

Academic Education in Era of Digital Culture

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Abstract:

The paper reports results of a theoretical research studying the academic education in the coming postindustrial society. The author proposes a conceptual model of a new educational system. The model represents the postindustrial academic education as a cultural space defined by three planes, which correspond to three emerging phenomena. These phenomena affecting the academic education are: a) Social Media as a new way of forming social consciousness; b) Personal Identity Online as a new way of forming personality, and c) Data Intensive Science as a new methodological paradigm. The three phenomena are considered to stem from evolution of three respective fields: knowledge acquiring, learning process, and science methodology. Relations are demonstrated between the trends and such emerging technologies as: Web 2.0, mobile computing and social computing. The postindustrial academic education, which actively uses social media, exists within abundance of various content, and stimulates the students' personal identity online – is actually a new type of education that should drastically change roles of both the teacher and the students.

Keywords: social media, personal identity online, data intensive science.

1. Introduction

Social media is traditionally defined as a plurality of Web applications supporting creating and exchange of user-generated content. Today, when the social media plays the significant role in social life of society, proposing a more general understanding to this phenomenon is necessary. We propose to consider the Social media as a cultural phenomenon, enhancing interpersonal communication and changing the nature of relationship between an individual and a society. Web 2.0, that is a technological basis of social media, provides possible forms of network activity such as social networks, blogs, forums, wikis, etc. Some of such activities become more and more popular in schools as base of new learning environment and the successful learning activity. One of such social media activities is so called personal identity on-line.

Western society, in general, and education, in particular, is evolving toward personalization. This personalization is strongly connected with the new phenomenon of Personal Identity On-line (PIO) that has been intensively studied in recent years [10]. The concept of PIO personifies a specific characteristic of an individual's behavior in a network environment, which manifests itself in a unique opportunity to form the individual's identity differently from that in reality. The world network opens up new opportunities for self-expression and for forming identity. The PIO is the form of personalization that typifies post-industrial learning environments [6].

We consider the social media as a cultural phenomenon, substantially intensifying and enhancing interpersonal communication and significantly altering the nature of the relationship between an individual and a society "personality-society". Note that the relationships "personality-personality" and "personality-society" are immediately perceived as simple and are unprecedentedly multifaceted. The simplicity of relationships/mutual connections is clearly seen in the availability of new communication tools (from mobile devices to social networking sites) for any level of the society, regardless of education, age, and economic status. Diversity of communication connections is a new phenomenon related, for example, to the above-mentioned phenomenon of PIO, and to the fact that an identity (a personality) in cyberspace can be perceived not only as a real person, but also as an "infosphere" directly associated with the person [6]. The infosphere of an individual consists of the memory of the discussed personality/individual, the memory about the personality and multiple media documents related to the personality, lifestyle, etc. Infosphere of an individual somehow exists and functions in the cyberspace, independently of the corresponding personality. It is clear that this has created a new media reality that, in our opinion, is the most important tool for

understanding the phenomenon of social media. In the era of social media, social consciousness is formed in accordance with new, previously unknown principles, thus establishing new goals in all public institutions. It is obvious that education is not an exception. In Web 2.0, the possible forms of network activity of modern students are extremely diverse. These forms include blogs and forums, social networks, wikis, etc.

Thus, the above two phenomena: the social media and the personal identity online determine new forms of an educational process and new learning environments.

The paper is organized as follows. Culturological basics of the recent trends in educational system are given in Section 2. After that, three recent phenomena: social media, personal identity on-line and data-intensive science are discussed in sections 3, 4, and 5 respectively. Conclusions are given in section 6.

2. Cultural trends of postindustrial education

One quite accepted presentation of human culture is in the form of so-called "three-dimensional space of culture" which is defined by the following three axes: a knowledge/cognitive axis, a regulations axis and a values axis (Karmin, 2003). The mentioned axes form there-between three plains corresponding to the following spheres of human culture: spiritual, social and technological (see Fig. 1).

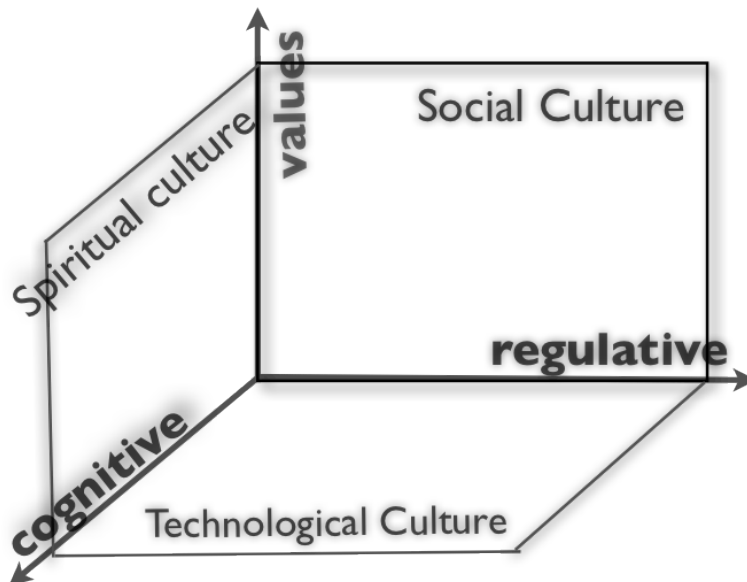


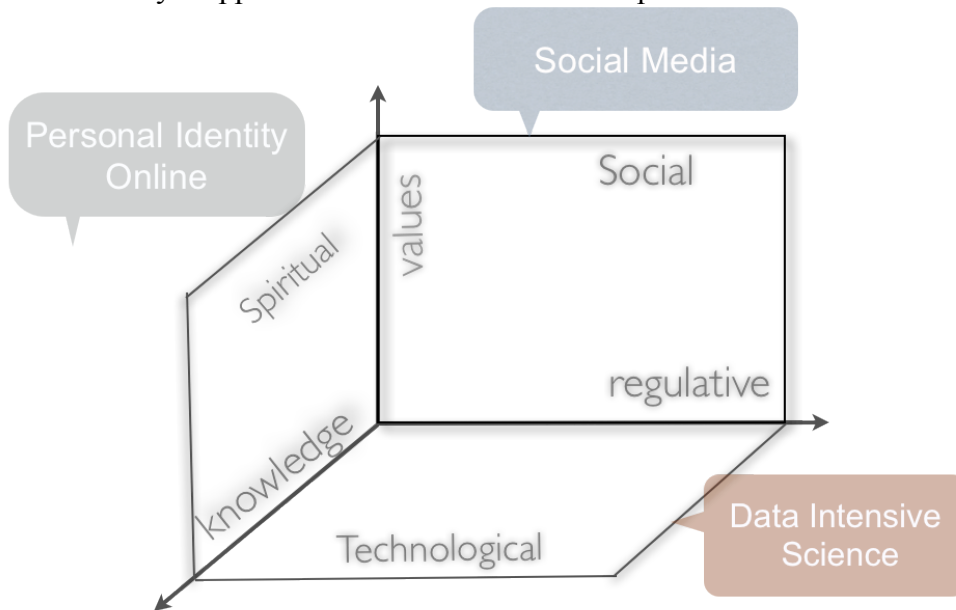
Figure 1. The culture space defined by three orthogonal axes: cognitive axis, values axis and regulations axis.

When speaking about the modern postindustrial stage of the society development, it seems very important to define the main trends and phenomena characteristic for each mentioned sphere of culture. The spiritual culture of the postindustrial society develops under strong influence of the phenomenon called Personal Identity On-line ([6], [10]). This phenomenon manifests a new way of forming a human identity, and that process takes place not only in reality but also in the virtual cyberspace (in the Internet). The cyberspace is the new place of events, which cause the most significant changes in the spiritual culture of the society. In the postindustrial society, personal identity is being formed differently than in the industrial society, which we were familiar with. The main difference is that a so-called info-sphere of a human being now exists in parallel to the human being himself/herself, and this info-sphere is a complex system of knowledge about that person, in other words a plurality of various data associated with that person.

In turn, social culture of the society exists today under effect of so-called *social media* [2]. The social media can be understood as a new form of social life of a person, which manifests itself in active presence of people in social networks or other computerized forms of communities. The

main importance of social media is in creation of new, unique infrastructure, which has begun affecting the social consciousness using new, unprecedented forms. In the postindustrial society, the dynamics of forming the social consciousness is being changed. In the close future, the social consciousness will be mainly formed in the web. In the new society, the social consciousness will be defined not only by the real social life/existence (as it was defined by the theory of historical materialism), but also and at the great extent by virtual social life/existence.

And finally, the technological culture presently develops under the powerful influence of a new scientific paradigm – Data Intensive Science ([7], [1]). That paradigm manifests the priority of technical and social communication in the process of scientific research, over the conventional accepted methodologies (i.e., the theoretical and empirical methodologies). Since each of the mentioned trends corresponds to a specific culture form/sphere, they may be schematically mapped into the above-discussed "space of culture".



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Figure 2. Cultural trends of digital culture

All the above-mentioned three trends form the new, web-based information reality [2]. In our opinion, these three trends, define the recent development of education. Without understanding the role and the place of the three mentioned trends (Data Intensive Science, Social Media and Personal Identity On-Line) we cannot answer these questions. Let us just look at one simple example. Ministry of education in a number of countries has prohibited for teachers and their pupils to become "friends in social networks". In our opinion it is a natural reaction of the traditional education system for self-protection. The conventional education system cannot survive in the new web-based reality; therefore it cannot allow equal web-based relations between teachers and pupils. However, the industrial society in general changes inevitably by passing to the new, mostly web-based state and causes shifts in all spheres of life, including education. The transition of the society into the new state is in the focus of the paper. Definitions of the above three phenomena are shown in Table 1.

The definitions are given in a dual form. Specifically, two types of definitions are presented: *neutral*, which is traditional, technology oriented, and *valued-laden*, humanitarian that corresponds to a spirit of the present paper.

Table 1. Definitions of the main trends of digital culture

	Neutral	Value-laden
Social Media	Use of Web applications supporting creation of user-generated content	New way of forming social consciousness
Data-Intensive Science	Data growing faster than technology	Fourth paradigm of science
Personal Identity Online	Ability of websites to distinguish one individual from another	Personal identity formed in cyberspace

3. Social Media

Social Media (SM) is a term used to define the tools and technologies, which emphasize the social aspect of the network as a channel of communication, sharing, expression and creativity [5]. SM is traditionally defined as a plurality of Web applications supporting the creating and exchange of user-generated content.

SM is intended to be a media built by humans for their own social needs, which means that the media is not intended for passing information managed by various entities, but for passing individual's information. In simple words, each person can bring his/her story to the network. In SM, the news reported by individuals often appears more quickly than those from professional communication entities.

In this paper, we give the SM phenomenon a more general, and even more spiritual understanding than it is presently accepted. We consider SM as a cultural phenomenon, enhancing interpersonal communication and changing the nature of relationship between an individual and a society. SM deals with constructing of a new type of collective consciousness in the society by creation of knowledge communities and supporting such factors as crowd sourcing and self-regulation.

The contemporary teaching process accompanied by the intensive entry of SM to classrooms takes place under conditions of the following three phenomena: interactivity, sociality and data intensive science learning. We will understand these terms as follows:

Interactivity - in the sense of mediating between people using and Influenced by their personal identity as it is formed in cyberspace, and defined as Personal Identity Online (PIO).

Sociality - in the sense of communities which are being raised around certain areas and performed a new way of forming social consciousness which is the value laden of SM.

Data intensive learning - in the sense of syndication (mash-up) and combining data from various web sites.

In the epoch of data growing faster than technology, social tools, ubiquitous computing and Web 2.0 environments allow the learner to adopt various researching and creative activities without overlooking the social dimension [3]. As school is a mirror image of society and education should move forward and adapt social and cultural trends that occur in the world [4]. It is necessary to create a new type of class, the class of the epoch of Social Media.

4. Personal Identity Online

PIO is the way of choosing how to present oneself as a personality in cyberspace. The concept of PIO personifies a specific characteristic of an individual's behavior in a network environment, which manifests itself in the form of a unique opportunity to form and exhibit the individual's identity differently than it is done in reality [9]. Personality is something that belongs to a person, a model that develops in his/her head, his/her individual identity and collective consciousness, which have evolved in certain places: society, family, culture.

In contemporary life, the division between online and offline is being erased [6]. The web-life is strongly entering normal life and greatly affects personality formation. The line between a real person (or the "offline" one) and his projection onto social networking sites (the "online" self) is becoming blurred and the most intimate thing that we can have - our own persons and our own selves - are being affected significantly by the technologies [8].

Self perception of an individual in the post-industrial society not only may change, but is already changing, and not only cognitively but also through behavior. An individual may formulate and often formulates his identity in a cyberspace differently than in real world. Each person creates his own infosphere during his life, by presenting knowledge about himself that he himself produced, by his thoughts and his memories. Many people are constructing their alternate personas online; social networks, which are assumed to be the place where one reveals oneself to others, are also being used in such a way as to present entirely new personae to the public [8]. Some people prefer using their real names while acting online, while others prefer to be anonymous, identifying themselves by means of pseudonyms that reveal varying degrees of personally identifiable information [10].

S. Papert [11] noted that personalization of the learning process is strongly connected with expressing and forming the learner's personal identity. From the educational point of view, the meaning of PIO comprises: a) subjectivity of knowledge - in the meaning of actively using personal knowledge that exists in one's mind, instead of using only/exclusively the commonly accepted objective resources of knowledge; b) personal knowledge and a personalized curriculum - instead of using a pre-structured, standard curriculum.

S. Papert emphasizes the intimacy of the educational process; he mentions that the personal component has always been to him not only an essential component of learning environments, but also an exclusive one. At the same time, pure virtual micro-worlds, when representing a highly personal learning environment, are often devoid of the most important component of education - the social component [9].

The Papert's constructionist approach to new education should combine its classical personal/intimate component with social learning activities. Recently, such activities are known in a form of collaboration within social networks. Actually, it means that humans of the new digital school will study and already study by creating social micro-worlds created in a form of a specific social learning activity.

5. Data Intensive Science

"Since at least Newton's laws of motion in the 17th century, scientists have recognized experimental and theoretical science as the basic research paradigms for understanding nature. In recent decades, computer simulations have become an essential third paradigm... As simulations and experiments yield ever more data, a fourth paradigm is emerging, consisting of the techniques and technologies needed to perform data-intensive science" [1].

Today, on the era of ubiquitous access to data, the process of acquiring new knowledge is changed significantly. Intensive growing of data being transferred to the cyberspace gives the birth to a new science research paradigm, so-called *fourth research paradigm*, which is the Data Intensive Science (DIS). New ways to produce, store and process data affect the manner of how scientists work, think, learn and collaborate. The speed at which any given scientific discipline advances depends on how well its researchers collaborate with one another and with technologists in areas of e-Science such as: databases, visualization and cloud computing [7]. Obviously, the new

paradigm of science research affects academic education. It relates not only to the style of teaching or to new learning activities and environments, but, which is much more significant, to the fundamental values of the academic education. Being formed in the Enlightenment era, and extremely intensively developed during the industrial epoch, traditional values of science are going to change. This emerging tendency should be studied deeply since its influence to the society, social consciousness in general, and to the educational system specifically, cannot be overestimated.

6. Conclusions

We live in a world where three fundamental phenomena: Social Media, Personal Identity Online and Data Intensive Science has acquired great importance. There is a strong correspondence between the phenomena and such emerging technologies as: Social computing, Web 2.0 and ubiquitous computing.

The postindustrial academic education, which exists in conditions of social media, abundance of various content, and which stimulates development of the students' personal identity online - is a new type of education that drastically change all its components: content, curriculum, learning environment, roles of both the teacher and the students.

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