



FORMATION OF BIOLOGY STUDENTS' SOCIAL SKILLS WITH USE OF ICT TOOLS

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Abstract

Contemporary society is called the Information Society or Knowledge-Based Society. Media have become not only the relays of information, but also the tools by which one may know reality and develop social skills (Chwaszcz at al., 2005). Thanks to the Internet the number of the interactive media and possibility of interpersonal communication, community-building and cooperation has increased. The change is mainly connected with the coming over mass media to the group media and from the sender's control to the receiver's control during the process of communication (Goban & Sienkiewicz, 1999). Cultural texts (films, advertising, music videos, and literature) are becoming an important factor of the process of association, organizing reality, interpreting and they are patterns of behavior, thinking and communication. Preparing for critical thinking and proper delivery of media messages, as well as the use of media as tools for communicating, learning, acquiring, storing and processing information is necessary. The main aim of medial education is the education capacity to perceive the processes of mass communication, using broader perspective, thus drawing attention to the selection processes of political, economic and social changes which create interpretive frame for the medial transfer (Ogonowska, 2003). The analysis of the skills' maps developed by U.S. organizations - the Partnership for XXI Century Skills and National Council for Social Studies (Now Education Foundation, 2008, Hamer 2008, 2010), was the starting point for the surveys conducted among students of biology – teachers to be. 100 biology students of Pedagogical University of Cracow participated in the research. The students evaluated the theoretical knowledge base of scientific communication and mediation as well as specific practical skills in order of their relevance and relationship between selected ways of popularization of science and the social skills improvement.

Key words: ICT- community- social skills – biology students

INTRODUCTION

The knowledge-based society is a partner the both: information revolution and economic globalization. Education, Science and Training has become a top priority in building this society. The growing importance of technical means which are present in the process of education make it necessary to expand the knowledge and skills of using these aids. Today the medial picture is suggestive and has an significant impact on many areas affecting the personality of the recipient. The media, it means: objects, equipment and materials are sources of specific information

(messages) through words, images and sounds, as well as giving the ability to perform the intellectual and manual activities (Krześniak, 1998). The media play a number of educational functions. Facilitation and speed of communication processes, in the sense of fast moving news and information, stimulate the development of man. They effectively promote the value systems, beliefs and attitudes, especially in children and adolescents. Communication often takes the form of interpretations of events conveyed by the media. They play with the receiver the specific game of encoding and decoding (Sokolowski, 2003) and shape the consciousness, not only by the availability of certain content, but also by the consolidation of these or other mental habits. Marshall McLuhan by examining the impact of media on man noticed that the form and communication medium is sometimes more important than the content (McLuhan, 2004). His concept of building a "global village" assumed that the development of new technologies dominated the world of man, particularly the role of the media in providing models, facilitating learning about the world, learning specific ways of seeing reality. Media because of the universality and permanence of the impact, largely determine the perception of the surrounding world and how to interpret different experiences. According to McLuhan (2004) relays an extension of the human sensory apparatus, allowing communication with the world and his experience. Noting the form and structure of media Marshall McLuhan proposed the thesis that 'the medium is the message'. This slogan was changed later in the term „the medium is massage”, the relay is massage, which emphasizes its impact not only intellectual but also physical.

Communication in education is often considered only as a tool, without drawing attention to the ways of scientific mediation and dialogue, communication and strategy skills to promote the transformation of problems and use of knowledge. Properly used communication tools should focus not only on the level of declarative knowledge, but also on influence on the competence of students. With the emergence of the Internet has increased the amount of interactive media and interpersonal ability to communicate (email, teleconference), community-building and cooperation. The change is connected with the transition from mass media to group media and the control exercised by the sender to the recipient control over the process of communicating (Goban & Sienkiewicz, 1999). Now, anyone who receives information is also the consumer and producer of information. Wikipedia questioned the position of the pattern of knowledge, which since its emergence was the encyclopedia written by experts, the Wikipedia is written and verified by her readers (Levinson, 2010). It is necessary to prepare for critical thinking and proper delivery of communications media, and also to use the media as tools for communicating, learning, acquisition, collection and processing of information. Mirzoeff (2003) identifies "visual culture" with the research relating to "visual events", in which a consumer is looking for information, meaning or pleasure provided with tools and visual technologies, specific objects: from the frescoes and oil paintings, through photography, film, TV, digital (multi)media to the Internet. In turn, Jenks (1995) is closer the social theory of visuality or sociology of visual culture, which seeks to develop its own methodology for isolating visuality from the senses and moving the focus to social and sociological issues with taking attention for identity (gender) and social interaction. The aim of medial education is to develop capacity to perceive the processes of mass communication, using broader perspective, thus drawing attention to the selection processes of political, economic and social changes which create interpretive frame for media (Ogonowska, 2003). Media have become not only relays of information, but also the tools with which is possible to explore the reality and to develop social skills (Chwaszcz et al, 2005).

Social competence are determined by a number of basic skills and abilities. According to Argyle

(2002) social skills are the patterns of social behavior. Social skills are the aspect of social competence, which consist of the knowledge, understanding, contributing to the growth of social achievements. The effectiveness of the impacts on others to behave in accordance with our goals and expectations is a basis of the social competence definition. For biology teachers, such ability is helpful e.g. in shaping pro-environmental attitudes. These skills are reflected in the map of twenty-first century social skills developed by the Partnership for 21st Century Skills in collaboration with the National Council for Social Studies. The map contains a directory of social skills that were deemed necessary for full operation in the twenty-first century societies (Partnership for 21st Century Skills in collaboration with the National Council for Social Studies, Washington, 2008). It is entered in a number of areas of competence connected with the creativity and innovation activities, the development of critical thinking and problem solving, communication, cooperation within the group, information and media literacy, or the efficiency of using the tools of ICT. Analysis of the maps of social skills (Education Now Foundation, 2008, Hamer 2008, 2010) was the starting point for the survey conducted among students-future teachers of biology.

METHOD

The objectives of the research was: /1/ to determine the function of social communication and mediation with use of ICT in education of students - future teachers in the field of biology and environmental knowledge, /2/ to determine the relation between selected, medial means of scientific knowledge and biology students' social competence, /3/ to determine the influence of iconic messages on students' attitudes and awareness towards biology and environmental protection problems.

The following research hypotheses were assumed: /1/ Information technology and the resources of information available to students play an important role in the formation of mediation and communication skills of future biology teachers. /2/ Media significantly shape the awareness and social skills through their largely semantic features including e.g. expression, symbolization and representing. 100 students of Pedagogical University, participated in the environmental workshops and survey. Respondents evaluated the theoretical knowledge of the basics of scientific communication and mediation, and specific practical skills in order of relevance, then determine relationships between selected means of scientific knowledge and the improvement of selected competencies.

RESULTS

Hypothesis 1. Students' activity during workshops was noticed in particular while integrating knowledge from the media and undertaking action in order to cognize or deepen knowledge of facts and rules on the way to problem solving, classifies data, verifying content structure and performing preliminary organization of information. Students had undertaken the discussions in social network and they were willing to improve they competence in this area. The tasks requiring skills of argumentation have been quickly solved, creating information in accordance with the media theories and questioning were less interesting for students.

Cooperative learning and problem solving gave possibility of analysis of alternative solutions and discussing on quite different concepts. Finally, the students accepted the concepts which were

more close to the new media experiences. On the basis of the new experiences, they have prepared the conceptual maps (FreeMind program). During it they ask about the reason for different biological phenomenon and environmental problems.

Analysis of respondents knowledge about the theoretical foundations of scientific communication and mediation has shown that most of students defined the highest degree of usefulness of methods of communication (36%), types of communication (information, persuasive) (32%), attributes and rights of the media (27%), followed models and methods of mediation (20%), models of communication (17%), education of the public debate (14%), media theories (8%). The survey connected with the practical skills show that the most important for students are: matching appropriate strategies with ICT in biology and environmental education (40% of respondents), matching of representative examples from the media (37%), creation of medial scientific messages (26%), methods and forms of education to dialogue (22%). Subsequently, it was considered most useful for analyzing the message intentions (21%), analyzing the message in terms of scientific accuracy (20%), and the dissemination of scientific knowledge by selected media (13%).

In assessing the relationships between selected means popularization of scientific problems, and improve the competence of selected respondents also used a six-scale, where 1 meant the weakest link, and 6 the strongest relationship. Most students found that the most potent compound (29%) have a knowledge about the educational function of modern spaces (museums, environment), 26% of respondents identified the highest degree of ability to use culture to promote the images of selected ideas, 22% of respondents indicated the importance of understanding the different forms of media selected educational content, followed by deepening knowledge of the communication space (15%) and knowledge of the selected message and knowledge of certain iconographic and social function (12%).

Hypothesis 2. During workshops, media offered some of the best opportunities of engaging students in authentic learning. The survey research show that the most popular for student is iconic transfer as the most quickly and powerful (62%). This kind of information is the most representative for the rest students participating in the research. The texts and statistic data have not been chosen by all of them. As far as iconic message is concerned, the survey research gave possibility of analysis of the students' subject knowledge. Almost 50% of respondents know nothing about the ecological organizations and their symbols in the media. In their opinion the organizations connected with the environmental activity don't use suitable method of communication with the society for mediation the science and social problems and their negotiation. Only the pictures which were known by students (23%) were well interpreted but they had influence only for students declarative attitudes toward social and environmental phenomena, they are not willing to undertake some activity e.g. for sustainable development. The research allows the statement that students verify their hypotheses, in accordance with mass media aided. Meanwhile, in spite of quick increase in knowledge and the huge progress in field of biological research, hot medias including iconic medias provide students with ready information containing elements not requiring decoding, simple images do not leave the place for freedom of interpretation and analyzing the different aspects and points of view.

DISCUSSION

The development of ICT impact on their users and shapes contemporary culture which consists primarily iconic texts for which the basic material is an image. They are a source of a variety of learning experiences. Shape the attitudes of media products to their customers, providing them with patterns of language, aesthetic, axiological, often imposing their own media authorities and the specific communication situation for themselves (Ogonowska, 2010). A new type of language and form in the transmission of information is related to the rapid development of mass communication. Currently, a shift from verbal to iconic language, based not on words but on the image. In this perspective, reality is given in these dimensions, which are associated with feelings and impressions of the man. He is then convinced that affects real events or phenomena, not a substitute for them in the form of intellectual imagination, stimulated by the words. Means of social communication have a major impact on today recipient because he sees the world through concrete images instead of abstract intellectual processes. Iconic language focuses on the details and particulars, teaches analysis, provokes the development of institution.

Research has shown that media images of reality affect the same reality by defining and imposing its representation. Reality loses its status of a real reference point in the confrontation with the media images. Increasingly, the image is not true, but its aesthetic value and attractiveness, and availability are the primary criterion for making such comparisons. The subject of the confrontation are themselves products of the media, not reality extratextual to which they refer. Because of this media culture should become a starting point in the learning process and construct curricula (Ogonowska 2003, 2010). Because of the possibility of supporting education and awareness to develop iconic communication varied of the world began to pay increasing attention to teachers. The message can also be used iconic in a number of issues including education for biodiversity. This is the kind of education aimed at developing a sensitive viewer, emotive, operating a number of means of artistic, beautiful Delightful shots, color, light (Kalinowska, 2008). Thanks to the ubiquity of media through which the message reaches the audience iconic, increases ease of shaping scheme affecting the thinking and action. Mass culture industry provides a ready-made patterns of customers so they can give meaning to the world surrounding them and the existing reality of social relations. Provides any particular social group, a complete set of meanings and identities, creating needs and satisfying them (Italy, 2009, Jesiółkowski, 2009). Improving students social skills is a prerequisite for the development of education in shaping the direction of media audiences who will be responsible to create reality.

CONCLUSION

Development assumes consideration of social and civilization transformations. Hence the need to highlight the impact of education to the reality of social. Electronic media multiply experience and thus constitute an important part of educational environment. The phenomenon of knowledge transfer must be perceived in a complex manner and transformed due to the changing motivations, ways of information reception and mechanisms affecting the content interpretation (numerous patterns of behavior, transience of views, instability of systems). The computer network is visual representation of human, thanks to speed of transfer students have deep conviction about participation in creating social life. Fast progress of biology sciences broadens the area of lack of knowledge. Students – teachers to be are aware, that knowledge which they will acquire in the

course of studies will soon be out - of - date. Mass media extend their senses, but instead of their participations in life they offer a feeling of 'second hand life'. Treating the media as centres of collective activity and improve certain communication skills, the students are not willing to take real action, for example, in order to protect the environment. The communication and mediation competence (social skills) created during work with the media are not used in the real life situations.

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