, auxiliary, support texts, thematic descriptions, etc. produced as a result of instruction support efforts are stored virtually. In lieu of an appropriate renewal of library services this valuable, yet soon unfathomable set of documentation becomes unsuitable for client service, or educational purposes. Furthermore, proponents of electronic libraries have to race with time as well, since the latest application development efforts aiming to improve the speed of service have targeted mobile devices.

I would like to conclude with the thoughts of two authors credited with introducing the concept of the e-Learning library. Mei-Yu Wang and Ming-Jiu Hwang assert that e-learning is neither an arbitrary, self-sustained endeavour, nor it is „intelligent” by itself as it requires an intelligent environment. Consequently, an e-learning library has to recognize and respond to the expectations and demands of instructors and learners, a goal, whose realisation requires significant support both from the host organisation and its staff, but most of all, the librarian.¹

¹ Wang, Mei-Yu – Hwang, Ming-Jiu: The e-Learning library: only a warehouse of learning resources?. – In: The electronic library, Vol. 22, no. 5 (2004), p. 408-415.

3. Publications, presentations, and lectures relevant to the topic of the dissertation

3.1. Publications

- Elektronikus tananyagfejlesztés (Electronic educational material development) / ed. by Czeglédi László. – Eger : Líceum Kiadó, 2011. – 366 p.
- eContent. – Eger : [s. n.], 2011. – 122 p. – (Médiainformatika kiadványok)
- Digital PR efforts in the library. – In: Literacy and you in a digital age. ICEM-CIME 2009 Conference, October 6–8, 2009 / comp. Alex McTaggart. – Abu Dhabi, United Arab Emirates : ICEM-CIME, 2010. – p. 74–83.
- A felsőoktatás informatizálása, különös tekintettel a technikai eszközök integrációjára. – In: Elektronikus tanulási környezetek kialakítása 1. (The informatization of higher education with special attention to the integration of technological devices). / szerk. Kis-Tóth Lajos. – Eger : Líceum Kiadó, 2009. – p. 10-31.
- IKT-alapú oktatástámogatás a könyvtárban. (ICT based instruction and learner support in the library). – In: Agria Media 2008 2. köt. / szerk. Nádasi András. – Eger : EKF Líceum Kiadó, 2009. – p. 247-253.
- Az ENTITLE projekt: tanulást támogató szolgáltatások a közkönyvtárakban. (The ENTITLE project: learner support services in public libraries) – In: Agria Media 2008 2. köt. / szerk. Nádasi András. – Eger : EKF Líceum Kiadó, 2009. – p. 242-246.
- The potential and various options of electronic educational material delivery in digital library environments. – In: Ed-media 2008 : Proceedings of World Conference on Educational Multimedia, Hypermedia & Telecommunications 2008 (Ed-media). – Vienna, Austria : Association for the Advancement of Computing in Education (AACE), 2008. – p. 6369-6373.
- EKLEKTIKA projekt: tartalomszolgáltatás és tudásmenedzsment. (The EKLEKTIKA project: content provision and knowledge management). – In: Networkshop 2008 [CD-ROM]. – Budapest : NIIF, 2008. – [6] p.
- IKT eszközökkel támogatott tartalomszolgáltatás. (ICT-supported content provision) – In: Informatika a felsőoktatásban 2008 konferencia [CD-ROM]. – Debrecen : DE Informatikai Kar, 2008. – 7 p.

- Conceptual model for digital repository services in higher education. – In: microCAD 2008 International Scientific Conference. Section O, Applied information engineering / szerk. Lehoczky László. – Miskolc : Miskolci Egyetem Innovációs és Technológia Transzfer Centruma, 2008. – p. 145-150.
- Digital repository, e-learning library and technology-supported learning. – In: Proceedings of E-learn 2007 : World Conference on E-Learning in Corporate, Government, Healthcare, & Higher Education, October 15-19, 2007 / Ed. Theo Bastiaens, Saul Carliner. – Quebec City, Canada : Association for the Advancement of Computing in Education (AACE), 2007. – p. 2240-2245.
- e-Learning könyvtári megvalósítások. (The implementation of e-learning in library environments). – In: Agria Media 2006 / szerk. Tompa Klára, Nádasi András. – Eger : EKF Líceum Kiadó, 2007. – p. 102-107.
- e-Learning alapú oktatást támogató e-könyvtári szolgáltatások. (e-Learning based learner support e-library services). – In: Workshop 2007 [CD-ROM]. – Budapest : NIIF Intézet, 2007. – [5] p.
- IT kompetenciák az információs társadalomban: Haladunk vagy maradunk? (ICT competences in the information society: Advance or retreat?). – In: microCAD 2007 International Scientific Conference. M. szekció, Alkalmazott informatika / szerk. Lehoczky László, Kalmár László. – Miskolc : Miskolci Egyetem Innovációs és Technológia Transzfer Centruma, 2007. – p. 25-30.
- e-Learning könyvtárak a felsőoktatásban. (e-Learning libraries in higher education). – In: Informatika a felsőoktatásban 2005 konferencia [CD-ROM]. – Debrecen : DE Informatikai Kar, 2005
- Hatékony oktatástámogatás könyvtári portál által menedzselt környezetben : az EKLEKTIKA projekt tervezésének elméleti háttere az Eszterházy Károly Főiskolán. (Effective learning support in a library portal managed environment: the theoretical background for designing the EKLEKTIKA project at the Eszterházy Károly College). – In: Tudományos és műszaki tájékoztatás, 56. évf. 1. sz. (2009), p. 3-17.
- E-Learning könyvtár: a fogalom és a megvalósítás. (e-Learning library: concept and implementation). – In: Tudományos és műszaki tájékoztatás, 54. évf. 8. sz. (2007), p. 353-358.

- e-Learning (Referátum). –(e-Learning report and synopsis) In: Tudományos és műszaki tájékoztatás, 52. évf. 11/12. sz. (2005), e-TMT. – (e-Learning : e-content report 6 / Attila Nagy. – [S.l.] : ACTeN, 2004)
- Az e-Learning könyvtár: csak a tanulási források tárháza? ((Referátum). (Report and synopsis) – In: Tudományos és műszaki tájékoztatás, 52. évf. 5. sz. (2005), p. 247-251. – (The e-Learning library: only a warehouse of learning resources? / Mei-Yu Wang, Ming-Jiu Hwang. – In: The electronic library, 22. vol. 5. no. (2004), p. 408-415.)
- A könyvtári szolgáltatások újabb rétegei: az e-tananyagok könyvtári szolgáltatásának lehetőségei és problémái. (New dimensions of e-learning library services: possibilities and problems of the accessibility of e-texts in libraries) – In: Tudományos és műszaki tájékoztatás, 52. évf. 4. sz. (2005), p. 181-187.
- Effective support for learning with library-informatics devices. – In: ICI-10, 10th International Conference on Information, „Information technology role in development”, 4–6 December 2010 Delta University, Gamasa, Mansoura, Egypt : Book of abstracts. – p. 79.
- Egész életen át tartó tanulás – könyvtári támogatások és erőforrások. (Lifelong Learning –Learning support services and resources in the library). (ENTITLE Project) (Országos könyvtáros konferencia – Eger, 2009. május 19. Eszterházy Károly Főiskola) (Összefoglaló). – In: Könyv és nevelés, 11. évf. 2. sz. (2009), p. 65-67.
- Információelosztó-tartalomszolgáltató rendszer szolgáltatásainak fejlesztése (The development of the services of information distribution and content provision systems). – In: Kivonatok : Networkshop 2011 : 20. Országos Konferencia, Kaposvári Egyetem, Kaposvár 2011. április 27-29. / Nemzeti Információs Infrastruktúra Fejlesztési Program (NIIF Program). – p. 33-34.
- Effective support for learning with library-informatics devices. – In: ICI-10, 10th International Conference on Information, „Information technology role in development”, 4-6 December 2010 Delta University, Gamasa, Mansoura, Egypt : Book of abstracts. – p. 79.
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Central Library of the Eszterházy Károly College for the period between 2007-2011 /
alkotó-szerkesztő Czeglédi László – Eger : EKF Médiainformatika Intézet, 2007. – 19 p.

3.2. Lectures, presentations

- Elektronikus tananyagfejlesztés: egy pályázati konstrukcióban támogatott képzés tapasztalatai. (Electronic content development: experiences of a project financed training program) – MoodleMoot 2011 konferencia, Szent István Egyetem, Gödöllő, 2011. június 23-25.
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- Információelosztó-tartalomszolgáltató rendszer szolgáltatásainak fejlesztése. (The development of the services of an information distribution-content provision system) RICOMNET 2010, Regionális Információs Kommunikációs Hálózatok konferencia, Miskolc-Lillafüred, 2010. november 22-23.
- Oktatást és tanulást támogató elektronikus Szakkönyvtári Partner Portál (e-SZAPPORT). (Electronic professional library partnership portal supporting the learning process, project opening conference) – TÁMOP-3.2.4/08/01 projektnyitó konferencia. Nyíregyháza, 2010. július 5.
- Az e-Learning könyvtári vonatkozásai és erőforrásai. (Library related aspects and resource concerns of e-Learning programs). – MoodleMoot 2010 konferencia, Szent István Egyetem, Gödöllő, 2010. június 24-26.
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- Tanulást támogató szolgáltatások és erőforrások a könyvtárban. – Az e-tanulás, az élethosszig tartó tanulás, az e-befogadás támogatása a könyvtárakban. (Services and resources supporting learning provided by the library. Supporting e-learning, lifelong learning, and e-reception by libraries). Workshop a Pest Megyei Könyvtárban, Szentendre, 2009. március 25.

- Könyvtári elektronikus szolgáltatások a mestertanárképzés támogatására (Electronic services provided by libraries in support of master level teacher training programs) / Kis-Tóth Lajos, Czeglédi László. – Tanárképzés mesterfokon – Képzők Képzése Program, Noszvaj, 2009. január 28-29.
- Elektronikus tanulás és kreatív online tartalomszolgáltatás (Electronic learning and creative content provision on line). – RICOMNET 2008, Regionális Információs Kommunikációs Hálózatok konferencia, Miskolc-Lillafüred, 2008. november 24-25.
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- Eklektika – EKF: tudásportál és kreatív online tartalom. – Digitális és nyomtatott tudástárak egymásra épülése : konferencia a digitális tananyagok alkalmazóinak és fejlesztőinek, (Eklektika-EKC: knowledge portal and creative online content. The interaction of digital and printed knowledge repositories: conference for the users and developers of digital texts). – Budapest, 2008. március 7.
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- Expectations of e-learning multimedia instructional material / Csaba Komló, László Czeglédi, Sándor Forgó. – Educational media and innovative practices: challenges and visions, ICEM-ILE Conference, Intercollege, Nicosia, Cyprus, 20–22 September 2007