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**MODEL FOR MITIGATING SECONDARY DIGITAL  
DIVIDE**

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**PROSPECTS FOR COMPLEX DEVELOPMENT OF  
INFORMATION LITERACY**

PhD dissertation theses

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## I. Precursors of the research topic, topic selection

*Be a citizen of the information society!*<sup>1</sup> – says the cover of professor György Sebestyén's 2002 book. This exhortation has not lost its relevance even though it was published over a decade ago, particularly as this advice formulated at the beginning of the millenium involves the notion that it is not all that simple to become a citizen of the information society. Since the mid-20th century, technology, economics and culture and their effect on each other have been rapidly changing. Thus, people need to continuously adapt to constantly changing environments, equipment, conditions and opportunities. The question is how to do this - how to face constant challenges, and what skills, abilities and competencies are needed to be able to get on in the information society and digital world. In the international literature, Manuel Castells's Information Age<sup>2</sup> trilogy was the first work to emphasize the human factor<sup>3</sup> while describing the digital foundations of the information society. Castell points out that the three pillars - *technology*, *content* and *knowledge* - are developed in a complex, collective and synchronized way. This dissertation discusses

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<sup>1</sup> Sebestyén, György: *Légy az információs társadalom polgára!* Budapest, ELTE Eötvös Kiadó, 2002.

<sup>2</sup> Castells, Manuel: *The Rise of the Network Society, The Information Age: Economy, Society and Culture Vol. I.* Cambridge, Blackwell, 1996.

Castells, Manuel: *The Power of Identity, The Information Age: Economy, Society and Culture Vol. II.* Cambridge, Blackwell, 1997.

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<sup>3</sup> Castells, Manuel: *Az információ kora: gazdaság, társadalom és kultúra I. kötet. A hálózati társadalom kialakulása.* Budapest, Gondolat-Infónia, 2005.

Castells, Manuel: *Az információ kora: gazdaság, társadalom és kultúra II. kötet. Az identitás hatalma.* Budapest, Gondolat-Infónia, 2006.

Castells, Manuel: *Az információ kora: gazdaság, társadalom és kultúra III. kötet. Az évezred vége.* Budapest, Gondolat-Infónia, 2007.

one of these components, *knowledge*, which has not received enough attention, while keeping in mind that the three pillars form a complex network of interdependencies, as it would be a serious oversight to ignore the other components and the complexity of the phenomenon.

As with other basic skills, the new 21<sup>st</sup> century competencies, such as information literacy, need to be established and constantly developed. The establishment and development of these skills, abilities and competencies is a task for public and higher education, as well as for public repository institutions, while other entities participating in individual learning and socializing processes also play a role. The necessity of the institutional development of new competencies was recognized early on in the United States and in Western Europe, along with the appearance of the individual competency elements. However, Hungary has been struggling with the fact that it is lagging seriously behind in this field. While teachers, educators, trainers, and tutors at different levels of education often fail to attend to the establishment and development of new skills including information literacy, a key competency in the 21<sup>st</sup> century, youngsters in many cases acquire the elements of these skills in an autodidactic way. Thus, the new competencies and their elements are not organized into a coherent unit; on the contrary, they are extremely haphazard and unstructured, and therefore lack the sequence of succession; they do not improve and they do not support each other. These negative phenomena are also aggravated by people's sense of lacking the appropriate skills, as they are not even aware of what skills they are supposed to have. Thus, the existence or lack of the different competency elements, as well as of the complete competency system induces enormous differences in the knowledge of the members of information society, differences, which have a great impact on individuals' socialization, competitiveness, and quality of life.

A large body of literature has been produced on the definition and requirements of 21<sup>st</sup> century competencies. The element that is most relevant to the present dissertation is *information literacy*. The technical term for this skill first appeared in the late 20<sup>th</sup> century and has been spreading ever since, as it has become a popular and well-researched topic of scientific research and international literature.

The aim of the present dissertation is to lessen the unjustified deficiency present in the Hungarian literature on information literacy, as well as to synthesize the answers to theoretical and practical issues. The dissertation develops a system of complex educational principles for establishing and developing information literacy, which could provide an element in a future model and strategy for mitigating secondary digital divide.

## II. Dissertation aims

The aim of the dissertation – relying on and expanding Castell's theory of digital pillars – is to create a **system of educational principles** for Hungarian public, higher and adult education which focuses on the *establishment and development of information literacy*, as one of the key competencies of the 21<sup>st</sup> century. The practice and experiences of American and Western European education regarding information literacy served as a foundation for the model, which also takes into consideration the features and legal background of the Hungarian education and public collections systems.

The establishment of information literacy would doubtless be the task of public education. However, neither the Act on National Public Education, nor the National Core Curriculum includes any indication of the importance and indispensability of information literacy in education. The role of higher education, adult education and vocational training

would be to improve and intensify the information literacy skills already acquired in public education, as well as to provide special professional training. Nevertheless, adult education providers operating outside the education system, who are in key positions in knowledge-based societies, still have an undetermined place and role in the establishment and development of information literacy all over the world.

The acquisition of information literacy can happen in two places: within the school system and outside it. Of the two, education outside the school system seems more uncertain, as the law mandates only public libraries to aid library users in acquiring information literacy. However, the law does not provide details regarding the opportunities and methods for the fulfillment of the mandate, it does not provide programs and quality standards, it does not provide assistance for establishing priorities, and there is no indication that it is going to do so. So far, the subsequent legislation based on the statute has not been published either. In turn, the lack of know-how and principles may result in institutions' ignoring the task.

Therefore, a further goal of the dissertation is to develop an adult education program for improving information literacy for various types of libraries (county, city, university and specialized libraries).

### **III. Research methods and sources**

The first part of the dissertation relies primarily on foreign literature but is also supported by Hungarian materials. In addition, Hungarian and international research reports, records and results were also used regarding habits of library and Internet use and of obtaining and using information.

Moreover, American and Western European educational and training systems, models and schemes, which have been proven to work in practice, were also used as resources.

The second part of the dissertation relies on the reviewed literature, and takes the theories and models further, creating a multi-segment structure that takes the Hungarian education and training system into consideration and includes special information operations; this structure is then tied to a complex educational method.

## IV. The structure and content of the dissertation

1. The first unit of the dissertation provides an overview of the current state of **information society** and its practices, especially the digital pillars of information society, and defines the place and role of the human factor.
2. The second unit of the dissertation describes the competency systems in the 21<sup>st</sup> century – the definition of **information literacy** and its role in everyday life are emphasized. Information literacy and the related competencies need to be established in public education, as higher levels of education and training (higher education and adult education) can only then develop these competencies based on their professional needs. The dissertation also introduces the best practices used in the United States and Western Europe – their analysis, as well as conclusions drawn are essential for the development of an efficient and innovative Hungarian educational system of principles.
3. Librarians, as well as academic and public libraries<sup>4</sup> have been playing a significant role in defining the content and

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<sup>4</sup> Association of College and Research Libraries: Information literacy competency standards for higher education. <http://www.ala.org/acrl/sites/ala.org/acrl/files/content/standards/standards.pdf> (28.01.2014.)

levels of information literacy and in developing the methodology for acquiring this literacy. Libraries should retain this role in the future, especially for students of public education, university students, and all participants in higher education in order to help them obtain the necessary literature for their studies. This is one of the reasons why youngsters should acquire skills that help them in finding and utilizing information, as early as possible. The coordination and cooperation of various types of educational institutions is also essential in the development of information literacy. This is why it is crucial to create a multi-segment system of principles involving schools and libraries, in which the elements and levels of knowledge, as well as the educational tasks of these institutions are clearly defined.

## **V. The hypotheses of the dissertation**

1. The dissertation intends to demonstrate that in Hungary, the digital pillars of information society are not considered a complex entity, and that the structured establishment and development of information literacy have not been resolved. One reason for this is that ***the concept of information literacy has still not taken root*** in Hungary. That is why it is neither part of education policy, nor of normative documents regarding public, higher and adult education. The complex establishment and development of information literacy are not emphasized among the goals of public and higher education; therefore, information literacy has not had a chance to take hold in educational practices. This is the reason why the first task is ***the complex interpretation of the concept of information literacy***, which will allow for the term to be more prevalent, and it would also make it easier to be implemented in practice. The dissertation intends to show that Hungary has no short-, medium- and long-term strategies that would include plans and goals for the complex development of

information literacy, and that would provide an element in a model for mitigating secondary digital divide.

2. The dissertation demonstrates that Hungarian institutions of public and higher education do not have a ***system of principles with Hungarian specifics that would provide a theoretical background for teaching information literacy***, and thus the establishment and development of this competency does not appear in educational practices. The dissertation claims that a centrally developed, national program and standard system should be the foundation of the Act on National Public Education, of the National Core Curriculum, as well as of training and graduation requirements, in order to be able to emphasize the establishment and development of information literacy on the level of local curricula.

3. The dissertation intends to prove that in the field of developing information literacy, ***educational institutions as well as libraries are lacking in precise definitions of roles and tasks***, which would be essential for the complex development of this competency. What is needed is availability and access to the latest technology and the most modern infrastructure, along with a reevaluated role and precise task definition for institutions of public and higher education and for libraries, as these are the places where establishing and developing 21<sup>st</sup> century competencies will need to be especially emphasized.

4. The dissertation also describes the fact that besides the school system, libraries alone provide support for the acquisition of information literacy, which has been included in legislation in the autumn of 2012.<sup>5</sup> At the same time, though, ***public libraries do not have finished programs for establishing and developing information literacy***, and in most cases, they are lacking in the necessary human resources and

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<sup>5</sup> 1997. évi CXL. törvény a muzeális intézményekről, a nyilvános könyvtári ellátásról és a közművelődésről.  
[http://net.jogtar.hu/jr/gen/hjegy\\_doc.cgi?docid=99700140.TV](http://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=99700140.TV)



expertise, which may mean that public libraries will be able to provide the services they are mandated to do with only limited success, or not at all.

5. The dissertation presumes that the most important factor in establishing and developing information literacy is the human resource that possesses the necessary professional, pedagogical, and methodological expertise. Therefore, exploring the personnel aspects of developing information literacy constitutes an important part of the dissertation. It is thus clear that, before the establishment and development of students' information literacy, their trainers – teachers and librarians – need to be trained first, as they are the ones who will be teaching others how to access relevant information, how to analyze enormous amounts of search results, how to synthesize elements of knowledge, and how to use information in an ethical way. The dissertation points out that *the information literacy of library science students has been developed during the training programs; however, this competency does not receive appropriate attention during teacher training. In addition, the improvement and specialization of information literacy is still missing from the coursework of the professional development required every seven years.*

## **VI. Summary of research results**

The present dissertation attempts to analyze a central problem of information society, and to define *opportunities for the complex development of information literacy, in other words, information competency*. The topic is quite timely, as competency-based education and training is one of the greatest challenges of the 21<sup>st</sup> century. Skills, abilities and competencies are constantly changing, which makes it hard for educational institutions to keep up with them.

Firstly, the dissertation points out that only a fraction of the theories on information society are concerned with the human factor and the knowledge that the 21<sup>st</sup> century requires from people in order to be able to function in the digital world. Of all the scientists studying information society, Manuel Castells is the one who explains the three digital pillars of this world. Castells's novel idea serves as the foundation of my research, which focuses on ***the skills of people living in the information society and the opportunities of developing said skills***. Information literacy, without a doubt, emerges among the 21<sup>st</sup> century competencies as a new basic skill of information society; therefore, the dissertation concentrates on this competency.

The dissertation describes how the concept of information literacy evolved, the definition of the concept, and its relationship with other 21<sup>st</sup> century competencies, especially with digital literacy. As the definitions, meanings, and interrelationships of 21<sup>st</sup> century competencies have not been precisely defined, the phrase *information literacy* has not had a chance to take root in the Hungarian professional literature and on the different levels of the Hungarian education system. The shortcomings and problems of research in information literacy in Hungary may lead to serious consequences. As information literacy is not considered a key competency, educational institutions have not included it in the group of basic skills, and thus they do not spend resources on establishing and developing it. Therefore, Hungarians living in the information society will acquire the most important key competency of the 21<sup>st</sup> century only with difficulty, or not at all. That is why it is crucial to place more emphasis on the study of the Hungarian aspects of theoretical questions and the methodology of teaching 21<sup>st</sup> century competencies.

There is an interesting dichotomy connected to the establishment and development of information literacy. The

documents regulating public, higher and adult education do reflect the spirit of information literacy, since the skills for dealing with information are distinguished everywhere; however, the unstructured information units are not organized into a coherent system. Having analyzed legislation and curricula in public, higher and adult education, it has become clear that information literacy is an especially neglected field. The examined documents use the term incorrectly, confusing digital literacy with information literacy. Thus, the examined documents included only *three mentions* of *information literacy* altogether. This situation requires immediate attention and intervention, as competency-based education and training can establish and develop students' skills and abilities only when key competencies are emphasized, when the terms and content of key competencies are precisely defined, and when the relevant curricula, programs and trainings are fully developed.

In order to assist in overcoming this problem, the dissertation introduces the best practices of teaching information literacy implemented in the United States and Western Europe. Becoming familiar with and applying these practices will undoubtedly contribute to the development of a complex educational framework aiming to establish and develop information literacy in Hungary. In these foreign countries, not only educators but also librarians participated in the process of defining the content and levels of information literacy, indicating that the establishment and development of information literacy requires a close cooperation of educators and librarians.

Thus, it is hard to deny that there is an immediate need for a system of educational principles for information literacy, for curricula supporting the acquisition of sub-skills, and for these curricula to be integrated into the public education system. The model developed in this dissertation provides an opportunity for students to acquire, practice and improve sub-

skills of information literacy in a structured system. In addition, curricula provide special content and tasks relevant to each subject area. The intermediate-level information literacy acquired in public education can then be further developed and made specific in institutions of higher education. That is why a close cooperation between educators and librarians in higher education is essential, which can only be effective if educators provide specific tasks and projects for students that require regular use of library resources and services.

The dissertation includes content elements developed for a course to be adopted by higher education, which can be shaped to the specific requirements of each institution. Teacher training and librarian training in higher education should receive much more attention, since training educators of information literacy is a crucial area for supporting the acquisition of information literacy. These educators need special training in didactics and methodology during their time spent in higher education, and later during the professional development courses required of them every seven years. In order to support the widespread acquisition of information literacy, adult education should also be counted on, as digital immigrants often feel themselves to be outsiders in the 21<sup>st</sup> century. Public libraries should provide special programs and courses for adults who are willing to learn, although they are the only ones, along with university libraries and specialized libraries, who have taken up the task of educating the public in digital and information literacy. While this task is delegated only on a legislation level, by defining directions for development and implementing pilot projects libraries could become fundamental institutions of information society in practice as well, which would provide opportunities for everyone to acquire and develop their information literacy.

The dissertation places special emphasis on the role of libraries, since they are the institutions, along with educational

ones, that play a major role in the acquisition and development of information literacy. At the same time, this situation poses a serious challenge for libraries that they need to prepare for. There are international programs and projects that can help libraries in this endeavor, as libraries have always had serious tasks fall on them in relation to developing information literacy. The dissertation also includes a course description for developing information literacy, which can easily be adopted into the training system of public libraries, thus providing further assistance for library users to find their way in the digital world.

The dissertation also incorporates a detailed examination of the *human factor*, the last pillar of Castells's theory, in terms of information literacy. All this could serve as a foundation for further research, pedagogical programs, and educational concepts, which in turn could contribute to relaying information literacy most extensively and to the institutionalized establishment and development of information literacy. The mentality of information literacy plays an important role in members of the information society acquiring other 21<sup>st</sup> century skills, abilities and competencies, which in turn result in life-long learning and the mitigation of the secondary digital divide.

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