

Sándor Forgó: New Media, New Media literacy, new methods in education. In: Daniel TH Tan, Linda ML Fang (szerk.) 2013 IEEE 63rd Annual Conference International Council for Educational Media (ICEM). Konferencia helye, ideje: Singapore, 2013.10.01-2013.10.04. Singapore: Nanyang Technological University, 2013. Paper 14334496. 9 p. URL: <http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=6816615>

## New media, new media literacy, new methods in education

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The rapid proliferation of the concept of **New Media** and the attendant frequently controversial interpretations and research results motivate a scholarly overview of the possibilities of implementing the respective achievements in the teacher training process. Consequently, several issues have to be addressed: why is the respective term *New Media* written differently (it can appear either as a compound word, or as two separate words) in the Hungarian language? Why is the ICT term frequently substituting the professional vocabulary of instruction technology considered inappropriate? In light of the availability of such terms as Web 2.0 and community media why do we need the adjective: “*New?*” Hungarian research efforts into the theoretical and technological background of education have not yet provided a definite answer concerning the role of this fashionable, yet polysemic concept carrying several meanings. The present essay aims to *outline an approach incorporating content arrangement considerations in addition to the prevalent technological perspective.*

While the New Media phenomenon has impacted several disciplinary fields and due to innovation efforts e-books or tablet machines enjoy a gradually increasing educational use, it has not yet fully been recognized in the daily routine of the teaching process.

Despite the relatively limited presence of such equipment in schools the new generation of students demand the use of hi-tech electronic devices and new media tools they are accustomed to at home in the classroom as well. Although the fast proliferation of the concept and the relevant device system in educational institutions is far from certain, it is beyond doubt that in addition to digital (ICT) competences teachers will be required to have additional skills exceeding contemporary computer literacy requirements.

New Media interpreted as **technology** mostly entails devices and tools facilitating digital, network-based connections promoting interactivity and creativity via tablet machines, smart phones, smart community TVs in addition to the Internet and the Web 2.0 applications.

Yet, Manovich’s view<sup>1</sup> emphasizing the new forms of **content arrangement** especially a data base oriented approach complementing and superseding the narrative-oriented perspective is rarely taken into consideration. While this theory regarding content as the compilation of unique components into a data base could trigger the broadening of scholarly perspectives, it is yet to be fully accepted by the professional community.

Consequently, for Manovich New Media is *not seen* as new devices, or the *world of networks* and the related communities, but as a data base culture operating via Human Computer Interface. Thus the concept of New Media cannot solely be interpreted in a technological manner as it includes components related to content arrangement.

Consequently, the primary focus is not on the methodological aspects of device application, as the inquiry is concerned with the logic behind digital data base oriented content arrangement complementing the traditional, linear narrative of the conventional instruction process.

Thus New Media, as a sort of dramaturgy, can trigger the development of new narrative technologies significantly improving the methodological arsenal of teachers as the structure of a given lesson is elaborated according to a specific organisational principle determining the respective steps and phases of the class in other words, the dramaturgy of the lesson.

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<sup>1</sup>Lev, Manovich (2001): The Language of New Media. Cambridge: MIT Press  
<http://www.manovich.net/LNM/index.html> [viewed 14 March 2013].

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Consequently, my presentation focuses on the application and methodology of the *tangible* and *network-based* aspects of New Media along with the exploration of novel forms of *content arrangement*.

**Keywords:** New Media, ICT, technology, content arrangement, Web 2.0.

## The New Media concept

Nowadays both old and novel media forms are present simultaneously. The rise of digital technology made this concept widely known and gave it a new interpretation as part of the digital world. While it originates from the pre-digital era, it reached its full potential and gained wide-spread popularity via the digitalization process. The emergence of the New Media concept is generally associated with digital cameras, videogames, consoles, mobile telephones and the internet. Another theory holds that digital and especially web 2.0 and mobile technologies facilitating community and social interactivity enabled users to become not only mere readers or receivers but creators and writers of digital content. Arendt<sup>2</sup> describes interactivity as the crucial component of human conduct in the following manner: “the nature of human activity is determined by a network composed of the acts and words of presently available and connected people.” Thus the broadcast aspect (aired programs and the world wide web) can not only be realised in a local environment, but via interaction with any content placed on a server at any part of the world. Although the New Media discipline has made inroads in several fields of professional inquiry, it has not yet permeated daily teaching practices notwithstanding the *pseudo* presence of certain ICT technology innovations including e-books and tablet machines. While digital technology still does not enjoy everyday educational use, the new generations of students insist on the integration of high tech ICT and entertainment devices used at home into classroom work. Whereas the incorporation of the concept and the related device system apparatus is expected to be slow, the need for new literacy skills surpassing digital ICT competences is beyond question.

The rapid proliferation of the concept compels us to survey the implementation options of the respective results in teacher training. Certain questions, however, need to be answered. New Media is only named as such because of criteria listed above? Why is *ICT* a term superseding *instruction technology* not sufficient? Why do we need to add the adjective *new*?

According to the latest definitions<sup>3</sup> (2013): “**New media** refers to on-demand access to content any time, anywhere, on any digital device, as well as interactive user feedback, creative participation. Another aspect of new media is the real-time generation of new, unregulated content.”

Hungarian education theorists and instruction technology experts have not yet outlined clearly the future role of this fashionable concept offering a variety of interpretations. The present study adhering to obvious temporal and spatial restrictions is considering content arrangement perspectives along with a technological approach. The essay aims to provide a novel interpretation of content arrangement in addition to the device-centred approach. I will point out that both printed and broadcast media was based on the linear narrative structure reflecting the scheme of prose works studied in schools including introduction, exposition, apex and resolution.

According to Lev Manovich, an internationally acclaimed researcher of the material, technological, and logical aspects of digital and New Media, the New Media concept utilizes a novel narrative technology as well. Thus the inquiry includes not only the methodological aspects of device application, but explores how the traditional linear aspects of the traditional education process can be complemented by the data-base logic of content arrangement as well. Moreover, such approach derived from the digitalization process can be considered a type of dramaturgy as well. Manovich identifies the following determinative features:

- Numerical representation
- Modularity
- Automation
- Variability
- Transcoding (Manovich, 2001, 27-47)

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<sup>2</sup> Arendt, Hannah (1958): *The Human Condition*, Chicago: University of Chicago Press, p. 188.

<sup>3</sup> Schivinski, Bruno; Dąbrowski, D. (2013). "The Effect of Social-Media Communication on Consumer Perceptions of Brands". *Working Paper Series A, Gdansk University of Technology, Faculty of Management and Economics* 12 (12): 2–19. [http://en.wikipedia.org/wiki/New\\_media#cite\\_note-3](http://en.wikipedia.org/wiki/New_media#cite_note-3) [viewed 14 March 2013].

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Later Manovich summarised the essence of the NEW Media concept in the following eight points<sup>4</sup>:

- New Media versus cyber culture
- New Media as a transmitting surface utilizing computer technology, “a market place”
- New Media as the representation of digital data (software demand)
- New Media as mixture, a reuse of content reflecting the conventions of culture and software
- New Media as aesthetics in the early stage of Modern Media and Communication Technology
- New Media as a faster version of algorithymization compared to earlier manual or other technology-based algorithymization efforts
- New Media as Metamedia
- New Media as a parallel articulation of the arts and modern computer technology in the post-1945 era.

### The categorization of educational materials

I would like to provide a brief overview of existing classifications of educational materials before I examine the interpretation of the New Media concept in detail. It was Wilbur Schramm<sup>5</sup>, who categorized and ranked educational materials according to chronological order. His taxonomy established in 1962 included the following components:

- “Devices invented before the machine age were grouped into the first generation.”
- “The second generation of educational materials introduced machines suitable for the multiplication of writing and drawing.”
- “The third generation consisted of machines expanding the capability of the eyes and ears.”
- “Instructional media whose use is commencing now and suitable to facilitate communication between humans and machines make up the fourth generation.”
- According to Szűcs<sup>6</sup> educational materials capable of establishing interactive connections can be allocated into the fifth generation. Thus computer programs and sophisticated network structures establish a learning environment simultaneously engaging several sensory organs and promoting action.
- And New Media can be regarded the sixth generation of educational materials?

### The complex grouping of media

After the emergence of individual and social network-based media R. Bailey<sup>7</sup> has suggested the following categorization:

- Mass media in the form of printed and broadcast communication was operative until the 1980s.
- The growth of digital devices led to a period of multiplicity, or Masses of Media.
- The rise of personal media, the blogosphere or Me Media was made possible by personalized digital communication and the resultant individualization.
- Bowman and Willis<sup>8</sup> elaborated the concept of social or We media based on the development of networks.

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<sup>4</sup> Lev Manovich: New Media from Borges to HTML. Introduction to The New Media Reader, edited by Noah Wardrip-Fruin and Nick Montfort, The MIT Press, 2003, 10-32 vs.

Lev Manovich: "New Media From Borges to HTML." The New Media Reader. Ed. Noah Wardrip-Fruin & Nick Montfort. Cambridge, Massachusetts, 2003. 13-25

<sup>5</sup> Schramm, Wilbur Lang (1964): Mass media and National Development Stanford, Stanford University Press, pp. 141-143. vö. Tompa im. URL: <http://bit.ly/bQH2IF> qtd. by (Petriné Feyér Judit, 2003) [viewed 14 August 2013].

<sup>6</sup> Szűcs Pál (1986): Technológiai fejlődés és az oktatástechnika értelmezésének változása. In: Benedek András - Nováky Erzsébet - Szűcs Pál: Technológiai fejlődés az oktatásban című kiadványban. Tankönyvkiadó, Budapest, (Technological development and changes in the concept of instruction technology in Technological development in education)

<sup>7</sup> Baily, Richard (2009): PR and new media. URL: <http://bit.ly/105licH> [viewed 14 Augusth 2013].

<sup>8</sup> Bowman, Shayne – Willis, Chris (2003): *We Media*. Media Center at The American Press Institute. Stanford California, URL: <http://bit.ly/cQJNe> [viewed 14 Augusth 2013].

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Today *individual media* are complemented by the social media system. Consequently students without any special qualification can film and edit materials, create and publish content on the internet while sharing their experiences on several social communication channels.

This development corresponds to the requirements of the fifth generation of *interactive* educational materials in Schramm's taxonomy. Such devices facilitate a continuous feedback between learner and computer leading to an interactive learning environment engaging a multiplicity of sensory organs while motivating human action.

While our survey of the various groupings of educational materials has covered a wide range including the most dynamic types, *we have not yet addressed the issue of New Media*, an effort in which Manovich's theory can be helpful.

### The rise of the Manovich paradigm

Yet, Manovich's view emphasizing the new forms of content arrangement especially a data base oriented approach complementing and superseding the narrative-oriented perspective is rarely taken into consideration. While this theory regarding content as the compilation of unique components into a data base could trigger the broadening of scholarly perspectives, it is yet to be fully accepted by the professional community. "Many new media objects do not tell stories; they don't have beginning or end; in fact, they don't have any development, thematically, formally or otherwise which would organize their elements into a sequence. Instead, they are collections of individual items, where every item has the same significance as any other." (Manovich: 194)

#### *On the critique of linear structure cinema*

Lev Manovich, the leading theorist of the New Media phenomenon approaches the problem from the point of view of data bases. In his book *The Language of New Media* he asserts that Peter Greenaway is one of the few directors interested in the expansion of the language and expression capabilities of modern cinema. Greenaway once complained that due to its traditional linear narrative structure filmmaking had fallen behind modern literature.

Manovich considers New Media the material and logical arrangement of digital media. While he underlines that the main characteristics of New Media can be connected with earlier media forms, as a whole he regards the phenomenon a novel one.

Regarding the data base as the unique means of expression of the computer age, he argues that the popular multimedia encyclopedias and collections of "other items" are the best examples of such data base formats. He advances a certain data base culture operative via a cultural interface (Human Computer Interface). Consequently a data base should not be viewed as a collection of digits, but as a symbolic form of human culture.

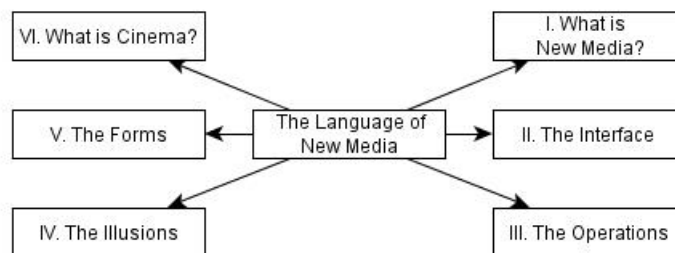


Table1. The main chapters of *The Language of New Media*

Thus he regards New Media a collection of individual components superseding narrative structures. The following quote gives an apt summary of his beliefs: "While the novel and later the film were regarded as the crucial modes of expression in the modern age, the data base is the vital means of articulation of the computer age."<sup>9</sup> To use a unique phrase he ushers in the concept of *data-base cinema* as the central

<sup>9</sup> Manovich, Lev: *The Language of New Media*. Cambridge: MIT Press, 2001. 49-65

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expressive medium of the computer age is the data base, and the cinema established a real modern narrative form. (It is noteworthy, however, that both photography and its repository medium are considered data base as well)

Furthermore, he asserts that a data base or a narrative cannot be comprehended via the given media accessibility form (sequential in case of films or random access optical repositories). One such example is books supporting both random access data base formats (photo albums) and narrative forms (novels) as well. Manovich does not intend to establish a correlation between data base and narrative forms and New Media and informatics: Consequently, he envisions “two rivalling philosophies, two basic creative impulses, and two indispensable responses to our world already in existence before the rise of modern media.”

The five basic guidelines characterising and at the same time distinguishing New Media include numerical representation, modular arrangement, automation, variability and cultural transcoding. Due to these principles users can not only create original content (photo, sound, or video recording) but can digitalize, convert, and re-edit other cultural products (contents) thereby promoting the representation of the self and encouraging symbolic creativity. (Manovich)

Manovich highlights different tendencies becoming more and more obvious as computerization increasingly impacts deeper layers of culture.

In one of his subchapters he clearly outlines what does not belong to the concept of New Media. The crucial requirements include digitalization, inactivity, non-linearity and the proliferation of networks.

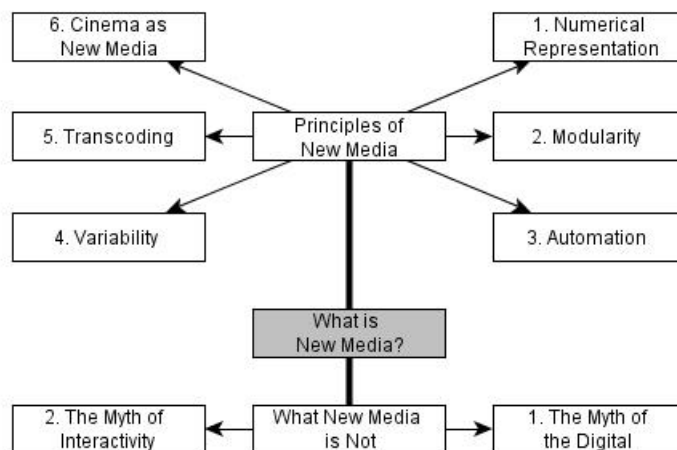


Table 2. What is New Media?

### *Dramaturgy and lesson planning?*

Thus Manovich does not identify New Media as the networks and their users, but considers it a data base culture operating via cultural interface [HCI] not excluding the dynamic connection between data base and narrative. Therefore New Media can be approached not only from a technological standpoint, but from a content arrangement perspective as well. Manovich’s view directs attention to dramaturgy, originally the description and interpretation of the formal elements of a given play meeting the structural requirements of a given performance.

Thus New Media, as a sort of dramaturgy, can trigger the development of new narrative technologies significantly improving the methodological arsenal of teachers as the structure of a given lesson is elaborated according to a specific organisational principle determining the respective steps and phases of the class in other words, the dramaturgy of the lesson.<sup>10</sup>

<sup>10</sup> Such organizational or arrangement principles can include means of grabbing students’ attention, motivating them, the respective lesson objectives, the integration of existing student knowledge into the lesson, the presentation of new materials, systemization, recording, practice, the application of acquired information and knowledge, the assesment of student achievements, evaluation etc.



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This discovery at the same time helps the teaching profession facilitating the expansion of the respective methodological arsenals as lesson arrangement and management should rely on theatrical and improvising elements in addition to design and deliberate planning.

Since the class itself is a form of dramaturgy, so is the structure of the lesson along with tools used for arousing student attention, ensuring motivation, the establishment of the goals of the lesson, the pre-existing knowledge of students, the presentation and systemization of the new material, recording, practice, the application of the learned materials, the monitoring of student performance, evaluation, and the assignment of homework. All these components make up the lesson, or in other words the dramaturgy of the class.

### **New Media, a terra incognita or bête noire of electronic knowledge acquisition?**

Are learning theories preceding the connectivist (Siemens and Downes)<sup>11</sup> approach to knowledge acquisition (behaviourism, cognitivism, and constructivism) denoted collectively by Kulcsár<sup>12</sup> as *integrative e-learning* sufficient to provide a theoretical basis for learning with New Media? It does not seem so as Manovich's approach emphasizing the data base (a collection of individual content elements) as the leading paradigm superseding the narrative method encourage us to modify our perspective as well. This is especially noteworthy since according to this philosophy: *Many new media objects do not tell stories; they don't have beginning or end; in fact, they don't have any development, thematically, formally or otherwise which would organize their elements into a sequence. Instead, they are collections of individual items, where every item has the same significance as any other.*<sup>13</sup>

I believe that theories required for a self-definition in the field of connectivism have been limited to the field of behaviourism, cognitivism, and constructivism, while a conceptual analysis of New Media can promote further re-consideration of learning models. Note: The connectivist learning models have already contained a hidden learning theory, the so-called social learning. Their basic premise is dependent upon interaction with other persons offering the equivalent of medial communication in the global arena. While the above approach bears resemblance to non-linear or hypertextual learning, the at random content access presupposes other learning models including theory of trial and error learning.

The concept of serendipity<sup>14</sup>, or discovery by chance refers to finding something regardless of the intention of the original search, a basic experience of those wandering on interfaces or browsing with New Media.

The author considering serendipity a principal feature of online news consumption extends the concept to the creators of news programs.<sup>15</sup> Thus concepts originally unrelated in search and deduction become joined. Couldn't we apply this paradigm to the teaching and learning process as well?

The complex conceptual network describing New Media affirms that representation via data base and human interface or knowledge acquisition during the learning and teaching process can retain its linear and branching features along with incidental, discovery-based learning forms.

Moreover, the unlimited options provided by such approach can promote the renewal of illustration capabilities, the reinforcement of receiver motivation, and the development of digital competences along with the forming and shaping of respective value systems. Further research efforts can explore *teacher competences* required for the application of New Media as device and methodology. What are the degrees of their use, or is there any possibility for gradual immersion, or one becomes a user of New Media by chance? What kind of management skills and cooperative attitudes are needed for an effective teacher in the field of New Media?

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<sup>11</sup> Siemens, G., Connectivism: A learning theory for the digital age, *International Journal of Instructional Technology and Distance Learning* 2 (10), 2005.

<sup>12</sup> Kulcsár Zsolt (2008): Az integratív e-learning felé. In: <http://bit.ly/Wk7vxg> [elektronikus dokumentum] utolsó hozzáférés ideje: 2013. január10. (Towards integrative e-learning) [viewed 14 March 2013].

<sup>13</sup> Manovich, Lev: *The Language of New Media*. Cambridge: MIT Press, 2001. 194.

<sup>14</sup> According to the creator of the concept, Horace Walpole serendipity is a propensity for making fortunate discoveries while looking for something unrelated. (<http://encyclopedia.thefreedictionary.com/Serendipity>) [viewed 14 March 2013].

<sup>15</sup> Acél Petra: Világtalan hír. Retorikai felvetések műfajról, objektivitásról, újmédia-hírszövegről (Unworldly news: Rhetorical considerations on genre, objectivity, and the text of New Media) <http://www.vigilia.hu/regihonlap/2010/11/aczel.html> [viewed 14 March 2013].

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*Other research efforts* should focus on how web 2.0 applications, especially the “producer-consumer” [prosumer] mentality-based knowledge constructions can help in identifying the main aspects of this new discipline connected with shared knowledge development. Furthermore the role of both New Media (interactive, smart, or social television) and mobile devices (tablets, i-phones) should be clarified in such crucial aspects of learning as

- The presentation of content
- Motivation
- Flexibility, the levels of interaction
- Evaluation of performance
- Illustrations, demonstrations

Finally researchers adopting a system-oriented perspective should investigate in what context and form can New Media be regarded as a form of electronic learning, *learning environment and methodology*.

Can this concept be integrated with the still diachronic, purely printed or paper-based and electronic educational materials after becoming accepted by the professional community?

Will the concept of New Media surpass the presently used ICT-based personal computing and demonstration technologies in the classroom (pc, cmpc, laptops, tablet machines, smart phones)? Can New Media be incorporated into the display process, what is its role in illustrating the given material, during the lesson, in frontal, individual or group work? How can New Media support computer-assisted means of cooperative learning including project-based, problem-based, or discovery-based learning?

While due to the fact that traditional of digital devices regularly change their platforms the content arrangement and presentation options provided by New Media have not been fully explored, traditional means of illustration have a significant professional research literature. Can the principles applicable to analog (magnetic, optic-mechanical) devices be relevant to digital equipment? How do New Media operating upon the principle of data base transform the traditional narrative-oriented content arrangement schemes? How can data bases be converted into a narrative? Finally, how can New Media promote the implementation of the basic principles of classic didactic theories?

A teacher’s didactic and methodological arsenal is expected to include not only typographical competences, but the ability of computerized sound, motion picture (video, film) processing. Today’s pedagogue should be familiar with the appropriate operation and application of relevant computerized picture and sound processing programs, photo, film, TV, and video sound technology, naturally in an on-line environment as well! I believe that by now reliance on traditional ICT-based educational materials has become insufficient, and new presentation and display forms and methods utilizing New Media have to be developed. Consequently, we have to re-consider whether the *officially* accepted digital competences are satisfactory especially in light of the prevalence of social applications. Thus the emergence of network-based learning, iTV and mobile devices (tablet machines, e-books) in the education process calls for a re-thinking of existing competence hierarchies along with preparing students to acquire network-based and/or *New Media aptitudes*.

This, however, does not only refer to the methodological aspects of device application, but to the examination of how the logic of data base and algorithms built up via the digitalization process can be applied to content arrangement and message transmission in addition to the traditional narrative perspective. Consequently, New Media requires the elaboration of new narrative technologies.

The 2.2 modular component of the TÁMOP-4.2.2. C project provides an opportunity to launch a sub-project titled: *New Media-based competences in the information transmission profession and the options provided by New Media*.<sup>16</sup> The sub-project explores consumer and user competences required in such aspects of the information profession as library informatics, (information management) motion picture culture and media studies, cultural heritage studies, and teacher training. Consequently the emergence of consumer content transforms the users into active shapers of media products and they become creators themselves.

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<sup>16</sup> A section of the 2.2 module component of the TÁMOP 4.2.2 project titled *New Media-based competences in the information transmission profession and the options provided by New Media* focuses on the knowledge, competences, and value orientation of students related to New Media. The questionnaire-based research carried out by Réka Racskó and PhD student Gyula Danyi utilizes the experiences gained during an experimental program incorporating network-based learning [HOFK1]

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The research program calls for exploring the competences needed for preparing tools and contents via analog devices ranging from media-alphabetization expectations via media competences to digital competences. Additional attention will be placed on the New Media competences for such network-based learning formats as iTV and mobile tablets. Such new learning scheme requires a methodological renewal in addition to a modification of perspective needed to be integrated into teacher training. The prerequisites of this paradigm shift are the libraries and librarians regarded to be the crucial institution and information brokers of the information society respectively, along with the motion picture culture and media studies instruction program.

While the research program aims at the investigation of the New Media skills surpassing the traditional ICT aptitudes, this problem can be approached from a methodological point of view as well. Teachers historically accustomed to traditional illustration and display devices based analog technology are not yet able to master new type e-learning formats. At the same time some Y generation teachers are already active participants of the digital age, either because they were born to it or due their youth they are aware of modern learner needs, or took part in e-learning based instruction or training schemes.

We are on the view that the role of producer-consumer competences required for productive functioning in the information society respective to the information-transmission profession should be explored among student partaking in teacher-training, library informatics (information manager), motion picture and media culture, and cultural heritage programs. New Media is not only a platform or device, but it has a significant role in impacting cognitive processes. This new learning format requires methodological renewal and the resulting innovations should be integrated into teacher training programs.<sup>17</sup>

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